Test Area C-53
Range Environmental Assessment for High Speed Flare Test Track at Eglin Air Force Base, Florida

Contract No. FA2823-19-Q-4035

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Environmental Planning Office
Eglin Air Force Base, Florida

May 2020
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Test Area C-53 Range Environmental Assessment for High Speed Flare Test Track at Eglin Air Force Base, Florida

Lead Agency: Eglin Air Force Base (AFB) 96 Test Wing

Title of Proposed Action: Test Area C-53 Range Environmental Assessment for High Speed Flare Test Track

Project Location: Eglin AFB, Florida

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Document Type: Range Environmental Assessment

Date: May 2020

The Air Force is aware of the potential impact of the ongoing coronavirus (COVID-19) pandemic on the usual methods of access to information and ability to communicate, such as the mass closure of local public libraries and challenges with the sufficiency of an increasingly-overburdened internet. The Air Force seeks to implement appropriate additional measures to ensure that the public and all interested stakeholders have the opportunity to participate fully in this Environmental Assessment process. Accordingly, please do not hesitate to contact us directly at the email address or telephone number provided above; we are available to discuss and help resolve issues involving access to the Draft EA and Proposed FONSI or the ability to comment.
Abstract

In support of their developmental test and evaluation mission, the United States Air Force proposes to provide capability to evaluate flare performance through the activation of Test Area (TA) C-53 and installation and operation of a High Speed Flare Test Track (HSFTT), associated measurement instrumentation, and support infrastructure on 209 acres of TA C-53. This Proposed Action includes clearing up to 194 acres of vegetation on existing range land and maintaining vegetation at or below 3 feet above ground level to maintain instrument line-of-sight for effective evaluation of conventional and kinematic flare testing.

This Range Environmental Assessment analyzes the potential environmental impacts associated with activating the range, constructing the HSFTT, and operating flare tests. As required by the Council on Environmental Quality regulations, this assessment also analyzes the No Action Alternative. The following resource areas were reviewed for potential impacts from the Proposed Action: biological resources (including vegetation, wildlife, aquatic/wetland habitats, and special status species); geology and soils; coastal zone management; water resources (including floodplains, surface water, and groundwater); cultural resources; safety; hazardous materials and waste, toxic substances, and contaminated sites; and air quality. No significant impacts are anticipated.
# Table of Contents

Acronyms and Abbreviations .................................................................................................................. v

## CHAPTER 1 Purpose and Need for the Proposed Action ................................................................. 1-1

1.1 Introduction .................................................................................................................................. 1-1

1.1.1 Eglin Air Force Base........................................................................................................... 1-1

1.1.2 Test Area C-53 ............................................................................................................. 1-3

1.1.3 High Speed Flare Test Track ................................................................................... 1-3

1.2 Purpose and Need ..................................................................................................................... 1-4

1.3 Environmental Review Process ............................................................................................. 1-4

1.3.1 Organization of the Range Environmental Assessment ........................................ 1-4

1.3.2 Public and Agency Participation ............................................................................. 1-5

1.3.3 Regulatory Requirements and Permits .................................................................. 1-5

## CHAPTER 2 Description of the Proposed Action and Alternatives ........................................... 2-1

2.1 Proposed Action ....................................................................................................................... 2-1

2.1.1 Construction ................................................................................................................. 2-1

2.1.2 Site Preparation and Maintenance ........................................................................... 2-5

2.1.3 Operation ..................................................................................................................... 2-9

2.2 Alternatives ............................................................................................................................ 2-10

2.2.1 Alternatives Screening Criteria .................................................................................. 2-10

2.2.2 Alternatives Considered but Eliminated from Further Analysis ................. 2-11

2.2.3 Alternatives Carried Forward for Further Analysis ............................................. 2-14

2.3 Comparison of Alternatives .................................................................................................. 2-14

## CHAPTER 3 Affected Environment, Environmental Consequences, and Cumulative Impacts .......................................................................................................................... 3-1

3.1 Region of Influence / Study Area .......................................................................................... 3-1

3.2 Measuring Environmental Impacts ........................................................................................ 3-1

3.3 Resources Eliminated from Further Analysis ..................................................................... 3-2

3.3.1 Airspace ....................................................................................................................... 3-2

3.3.2 Land Use ....................................................................................................................... 3-3

3.3.3 Visual Resources and Aesthetics .............................................................................. 3-4

3.3.4 Noise ............................................................................................................................. 3-4

3.3.5 Transportation and Traffic ..................................................................................... 3-5

3.3.6 Socioeconomics and Environmental Justice, including Protection of Children .......................................................................................................................... 3-5

3.3.7 Public Services and Utilities ..................................................................................... 3-6

3.3.8 Recreation ................................................................................................................... 3-7
3.4 Resources Considered in this REA

3.4.1 Biological Resources

3.4.2 Geology and Soils

3.4.3 Coastal Zone Management

3.4.4 Water Resources

3.4.5 Cultural Resources

3.4.6 Safety

3.4.7 Hazardous Materials and Waste, Toxic Substances, and Contaminated Sites

3.4.8 Air Quality

CHAPTER 4 Management Policies and Practices

4.1 Management Actions

4.2 Mitigation Measures

4.3 Terms and Conditions of Consultations

CHAPTER 5 List of Agencies, Preparers/Contributors, and References

5.1 Agencies Consulted

5.2 Preparers and Contributors

5.3 References

Appendices

Appendix A Public and Agency Participation

Appendix B Detailed Alternatives Analysis for Siting HSFTT on Alternate Eglin AFB Ranges

Appendix C Biological Assessment

Appendix D Coastal Consistency Determination

Appendix E Section 106 Consultation
Figures

Figure 1-1 Location of Test Area C-53 ................................................................. 1-2
Figure 1-2 High Speed Flare Test Track Flight Operations ............................ 1-3
Figure 2-1 Proposed Action Area ...................................................................... 2-2
Figure 2-2 Proposed HSFTT Site Plan ................................................................. 2-3
Figure 2-3 Generic Dimensional Requirements for Proposed HSFTT Construction and Maintenance Footprint ......................................................... 2-7
Figure 2-4 Vegetation Height Requirements ....................................................... 2-8
Figure 2-5 Eleven Potential Alternative Sites for the Establishment of an HSFTT on Eglin AFB ............................................................... 2-13
Figure 3-1 Vegetative Communities Within the Proposed Project ROI .......... 3-10
Figure 3-2 Erosion Control Component Plan Sites (Eglin AFB 2018) .............. 3-20
Figure 3-3 Proposed Action Area Hydrologic Connection to Coastal Resources .... 3-22
Figure 3-4 Water Resources Within the Proposed Project ROI ....................... 3-27

Tables

Table 1-1. REA Organization ............................................................................. 1-4
Table 2-1. Summary of Proposed Action Construction Footprint .................... 2-1
Table 2-2. Flare Types and Quantities to be Dispensed Under the Proposed Action .................................................................................. 2-9
Table 2-3. Summary of Environmental Impacts to Resources Considered in REA 2-15
Table 3-1. Available Hunting on Eglin AFB .................................................... 3-8
Table 3-2. Vegetative Communities Within the Region of Influence for the Proposed Action ........................................................................ 3-9
Table 3-3. Potential Occurrence of Special Status Species within the Region of Influence for the Proposed Action .................................................................................. 3-12
Table 3-4. Water Resources Within the Region of Influence for the Proposed Action 3-26
Table 5-1. List of Preparers .............................................................................. 5-1
Table B-1. Relative Suitability of Proposed HSFTT, Sites Ranked 1 through 6 (Best to Worst) ................................................................................. 5
This page intentionally left blank
## Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFB</td>
<td>Air Force Base</td>
</tr>
<tr>
<td>AFI</td>
<td>Air Force Instruction</td>
</tr>
<tr>
<td>AGL</td>
<td>Above Ground Level</td>
</tr>
<tr>
<td>APE</td>
<td>Area of Potential Effect</td>
</tr>
<tr>
<td>ATC</td>
<td>Air Traffic Control</td>
</tr>
<tr>
<td>BMPs</td>
<td>Best Management Practices</td>
</tr>
<tr>
<td>C</td>
<td>Candidate (for listing under the ESA)</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act</td>
</tr>
<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>DoD</td>
<td>Department of Defense</td>
</tr>
<tr>
<td>DERP</td>
<td>Defense Environmental Restoration Program</td>
</tr>
<tr>
<td>E</td>
<td>Endangered (listed under the ESA)</td>
</tr>
<tr>
<td>EAFBI</td>
<td>Eglin Air Force Base Instruction</td>
</tr>
<tr>
<td>ERP</td>
<td>Environmental Resources Permit</td>
</tr>
<tr>
<td>ESA</td>
<td>Endangered Species Act</td>
</tr>
<tr>
<td>FAA</td>
<td>Federal Aviation Administration</td>
</tr>
<tr>
<td>FDEP</td>
<td>Florida Department of Environmental Protection</td>
</tr>
<tr>
<td>FE</td>
<td>Federally Endangered</td>
</tr>
<tr>
<td>FONSI</td>
<td>Finding of No Significant Impact</td>
</tr>
<tr>
<td>FT</td>
<td>Federally Threatened</td>
</tr>
<tr>
<td>FWC</td>
<td>Florida Fish and Wildlife Conservation Commission</td>
</tr>
<tr>
<td>HAPs</td>
<td>Hazardous Air Pollutants</td>
</tr>
<tr>
<td>HM</td>
<td>Hazardous Materials</td>
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<tr>
<td>HSFTT</td>
<td>High Speed Flare Test Track</td>
</tr>
<tr>
<td>HW</td>
<td>Hazardous Wastes</td>
</tr>
<tr>
<td>ICRMP</td>
<td>Integrated Cultural Resources Management Plan</td>
</tr>
<tr>
<td>INRMP</td>
<td>Integrated Natural Resources Management Plan</td>
</tr>
<tr>
<td>MTV</td>
<td>Magnesium, Teflon, Viton</td>
</tr>
<tr>
<td>N</td>
<td>Not listed (under the ESA)</td>
</tr>
<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>NHPA</td>
<td>National Historic Preservation Act</td>
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<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
</tr>
<tr>
<td>P</td>
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<tr>
<td>PA</td>
<td>Programmatic Agreement</td>
</tr>
<tr>
<td>RA</td>
<td>Restricted Area</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
</tr>
<tr>
<td>REA</td>
<td>Range Environmental Assessment</td>
</tr>
<tr>
<td>ROI</td>
<td>Region of Influence</td>
</tr>
<tr>
<td>Acronym</td>
<td>Definition</td>
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<td>---------</td>
<td>------------</td>
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<tr>
<td>ROW</td>
<td>Right-of-Way</td>
</tr>
<tr>
<td>SHPO</td>
<td>State Historic Preservation Office</td>
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<tr>
<td>T</td>
<td>Threatened (listed under the ESA)</td>
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<tr>
<td>TA</td>
<td>Test Area</td>
</tr>
<tr>
<td>U.S.</td>
<td>United States</td>
</tr>
<tr>
<td>USACE</td>
<td>United States Army Corps of Engineers</td>
</tr>
<tr>
<td>USAF</td>
<td>United States Air Force</td>
</tr>
<tr>
<td>USC</td>
<td>United States Code</td>
</tr>
<tr>
<td>USFWS</td>
<td>United States Fish and Wildlife Service</td>
</tr>
<tr>
<td>UXO</td>
<td>Unexploded Ordinance</td>
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CHAPTER 1

Purpose and Need for the Proposed Action

1.1 Introduction

In support of their developmental test and evaluation mission, the United States Air Force (USAF) proposes to provide capability to evaluate flare performance through the activation of Test Area (TA) C-53 and installation and operation of a High Speed Flare Test Track (HSFTT), associated measurement instrumentation, and support infrastructure on TA C-53 at Eglin Air Force Base (AFB).

The USAF has prepared this Range Environmental Assessment (REA) to analyze the potential environmental impacts of the Proposed Action in accordance with the National Environmental Policy Act (NEPA) of 1969 (Title 42, United States Code [USC], Section 4321 et seq.), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508); Department of the Air Force Environmental Impact Analysis Process (32 CFR Part 989), and other relevant Department of Defense (DoD) directives. The objective of this REA is to provide sufficient analysis to determine whether a Finding of No Significant Impact (FONSI), a decision to prepare an Environmental Impact Statement, or no action is warranted.

1.1.1 Eglin Air Force Base

The larger Eglin Military Complex includes 70 specific Test Areas over 724 square miles and contains 120,000 square miles of overwater airspace, covering the eastern third of the Gulf of Mexico from the Florida panhandle to the Florida Keys. Eglin AFB is a subset of the Complex, and includes land ranges over 464,00 acres (approximately 70 square miles) of Santa Rosa, Okaloosa, Walton, and Gulf counties and associated Restricted Area (RA) airspace in northwestern Florida (Figure 1-1). Eglin AFB provides critical mission support functions including research, development, testing, and evaluation of weapons and electronics systems as well as supporting air and ground training for all branches of the U.S. Armed Forces.

The 96 Test Wing is Eglin's host wing, providing essential base operating support and services for nine wings and wing equivalents, 10 operating locations, five detachments, and 34 associate units. The mission of the 96 Test Wing is to execute developmental test and evaluation enabling the warfighter to put weapons on target in all battlespace media while also providing support for all other Team Eglin missions as the host wing. Eglin deploys combat ready forces while delivering full spectrum support to the DoD's second largest test and training complex.
Chapter 1: Purpose and Need for the Proposed Action

Figure 1-1. Location of Test Area C-53
1.1.2 Test Area C-53

Test Area C-53 encompasses 1,341 acres (2.1 square miles) on the east side of the Eglin Reservation (Figure 1-1). The TA was used as a gunnery range during World War II and supported personnel training and weapons testing and evaluation during the early 1950s to 1965. While its early development and historic uses have always been to support Eglin test and training activities, TA C-53 is currently deactivated and is designated as idle and reserved for future missions. The land currently contains a number of concrete pads, towers, and other infrastructure that are not actively managed or maintained. Habitats on TA C-53 are subject to activities prescribed in the Eglin AFB Integrated Natural Resources Management Plan (INRMP) (USAF 2017), and several units have been managed for timber extraction. Portions of the TA are open to outdoor recreation.

1.1.3 High Speed Flare Test Track

A HSFTT consists of two towers with joining cables that define the track for the flare dispensing payload (Figure 1-2). The payload traveling the cable track uses high-pressure steam propulsion to achieve the speeds required for realistic testing scenarios.

![Figure 1-2. High Speed Flare Test Track Flight Operations](image)

A HSFTT is used for testing of all flares, including both conventional and kinematic flares. As opposed to conventional flares that use pyrotechnics and gravity to lure infrared-guided missiles away from aircraft, kinematic or thrusted flares are technologically equipped to self-propel along specific trajectories that mimic, and thus protect, the targeted aircraft. Flares consist primarily of
magnesium, Teflon, and Viton (MTV) pyrotechnic compositions and pyrophoric (activated iron that rusts away) foils. Flares are usually fully consumed during use leaving minimal fallback debris after burnout, but may release fluorine, chlorine, nitrogen, magnesium, boron, carbon, or hydrides of metals and phosphorus in various states of oxidation or reduction, depending on how complete the combustion process is.

1.2 Purpose and Need

The purpose of the Proposed Action is to provide capability to evaluate flare performance in a rapid and repeatable setting. The proposed HSFTT provides this capability by serving as a test-bench for flare lot acceptance and testing of experimental flares, including replicating flight conditions and providing the flare signature measurement instrumentation suite necessary to acquire flight-test relevant data early in the flare testing process. The proposed HSFTT and instrumentation suite would enable observers to identify dispensing issues and ignition problems and would provide observers the ability to track flares from dispensation through burnout.

The Air Force requires the testing capability necessary to conduct engineering-based evaluation of flare performance, and the Proposed Action is needed to support the 96 Test Wing primary research, development, testing, and evaluation of weapons and electronics systems mission as described in Section 1.1.1.

1.3 Environmental Review Process

1.3.1 Organization of the Range Environmental Assessment

This REA is organized with the goal to provide a reader-friendly document that presents an in-depth, accurate analysis of the Proposed Action; Alternatives, including the No Action Alternative; and their potential environmental consequences. Organization of this REA is presented in Table 1-1. Appendices provide further technical details as warranted and records pertaining to agency and public involvement.

<table>
<thead>
<tr>
<th>Chapter 1</th>
<th>Purpose and Need for the Proposed Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 2</td>
<td>Description of the Proposed Action and Alternatives</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>Affected Environment, Environmental Consequences, and Cumulative Impacts</td>
</tr>
<tr>
<td>Chapter 4</td>
<td>Management Policies and Practices</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>List of Agencies, Preparers/Contributors, and References</td>
</tr>
</tbody>
</table>
1.3.2 Public and Agency Participation

In developing a public involvement strategy, the USAF considered a number of factors including the magnitude of potential environmental effects and the extent of public interest in activities at Eglin AFB. The USAF invites public participation in the evaluation of the Proposed Action through the NEPA process as open communication of perspectives and information between all interested persons enables more prudent and effective decision-making.

This draft REA is submitted to the Florida State Clearinghouse. Appendix A of the Final REA will include the REA distribution list, copies of agency comments, and USAF responses.

The public will have 30 days to comment on the Draft REA. Notification of the Availability of the Draft REA shall be provided in the Northwest Florida Daily News. The Draft REA will be made available on the following webpage: https://www.eglin.af.mil/About-Us/Eglin-Documents/.

After the consideration of all comments received during the public comment period, the USAF will make a determination whether a FONSI is warranted and to move forward to implement the Proposed Action as evaluated in the REA, or whether further evaluation under an Environmental Impact Statement or no action is necessary. An advertisement of the Notice of Availability of the Final REA and FONSI (if applicable) will be placed in the Northwest Florida Daily News.

1.3.3 Regulatory Requirements and Permits

Implementation of the Proposed Action would require compliance with various regulations specific to each resource, and these details are further discussed in the relevant resource sections of Chapter 3. Permits that may be required in association with implementation of the Proposed Action include:

- National Pollutant Discharge Elimination System (NPDES) Construction Permit
- Clean Water Act Section 401 Water Quality Certification
- Florida Department of Environmental Protection (FDEP) Environmental Resource Permit (ERP)
CHAPTER 2

Description of the Proposed Action and Alternatives

2.1 Proposed Action

The Proposed Action includes the activation of 194 acres of the northeast portion of TA C-53; the installation of a HSFTT and associated measurement instrumentation and support infrastructure; the ongoing operation of the HSFTT; and the continual maintenance of TA C-53 as required to safely and effectively evaluate flare performance (Figures 2-1 and 2-2). Note that the entire Proposed Action construction footprint would affect up to 209 acres, 194 acres of which fall within the existing boundaries of TA C-53.

2.1.1 Construction

The total length of the flare test track is 4,253 feet, including 3,000 feet for the HSFTT, 500 feet beyond each track terminus for cables, and 253 feet of utility easements and other setup requirements. Associated construction requirements include the following connected actions (Table 2-1):

<table>
<thead>
<tr>
<th>Construction Element</th>
<th>Dimensions (feet)</th>
<th>Area (square feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Towers</td>
<td>21 (start) and 200 (end) AGL</td>
<td>N/A</td>
</tr>
<tr>
<td>Start Tower Concrete Pads</td>
<td>2 at 15 x 20</td>
<td>600</td>
</tr>
<tr>
<td>Start Tower Concrete Anchor Pad</td>
<td>1 at 22 x 20</td>
<td>440</td>
</tr>
<tr>
<td>End Tower Concrete Anchor Pad</td>
<td>1 at 22 x 20</td>
<td>440</td>
</tr>
<tr>
<td>End Tower Concrete Footer</td>
<td>1 at 20 x 20</td>
<td>400</td>
</tr>
<tr>
<td>Instrumentation Concrete Pads</td>
<td>6 at 20 x 20</td>
<td>2,400</td>
</tr>
<tr>
<td>Control Van Concrete Pad at Start Tower</td>
<td>1 at 20 x 20</td>
<td>400</td>
</tr>
<tr>
<td>Water Storage Tank Gravel Pad at Start Tower</td>
<td>1 at 15 x 15</td>
<td>225</td>
</tr>
<tr>
<td>Power Line and Associated Right-of-Way (ROW), including Well and Water Conveyance System</td>
<td>40 ft wide ROW easement following roadbed</td>
<td>120,080 (2.76 acres)</td>
</tr>
<tr>
<td>Unpaved Access Roads</td>
<td>3,002 x 20 east 3,740 x 20 west</td>
<td>60,040 (1.38 acres) 74,800 (1.72 acres)</td>
</tr>
<tr>
<td>Perimeter Fencing</td>
<td>12,800 linear feet</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Figure 2-1. Proposed Action Area
Chapter 2: Description of the Proposed Action and Alternatives

Figure 2-2. Proposed HSFTT Site Plan
Towers. The design of the HSFTT is adapted from a ground-based test track that is currently in operation elsewhere. The flares on the original design eject 25 feet into the air and completely burn out before landing; however, the design of the HSFTT at Eglin will have a dispense point 50 feet above ground level (AGL), therefore increasing the time for burnout. The start tower would be 21 feet tall AGL and the end tower 200 feet AGL. The test track would be oriented in an east-west configuration, with camera pad locations north and south of the fixture to maximize visibility during daylight and nighttime hours. The test track is a permanent fixture; however, cabling between towers could be de-tensioned, lowered, and stored during major storm events.

Concrete Pads. Concrete pads would be constructed as follows:

- Two 15-foot by 20-foot concrete pads at start tower
- One 22-foot by 20-foot concrete anchor pad at the start tower
- One 22-foot by 20-foot concrete footer at the end tower
- One 22-foot by 20-foot concrete anchor pad at the end tower
- Six 20-foot by 20-foot concrete pads for instrumentation along the Instrument Observation Area
- One 20-foot by 20-foot concrete pad at the start tower for the control van

Access Roads. Approximately 3,002 linear feet of new, unpaved road would be constructed to provide access to the HSFTT to the east and 3,740 linear feet of new, unpaved road would be constructed providing access to the west. New roads would be established in accordance with *Eglin AFB Road Management Plan and Workshop* and USACE Special Report 92-26, *Unsurfaced Road Maintenance Management* (Eglin AFB 1998). Roads would be approximately 20-feet wide and would not require the establishment of ditch, swale, or other drainage feature adjacent to the roadbed unless recommended or required through the FDEP ERP permitting process. These access roads would restore previously established TA C-53 roadways as much as possible; immediately tie into existing, unpaved Range Roads and the greater Eglin AFB transportation network; and would not include stream or wetland crossings. Unpaved vehicle pathways would also be established throughout the Instrument Observation Area to access the concrete pads. No root raking or grubbing would be required for road construction in any location, and access roads will not be compacted or filled. Where necessary, vegetation would be cut and rutted areas amended with clay as they occur over time. Final design and location of access roads is not known at this time, but a 200-foot study area envelope is analyzed around notional routes (both inside and outside of the Instrument Observation Area) to capture the potential impacts of any onsite alterations as the roads are constructed as well as potential impacts of utilities that would be installed to follow the roadways.
Utilities. Providing utilities to the site includes provision of both power and water to support the execution of testing activities. No office, control, or bathroom facilities are currently proposed (temporary bathroom facilities would be brought in for the duration of testing events). Provision of utilities includes the following actions:

- Connecting to the power grid system currently located along the north side of TA C-53 and Range Road 200 and installing a power connection at the start and end towers of the sled fixture and instrument pads. Power will be required at each of the instrumentation pads, requiring burial of 220V 3-phase power and power panel installation or installation of power line and poles along the boundary of the Instrument Observation Area. Extended and/or installed power lines would require a 40-foot-wide easement and would generally follow the route of existing and new roads. A 200-foot study area envelope is analyzed around notional road routes to capture the potential impacts of any onsite alterations as the roads are constructed as well as potential impacts of utilities that would be installed to follow the roadways.

- Installing a water well, routing water lines to the start tower, and constructing a 15-foot by 15-foot gravel pad at the start tower for the placement of a water storage tank. This water would be cleaned and filtered, but does not necessarily need to be potable to support testing operations. Testing operations may require the consumption of up to 2,500 gallons per day to support the high-pressure steam propulsion system at the HSFTT.

Perimeter Fencing. Barbed-wire/concertina fencing would be installed around the perimeter of the Instrument Observation Area (approximately 12,800 linear feet). Appropriate informational and warning signs would be posted and the area closed to non-authorized persons.

2.1.2 Site Preparation and Maintenance

The Region of Influence (ROI) for this Proposed Action is 4495.5 acres (7 square miles), which would be divided into three separate areas dependent on the specifications of the flare manufacturers, vegetation management requirements pertaining to risk of fire from flare deployment, and line-of-sight constraints from observation pads. The total direct Proposed Action construction area (209 acres) includes the Minimum Safety Buffer (30.4 acres), Instrument Observation Area (163.6 acres), and access road and utility corridors (15 acres). Flare safety area dimensions and risk specifications are the outcome of multiple resources, including HSFTT and flare manufacturers’ documents, engineering data from test events, and laboratory analysis. Specific performance parameters and make-up of the flares are considered sensitive or classified information thus are not included in this project file. Planning-level calculations specific to the proposed HSFTT activity on Eglin were communicated by Moroni Cummings, USAF Expendable Countermeasures Special Programs Office, to Jason McDonald, Eglin AFB, in January, 2020.

Minimum Safety Buffer (30.4 total acres). A minimum safety buffer of 200 feet horizontally offset from the 3,000-foot HSFTT track would be established and maintained vegetation-free with
dirt/sand or gravel substrate to reduce risk of fire from flare deployment immediately beneath and surrounding the track (Figure 2-2 and 2-3). Establishing the Minimum Safety Buffer area entails commercial timber harvest followed by cutting trees and other remaining vegetation, and debris would be mulched and spread across the Instrument Observation Area (see below). Ninety-nine percent of all the flares are expected to burn out over or land within the Minimum Safety Buffer.

**Instrument Observation Area** (163.6 total acres). A cleared, maximum 2,400-foot by 4,000-foot line-of-sight area set back from the HSFTT is recommended for the effective function of observation instrumentation (Figure 2-2 and 2-3); however, in order to conform to available space at TA C-53, the north camera pad setback is reduced to 544 feet from the test track. Establishing the Instrument Observation Area entails commercial timber harvest followed by cutting trees and woody vegetation to near ground level leaving roots in place and mulched vegetation on site. Prescribed fire or herbicides may also be employed to assist in reducing vegetation or fuel loads if appropriate for site conditions. Vegetation in the Instrument Observation Area would generally be maintained through mowing and herbicide/prescribed fire treatments as needed. To effectively observe the flare tests and minimize visual obstructions, vegetation must be maintained below 3 feet relative to the ground-level sight view between the instrumentation pads and the towers. This vegetation height/sight requirement means that in some areas vegetation may be allowed to grow higher than 3 feet, particularly in low-lying wetland or stream areas and their adjacent upland slopes (Figure 2-4). It is highly improbable (less than 1% chance) that either conventional or kinematic flares will land outside of the Minimum Safety Buffer and within the Instrument Observation Area.

As needed, best management practices (BMPs) to control erosion on the site would be employed according to the Eglin AFB INRMP (USAF 2017) during construction and after placement of the HSFTT and instrumentation. BMPs may include retaining grasses, shrubs, and low growing vegetation (outside of the 200-foot Minimum Safety Buffer) and planting or seeding native grasses to stabilize soils and promote stormwater infiltration. If needed, swales may also be created to further promote stormwater infiltration and minimize runoff to nearby streams. If needed to minimize wildfire risk, fire breaks or wildland fire lines may be established at the TA in accordance with the Eglin AFB Wildland Fire Management Plan (USAF 2018). Final selection and implementation of appropriate BMPs would occur as part of site preparation and construction activities.

**Maximum Safety Buffer** (4,301.5 acres / 6.7 square miles). The Maximum Safety Buffer is a highly conservative buffer zone, offset 7,000 feet from the sled track. The Maximum Safety Buffer is designed to accommodate the largest available kinematic flare in the event that it does not operate as anticipated; however, note that the largest planned flare to be tested at TA C-53 is 25 percent smaller than the design group flares, and the majority of flares would be 50 percent smaller. There is no vegetation removal or active management proposed to occur within the Maximum Safety Buffer area, but it is analyzed within this REA due to the less than 0.1 percent chance that a kinematic flare could land within this area.
**Vertical Safety Buffer.** A vertical buffer will be activated during testing operations. This Vertical Buffer would extend like a dome over the appropriate safety area, i.e., the maximum height of the vertical buffer is at the sled track and would decrease in a hemispherical arc toward the perimeter of the safety area. A 500-ft AGL Vertical Safety Buffer would be activated that corresponds with the Minimum Safety Buffer in support of the MJU-53 non-thrusted flare or similar. A 7,000-foot AGL Vertical Buffer would be activated corresponding with the Maximum Safety Buffer in support of worst-case-scenarios testing the MJU-71 and MJU-39A/B kinematic flares or similar.

![Figure 2-3. Generic Dimensional Requirements for Proposed HSFTT Construction and Maintenance Footprint](image-url)
Figure 2-4. Vegetation Height Below Line-of-Sight Requirements
2.1.3 Operation

Four types of flares are planned to be dispensed from the flare sled, including MTV pyrotechnic, spectral, pyrophoric, and kinematic. During testing periods, inert flares would first be launched from the sled to verify the anticipated trajectory of the lot. Tests include launching flares out of the turret downward at a 45-degree angle and then upward at a 45-degree angle after the sled has reached at least 50 feet AGL along the track. Flares would travel in the same path as the sled toward the end tower and up to 99.9 percent of them will burn out before they hit the ground and land before the end tower. The majority of the flares that would be observed at the HSFTT are operational flares that are already manufactured, used in the field, and thus have established predictable outcomes (i.e., bench testing for lot acceptance). Testing any developmental flares at the HSFTT would include additional precautions beyond normal operating procedures to ensure ground safety.

The Proposed Action involves the testing and evaluation of 810 flares per year (Table 2-2). Use of the HSFTT would include up to 10 testing events per year, with events from 7 to 10 days in duration, for a total projected use of 10 to 15 weeks per year. The Maximum Safety Buffer would be activated to support up to two 3-day events testing the kinematic flares (or a total of 6 days) per year. Events would occur during day or night, but many would likely be concentrated in nighttime hours to increase flare visibility and tracking capability.

<table>
<thead>
<tr>
<th>Flare Category and Defining Characteristics</th>
<th>Example</th>
<th>Number of Dispenses per Year</th>
<th>Number of Testing Days per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTV (Magnesium, Teflon, Viton) Pyrotechnic</td>
<td>MJU-7, MJU-53</td>
<td>180</td>
<td>70-100</td>
</tr>
<tr>
<td>Pyrotechnic Flares use a slow-burning, fuel-oxidizer mixture that generates intense heat to be tracked by an incoming missile.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectral</td>
<td>MJU-62, M212</td>
<td>250</td>
<td>70-100</td>
</tr>
<tr>
<td>Spectral flares combust to produce large volumes of carbon dioxide, whereas the wavelength of the emission is tracked by the incoming missile rather than the temperature.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyrophoric (oxidized metal foils)</td>
<td>MJU-64, MJU-66</td>
<td>40</td>
<td>70-100</td>
</tr>
<tr>
<td>Pyrophoric flares are ignited by contact with air after being ejected from a cartridge.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kinematic</td>
<td>MJU-57, MJU-71</td>
<td>340</td>
<td>6</td>
</tr>
<tr>
<td>Kinematic flares self-propel along specific trajectories that mimic, and thus protect, the targeted aircraft.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>810</td>
<td>76-106</td>
</tr>
</tbody>
</table>

NOTE: MTV, spectral, and pyrophoric flares are considered conventional flares.
2.2 Alternatives

NEPA and 32 CFR Part 989 provide guidance on the consideration of alternatives to a federally Proposed Action and require a rigorous exploration and an objective evaluation of reasonable alternatives, including the No Action Alternative. Reasonable alternatives are those that meet the underlying purpose of and need for the Proposed Action, are feasible from a technical and economic standpoint, and, if applicable, meet reasonable screening criteria (selection standards) that are suitable to a particular action. Only those alternatives determined to be reasonable require detailed analysis.

2.2.1 Alternatives Screening Criteria

This section summarizes the criteria used to identify potential alternatives, to screen out alternatives that would not reasonably fulfill the purpose and need for the Proposed Action, and to develop the range of reasonable action alternatives that are carried forward in the REA impact analyses. Screening criteria considered by the project team included the following considerations:

1- **Adequate Ground Space to Support Project Construction Footprint.** The selected site requires an overall construction footprint of 4,253 feet by 2,400 feet to accommodate the total length of flare test track (3,000 feet [track], 1,000 feet [cables/setup], and 253 feet [utilities]) and 1,200 feet on either side perpendicular to the sled track to accommodate the maximum required camera distance/vegetation cleared area (Figure 2-2). An ideal location would contain a hill upon which to place the start tower with about a 175-foot elevation change to the end tower.

2- **Adequate Air and Ground Space to Support Project Safety Footprint.** The selected site requires RA airspace to accommodate a minimum safety buffer of 500 feet AGL offset from the test track (for example, in support of the MJU-53 non-thrusted flare), and a maximum safety buffer of 7,000 feet from the sled track (for example, in support of worst-case-scenarios testing the MJU-71 and MJU-39A/B kinematic flares). Additionally, the site must be unconstrained by imaginary surfaces allowing the construction of the 21 to 200-foot tall tower assemblies.

3- **Range Availability.** The selected site must offer flare test conductors priority access to the TA and be available to meet test schedules without the need to regularly balance conflicting or competing operations.

4- **Mission Efficiency.** The selected site must promote mission efficiency, including minimizing the travel distance required to access existing equipment or other associated infrastructure, and make the best use of available assets. The site must be capable of handling and storing live flares on site, including being located in close proximity to munitions storage and with adequate distance from incompatible land uses. The use of existing access routes should be maximized, and existing transportation infrastructure should be adequate to handle heavy vehicles (such as water and fuel trucks).
5- Minimal Environmental Impact. The site should be compatible with USAF natural resource goals, including the avoidance of significant impacts to streams, wetlands, other water bodies, special status species, and sensitive habitats.

2.2.2 Alternatives Considered but Eliminated from Further Analysis

The alternatives listed below were developed during the planning process, but were dismissed from further detailed review because they failed to meet one or more of the screening criteria, and, therefore, the purpose and need for the Proposed Action. They are presented here to reflect the full spectrum of alternatives analyzed during the course of project development.

Install HSFTT at Other DoD Location(s). Alternative sites considered include National Guard Camp Atterbury, Indiana, and U.S. Army Dugway Proving Grounds, Utah.

Camp Atterbury is a State of Indiana and DoD collaborative enterprise focused on creating and operating a highly realistic, fiscally responsible, contemporary, and developmental testing environment in which joint, interagency, intergovernmental, multi-national, and non-governmental capabilities can prepare as a team for deployment in support of national requirements both in the homeland and overseas. Camp Atterbury is part of the Indiana Air Range Complex and offers restricted airspace for unmanned flight training and testing; two air-to-ground impact areas and associated Special Use Airspace for both kinetic and virtual use; and other ranges, maneuver areas, and assets that support combined force air and ground training.

Locating a HSFTT at Camp Atterbury was determined not feasible because it did not meet screening criteria #3 and #4 as it does not have the scheduling resources, existing range infrastructure, or mission compatibility. Although adequate ground and airspace are available at Camp Atterbury, countermeasures testing is not currently performed at this location. As such, the lack of existing HSFTT-related equipment and instrument support assets, including proximity to knowledgeable engineering teams, would severely decrease the efficiency of mission execution at this location. Cost would increase in order to establish a new mission activity at this location as well as to transport and lodge full teams for testing events rather than utilize specially trained teams that are home-based at a given installation. Furthermore, due to the breadth of existing missions, Camp Atterbury could not guarantee primacy of range availability for HSFTT testing purposes.

Dugway Proving Grounds is the nation's leading test center for Chemical and Biological Defense, conducting efficient testing and support to enable the nation's defenders, interagency partners, and Allies to counter chemical, biological, radiological, and explosives hazards. Dugway Proving Grounds provides unparalleled testing, evaluation, training, and technical support.

As with Camp Atterbury, locating a HSFTT at Dugway Proving Grounds was determined to be not feasible as it did not meet screening criteria #3 and #4. The site was rejected due to the cost limitations associated with establishing this new mission at this location, because it did not have
existing logistic assets that would support increased mission efficiency, and because primacy for range use could not be guaranteed.

**Install HSFTT at Other Range on Eglin AFB.** Eglin AFB is an ideal location for the HSFTT as it is complimentary to existing flare testing missions, has existing compatible infrastructure and instrument systems, and is home to the signature measurement team associated with the Proposed Action.

The Eglin Testing and Training Complex Range Configuration Control Committee considered a mission impact analysis of alternative sites on Eglin AFB with the potential for installation of the HSFTT. In order to arrive at the Proposed Action, eleven preliminary sites were chosen (3 on the west side and 8 on the east side of the AFB) (**Figure 2-5**). These sites were analyzed for the following constraints or characteristics: location underlying restricted airspace; current range land utilization; height limitations due to proximity to imaginary surfaces, Class B Runways, and Assault Landing Zones; conflicts with low level Military Training Routes or critical approaches; potential environmental issues; and other logistical considerations. **Appendix B** contains associated analysis figures and detailed scoring results.

Ten of the 11 potential sites evaluated were eliminated from further consideration, 7 of which were technically infeasible or conflicted with other, existing missions at those locations. The West Range Sites (1 - 3) were not carried forward due to multiple significant mission conflicts (**Appendix B**). Sites 5 and 6 likewise have mission conflicts that overlap Range C-72 safety profiles (Hellfire Missile Tests). Sites 7 and 8 were not carried forward due to road closure issues. The Site 8 maximum safety buffer also overlaps the Rock Hill Landing Zone. Although technically feasible and mission-compatible, Sites 4c and 4d have increased environmental restrictions (screening criterion #5) or would require mitigation measures to accommodate the design characteristics of the facility (screening criteria #1 and #2).

The HSFTT was found to be most compatible with Sites 4a and 4b. Both sites would be immediately available to support a quick construction time frame, require fewer environmental impacts, and are located in close proximity to existing electricity and water supply infrastructure. Site 4b has the added benefit of being located in an inactive TA (TA C-53), which would minimize range scheduling conflicts (screening criterion #3) and maximize mission efficiency (screening criterion #4). Thus, Site 4b was recommended as the preferred location to site the HSFTT.
Elevate Observation Pads. An alternative that would elevate the observation pads was evaluated as an environmentally-preferred alternative in order to reduce the amount of line-of-sight clearing required in the Instrument Observation Area. This alternative would preclude the need for extensive, ongoing vegetation management in the greater project footprint.

This alternative was eliminated as the cost and timeframe required to build the range would increase significantly, and, although technically possible, the alternative had significant technical obstacles. Observation equipment is not a fixed asset, and these are standard systems that are deployed locally and across the contiguous U.S., so recalibrating them to suit unique characteristics at Eglin is not feasible. Logistically, moving these assets on to an elevated pad would require additional machinery (e.g. crane) and additional infrastructure to accommodate this equipment. There would also be an increased safety risk to personnel operating the systems at increased heights.

As an alternative to raising the observation pads, raising the towers by an additional 30 feet (above existing vegetation) would increase the safety risk for teams that regularly access the test track fixture. Raising the towers would also require recalibrating the observation instruments to be at a higher elevation, and would require re-engineering cable anchor designs to accommodate greater cable angles and higher loads.
2.2.3 Alternatives Carried Forward for Further Analysis

No Action Alternative. CEQ regulations that implement NEPA require a clear basis for choice among options provided to the decision-maker and the public, and a no action alternative must be included and analyzed (40 CFR 1502.14[d]). The No Action Alternative for this Proposed Action would consist of not establishing the HSFTT at Eglin AFB, whereas TA C-53 would remain inactive until a future designated use for the location is evaluated and assigned. Although the implementation of the No Action Alternative would not meet the purpose and need of the Proposed Action, the No Action Alternative was carried forward in the analysis to provide a benchmark to evaluate the potential environmental effects of the Proposed Action and Alternatives.

Alternative 1, Proposed Action. Alternative 1 includes the Proposed Action as described in Section 2.1.

Alternative 2, Increased Mission Tempo. Alternative 2 includes the installation of the HSFTT as described; however, testing and evaluation operations would effectively triple, for a total of 2,430 flares per year (an additional 1,620 flares per year over the Proposed Action). The mission schedule and required manpower would not change over the Proposed Action and would be limited to dispensing more flares over a test period.

2.3 Comparison of Alternatives

Table 2-3 summarizes the analysis given in Chapter 3 and presents a comparison of the relative potential environmental effects of each alternative. The levels of intensity of potential impacts are described as negligible, minor, moderate, or significant (see Section 3.3.1 for full description of terminology used in measuring environmental impacts in the REA).
### Table 2-3. Summary of Environmental Impacts to Resources Considered in REA

<table>
<thead>
<tr>
<th>Categories/Resources</th>
<th>No Action Alternative / Existing Condition</th>
<th>Alternative 1 –Proposed Action</th>
<th>Alternative 2, Increased Mission Tempo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Resources</td>
<td>• Eglin operates under an INRMP, including several tiered component plans for Erosion Control, Forest Management, and Endangered Species intervention. • Minor to moderate, long-term, beneficial impact of longleaf pine habitat restoration through timber harvest prescriptions. • Minor impacts to wildlife during timber harvest activities. • Potential colonization by special status species adapted to longleaf ecosystem.</td>
<td>• Vegetation: moderate impacts from conversion of 209 acres of sandhill and pine production communities to managed open grass/shrubland. • Wildlife: minor impacts to wildlife (including special status species) from conversion of 209 acres of habitat, operational noise, and installation of perimeter fencing around Instrument Observation Area. Common wildlife assemblage will shift to one suited to open, managed area with grass or shrub cover. • Aquatic habitats: no impacts to wetlands, negligible risk of impacts to stream in southeastern quadrant of Instrument Observation Area. • Special Status Species: the USAF prepared a BA to consult with the USFWS on the following ESA Section 7 conclusions: may affect, but is not likely to adversely affect the Eastern indigo snake and Okaloosa darter. The USFWS concurred with the may affect but not likely to adversely affect determinations on 21 April 2020. Negligible risk of impacts to Florida pine snake, Florida black bear. Negligible impacts to the gopher tortoise. • Incremental vegetation and habitat impacts would not become cumulatively significant due to implementation of Eglin INRMP and Eglin Forest Management Component Plan.</td>
<td>Same as Alternative 1.</td>
</tr>
<tr>
<td>Geology and Soils</td>
<td>No impacts. Eglin operates under an INRMP, including its tiered Erosion Control Component Plan.</td>
<td>• No impacts to geology or topography. • Negligible impacts anticipated despite clearing and maintaining less than 209 acres due to presence of well-drained soils and flat topography. Negligible risk to streams as over 80 percent of vegetation on stream slopes to be left undisturbed; some trees exceeding height requirements to be hand cut and removed. • Best management practices would further minimize impacts. Debris to be left onsite to minimize exposure to wind erosion. Undisturbed vegetation on the stream slopes will slow overland water flow during storm events and diminish the potential that eroded soil would reach streams. NPDES Stormwater Construction permit filed with FDEP and preparation of SWPPP specifies additional BMPs.</td>
<td>Same as Alternative 1.</td>
</tr>
</tbody>
</table>
Table 2-3. Summary of Environmental Impacts to Resources Considered in REA

<table>
<thead>
<tr>
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<th>Alternative 2, Increased Mission Tempo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Zone Management</td>
<td>No impacts.</td>
<td>• Consistent to the maximum extent practicable with the enforceable policies of the Federally-approved Florida Coastal Management Program.</td>
<td>Same as Alternative 1.</td>
</tr>
</tbody>
</table>
| Water                                 | No impacts.                               | • Surface Water: negligible risk of impact to 0.51 miles of stream in the Instrument Observation Area due to soil and topographic site characteristics, stream avoidance, lack of significant impervious surface, and implementation of SWPPP and BMPs.  
• Negligible impacts to stream and riparian wetlands due to hand cutting select trees and use of BMPs at the upland/slope interface and where slope trees are removed.  
• Floodplains: no impact to 5.63 acres of floodplain in the Instrument Observation Area.  
• Groundwater: no impacts (see HM/HW discussion). | Same as Alternative 1.                |
| Cultural Resources                    | No impacts. Eglin AFB operates under an ICRMP. | • No known impacts to architectural resources, archaeological resources, or Native American traditional cultural artifacts or properties anticipated as no subsurface soil disturbance is required for clearing activities. Installation of utility poles require subsurface disturbance; however, risk of impacting cultural resources in these locations would be minimized by BMPs. The USAF would ensure compliance with Section 106 of the National Historic Preservation Act by taking any required action prior to commencing any ground-disturbing activities, and complying with inadvertent discovery standard operating procedures during the undertaking.  
• TA C-53 is an NRHP-designated historic district, but no contributing elements are located within construction footprint. Range activation would be in character with the historic district’s original use. No adverse impacts to NRHP-listed or eligible resources anticipated. | Same as Alternative 1.                |
| Safety                                | No impacts. Eglin AFB operates under AFI 13-212, Range Planning and Operations; EAFBI 13-212, Range Planning and Operations; and other range safety guidance. | • No impacts to public safety.  
• Almost the entire ROI is determined as “probable” for the occurrence of UXO and may require an Explosive Safety Submission approved by the DoD Explosive Safety Board before clearing, construction, operation, and maintenance. Once construction area is evaluated and cleared by qualified | Same as Alternative 1                |
### Table 2-3. Summary of Environmental Impacts to Resources Considered in REA

<table>
<thead>
<tr>
<th>Categories/Resources</th>
<th>No Action Alternative / Existing Condition</th>
<th>Alternative 1 –Proposed Action</th>
<th>Alternative 2, Increased Mission Tempo</th>
</tr>
</thead>
</table>
| Hazardous Materials and Waste, Toxic Substances, and Contaminated Sites | No impacts. Eglin operates Hazardous Materials Management Program in accordance with the Eglin AFB Comprehensive Hazardous Waste Management Plan, and SPCC Plan. | UXO personnel it will be determined as low safety risk and Proposed Action may proceed.  
- If UXO are discovered during clearing, construction, operation, and maintenance, the responsible Safety authority will immediately reassess the risk level and appropriate UXO construction support required. | Similar to Alternative 1; however, military munitions management and range clearance requirements would be greater. |
| Air Quality                                              | No impacts.                               | • No impacts to hazardous materials and waste management; all applicable protocols would continue as directed in applicable documents.  
• Flares could potentially result in the release of trace amounts of toxic substances as they combust or decompose, but negligible potential for accumulation or migration of flare constituents as Range debris would be managed under EAFBI 13-212, Range Planning and Operations.  
• No impact to IRP known contaminated sites located in ROI. | Similar to Alternative 1; three times trace emissions anticipated would still be well below discernable level of affect. |

CHAPTER 3

Affected Environment, Environmental Consequences, and Cumulative Impacts

This chapter describes the natural and anthropogenic environment that would be affected by the Proposed Action and Alternatives and analyzes the potential direct, indirect, and cumulative impacts that the Proposed Action and Alternatives would have on the affected environment.

3.1 Region of Influence / Study Area

The ROI is defined as the geographic area that could be affected in some way by implementation of the proposed action and alternatives, and the ROI delimits the geographic extent of the environmental effects analysis. The ROI for this Proposed Action encompasses the immediate vicinity of the Proposed Action, including the Minimum Safety Buffer, Instrument Observation Area, and Maximum Safety Buffer, covering 4,495.5 acres (7 square miles). The Maximum Safety Buffer is included in the ROI because the area will be closed during the 6 days per year of kinematic flare testing and there is a 0.1 percent chance that a flare would land in this area; however, the direct impacts of construction, operation, and maintenance activities would chiefly occur within the 209 acres proposed for the Minimum Safety Buffer, Instrument Observation Area, and access road and utility corridors. Cumulative effects evaluation also includes a temporal perspective, including past actions and foreseeable future actions that may have an additive impact to resources also impacted by the Proposed Action.

3.2 Measuring Environmental Impacts

The purpose of environmental analysis is to determine whether impacts resulting from the implementation of a Proposed Action would potentially exceed a threshold level of significance for each resource. Significance was determined according to NEPA implementing regulations at 40 CFR Section 1508.27, which requires considerations of both context and intensity. The levels of intensity of potential impacts are described as follows:
• **No Effect.** The action would not cause a detectable change in the existing environment.

• **Negligible Impacts** are barely perceptible or measurable due to being of very low intensity, brief duration, and/or limited extent. A negligible impact will not result in a sustained recovery time for the impacted resource.

• **Minor Impacts** are readily perceptible and measurable but relatively localized and temporary such that the resource would recover in a relatively short period of time (days to months).

• **Moderate Impacts** are apparent and measurable and may extend to areas adjacent to the Proposed Action. Recovery of a particular resource may require several years or decades.

• **Significant Impacts** are readily apparent and substantial in terms of scope and duration and/or effect to a protected resource. This term indicates that the threshold of intensity associated with an environmental impact has been exceeded. This threshold is defined by a potentially substantial and permanent adverse change in or loss of resources within the context of the project. In the absence of mitigation or avoidance, a significant impact would trigger the dismissal of the alternative or preparation of an EIS.

Characterization of the affected environment focuses on those features of the environment that could potentially be impacted by implementation of the Proposed Action. Potential impacts are quantified where possible and discussed at a level of detail necessary to determine the significance of the impacts.

### 3.3 Resources Eliminated from Further Analysis

In accordance with CEQ regulations (40 CFR § 1502.15), resources upon which the Proposed Action is determined to have no effect do not warrant detailed examination in the REA. Therefore, the following resources have been eliminated from further analysis: airspace; land use; visual resources and aesthetics; noise; transportation and traffic; socioeconomics and environmental justice, including protection of children; and public services and utilities (natural gas, potable water, sewerage, solid waste, or communications services). No impacts to these resources are expected, including incremental impacts that may intermingle with other activities and result in greater, cumulative impacts to the greater landscape. The rationale for eliminating these resources from further detailed analysis is summarized below.

#### 3.3.1 Airspace

Airspace is a finite resource that can be defined vertically, horizontally, and temporally when describing its use for aviation purposes. The Federal Aviation Administration (FAA) generally regulates the Nation’s airspace, and all users (commercial, military, civilian, recreational) are required to comply with rules, procedures, charts, and other measures that distribute its use and ensure users’ safety above and on the ground. Restricted Area airspace, established through a Federal rulemaking process, is designated in areas where ongoing or intermittent activities occur.
that create unusual and often invisible hazards to aircraft, such as artillery firing, aerial gunnery, practice bomb dropping, and guided missile testing (FAA 2019). Entry into a RA airspace requires specific permission from the using or controlling agency.

The airspace that overlies TA C-53 is already designated as RA (from the surface up with no limit) reserved for military operations such as those of the Proposed Action (Appendix B, Figure B-1). It is controlled by Eglin AFB, and as such private and commercial aircraft cannot enter the RA without permission from Eglin AFB. Although most flares would not encroach into aircraft operating altitudes and most would burn quickly after they are dispensed, the Minimum Safety Buffer around the Proposed Action site includes a vertical buffer to be coordinated with Eglin Air Traffic Control (ATC) and communicated during testing operations to ensure maximum airspace safety of military aircraft in the area. In addition, the Proposed Action site also lies within the limits of the airspace designated to protect encroachment of airfield facilities of Duke Field. While the boundary of this protective airspace encircles both runways of Duke Field, the Proposed Action site would not encroach upon any low level military training routes or critical approaches; therefore, conflicts with or impacts to existing missions would be limited when the HSFTT at TA C-53 is active (Appendix B, Figures B-3 and B-4). As the Proposed Action would not require alteration of any existing airspace, introduce new or additional aircraft, or interfere with existing military missions occupying airspace at the AFB, and because the Eglin ATC would be informed of and deconflict incompatible airspace uses when the range is active, the Proposed Action is anticipated to have no impacts to airspace, and thus airspace is not carried forward for further analysis.

3.3.2 Land Use

Land use describes how land is developed and used, typically in categories that identify the types of human activities occurring in a given area. On military installations, land use in developed areas tends to be categorized as either operational or support functions, and installation noise, safety, and security zones often affect land use patterns. The analysis of land use pertains to current operations and development guidelines that address safety, functionality, and environmental protection to ensure compatible activities are established in suitable locations. A threshold for land use would be exceeded if the action alternatives were not compatible with existing zoning or land management conditions in the area.

As TA C-53 is currently designated as a TA for military purposes and would be reactivated for this purpose, no change to land use designation would be required. This use meets the primary military mission at Eglin AFB and is compatible with surrounding operational land uses, including open land and other ranges, as well as recreational uses when the TA is not in use. The Proposed Action is anticipated to have no impacts to land use, and this resource is not carried forward for further analysis. (Potential impacts to recreation are discussed in Section 3.3.8.)
3.3.3 Visual Resources and Aesthetics

Visual resources include the natural and man-made physical features that give a particular landscape its aesthetic character and value. Viewer perceptions are formed through the impression of scenic quality in elements such as landform, vegetation, water, color, adjacent scenery, scarcity, and man-made (cultural) modifications. Visibility and visual sensitivity evaluations are based on public viewing opportunities and concern for potential changes to the landscape. Residential areas, frequently traveled roads, and recreation areas are examples of areas of visual sensitivity of higher importance in terms of viewshed management.

Although TA C-53 is currently deactivated, it is on an active AFB (which includes extensive military infrastructure, buildings, and equipment) and located with other operational ranges isolated away from the cantonment area and populated spaces. Although the removal of vegetation in this area would be a perceptible visual change, it would not be out of character with other timber harvest activities or active ranges in the area. Furthermore, it is not extensively visited by recreational users, and regular viewers that would perceive this change are limited. The Proposed Action would have a discorable effect on visual resources and aesthetics, and this resource is not carried forward for further analysis.

3.3.4 Noise

The Noise Control Act of 1972 directs Federal agencies to comply with applicable Federal, state, interstate, and local noise control regulations. The U.S. Environmental Protection Agency (USEPA), U.S. Department of Housing and Urban Development, and DoD provide information on the negative effects of noise, including the identification of indoor and outdoor noise limits that protect public health and welfare (e.g., prevent hearing damage, sleep disturbance, and communication disruption). Noise levels below 65 decibels are considered to be normally acceptable in the environment (29 CFR 1910.95). The primary elevated noise sources at Eglin AFB are from aircraft and from explosive ordnance disposal training.

For the Proposed Action, the nearest sensitive receptor is a residential area located in Niceville approximately 3.4 miles southwest of the southern boundary of the Instrument Observation Area and, due to this distance, it is unlikely to perceive construction or operation noise produced at TA C-53. Land clearing, construction, and maintenance activities would cause temporary increases in ambient noise; however, these impacts would be short-term, during daylight hours, and due to the isolated location of the range, would largely attenuate before being perceived at the nearest residences. Flare testing operations would produce noise during testing events, largely as a result of the steam propulsion engine powering the sled at the HSFTT. This noise would occur in short, intermittent bursts daily for 7 to 10 days, up to 10 times per year, and the majority of these events would occur in nighttime hours; however, it is not anticipated that this noise would be perceived by any sensitive receptors. Thus, it is anticipated that the Proposed Action would have no discernable noise impacts during construction, operation, and maintenance activities, and noise is not carried forward for further analysis.
3.3.5 Transportation and Traffic

Transportation resources refer to the infrastructure and equipment required for the movement of people, manufactured goods, and raw materials. Intersection delay and roadway segment volume-to-capacity ratios are commonly used metrics for traffic impact analysis. Due to the minimal traffic that would be induced by the Proposed Action and the relatively isolated location of the project site, the transportation and traffic resources considered with respect to the Action Alternatives are limited to roads on the AFB.

All construction equipment would enter/exit the project area from Range Road 200, and construction equipment would likely remain onsite for the duration of construction activity (up to one month). New roads accessing the HSFTT would be constructed off of Range Road 200, but otherwise no existing transportation features would be altered from existing conditions. Although project construction would generate a discountable amount of construction-related traffic, this increase would be temporary and would not affect traffic flow across Range Road 200 or elsewhere in the network.

Egress through Range Road 200 adjacent to the Proposed Action construction and operation area would be temporarily restricted during kinematic flare testing operations when the Maximum Safety Buffer is activated. Although Range Road 200 is a minor road, it is used by operations personnel to access several other ranges on the eastern side of the reservation. There are alternate routes through the reservation; however, traversing Range Road 200 may be the most direct route for some areas. Traffic would likely be rerouted to the south on Range Road 219 from the Range Road 200 intersection. If the eastern ranges were in use at the same time as the kinematic flare tests were to occur and an acceptable detour cannot be established, sentries would be posted at each end of the extent of the closure and notify range personnel via radio to pause testing operations until the traffic has cleared. It is anticipated that a traffic delay would take less than 15 minutes at a time. The activation of the Maximum Safety Buffer would cause negligible, temporary delays for up to 6 days per year for potential, mission-related traffic accessing Range Road 200; thus, transportation and traffic was not carried forward for further analysis.

3.3.6 Socioeconomics and Environmental Justice, including Protection of Children

Socioeconomic impacts are generally associated with the loss or creation of jobs or significant tax base, depression or stimulation of economic activity, and induction of additional population to relocate to the area. Environmental justice describes whether environmental impacts associated with a proposed action are born primarily by a low-income or minority group (EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations [1994]). Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
(1997) ensures that Federal agencies’ policies, programs, activities, and standards address environmental health and safety risks to children.

The Proposed Action would result in a short-term, negligible beneficial economic impact in the local community from the timber sale associated with clearing the 209 acres of the Minimum Safety Buffer area, Instrument Observation Area, and access road and utility corridors. In context of the regional economy, the impacts would not be discernible in terms of overall increases in jobs and income to the region. All operations under the Proposed Action would be confined within the boundaries of test areas, and construction would not involve permanent personnel relocations, permanent employee hires, or otherwise change the number of persons working at Eglin AFB or living in the local area, and thus population trends, regional growth patterns, housing values, public services, and other socioeconomic factors would not be affected by the Proposed Action. There are no disproportionate minority and/or low-income populations near the Proposed Action location, and only negligible to minor spatially and temporally isolated environmental impacts are anticipated as a result of the Proposed Action and Alternatives (Table 2-3). As such, it is anticipated that there would be no disproportionate adverse impacts to minority and/or low-income residents. Because children do not occupy or have access to the Proposed Action area, there would not be any additional health or safety effects on children.

In conclusion, due to the negligible economic impact, lack of notable environmental impacts, and the lack of occurrence of populations targeted for protection by EO 12898 and EO 13045, impacts to socioeconomics, environmental justice, and protection of children are not further evaluated in this REA.

### 3.3.7 Public Services and Utilities

Public services and utilities refer to the system of public works that provides the underlying framework for a community or military installation. Utilities and infrastructure components include electrical distribution systems, potable water, wastewater collection, wastewater treatment, natural gas, solid waste disposal, and communications infrastructure. The Proposed Action includes providing power and water to support the execution of testing activities only (i.e., no permanent habitable structures will be constructed). Power obtained from the existing Eglin AFB grid system would be transmitted through new power line connections for delivery at the start and end towers of the test track and instrument pads. Water would be derived through the installation of a new water well and water storage tank, and testing operations may require the consumption of up to 2,500 gallons per day.

The Proposed Action would not require wastewater collection or treatment, provision of natural gas, or communications services. Likewise, as the water provided to the site is not connected to the public works potable water delivery system, no impacts to potable water provision at Eglin AFB would occur. Spent flare casings (and other trash) generated by this activity would be collected and transported or managed post-event by the sled operators following appropriate safety
measures and procedures. The minimal energy consumption associated with the tests, and the relative infrequency of the tests, are anticipated to have no discernable impact on the existing electrical distribution system at Eglin AFB. The Proposed Action would not impact public services and utilities, and thus public services and utilities are not carried forward for further analysis.

### 3.3.8 Recreation

Recreation resources focus on natural resources and man-made facilities designated or available for public use. Impacts to recreation resources are generally associated with degradation or loss of use or facilities. The USAF works to maintain an outdoor recreation program providing opportunities for the public all year as compatible with public safety and the execution of Eglin’s military testing and training mission. Approximately 54 percent of the 726-square mile Eglin reservation is generally designated as open for public access, but may have pockets of temporarily closed or restricted areas as needed to support range or training activities (Jackson Guard 2020). Table 3.1 details the distribution of acreage on Eglin AFB for various hunting opportunities.

Some of the recreation activities that could occur in the ROI may include deer, dove, furbearer, or boar hunting; hiking; or mountain biking. Although periodically closed for range activities, TA C-53 is otherwise designated as open to public access and is part of the Choctaw East Open Dog Hunting Units. The Proposed Action would require the fencing and permanent closure of the 194 acres of TA C-53 to serve the Minimum Safety Buffer and Instrument Observation Area and potential closure of the Maximum Safety Buffer area up to 6 days a year.

Military mission execution has primacy on reservation property, and installation lands can be closed at any time without notice in support of this mission; however, closures are usually temporary and brief in nature, and the USAF works with user-groups to minimize conflicts as possible. The permanent closure and removal of 194 acres of TA C-53 from the recreation resources available at Eglin AFB represents 0.08 percent of available public access at Eglin AFB. The 7,000 acres of the Choctaw East Dog Hunting Unit within the Maximum Safety Buffer area represents 5 percent of the total dog hunting area available throughout Eglin AFB. Additionally, if all 6 days of Maximum Safety Buffer Area closure occurred during the 66 days of dog hunting season (general gun and small game) this closure would represent 9 percent of the available season (or about 20 percent if all 6 days fell within general gun or small game season individually); however, it is unlikely that the annual estimate of up to 6 days of kinematic flare testing would all run concurrently with these designated hunting seasons and in general these closures are expected to be brief. As such, it is determined that the permanent closure of 0.08 percent of open access land and the potential short-term, episodic closure of 5 percent of available dog hunting area on Eglin AFB would have a negligible effect on recreation, and recreation is not carried forward for further analysis.
Table 3.1. Available Hunting on Eglin AFB

<table>
<thead>
<tr>
<th>Management Unit</th>
<th>Hunting Type</th>
<th>Acres</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choctaw East</td>
<td>Dog</td>
<td>48,186</td>
<td></td>
</tr>
<tr>
<td>Choctaw North</td>
<td></td>
<td>22,934</td>
<td></td>
</tr>
<tr>
<td>Choctaw West</td>
<td></td>
<td>33,758</td>
<td></td>
</tr>
<tr>
<td>Sikes</td>
<td></td>
<td>29,227</td>
<td>134,105</td>
</tr>
<tr>
<td>Brier Creek East</td>
<td>Stalk</td>
<td>7,492</td>
<td></td>
</tr>
<tr>
<td>Brier Creek West</td>
<td></td>
<td>8,048</td>
<td></td>
</tr>
<tr>
<td>Brier Creek South</td>
<td></td>
<td>5,251</td>
<td></td>
</tr>
<tr>
<td>Jackson North</td>
<td></td>
<td>23,555</td>
<td></td>
</tr>
<tr>
<td>Jackson South</td>
<td></td>
<td>22,429</td>
<td>66,775</td>
</tr>
<tr>
<td>Metts</td>
<td>Stalk</td>
<td>21,517</td>
<td></td>
</tr>
<tr>
<td>Roberts Pond</td>
<td></td>
<td>16,528</td>
<td></td>
</tr>
<tr>
<td>Toms Creek</td>
<td></td>
<td>5,224</td>
<td>43,269</td>
</tr>
<tr>
<td>East River</td>
<td>Archery</td>
<td>4,678</td>
<td></td>
</tr>
<tr>
<td>Eglin Main</td>
<td></td>
<td>1,425</td>
<td>6,103</td>
</tr>
<tr>
<td><strong>Total Hunting Acres Available at Eglin</strong></td>
<td><strong>250,252</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.4 Resources Considered in this REA

A total of 8 resource categories were evaluated for their potential to be impacted by the Proposed Action and Alternatives, including: 1) biological resources (including vegetation, wildlife, aquatic/wetland habitats, and special status species); 2) geology and soils; 3) coastal zone management; 4) water resources (including floodplains, surface water, and groundwater); 5) cultural resources; 6) safety; 7) hazardous materials and waste, toxic substances, and contaminated sites; and 8) air quality.

3.4.1 Biological Resources

Biological resources include terrestrial and aquatic plant and animal species; special status species, such as those protected under the Federal Endangered Species Act (ESA) or the State of Florida; and environmentally-sensitive or critical habitats. Habitat is defined as the area or environment where the resources and conditions are present that cause or allow a plant or animal to live there. This analysis focuses on the biological resources observed or suspected to be present within or in the vicinity of the ROI. Additional detail regarding species and habitats found in the ROI is available in the Eglin AFB INRMP (USAF 2017), various INRMP Component Plans, and within the Biological Assessment (BA) prepared for this Proposed Action (Appendix C), all of which are summarized and incorporated by reference herein as appropriate.
3.4.1.1 Affected Environment

3.4.1.1.1 Vegetation

Eglin AFB has 34 distinct natural vegetative communities that fall into the following four broad ecological associations: sandhill matrix, flatwoods matrix, wetland/riparian matrix, and barrier island matrix (USAF 2017). Eglin AFB also includes open grasslands/shrublands and urban/landscaped areas, which are artificially maintained vegetative communities. Vegetative communities observed within the ROI are shown on Figure 3-1 and listed in Table 3-2. Approximately 83 percent of the ROI is classified as sandhill and pine production, with these two communities comprising 99 percent of the Instrument Observation Area and 100 percent of the Minimum Safety Buffer area.

<table>
<thead>
<tr>
<th>Natural Community</th>
<th>Min. Safety Buffer (Ac.)</th>
<th>Instrument Obs. Area (Ac.)</th>
<th>Max. Safety Buffer (Ac.)</th>
<th>Total (Ac.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandhill</td>
<td>4.86</td>
<td>40.72</td>
<td>2784.91</td>
<td>2830.49</td>
</tr>
<tr>
<td>Pine Production</td>
<td>25.55</td>
<td>121.15</td>
<td>758.99</td>
<td>905.69</td>
</tr>
<tr>
<td>Mixed Forest: Wetland</td>
<td>-</td>
<td>1.69</td>
<td>356.4</td>
<td>358.09</td>
</tr>
<tr>
<td>Mesic Flatwood</td>
<td>-</td>
<td>-</td>
<td>167.78</td>
<td>167.78</td>
</tr>
<tr>
<td>Exposed Mineral Soil</td>
<td>-</td>
<td>-</td>
<td>84.39</td>
<td>84.39</td>
</tr>
<tr>
<td>Upland Pine</td>
<td>-</td>
<td>-</td>
<td>83.6</td>
<td>83.6</td>
</tr>
<tr>
<td>Hardwood Forest</td>
<td>-</td>
<td>-</td>
<td>40.03</td>
<td>40.03</td>
</tr>
<tr>
<td>Dome Swamp</td>
<td>-</td>
<td>-</td>
<td>17.6</td>
<td>17.6</td>
</tr>
<tr>
<td>Xeric Hammock</td>
<td>-</td>
<td>-</td>
<td>5.6</td>
<td>5.6</td>
</tr>
<tr>
<td>Open Water</td>
<td>-</td>
<td>-</td>
<td>1.22</td>
<td>1.22</td>
</tr>
<tr>
<td>Emergent</td>
<td>-</td>
<td>-</td>
<td>1.02</td>
<td>1.02</td>
</tr>
<tr>
<td><strong>Total Acreage:</strong></td>
<td><strong>30.41</strong></td>
<td><strong>163.56</strong></td>
<td><strong>4301.54</strong></td>
<td><strong>4495.51</strong></td>
</tr>
</tbody>
</table>

Timber management on Eglin AFB is routinely used as a tool to provide mission support and ecosystem health, and is often employed to cut merchantable timber from areas that interfere with military mission capabilities (i.e., line-of-sight) or to clear new ranges and other mission-required areas. With the exception of riparian areas, the majority of the ROI is designated in the Eglin Forest Management Component Plan (Eglin AFB 2017b), a sub-plan to the INRMP, for timber harvest prescriptions. TA C-53 is also within the Eglin Core Conservation Area, which generally prioritizes longleaf pine restoration where possible. Eglin AFB was originally managed by the U.S. Forest Service as the Choctawhatchee National Forest, emphasizing turpentine production, fire suppression, pulpwood thinning, timber stand improvement, and artificial reforestation with sand and slash pine. Since 1990, commercial timber harvest has been used to revert slash and sand pine forests to longleaf pine ecosystems, and nearly 79,000 acres of sand pine timber sales have occurred. From 1990 to 2018, over 230,000 acres of forest on the Eglin AFB reservation have been enhanced through sand pine removal, reforestation, and timber stand improvements.
Figure 3-1. Vegetative Communities Within the Proposed Project ROI
**Sandhills.** Sandhills are fire-dependent systems characterized by an open, savanna-like structure with a moderate to tall canopy of longleaf pine, a sparse midstory of oaks and other hardwoods, and a diverse groundcover comprised mainly of grasses, forbs, and low stature shrubs (USAF 2017). This community is associated with and often grades into scrub, upland pine forest, xeric hammock, or slope forests. Sandhill habitats degrade when fire is suppressed or infrequent, resulting in a dense midstory of evergreen oaks and other hardwoods that shade out groundcover species needed to carry fire.

**Pine Production.** Pine production areas are dominated by a canopy of sand pines, with slash and longleaf pines occurring less frequently. The proliferation of sand pines in these areas is the result of encroachment from sand pine plantations, coastal scrub habitats, and historic forestry and grazing practices (USAF 2017). Representative midstory species include various evergreen oaks, turkey oaks, yaupon, yellow haw, and American holly. Woody goldenrod, earleaf greenbrier, bracken fern, and various grasses and forbs comprise the groundcover stratum.

**Mixed Forest – Wetland.** This wetland community generally occurs in association with stream or river floodplains. Hydrophytic trees such as black gum, sweet bay, red maple, and slash pine dominate the canopy. Shrubs including black titi, wax myrtle, sweet gallberry, fetterbush, and sweet pepperbush comprise the midstory. Large vines such as laurel greenbrier, grapevine, and poison ivy are common. Representative groundcover species include various ferns and sphagnum moss.

3.4.1.1.2 Wildlife
Common wildlife species expected to occur in the upland communities in the ROI include, but are not limited to, mammals (white-tailed deer, cottontail rabbit, gray fox, gray squirrel, opossum, raccoon, and various rodents), songbirds (Carolina wren, warblers, gray catbird, blue jay, mockingbird), raptors (red-shouldered hawk, red-tailed hawk), woodpeckers (red-headed, red-bellied, pileated), and reptiles (six-lined race runner lizard, eastern diamondback rattlesnake, various non-venomous snakes). Common wildlife species expected to occur in the aquatic communities in the ROI include, but are not limited to American beaver, water moccasin (cottonmouth), aquatic and semi-aquatic turtles, frogs (cricket frog, green tree frog, bronze frog, leopard frog), wading birds (great blue heron, snowy egret), and fishes (sailfin shiner, eastern mosquitofish, sunfishes).

3.4.1.1.3 Special Status Species and Habitats
Special status species that could potentially occur within the ROI are described in Table 3-3. Two Federally listed and four state listed species could potentially occur within the ROI. No designated Critical Habitat occurs in the ROI. Reference the Eglin INRMP (2017) for a comprehensive list of special status species that may occur across the Eglin AFB reservation.

Plant species listed by the State of Florida as threatened, endangered, or commercially exploited under Rule 5B-40 F.A.C. may occur within the Proposed Action construction area. Although habitat quality within the ROI is good, there are no High Quality Natural Communities,
Outstanding Natural Areas, or Significant Botanical Sites located within the Proposed Action construction footprint. As Rule 5B-40 does not prohibit destruction of any such species or their potential habitat by a private landowner, state-listed plant species are not addressed further in this document.

The special status species that have some potential for occurrence within or may be affected by the Proposed Action construction footprint are given below (it is not anticipated that there will be impacts to any species located in the Maximum Safety Buffer area). This list is based upon habitat type, quality, and quantity and includes the Florida black bear, gopher tortoise, Eastern indigo snake, Florida pine snake, and Okaloosa darter.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Federal Legal Status</th>
<th>State Legal Status</th>
<th>Potential Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Florida Black Bear</td>
<td><em>Ursus americanus floridanus</em></td>
<td>N</td>
<td>Black Bear Conservation Rule (68A-4.009 F.A.C.)</td>
<td>May occur in a variety of upland and wetland habitats within ROI and construction footprint.</td>
</tr>
<tr>
<td>Reptiles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gopher Tortoise</td>
<td><em>Gopherus polyphemus</em></td>
<td>C</td>
<td>T</td>
<td>May occur in sandhill and other suitable upland habitats. May occur within the construction footprint.</td>
</tr>
<tr>
<td>Eastern indigo snake</td>
<td><em>Drymarchon couperi</em></td>
<td>T</td>
<td>FT</td>
<td>May occur in a variety of upland and wetland habitats; known to use gopher tortoise burrows. May occur within the construction footprint.</td>
</tr>
<tr>
<td>Florida pine snake</td>
<td><em>Pituophis melanoleucus mugitus</em></td>
<td>P</td>
<td>T</td>
<td>May occur in upland habitats (pine production, sandhill, upland pine, and xeric hammocks); known to use gopher tortoise burrows. May occur within the construction footprint.</td>
</tr>
<tr>
<td>Birds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little blue heron</td>
<td><em>Egretta caerulea</em></td>
<td>N</td>
<td>T</td>
<td>May occur in freshwater marshes and other wetlands. Not likely to occur in construction footprint.</td>
</tr>
<tr>
<td>Southeastern American kestrel</td>
<td><em>Falco sparverius paulus</em></td>
<td>N</td>
<td>T</td>
<td>May occur in open upland habitats throughout ROI. Not likely to occur in construction footprint.</td>
</tr>
<tr>
<td>Red-cockaded woodpecker</td>
<td><em>Picoides borealis</em></td>
<td>E</td>
<td>FE</td>
<td>Nearest known location is 1.88 miles from ROI; no habitat available within construction footprint.</td>
</tr>
</tbody>
</table>
Table 3-3. Potential Occurrence of Special Status Species within the Region of Influence for the Proposed Action

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Federal Legal Status</th>
<th>State Legal Status</th>
<th>Potential Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Okaloosa darter</td>
<td><em>Etheostoma okaloosae</em></td>
<td>T</td>
<td>FT</td>
<td>Known to occur in the Rocky Creek and Long Creek systems; may occur in the stream located in the south eastern portion of the construction footprint.</td>
</tr>
</tbody>
</table>

**Sources:** Eglin AFB Integrated Natural Resources Management Plan (USAF 2017), Threatened and Endangered Species Component Plan Update (USAF 2019), and Florida Natural Areas Inventory (FDEP 2019).

**Note:** Species were evaluated for their potential to occur within or adjacent to the ROI and, therefore, their potential to be impacted by the Proposed Action. Potential to occur was based on a combination of historical survey records (if available), species range information, and habitat requirements. Potential to occur within the Proposed Project Area may also be influenced by occurrences in adjacent similar habitat.

**Status Codes:**
- Federal (USFWS = US Fish and Wildlife Service), State (FWC = Florida Fish and Wildlife Conservation Commission)
- **E** = Endangered: species in danger of extinction throughout all or a significant portion of its range
- **T** = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range
- **C** = Candidate species for Federal listing under the ESA
- **N** = Not Listed
- **P** = Species petitioned for Federal listing
- **FT** = Federally Threatened (listed under state rule due to Federal listing)
- **FE** = Federally Endangered (listed under state rule due to Federal listing)

**Florida Black Bear** (*Ursus americanus floridanus*) – The Florida black bear was removed from the list of state-designated threatened species in 2012, but it is still protected under the Black Bear Conservation Rule (68A-4.009 F.A.C.) and managed under the Florida Fish and Wildlife Conservation Commission (FWC) Florida Black Bear Management Plan (2019). This species is a habitat generalist and opportunistic feeder, with plant matter making up most of its diet. A Florida black bear’s home range typically includes a wide variety of upland and wetland habitats, but they are dependent on forested habitat for food sources and denning areas (FWC 2019). This species could utilize any of the habitats present within the Proposed Action construction footprint. The Eglin Natural Resources Office promotes education on black bears, assists with black bear issues across the base, and maintains a database of all documented incidental sightings, nuisance/injured bears, and vehicle interactions.

**Gopher Tortoise** (*Gopherus polyphemus*) – Federal Candidate Species/State-listed Threatened. Gopher tortoises are long-lived reptiles typically found throughout Florida in sandhill and other well-drained upland habitats where they excavate burrows for refuge from temperature extremes and predators. Their burrows provide habitat for over 350 commensal species, including the Eastern indigo snake. Eglin AFB has an overall low population of gopher tortoises, likely due to
past human harvesting and loss of habitat due to fire suppression (Eglin AFB 2019b). Suitable upland habitat (sandhill and pine production) occurs within the Proposed Action construction footprint, and this species may be present in those areas.

**Eastern Indigo Snake** (*Drymarchon couperi*) – Federally-listed Threatened. The Eastern indigo snake is glossy, blue-black in color and may reach a length of 8.5 feet. A wide variety of habitats are utilized by this species; however, they are more commonly associated with xeric habitat types. In the more northerly portions of its range, the Eastern indigo snake occupies sandhills during the winter, using gopher tortoise burrows and other refugia for protection from cold temperatures. During the warmer months, Eastern indigo snakes move to nearby wetland systems to forage. There have been no verified sightings of the Eastern indigo snake on Eglin since 1999. Suitable upland and wetland habitat occurs within the Proposed Action construction footprint; however, the potential for occurrence on the site is considered low given the overall rarity of the species on Eglin AFB.

**Florida Pine Snake** (*Pituophis melanoleucus mugitus*) – State-listed Threatened and petitioned for Federal listing. The Florida pine snake is a relatively large, tan to rusty colored snake with a pattern of large blotches. This species primarily occurs in dry upland habitats including sandhills, fields, and other areas with relatively open canopies (FNAI 2001). The USFWS is currently reviewing this species’ status following receipt of a petition to list the species under the ESA in 2012. The Florida pine snake may be found within the pine production and sandhill habitats present within the Proposed Action construction footprint.

**Okaloosa Darter** (*Etheostoma okaloosae*) – Federally-listed Threatened. Okaloosa darters are small, perch-like fish found only in Northwestern Florida. The global population of this species is restricted to six stream systems on Eglin AFB, including Toms, Turkey, Mill, Swift, East Turkey, and Rocky Creeks. Darters prefer clear, clean water with diverse in-stream habitat characterized by open sandy runs, emergent trees and herbaceous vegetation, braided channels, pools, riffles, woody debris, leaf mats, and submerged roots. This species has potential to occur in the stream system located in the southern portion of the Instrument Observation Area.

### 3.4.1.2 Environmental Consequences

Determination of the significance of potential impacts to biological resources is based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration of ecological ramifications. Impacts to biological resources are considered significant if species or habitats of concern are affected over relatively large areas or disturbances result in reductions in the population size or distribution of protected species.

Potential impacts to biological resources were evaluated based on the assumption that the entire 209 acres of the Minimum Safety Buffer, Instrument Observation Area, and access road and utility
corridors would be disturbed by the Proposed Action construction footprint. The 0.1 percent chance that a kinematic flare would land in the extended Maximum Safety Buffer area was not extensively evaluated as the risks for potential effects were considered discountable under NEPA.

3.4.1.2.1 Vegetation

**No Action.** Under the No Action Alternative, various management units in TA C-53 would continue to be targeted in the future for timber harvest and, to some extent, longleaf pine ecosystem management, as designated in the Eglin Forest Management Component Plan (Eglin AFB 2017b). Minor to moderate impacts to vegetation would be anticipated due to these efforts; however, in the long-term these impacts would be overall beneficial as quality longleaf habitat is restored and stabilized.

**Alternative 1.** The Proposed Action would convert up to 209 acres from sandhill and pine production to an open grass/shrubland artificially maintained vegetative community. As relatively good habitat in the upland portions of the Proposed Action area would be converted and maintained as lower quality, cleared areas, this habitat alteration would represent a moderate impact to vegetation over the existing condition and the No Action Alternative.

Due to site topography and line-of-sight requirements, vegetation on the upper limits of the stream slopes can be up to 10 feet AGL and vegetation adjacent to the stream can remain up to 35-40 feet AGL ([Figure 2-4](#)). Trees exceeding this height would be hand cut and removed, which presently include pine species with approximately 20 percent cover in the stream bank and slope area. Negligible impacts to stream and riparian wetland habitat along the streambanks and slopes are anticipated as trees extending into the line-of-sight would be hand cut and because any stormwater flow from upland areas would be arrested by BMPs at the upland/slope interface and as appropriate where slope trees are removed.

The use of flares has potential risk to ignite wildfires in the event that a flare is not fully expended prior to reaching the ground and if adequate fuels and climatic conditions (low humidity or high winds) are present. The ignition of wildfires due to flare testing operations is unlikely because most flares will burn out before hitting the ground, 99.9 percent of all flares will land within managed vegetation areas, and tests will not be performed in sub-optimal climate conditions. In the unlikely event that a fire does occur, the HSFTT site would be equipped with non-potable water tanks and suppression equipment. Furthermore, Eglin AFB has an available, advanced wildfire management program implemented by the Eglin Wildland Support Module, which responds to mission-caused wildfires, is stationed at the Eglin Natural Resources Office (Jackson Guard), and staffed by the Air Force Wildland Fire Branch.

The Proposed Action would contribute incremental vegetation and habitat impacts to the Eglin AFB landscape that would combine with past, present, and future vegetation management actions on the reservation. However, as maintenance of designated TAs was considered in the comprehensive analysis and implementation of the Eglin AFB INRMP, and because manipulation...
of various units is accounted for on a landscape scale within the Eglin Forest Management Component Plan (Eglin AFB 2018), it is not anticipated that impacts to vegetation and habitat from the Proposed Action will combine in a way that will cumulatively degrade vegetation resources on the reservation.

Alternative 2. Impacts associated with Alternative 2 would be the same as those described for Alternative 1. Impacts to vegetation would be experienced during the construction phase of the Proposed Action, which does not differ between alternatives, and increased tempo of flare use would confer no unique or additional impacts to vegetation.

3.4.1.2.2 Wildlife

No Action. Under the No Action Alternative, it is assumed that the existing wildlife assemblage within the Proposed Action construction footprint would not change; however, there may be some disruption and potential shift of resident wildlife communities associated with future timber harvest and longleaf ecosystem restoration. During harvest operations mobile species would likely immigrate to available adjacent habitat. When harvest operations are complete, species adapted to more open overstory habitat would recolonize the affected area, and original resident species may re-establish as the ecosystem rebounds and matures. As such, in the event that no timber harvest activities occur under the No Action Alternative, no impacts to wildlife are anticipated, and minor impacts would occur as future timber harvest is implemented.

Alternative 1. Under Alternative 1, wildlife would experience similar impacts as anticipated under the No Action Alternative if timber harvest were to occur in this area, as most species would avoid construction activities by relocating to available adjacent habitat. However, as opposed to the No Action Alternative, species are not likely to recolonize the 30 acres of the Minimum Safety Buffer area as it will be maintained as open soil or gravel, and many species would be likely to continue to avoid the HSFTT during operations due to human presence and noise disturbances. It is also less likely that many existing species will recolonize the Instrument Observation Area as vegetation will be cut to ground level and habitat structure will be regularly maintained at less than 3 feet. Installation of a perimeter fence will also preclude many large mammals such as the white-tailed deer and Florida black bear from utilizing the Instrument Observation Area. Smaller species that can pass through or under the perimeter fence such as the least shrew, pocket gopher, cotton rat, cotton mouse, fox, northern bobwhite, snakes, and lizards may utilize the area. The shift in vegetative community structure may also promote utilization by some raptors that hunt prey in open habitats devoid of canopy. The use of TA C-53 by wildlife is anticipated to be similar to other maintained and operational ranges on the reservation. It is anticipated that minor impacts to wildlife would occur with the implementation of Alternative 1.

Alternative 2. Impacts associated with Alternative 2 would be the same as those described for Alternative 1. Impacts to wildlife would be experienced during the construction phase of the Proposed Action, which does not differ between alternatives. Flare use would occur within the same schedule as proposed for Alternative 1, and, although more flares would be dispensed during
that time, the increased tempo of flare use would not confer unique or additional impacts to wildlife.

3.4.1.2.3 Special Status Species and Habitats
A BA of the Proposed Action evaluating potential effects on the Okaloosa darter, Eastern indigo snake, and gopher tortoise and ESA Section 7 consultation regarding potential impacts to these Federally Endangered, Threatened, and Candidate species is available in Appendix C. The BA details specific conservation measures that would be required to be implemented under the Proposed Action to avoid and minimize potential impacts to each species (Chapter 4). The USFWS concluded that the Proposed Action is not likely to adversely affect resources protected by the ESA (21 April 2002).

No Action. Under the No Action Alternative, no change from baseline conditions would occur for special status species potentially occurring in the Proposed Action ROI. However, timber management activities that further promote the shift from slash and sand pine to longleaf may likewise promote colonization of native wildlife adapted to the sandhills/longleaf system, such as the Eastern indigo snake and the gopher tortoise.

Alternative 1. Special status species are not likely to be adversely affected by the implementation of the Proposed Action as follows:

Florida Black Bear. Black bears generally avoid human contact unless attracted by food, either through intentional feeding or trash receptacles. The Eglin Natural Resources Office will provide information to all construction personnel regarding black bears and will require that all trash is either removed from the site daily or stored in lockable trash receptacles. Following construction, the black bear will be excluded from the Proposed Action construction area by perimeter fencing. Given their relatively large home range and significant amount of habitat that will remain outside of the Proposed Action construction area, the loss of habitat due to implementation of the Proposed Action is considered insignificant, and adverse impacts to the Florida Black bear as a result of the Proposed Action are not anticipated.

Gopher Tortoise. To assure no impacts to gopher tortoise or their commensals occurs during construction or operation/ongoing maintenance activities associated with the Proposed Action, the Eglin Natural Resources Office will conduct a 100 percent gopher tortoise burrow survey within 30 days prior to the initiation of construction activities. Should burrows be identified during the survey, FWC Gopher Tortoise Permitting Guidelines (FWC 2017) would be followed for gopher tortoise burrow excavation and relocation to suitable habitat on Eglin AFB. Additional conservation measures specific to protection of the gopher tortoise are included in the BA (Appendix C). Per analysis in the BA, negligible adverse impacts to the gopher tortoise populations are anticipated.

Eastern Indigo Snake. In order to avoid direct impacts to or harassment of the Eastern indigo snake, Eglin will implement conservation measures described in the Eastern Indigo Snake Programmatic
Biological Opinion (USFWS 2009) during construction. These measures include the inspection of gopher tortoise burrows, or other refugia where a snake could reside, and the relocation of all individuals prior to the initiation of construction activities (see Chapter 4). Per the analysis in the BA, it is anticipated that the Proposed Action is “not likely to adversely affect” the Eastern indigo snake. Thus, the requirements of Section 7 of the ESA are fulfilled for the Eastern indigo snake, and no further actions are required.

*Florida Pine Snake.* There is potential that Florida pine snakes could be directly impacted by construction or operational vegetative maintenance activities. The Florida pine snake spends most of the time underground in refugia such as stump holes, burrows that it excavates, or burrows of other animals, such as the gopher tortoise and pocket gopher. During the months of May through October, this species may occasionally be encountered on the surface, and direct physical impacts would be more likely during this period. To minimize potential impacts to this species, the Eglin Natural Resources Office will inspect gopher tortoise burrows and other refugia during the pre-construction protected species survey. If found during the survey or any required gopher tortoise burrow excavations, individuals would be relocated to suitable habitat on Eglin in accordance with commensal relocation procedures contained within the FWC Gopher Tortoise Permitting Guidelines (FWC 2017). There is potential that this species would not be found during the pre-construction surveys or that individuals could immigrate onto the Instrument Observation Area post-construction. However, given their preference to remain underground, the likelihood that individuals would be struck by construction or vegetative maintenance equipment is considered low. Due to the implementation of BMPs and their fossorial nature, negligible risk to individuals and no risk to Florida pine snake populations are anticipated.

*Okaloosa Darter.* Potential direct physical impacts to the Okaloosa darter and darter habitat modifications due to erosion within the Proposed Action construction area would be prevented by avoiding construction or operational activities in the streams or on stream slopes to the greatest extent practicable as well as protecting slope interfaces from potential overland runoff from adjacent upland areas. Hand removal of canopy trees that interfere with line-of-sight requirements is not expected to cause or exacerbate erosion in darter streams. A description of all conservation measures specific to protection of the Okaloosa darter and its habitat is included in the BA (*Appendix C*). It is anticipated that the Proposed Action is “not likely to adversely affect” the Okaloosa darter. Thus, the requirements of Section 7 of the ESA are fulfilled for the Okaloosa darter and no further actions are required.

**Alternative 2.** Impacts associated with Alternative 2 would be the same as those described for Alternative 1. Impacts to special status species may be experienced during the construction phase of the Proposed Action, which does not differ between alternatives. Flare use would occur within the same schedule as proposed for Alternative 1, and, although more flares would be dispensed during that time, the increased tempo of flare use would not confer unique or additional impacts to special status species.
3.4.2 Geology and Soils

Geological resources are defined as the geology, topography, and soils of a given area. Geology includes bedrock materials and mineral deposits. Topography describes the physical surface characteristics of the land such as slope, elevation, and general surface features. Soil refers to unconsolidated surface materials overlying bedrock or other parent material. The inherent properties of surface and subsurface soil and bedrock materials can influence the ability of an area to support development of man-made structures. The components and characteristics of the soil may also affect its drainage, erosion, and flooding potential, especially if the topography is sloped or disturbance to vegetative cover occurs. As a result of upland erosion, excess suspended and deposited sediment within waterways diminishes the health of aquatic plant and animal species, decreases the capacity of waterbodies, and alters stream hydrology.

3.4.2.1 Affected Environment

There are three soil types within the Proposed Action footprint: Lakeland sand makes up approximately 90% of the Instrument Observation Area, with a smaller pocket of Chipley and Hurricane soils and Foxworth sand in the southwestern corner (NRCS 2020). Lakeland sands extend to a depth of 80 inches and are excessively drained. The majority of the site, including the entire Minimum Safety Buffer area, is essentially flat (Lakeland sand with 0-5 percent slopes), with Lakeland sand 5 to 12 percent slopes surrounding the stream to the northeast and 12 to 30 percent slopes around the stream to the southeast.

The Eglin AFB habitat rehabilitation program is designed to reduce or eliminate sediment inputs from borrow pits and road-stream crossings in support of the Okaloosa Darter Recovery Plan (USFWS 1998) and rehabilitation efforts are outlined in the Eglin AFB Erosion Control Component Plan (Eglin AFB 2018). Two first-order streams within the Rocky Creek stream complex are located within the Instrument Observation Area, and the stream in the southeast portion of the proposed construction footprint was identified for erosion rehabilitation due to road and stream crossing impacts (Figure 3-2). An unnumbered road west of Range Road 475 (site number NPS 79 to the north of the stream and site number NPS 80 to the south) was closed and rehabilitated in 1998. Grade control measures (such berms vegetated with bahia grass) were installed along the slopes to stabilize soil, arrest overland water flow and soil transport, and protect stream water quality. The effort to rehabilitate the 0.23-acre NPS 79 area is estimated to have reduced soil loss by 98.3 tons per acre per year, and rehabilitating the 0.35-acre NPS 80 reduced soil loss in the system by 100.2 tons per acre per year. Ongoing monitoring verifies that the rehabilitation effort appears well integrated into the natural system and operationally successful for erosion control.

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1 See the Eglin AFB INRMP (USAF 2017) for comprehensive background information on Eglin’s geology, topography, and soils.
Figure 3-2. Erosion Control Component Plan Sites (Eglin AFB 2018)
3.4.2.2 Environmental Consequences
The analysis of potential environmental consequences focuses on ground disturbing activity related to the establishment and maintenance of the Minimum Safety Buffer, Instrument Observation Area, and access road and utility corridors. Factors considered in the analysis were physical impacts that could result in substantial soil erosion or loss of topsoil that would result in damage to waterways, ground instability, or impacts to animal or human habitats. The Proposed Action is not anticipated to impact geologic or topographic resources.

3.4.2.2.1 No Action Alternative
Under the No Action Alternative baseline geology, topography, and soil conditions would continue. No additional impacts to these resources would be anticipated.

3.4.2.2.2 Alternative 1, Proposed Action
Soils would be disturbed as a result of clearing up to 209 acres of vegetation to establish the Minimum Safety Buffer area, Instrument Observation Area, and access road and utility corridors. The Minimum Safety Buffer area would be completely cleared and maintained as open sand or gravel beneath the HSFTT, while the upland portions of the Instrument Observation Area would be harvested, cleared, and periodically maintained as low-growing groundcover and shrub vegetation generally not to exceed 3 feet in height. As discussed in Section 3.4.1.2.1, trees in the stream bank and slope area exceeding line-of-sight height requirements would be hand cut and removed, which presently include pine species with approximately 20 percent cover in this area (Figure 2-4). Negligible impacts to soils along the stream banks and slopes, including the rehabilitated site, are anticipated as trees extending into the line-of-sight would be hand cut, because any stormwater flow from upland areas would be arrested by BMPs at the upland/slope interface and as appropriate where slope trees are removed, and at least 80 percent vegetative cover will be maintained. Roadways accessing the HSFTT or pathways established within the Instrument Observation Area will not be compacted or filled; instead, roadbed would be amended with clay as ruts may develop over time (Eglin AFB 1998).

When soils are disturbed, soil structure is modified and increased rates of wind and water erosion can occur; however, Lakeland sand is well-drained and, coupled with no-to-low slopes, there is negligible risk of flooding and water erosion in this area. Debris will be left onsite as well to minimize exposure to wind erosion. Undisturbed vegetation on the stream slopes will slow overland water flow during storm events and diminish the potential that eroded soil would reach the streams.

A NPDES Stormwater Construction Permit (Chapter 62-621.300[4] FAC) filed with the FDEP is required for ground disturbing activities. A Stormwater Pollution Prevention Plan would be prepared for the site in association with the NPDES permit and implementation of relevant BMPs and procedures would minimize impacts to soils resulting from construction activities. BMPs specified in the Stormwater Pollution Prevention Plan could include, but are not limited to, erosion control matting, silt fencing, brush barriers, designated construction equipment pathways and exits,
Figure 3-3. Proposed Action Area Hydrologic Connection to Coastal Resources
temporary and permanent seeding, the application of mulch, buffer zones, and dust control. The application of any or all of these BMPs would depend upon precise, specific ground conditions in the areas disturbed by construction. BMPs are further outlined in Chapter 4.

Due to the prevailing well-drained soil and low slope characteristics of the site, application of relevant BMPs, and hand cutting trees on slopes associated with streams, the potential impacts to soils would be negligible. Furthermore, it is not anticipated that these negligible impacts to soils would interact with other development projects or unrestored, erosional areas and cumulatively degrade streams, especially streams designated as Okaloosa darter habitat, in the Rocky Creek watershed and beyond.

3.4.2.2.3 Alternative 2, Increased Mission Tempo
Impacts associated with Alternative 2 would be the same as those described for Alternative 1. Impacts to geology and soils would be experienced during the construction phase of the Proposed Action, which does not differ between alternatives, and increased tempo of flare use would confer no unique or additional impacts.

3.4.3 Coastal Zone Management
Coastal zone management relates to specific additional protection of the rich natural, commercial, recreational, ecological, industrial, and aesthetic resources of the coastal zone through land use review and controls. In accordance with Section 307 of the Coastal Zone Management Act and 15 CFR 930 subpart C, Federal agency activities affecting a land or water use or natural resource of a state’s coastal zone must be consistent to the maximum extent practicable with the enforceable policies of the state’s coastal management program. The FDEP administers the Florida Coastal Management Program under the authority of the Florida Coastal Management Act (Chapter 380, F.S., Part II). The Study Area defined to evaluate the compatibility of the Proposed Action with coastal resources includes the review of coastal resources immediately adjacent or hydrologically connected to the ROI.

3.4.3.1 Affected Environment
The Minimum Safety Buffer and Instrument Observation Area are located in uplands, the southern extent of which is approximately 7.5 miles due north of Choctawhatchee Bay and 4.7 miles northeast of Rocky Bayou, which is designated as a State Aquatic Preserve (FDEP 2019). Although the ROI is not directly adjacent to coastal resources or the Preserve, it is hydrologically connected through the headwaters of two first-order tributaries to Little Rocky Creek located in the northern and southern portions of the Instrument Observation Area (Figure 3-3). Little Rocky Creek and its tributaries and headwater streams of Long Creek originate in areas of the Maximum Safety Buffer. Little Rocky Creek converges with Rocky Creek approximately 0.6 stream miles southeast of the ROI and flows unimpeded to Rocky Bayou.
3.4.3.2 Environmental Consequences
Eglin AFB evaluated the Proposed Action against the enforceable policies of the Florida Coastal Management Program and is coordinating this Draft REA with the Florida Clearinghouse to obtain concurrence with the Coastal Consistency Determination (Appendix D).

3.4.3.2.1 No Action Alternative
Under the No Action Alternative baseline conditions for coastal zone management would continue. No additional impacts to these resources would be anticipated.

3.4.3.2.2 Alternative 1, Proposed Action
A review of the 24 Florida statutes of the Florida Coastal Management Program is summarized in Appendix D. The Proposed Action area is fully located in upland areas, inland from Choctawhatchee Bay and Rocky Bayou. There will be no land disturbing activities on the coast or in areas directly adjacent to coastal resources. All vegetation removal and maintenance associated with the Proposed Action would occur in the flat, upland areas (see Section 3.4.2), and, although hydrologically connected to Rocky Bayou, impacts would be contained within the Proposed Action footprint to the greatest extent possible to minimize migration potential into the greater coastal watershed. Stream slopes would not be cleared, and impacts to the Rocky Creek tributaries within the Instrument Observation Area would be avoided to the greatest extent possible through the application of relevant buffers and BMPs. The Proposed Action would be constructed in accordance with ongoing conservation of Florida’s coastal resources and is determined to be consistent with the enforceable policies of the Florida Coastal Zone Management Program. The State of Florida’s final concurrence with this determination will be concluded through the FDEP ERP process. As no to negligible impacts to Coastal Zone resources are anticipated, the Proposed Action would not contribute incremental impacts that could become cumulatively significant to coastal resources in the region.

3.4.3.2.3 Alternative 2, Increased Mission Tempo
Impacts associated with Alternative 2 would be the same as those described for Alternative 1. Impacts to coastal zone management would be experienced during the construction phase of the Proposed Action, which does not differ between alternatives, and increased tempo of flare use would confer no unique or additional impacts.

3.4.4 Water Resources
Water resources include surface water, floodplains, and groundwater. (Section 3.4.1 evaluates the presence of wetlands and identifies surface waters in the Study Area; Section 3.4.3 discusses surface water connections to coastal resources). A floodplain is defined as the lowlands and relatively flat areas adjoining inland and coastal waters, including flood prone areas of offshore islands that are, at a minimum, prone to the 100-year flood. (The 100-year flood is a flood having a 1 percent chance of occurring in any given year.) Floodplains are valued for their natural flood and erosion control, enhancement of biological productivity, and socioeconomic benefits and functions.

Clean Water Act. The Clean Water Act establishes a regulatory framework to reduce pollutant discharges into waterways and manage polluted runoff. Key components of the Clean Water Act pertinent to the Proposed Project include the following Sections:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Section 303(d) authorizes states to identify impaired waters that do not meet standards for their designated uses, and develop Total Maximum Daily Loads, which establish the maximum amount of a pollutant allowed in a waterbody.
- Section 401 requires that states certify water quality associated with activities that result in discharges of dredged or fill material into jurisdictional water bodies. Section 401 certification is required for any activity (including but not limited to the construction or operation of facilities) that may result in any discharge into navigable waters. The Northwest Florida Water Management District coordinates and regulates water quality in this region of the state pursuant to Clean Water Act Section 401(a)(1) and the state water quality rules under Sections 373 and 403, Florida Statutes.
- Section 402 regulates point-source and nonpoint-source discharges to surface waters through the NPDES program.
- Section 404 establishes a program that regulates the discharge of dredge and fill material into Waters of the U.S., including wetlands. It is the policy of Eglin AFB to avoid impacting wetlands to the greatest extent possible.

Safe Drinking Water Act. The Safe Drinking Water Act authorizes the USEPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. Amendments to the Act in 1996 allowed for recognition of source water protection, operator training, funding for water system improvements, and the provision of public information regarding safe drinking water.

Floodplain Regulation. Executive Order 11988, Floodplain Management (1977) requires that actions avoid floodplains, and if no practicable alternative exists, to design actions to minimize risk of loss of human life, damage to property, or interruption of the natural and beneficial values of floodplain resources. Agencies are required to make a finding that there is no practicable alternative before taking action that would encroach on a 100-year floodplain (7 CFR 650.25). The Federal Emergency Management Agency (FEMA) identifies flood hazard areas that are depicted on Flood Insurance Rate Maps (FIRMs).
3.4.4.1 Affected Environment
Two first order streams originate within the Instrument Observation Area, and there are small riparian wetland and floodplains areas associated with and directly adjacent to them (Figure 3-4 and Table 3-4). There are no other surface waters within the Proposed Action construction footprint.

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<th>Resource</th>
<th>Minimum Safety Buffer</th>
<th>Instrument Observation Area</th>
<th>Maximum Safety Buffer</th>
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</tr>
<tr>
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<td>Floodplains (acres)</td>
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<td>5.63</td>
<td>555.02</td>
<td>560.65</td>
</tr>
</tbody>
</table>

3.4.4.2 Environmental Consequences

3.4.4.2.1 No Action Alternative
Under the No Action Alternative baseline conditions for water resources would continue. No additional impacts to these resources would be anticipated.

3.4.4.2.2 Alternative 1, Proposed Action
Although timber harvest and regular vegetation maintenance will occur over 209 acres, due to the well-drained soils present, lack of topographical slopes on regularly managed areas, avoidance of activity in stream and wetland areas to the greatest extent possible, and minimal construction of impervious surface proposed in association with the instrument observation pads and tower footers, it is anticipated that the Proposed Action will have no to negligible impacts on surface water resources in the ROI, including wetlands, and no impacts to floodplains and groundwater. Negligible impacts to stream and riparian wetland habitat along the streambanks and slopes are anticipated as trees extending into the line-of-sight would be hand cut and because any stormwater flow from upland areas would be arrested by BMPs at the upland/slope interface and as appropriate where slope trees are removed. Access roads will not cross or be located in proximity to any water resources; however, the potential need to construct stormwater management features associated with these roads will be determined in the FDEP ERP permitting process, which will further ensure that no associated impacts to water resources are experienced. Further rationale for this determination is given in Section 3.4.1 Vegetation, 3.4.2 Soils, and 3.4.7 HM/HW.

3.4.4.2.3 Alternative 2, Increased Mission Tempo
Impacts associated with Alternative 2 would be the same as those described for Alternative 1. Impacts to water resources would be experienced during the construction phase of the Proposed Action, which does not differ between alternatives, and increased tempo of flare use would confer no unique or additional impacts.
Figure 3-4. Water Resources Within the Proposed Project ROI
3.4.5 Cultural Resources

Historic, architectural, archaeological, and cultural resources are expressions of human culture and history in the physical environment, and may include archaeological sites, buildings, structures, objects, districts, works of art, architecture, and natural features that were important in past human events. They may consist of physical remains, but also may include areas where significant human events occurred even though evidence of the events no longer remains. Historic, architectural, archaeological, and cultural resources also include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups.

Several laws and regulations require that possible effects on historic, archaeological, and cultural resources be considered during the planning and execution of Federal undertakings, including the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Act, and the Native Graves Protection and Repatriation Act.

Section 106 of the NHPA requires a Federal agency with jurisdiction over a proposed Federal action (referred to as an “undertaking”) to take into account the potential effects of the undertaking on historic properties. “Historic properties” refers to “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register [of Historic Places]” (36 CFR 800.16(l)(1)). The Proposed Action is an undertaking with the potential to affect historic properties, and therefore is subject to compliance with the requirements of the Section 106 process. This REA was prepared in compliance with Section 106 and its implementing regulations.

The Section 106 process is accomplished through consultation with the State Historic Preservation Office (SHPO), Federally-recognized Native American tribes, local governments, and other interested parties. The goal of consultation is to identify potentially affected historic properties, assess effects to such properties, and seek ways to avoid, minimize, or mitigate any adverse effects on such properties. Consultation with Native American tribes regarding issues related to Section 106 must recognize the government-to-government relationship between the Federal government and tribes, as set forth in EO 13175, Consultation and Coordination with Indian Tribal Governments and the Presidential Memorandum on Tribal Consultation (2009).

Eglin AFB operates under an Integrated Cultural Resources Management Plan (ICRMP) (Eglin AFB 2017c) and AFBI 13-212, Range Planning and Operations, to avoid and minimize potential impacts on cultural resources.

3.4.5.1 Affected Environment

For the purpose of the Section 106 consultation process with the Florida SHPO, the Area of Potential Effect (APE) was defined as an area encompassing ±220 acres of cleared land comprised of the direct impact area (Minimum Safety Buffer area, Instrument Observation Area, and proposed road and utility corridor locations).
Portions of TA C-53 within the APE (but outside of the Proposed Action construction footprint) have been identified as a historic district, which was determined as eligible for listing on the National Register of Historic Places (NRHP) (Mathews et al. 1994; Bourgeois, et al. 1999; Hampton and Kennedy 2007; Meyer et al. 2000). This designation is based on the presence of World War II-era range and supporting infrastructure. Currently, the Center for Environmental Military Management of Military Land is expanding the boundary of the historic district based on historical maps and aerial images and evaluating the potential for additional contributing elements to the district (Meyer 2020); however, this expansion does not affect district elements already identified within the Proposed Action area.

### 3.4.5.2 Environmental Consequences

Impacts to cultural resources would include adverse effects to the integrity of a historic property or to a known cultural resource or a cultural resource that has not yet been evaluated to determine its eligibility to the NRHP.

#### 3.4.5.2.1 No Action Alternative

Under the No Action Alternative, no impacts to cultural resources would be anticipated.

#### 3.4.5.2.2 Alternative 1, Proposed Action

No known buried cultural resources are within the vicinity of the Project Area (Eglin AFB 2017c). It is unlikely that unknown cultural resources would be impacted by clearing activities as no root raking or subsurface digging is proposed across the Minimum Safety Buffer and Instrument Observation area and thus minimal soil disturbance is anticipated to occur. The installation of utility poles will require subsurface disturbance, but roads accessing or within the HSFTT will not be grubbed, compacted, or filled. If previously unknown archaeological resources are discovered during construction activities, work would be stopped immediately, the Base Historic Preservation Officer and the Cultural Resources Branch of the 96th Civil Engineer Group/Environmental Assets would be notified, and the Eglin AFB procedures for caretaking and communicating inadvertent discovery would be implemented per the Eglin AFB ICRMP (Eglin AFB 2017).

All existing structural elements on TA C-53 that contribute to the designation of the historic district do not occur within and thus will be avoided during construction, operation, and maintenance activities, and it is not anticipated that reactivation of TA C-53 would be out of character with the original use for which the historic district is designated.

Due to the minimal subsurface disturbance, avoidance of existing historic district contributing elements, and compatible proposed use of the range, it is anticipated that Alternative 1 would have negligible risk to encounter unknown cultural resources and no impact to the integrity of setting of the historic district during construction, operation, and maintenance activities. The Florida SHPO concurred with the determination that the Range C-53 Historic District appears to meet the criteria for listing in the National Register and that the proposed undertaking would have no adverse effect on historic properties or the Historic District (15 April 2020; Appendix E). As no impacts to cultural resources are anticipated, and because Eglin AFB manages all known cultural...
resources and characterizes and avoids impacts to unknown cultural resources through implementation of standard procedures identified in the Eglin AFB ICRM (Eglin AFB 2017c), cumulative impacts to cultural resources are likewise not anticipated.

Native American tribes with ancestral ties to installation lands include the Miccosukee Tribe of Florida, Muscogee (Creek) Nation, Poarch Band of Creek Indians, Seminole Tribe of Florida, Seminole Nation of Oklahoma, and Thlopthlocco Tribal Town. Eglin AFB operates under separate Memorandums of Understanding between the Muscogee (Creek) Nation and Thlopthlocco Tribal Town and is in the process of establishing a Programmatic Agreement (PA) with Muscogee (Creek) Nation, Poarch Band of Creek Indians, Seminole Nation of Oklahoma, and Thlopthlocco Tribal Town. The proposed PA will relieve the consultation requirements for proposed actions that do not affect pre-contact archaeological sites. Additionally, the Miccosukee and the Seminole Tribe of Florida have stated their preference to not be consulted about projects with no resources present. However, Eglin provided the tribal liaisons who have not concurred with the terms of exemption stated in the forthcoming PA information concerning activities that have no adverse effect to pre-contact properties due to the nature of these activities not being on the list of exempted actions. According to the Eglin AFB Installation Tribal Relations Officer, Ms. Maria Rodriguez, Eglin’s standard operating procedures for inadvertent discovery has been deemed sufficient by all tribal nations with ancestral ties to Eglin AFB.

3.4.5.2.3 Alternative 2, Increased Mission Tempo
Impacts associated with Alternative 2 would be the same as those described for Alternative 1. Impacts to cultural resources would be experienced during the construction phase of the Proposed Action, which does not differ between alternatives, and increased tempo of flare use would confer no unique or additional impacts.

3.4.6 Safety
Safety analysis addresses issues related to the health and well-being of both military personnel and civilians located in the vicinity of the Project Area. The primary safety concerns with regard to the Proposed Action include the probable occurrence of unexploded ordnance (UXO) within the construction and operational footprint.

3.4.6.1 Affected Environment
The 96 Test Wing Safety Office ensures the safe conduct of testing and training operations at Eglin AFB. Safety guidelines regarding range operations are specified in Air Force Instruction (AFI) 13-212, Range Planning and Operations; Eglin AFB Instruction (EAFBI) 13-212, Range Planning and Operations; and other range operation regulations and guidance documents.

All testing and training operations at Eglin AFB are evaluated for safety risks to military personnel and the public by the Eglin Safety Office. Based on the safety risks of the operation, the Eglin Safety Office determines the safety footprint, limits of restricted public access, and other operation-specific safety measures to be implemented to ensure the safety of participating
personnel, other user groups on the range, and the public. Manufactured items, such as commercially produced flares, also have safety specifications recommended by the manufacturer. The extent of site restrictions is based on evaluation of all potential safety risk factors, which include but are not limited to, noise levels, blast effects, munition projectile impacts, and potential presence of UXO. Almost the entire ROI has been determined as “probable” for the occurrence of UXO (Eglin AFB 2019c).

3.4.6.2 Environmental Consequences
Factors considered in the analysis of potential safety impacts in the ROI include potential for substantial hazard to personnel or the general public.

3.4.6.2.1 No Action Alternative
Under the No Action Alternative, no impacts to safety would be anticipated.

3.4.6.2.2 Alternative 1, Proposed Action
Although portions of TA C-53 and the Maximum Safety Buffer area will remain open to the public for recreation, access within the Instrument Observation Area would be secured with perimeter fencing and would be inaccessible to the public at all times. At least 99.9 percent of all flare testing operations would be confined within the boundaries of the Instrument Observation Area, and the Maximum Safety Buffer area enforced during kinematic flare tests. Due to these restrictions, the Proposed Action is not anticipated to have any effect on public safety.

This area is in a known unexploded ordnance (UXO) area and may require an Explosive Safety Submission approved by the DoD Explosive Safety Board prior to any ground intrusion by construction, operation, and maintenance personnel. Intrusion includes removal of trees and ground disturbance by heavy equipment, which will require clearance by qualified UXO personnel. Once the area is evaluated and cleared by appropriate personnel it will be determined as low safety risk to proceed with construction, operation, and maintenance activities. If UXO are discovered during clearing, construction, operation, and maintenance, the responsible Safety authority will immediately reassess the risk level and appropriate UXO construction support required.

3.4.6.2.3 Alternative 2, Increased Mission Tempo
Impacts associated with Alternative 2 would be the same as those described for Alternative 1. No impacts to public safety are anticipated during the construction phase of the Proposed Action. Although with increased operations tempo approximately three times the number of flares would be expended, the same safety considerations and constraints would be implemented and no additional risk is anticipated.
3.4.7 Hazardous Materials and Waste, Toxic Substances, and Contaminated Sites

The definition, use, storage, transport, or disposal of hazardous materials (HM), chemicals, substances, and wastes (HW) is governed by Federal, state, and local laws, including the Comprehensive Environmental Response, Compensation, and Liability Act (42 USC Section 9601 et seq.), Emergency Planning and Community Right-to-Know Act (42 USC Section 11001 et seq.), Toxic Substances Control Act (15 USC Section 2601 et seq.), the Resource Conservation and Recovery Act (RCRA) (42 USC Section 6901 et seq.), and other applicable Federal and state and regulations and relevant EOs. The Clean Water Act, as amended by the Oil Pollution Act, requires spill response plans for facilities that store oil-based or oil products. In Florida, the FDEP maintains regulatory oversight of HM and HW. The Defense Environmental Restoration Program (DERP), which includes the Installation Restoration Program and Military Munitions Response Program, was developed by DoD to identify, characterize, and remediate contamination from past HW disposal operations and HM spills at DoD facilities. Air Force Policy Directive 32-70, Environmental Quality, and AFI 32-7000 series incorporate the requirements of all Federal regulations and other AFIs and DoD Directives regarding the management of HM/HW and toxic substances.

3.4.7.1 Affected Environment

All hazardous substances at Eglin AFB are strictly managed in accordance with Federal and State of Florida protocols. Hazardous substances at Eglin AFB are managed by the 96 Civil Engineer Group/Environmental Management Branch through their Hazardous Materials Management Program in accordance with the Eglin AFB Comprehensive Hazardous Waste Management Plan ([HWMP] Eglin AFB 2019). Eglin AFB is a Large Quantity Generator of HW generating over 1,000 kilograms per month (USEPA 2019). The Eglin AFB Spill Prevention, Control, and Countermeasures Plan ([SPCC] Eglin AFB 2011) outlines required procedures and defines responsibilities in response to a HW spill, and implementation of the Stormwater Pollution Prevention Plan (USAF 2015) further protects surface waters from potential impacts from hazardous substances. A total of 421 DERP sites have been identified on Eglin AFB. Most are closed with land use controls, with 87 sites still in the process of active restoration. There are no active DERP sites within the Proposed Action construction and maintenance footprint; however, there is one identified Munitions Response Site (POI-605) in the Maximum Safety Buffer area (near to the intersection of Range Road 200 and 487). This site is recommended for No Further Action as no munitions and explosives of concern were located during an extensive site survey.

3.4.7.2 Environmental Consequences

The magnitude of potential impacts associated with hazardous substances depends on their toxicity, transportation, storage, and disposal. Factors included in the analysis were the potential for substantial increases in the human health risk or environmental exposure through storage, use, transportation, or disposal of HM, HW, or toxic substances. An increase in the quantity or toxicity
of HM and/or HW handled by a facility may also result in a potentially adverse effect, especially if the facility is not equipped to handle a new waste stream.

For contaminated sites, factors considered included the potential for disturbance of a contaminated site and potential changes in remediation status of existing sites/addition of new sites. A threshold for DERP impacts would be exceeded if the Action Alternatives were not compatible with existing land use controls or caused interference with existing remediation activities; had the potential to cause migration of contamination; or exposed human receptors, including construction workers or site employees, to unmitigated health risks associated with potential direct contact with contaminants.

3.4.7.2.1 No Action Alternative
Under the No Action Alternative baseline conditions for HM/HW, toxic substances, and contaminated sites would continue. No additional impacts to these resources would be anticipated.

3.4.7.2.2 Alternative 1, Proposed Action

Construction. Hazardous materials associated with site preparation, construction, and maintenance include petroleum, oils, and lubricants used to power and maintain equipment and vehicles. Handling of all HM used and HW generated during site preparation, construction, and maintenance activities would be the responsibility of the construction contractor. All construction equipment would be maintained off-site in accordance with the operator’s petroleum, oil, and lubricant management procedures. As needed during construction and maintenance operations, all HM would be used and stored on site by the maintenance contractor in accordance with the Eglin AFB HWMP (Eglin AFB 2019), SPCC (Eglin AFB 2011), and other Federal, State of Florida, and DoD/USAF HM management protocols. Due to the low volumes of HM and HW that would be associated with the Proposed Action, minimal risk of HM spill or seepage, and the adherence to all applicable management plans by Eglin AFB reservation staff and maintenance contractors, it is not anticipated that these resources would be impacted by the implementation of Alternative 1.

There is no demolition of existing structures associated with the Alternative 1, and thus no potential that other toxic substances (e.g., lead, asbestos, polychlorinated biphenyls, paints, mercury, etc.) would be introduced into the environment during construction activities. Likewise, no impacts to the DERP site in the ROI are anticipated.

Operation. The Proposed Action would release and burn up to 810 flares per year, most of which are anticipated to be fully consumed/combusted in the air. When flares are deployed, the spent aluminum casings are generally retained in the launching device, although some may fall to the ground. Debris is retrieved and managed post-event by the sled operators, and material/casings would be disposed of in accordance with appropriate safety measures and procedures appropriate for the materials being tested. Typically, the DoD requires greater than 99 percent flare ignition reliability (USAF 1997); however, as some of the flares tested in this location may be developmental flares, a greater volume may dud and reach the ground intact. Duded flares may be
retrieved by ground personnel in post-event clean up or consumed in range clearance/vegetative management prescribed fires.

Some flare debris may be deposited on the ground, including small amounts of plastic, nylon, copper, and steel from internal flare components (USAF Pacific Air Forces Command 2008) and potentially trace compositional elements. Constituents vary depending on the flare type, but may include small quantities of magnesium, Teflon, white phosphorous, and other materials of varying toxicity that produce varying heat signatures when ignited. Based on common grain compositions, the elements fluorine, chlorine, nitrogen, magnesium, boron and carbon are expected to be released in various states of oxidation or reduction, depending on how complete the combustion process is. Pyrophoric compositions are expected to contain hydrides of metals and phosphorus.

Although flares could potentially result in the release of trace amounts of toxic substances as they combust or decompose, the Proposed Action would have negligible potential to cause accumulation or migration of flare constituents as range debris would be managed under EAFBI 13-212, Range Planning and Operations (Eglin AFB 2015). Like all Eglin land ranges, the potential for toxic material releases are reduced by periodically removing test debris from the test area. The Eglin Operations Maintenance Services contractor maintains processes and personnel who execute removal of range/munitions residue within the Eglin land range test areas. The procedure ensures that all material processed is free of hazards to human health and safety and that all wastes are managed as required by applicable Federal, state, and local laws and DoD and Air Force procedures.

It is not anticipated that the relatively negligible volume of HM used and HW disposed in support of construction, maintenance, or operation of the HSFTT would interact with past, present, or future uses in a way that would overwhelm the Eglin AFB Hazardous Materials Management Program, require changes to the Eglin AFB Comprehensive HWMP (Eglin AFB 2019), or cause Eglin AFB to violate its HW permit (USEPA 2019).

3.4.7.2.3 Alternative 2, Increased Mission Tempo
Impacts associated with Alternative 2 would be the same as those described for Alternative 1. Negligible impacts to the management of hazardous materials and waste, toxic substances, and contaminated sites would be experienced during the construction phase of the Proposed Action, which does not differ between alternatives, and in general flare use associated with Alternative 2 would confer no unique or additional impacts. However, with increased operations tempo, approximately three times the volume of spent flare casings and potential duded flares would be managed and disposed. Additionally, at three times the volume of flares consumed, there would be potential for three times the volume of constituents deposited in the soils surrounding the HSFTT; however, as with Alternative 1, test debris would be managed in accordance with EAFBI 13-212 to minimize potential accumulation or migration of trace toxic material in flare constituents.
3.4.8 Air Quality

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. A region’s air quality is influenced by many factors including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The Clean Air Act (CAA) and its subsequent amendments established the National Ambient Air Quality Standards (NAAQS) for what are commonly referred to as “criteria” pollutants: ozone, sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), particulate matter less than or equal to 10 microns in diameter (PM₁₀), particulate matter less than or equal to 2.5 microns in diameter (PM₂.₅), and lead. Volatile organic compounds (VOCs) are important ozone precursors emitted via anthropogenic sources, and are therefore analyzed to assess potential ozone formation. In addition to the ambient air quality standards for criteria pollutants, national standards exist for hazardous air pollutants (HAPs), which are regulated under Section 112(b) of the 1990 CAA Amendments. The National Emission Standards for Hazardous Air Pollutants regulate HAP emissions from stationary sources (40 CFR Part 61 and 63). Because of the low levels of emissions of these pollutants in the ambient air below the mixing height (3,000 ft AGL), HAPs are not quantified in this REA.

The FDEP Division of Air Resource Management monitors and maintains an annual emissions inventory, regulates mobile emissions sources, issues permits for the construction and operation of emissions sources, and ensures compliance with applicable regulations through conducting air inspections, reviewing reports, and pursuing enforcement. The FDEP sets permit rules and standards for individual emissions sources based on the size of the emission units and type of pollutants emitted.

3.4.8.1 Affected Environment

The Eglin AFB air quality regulatory area (the Mobile-Pensacola-Panama City-Southern Mississippi Intrastate Air Quality Control Region [40 CFR Part 81.68]) is in attainment for all criteria pollutants (EPA 2019). Eglin AFB operates under a Title V air quality permit (Eglin AFB 2019) as a major source of criteria pollutants and HAPs. Regulated operations at Eglin include a perchloroethylene dry cleaning facility, aerospace paint booths, boilers (fueled by natural gas and diesel), stationary Compression Ignition and Spark Ignition Reciprocating Internal Combustion Engines (typically used to power generators), a gasoline distribution terminal, gasoline storage tanks, and a relocatable air curtain incinerator (used to dispose fiberboard waste from munitions testing).

3.4.8.2 Environmental Consequences

Effects on air quality are determined based on changes in emissions of regulated pollutants relative to existing conditions, and impacts are reviewed for significance in light of Federal air pollution standards and regulations. Eglin AFB is located in an attainment area; therefore, a general conformity analysis is not required for the Proposed Action.
3.4.8.2.1 No Action Alternative
Under the No Action Alternative baseline air quality conditions would continue. No additional impacts to air quality would be anticipated.

3.4.8.2.2 Alternative 1, Proposed Action
The smoke and emissions produced by flares, and volume of the components thereof, are too small to create a concern with respect to NAAQS compliance. Some flares are ejected by pyrotechnic devices or contain mixtures or initiation devices that contain chromium and/or lead compounds. Both chromium and lead are listed as HAPs under the CAA. The results of health screening assessments for flare use determined that up to 67,000 flares can be released in a peak hour, and, for a typical target area of 10,000 acres, 220,000 flares could be released annually, without significantly increasing short- or long-term health risks from hexavalent chromium or lead (Air Force 1997). Given the comparatively small number of flares anticipated to be released annually under the Proposed Action (810), emissions from the proposed release of flares was not quantified.

Emissions from construction equipment used to clear the Instrument Observation Area and associated with the short-term and intermittent operational use of transport and maintenance equipment would be minimal and temporary in nature; thus, it is anticipated that the Proposed Action would have a negligible impact on air quality. Additionally, it is not anticipated that the small emissions associated with the Proposed Action would intermingle with existing emissions at Eglin AFB or past, present, or future actions in the region in a way that would cumulatively contribute to the degradation of local air quality or cause Eglin AFB to violate its air permit.

3.4.8.2.3 Alternative 2, Increased Mission Tempo
Impacts associated with Alternative 2 would be the same as those described for Alternative 1. Negligible impacts to air quality would be experienced during the construction phase of the Proposed Action, which does not differ between alternatives, and in general flare use associated with Alternative 2 would confer no unique impact. With increased operations tempo approximately three times the volume of flares would be ignited resulting in up to three times the volume of air emissions; however, as with Alternative 1, the anticipated volume of released flares would remain well beneath the amount known to increase risk of impacts to human health and the environment.
CHAPTER 4

Management Policies and Practices

4.1 Management Actions

The following management actions focus on avoidance and minimization of impacts to the resources analyzed in detail in this REA. They do not address all the standard procedures and measures required to be implemented for Eglin range operations, which include those specified in AFI 13-212, Range Planning and Operations; EAFBI 13-212, Range Planning and Operations; and other applicable range operation regulations and guidance documents. All personnel involved in testing operations at TA C-53 are expected to implement these conservation measures to reduce or eliminate the potential for adverse impacts on protected species and their habitats.

General Conservation Measures

- Ensure that all mission personnel are briefed and provided with restrictions regarding protected species (i.e., Range Standard Operating Procedures [RSOP] briefing), including maps when necessary;
- Eglin will follow protocols detailed in the latest USFWS-approved INRMP regarding wildfire protection, forestry management, and erosion control measures for sensitive species and habitats; and,
- Follow the requirements identified in the Eglin Air Force Base Instruction 13-212 Range Planning and Operations for wildfire prevention, reporting, and suppression procedures.
- If cultural materials are inadvertently discovered during testing/training operations, cease all activities in the immediate vicinity of the inadvertent find and contact the Cultural Resources Office (96 CEG/CEIEA).

Okaloosa Darter Conservation Measures

- Ground-disturbing activities will be avoided within 200 feet of Okaloosa darter streams to the maximum extent practicable;
- Vegetation removal near streams, riparian zones, and adjacent uplands will be the minimum necessary to achieve and maintain line-of-sight requirements;
- Follow Florida Silviculture Best Management Practices for timber management operations within stream riparian zones and adjacent upland slopes;
- Install staked silt fence upslope of the stream’s riparian wetland boundary after trees within the riparian zone and adjacent uplands are felled and removed. Other erosion control devices or methods will be employed as necessary to ensure no eroded soils reach the stream. Erosion control devices will remain in place through project completion and be
periodically inspected and maintained in accordance with all required pre-construction permits;

- The construction contractor will keep all equipment and personnel out of the stream and riparian zone at all times; and,
- Contact Eglin Natural Resources Office prior to attempting to retrieve a flare that lands in a stream.

Eastern Indigo Snake and Gopher Tortoise Conservation Measures

- Follow all relevant protective, avoidance, and minimization measures contained in the Eastern Indigo Snake Programmatic Biological Opinion (USFWS 2009) and USFWS-approved INRMP (USAF 2017) including, but not limited to, the following actions:
  - Eglin NRO will conduct a gopher tortoise burrow and Eastern indigo snake survey within 30 days prior to any land disturbance activities;
  - Construction activities will avoid any gopher tortoise burrows by 25 feet. If a gopher tortoise burrow cannot be avoided, the tortoise and commensals (including indigo snakes and gopher frogs) will be relocated in accordance with protocols established by the FWC and those contained in Eglin’s Threatened and Endangered Species Component Plan (USAF 2019);
  - Silt fence or another type of temporary exclusion barrier will be installed around the construction site when burrows are identified near construction activities in order to keep tortoises out of the construction area;
  - Follow the Standard Protection Measures for the Eastern Indigo Snake, as adapted by Eglin AFB. This requirement includes, but is not limited to, the following protection measure:
    - Eglin NRO will provide signage to the construction manager for posting at the construction site. This signage will include an image of the Eastern indigo snake, protections afforded under Federal law, instructions to avoid disturbing or coming into direct physical contact with an Eastern indigo snake, and a requirement to contact Eglin NRO immediately if a live or dead Eastern indigo snake is encountered.

4.2 Mitigation Measures

Compensatory mitigation is not required for any activity within the scope of the Proposed Action addressed in this REA.

4.3 Terms and Conditions of Consultations

No formal consultations occurred in relation to this Proposed Action. Management actions agreed to as a result of informal consultation that may have occurred with various regulatory agencies are described in Section 4.1.
CHAPTER 5

List of Agencies, Preparers/Contributors, and References

5.1 Agencies Consulted

This draft REA is submitted to the Florida State Clearinghouse for coordination of applicable state agency review.

5.2 Preparers and Contributors

This REA was prepared for, and under the direction of, Eglin AFB by Energy and Environment. Members of the professional staff are listed in Table 5-1.

<table>
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<th>Name</th>
<th>Responsibility</th>
<th>Education</th>
<th>Years’ Experience</th>
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<tr>
<td>Russ Burdge</td>
<td>Project Director; QA/QC Director</td>
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<tr>
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<td>Technical Analyst</td>
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<td>Amy Paulson</td>
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<td>Istvan Zsok</td>
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<td>Publications Specialist</td>
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5.3 References


____. 1998. Performance Work Statement for Consolidated Civil Engineer Services, F08651-00-D-001. 27 October.


Appendix A: Public and Agency Coordination of Draft REA [reserved]
Appendix B: Detailed Alternatives Analysis for Siting HSFTT on Alternate Eglin AFB Ranges
Figure B-1. Restricted Area Airspace Over Alternative HSFTT Locations at Eglin AFB
Figure B-2. Land Utilization, FY2018 (Scheduled Mission Hours/Years)
Figure B-3. Height Limits for Imaginary Surfaces, Class B Runways, and Assault Landing Zones
Figure B-4. Low Level Military Training Routes/Critical Approaches
Table B-1. Relative Suitability of Proposed HSFTT, Sites Ranked 1 through 6 (Best to Worst)

<table>
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<tr>
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<th>Location</th>
<th>Least Potential for Evacuation (40% Wt)</th>
<th>Least Conflicts with Existing Missions (35% Wt)*</th>
<th>Shortest Distance to Primary Road (5% Wt)</th>
<th>Electric Power Availability (5% Wt)</th>
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<td>3</td>
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* Based on historical utilization (ground profiles) overlapping the minimum safety buffer.
Appendix C: Biological Assessment
Mr. Bruce Hagedorn  
Chief, Eglin AFB Natural Resources Office  
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501 De Leon Street, Suite 101  
Eglin AFB, FL 32542-5133

Dr. Sean Blomquist  
Acting Field Supervisor, Ecological Services  
U.S. Fish and Wildlife Service  
1601 Balboa Avenue  
Panama City, FL 32405

Dear Dr. Blomquist:

The following information is being submitted to fulfill requirements under Section 7 of the Endangered Species Act (ESA). The purpose of this Biological Assessment (BA) is to review the proposed C-53 High Speed Flare Test Track (HSFTT) project in enough detail to determine whether the Proposed Action may affect any of the threatened, endangered, or candidate species listed below.

The following species are considered in this document:

**Threatened (T) and Endangered (E) Species:**
- Okaloosa darter (*Etheostoma okaloosae*) T
- Eastern indigo snake (*Drymarchon couperi*) T

**Candidate Species (C)**
- Gopher tortoise (*Gopherus polyphemus*) C

Other federally-protected species considered but not analyzed further in this BA include the endangered reticulated flatwoods salamander (*Ambystoma bishopi*) and endangered red-cockaded woodpecker (RCW) (*Picoides borealis*). Eglin Air Force Base (AFB) maintains Geographic Information System (GIS) location data for active and inactive RCW trees and RCW foraging habitat around active trees. The nearest RCW active clusters are 2.5 miles beyond the Action Area geographical boundary and only one inactive tree occurs within this boundary (*Figure 1*). GIS data also showed no potential flatwoods salamander breeding ponds within the Action Area. Due to the lack of habitat within the Action Area, these species were eliminated from further analysis.
Figure 1. Threatened and Endangered Species Habitat
The preparers of this document conducted a site review with a representative from the Eglin Natural Resources Office (NRO) and U.S. Fish and Wildlife Service (USFWS) on October 16, 2019. The purpose of this meeting was to conduct a general evaluation of streams within the Instrument Observation Area (IOA) (Figure 1) including their potential to support the Okaloosa darter, discuss habitat alteration that may result from implementation of the Proposed Action, and best management practices that may reduce or eliminate adverse impacts to the species considered in this BA.

**Proposed Action**

In support of their developmental test and evaluation mission, the United States Air Force (USAF) proposes to provide capability to evaluate flare performance through the activation of Test Area (TA) C-53 and installation and operation of a High Speed Flare Test Track, associated measurement instrumentation, and support infrastructure on TA C-53 at Eglin AFB.

**Test Area C-53**

TA C-53 encompasses 1,341 acres (2.1 square miles) on the east side of the Eglin Reservation (Figure 2). It was used as a gunnery range during World War II and supported personnel training and weapons testing and evaluation during the early 1950s to 1965. While its early development and historic uses have always been to support Eglin test and training activities, TA C-53 is currently deactivated and is designated as idle and reserved for future missions. The land is not actively managed or maintained as a test range, but portions are open to outdoor recreation and both forestry and prescribed fire activities have occurred there in the recent past.
Figure 2. Location of Test Area C-53
High Speed Flare Test Track

A HSFTT consists of two towers with joining cables that define the track for the flare dispensing payload (Figure 3). The payload traveling the cable track uses high-pressure steam propulsion to achieve the speeds required for realistic testing scenarios.

Figure 3. High Speed Flare Test Track Flight Operations

A HSFTT is used for testing of all flares, including both conventional and kinematic flares. As opposed to conventional flares that use pyrotechnics and gravity to lure infrared (IR)-guided missiles away from aircraft, kinematic or thrusted flares are technologically equipped to self-propel along specific trajectories that mimic, and thus protect, the targeted aircraft. Flares consist primarily of magnesium, Teflon, and Viton (MTV) pyrotechnic compositions and pyrophoric (activated iron that rusts away) foils. Flares are usually fully consumed during use leaving minimal fallback debris after burnout, but may release fluorine, chlorine, nitrogen, magnesium, boron, carbon, or hydrides of metals and phosphorus in various states of oxidation or reduction, depending on how complete the combustion process is.

Construction

The total length of the flare test track is 4,253 feet, including 3,000 feet for the HSFTT, 500 feet beyond each track terminus for cables, and 253 feet of utility easements and other setup requirements. Associated construction requirements include the following connected actions (Table 1):
**Towers.** The design of the HSFTT is modelled after a ground-based sled track that is currently in operation elsewhere. The flares on the original design eject 25 feet into the air and completely burn out before landing; however, the design of the HSFTT at Eglin will have a dispense point 50 feet above ground level (AGL), therefore increasing the time for burnout. The start tower would be 21 feet tall AGL and the end tower 200 feet AGL. The test track would be oriented in an east-west configuration, with camera pad locations north and south of the fixture to maximize visibility during daylight and nighttime hours. The test track is a permanent fixture; however, cabling between towers could be de-tensioned, lowered, and stored during major storm events.

**Concrete Pads.** Concrete pads would be constructed as follows:

- Two 15-foot by 20-foot concrete pads at start tower
- One 22-foot by 20-foot concrete anchor pad at the start tower
- One 22-foot by 20-foot concrete footer at the end tower
- One 22-foot by 20-foot concrete anchor pad at the end tower
- Six 20-foot by 20-foot concrete pads for instrumentation along the IOA
- One 20-foot by 20-foot concrete pad at the start tower for the control van

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<td>600</td>
</tr>
<tr>
<td>Start Tower Concrete Anchor Pad</td>
<td>1 at 22 x 20</td>
<td>440</td>
</tr>
<tr>
<td>End Tower Concrete Anchor Pad</td>
<td>1 at 22 x 20</td>
<td>440</td>
</tr>
<tr>
<td>End Tower Concrete Footer</td>
<td>1 at 20 x 20</td>
<td>400</td>
</tr>
<tr>
<td>Instrumentation Concrete Pads</td>
<td>6 at 20 x 20</td>
<td>2,400</td>
</tr>
<tr>
<td>Control Van Concrete Pad at Start Tower</td>
<td>1 at 20 x 20</td>
<td>400</td>
</tr>
<tr>
<td>Water Storage Tank Gravel Pad at Start Tower</td>
<td>1 at 15 x 15</td>
<td>225</td>
</tr>
<tr>
<td>Power Line and Associated Right-of-Way (ROW), including</td>
<td>40 ft wide ROW easement following roadbed</td>
<td>120,080 (2.76 acres)</td>
</tr>
<tr>
<td>Well and Water Conveyance System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unpaved Access Roads</td>
<td>3,002 x 20 east 3,740 x 20 west</td>
<td>60,040 (1.72 acres) 74,800 (1.38 acres)</td>
</tr>
<tr>
<td>Perimeter Fencing</td>
<td>12,800 linear feet</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Access Roads. Approximately 3,002 linear feet of new, unpaved road would be constructed to provide access to the HSFTT to the east and 3,740 linear feet of new, unpaved road would be constructed providing access to the west. New roads would be approximately 20-feet wide and would not require the establishment of ditch, swale, or other drainage feature adjacent to the roadbed. Site access roads would immediately tie into existing, unpaved Range Roads (RR) and the greater Eglin AFB transportation network and would not include stream or wetland crossings. No root raking or grubbing would be required for road construction. Where necessary, vegetation would be cut and mulched to ground level along the required travel route; however, the majority of road construction would be located within the cleared IOA. Final design and location of access roads is not known at this time, but a 200-foot study area envelope is analyzed around notional routes (Figures 4 and 5) to capture the potential impacts of any onsite alterations as the roads are constructed as well as potential impacts of utilities that would be installed to follow the roadways.

Utilities. Providing utilities to the site includes provision of both power and water to support the execution of testing activities. No office, control, or bathroom facilities are currently proposed. Provision of utilities includes the following actions:

- Connecting to the power grid system currently located along the north side of TA C-53 and RR 200 and installing a power connection at the start and end towers of the sled fixture and instrument pads. Power will be required at each of the instrumentation pads, requiring burial of 220V 3-phase power and power panel installation or installation of power line and poles along the boundary of the IOA. Extended and/or installed power lines would require a 40-foot-wide easement and would generally follow the route of existing and new roads. A 200-foot study area envelope is analyzed around notional road routes to capture the potential impacts of any onsite alterations as the roads are constructed as well as potential impacts of utilities that would be installed to follow the roadways.
- Installing a water well, routing water lines to the start tower, and constructing a 15-foot by 15-foot gravel pad at the start tower for the placement of a water storage tank. This water would be cleaned and filtered, but does not necessarily need to be potable to support testing operations. Testing operations may require the consumption of up to 2,500 gallons per day.

Perimeter Fencing. Barbed-wire/concertina fencing would be installed around the perimeter of the IOA (approximately 12,800 linear feet). Appropriate informational and warning signs would be posted.

Site Preparation and Maintenance

TA C-53 would be divided into three separate areas (Figure 4), dependent on the vegetation management requirements pertaining to risk of fire from flare deployment and line of sight constraints from observation pads.

Minimum Safety Buffer. A minimum safety buffer of 200-feet (30.4 total acres) horizontally offset from the 3,000-foot HSFTT track would be established and maintained vegetation-free with dirt/sand or gravel substrate to reduce risk of fire from flare deployment immediately beneath and surrounding the track (Figures 5 and 6). Establishing the Minimum Safety Buffer area entails
commercial timber harvest followed by cutting trees and other remaining vegetation, and debris would be mulched and spread across the IOA (see below). The Minimum Safety Buffer also includes a 500-foot AGL vertical buffer activated during testing operations. Ninety-nine (99) percent of all flare types are expected to burn out over or land within the Minimum Safety Buffer.

**IOA.** A cleared, maximum 2,400-foot by 4,000-foot line-of-sight area setback from the HSFTT is recommended for the effective function of observation instrumentation (Figures 5 and 6); however, in order to conform to available space at TA C-53 the north camera pad setback is reduced to 544 feet from the sled track (194 total acres). Establishing the IOA entails commercial timber harvest followed by cutting trees and woody vegetation to near ground level leaving roots in place and mulched vegetation on site. Prescribed fire or herbicides may also be employed to assist in reducing vegetation if appropriate for site conditions. Vegetation in the IOA would generally be maintained lower than 3 feet from ground level through mowing and herbicide/prescribed fire treatments as needed. To effectively observe the flare tests and minimize visual obstructions, vegetation must remain below 3 feet relative to the ground-level sight view between the instrumentation pads and the towers, and this vegetation height/sight requirement means that in some areas vegetation may be allowed to grow higher than 3 feet, particularly in low-lying wetland areas and adjacent upland slopes.

As needed, best management practices to control erosion on the site would be employed during construction and after placement of the HSFTT and instrumentation. Best management practices may include retaining grasses, shrubs, and low-growing vegetation (outside of the 200-foot Minimum Safety Buffer) and planting or seeding native grasses to stabilize soils and promote stormwater infiltration. If needed, swales may also be created to further promote stormwater infiltration and minimize runoff to nearby streams. All erosion and sediment control practices will be implemented in accordance with the Eglin AFB Integrated Natural Resources Management Plan (INRMP) (USAF 2017), including relevant Component Plans. If needed to minimize wildfire risk, fire breaks or wildland fire lines may be established at the TA in accordance with the Eglin AFB Wildland Fire Management Plan (USAF 2018a), which includes protective measures for threatened and endangered species and their habitat. Final selection and implementation of appropriate best management practices would occur as part of the site preparation and construction activities.

**Maximum Safety Buffer.** The Maximum Safety Buffer is a highly conservative buffer zone designed to accommodate the largest available kinematic flare in the event that it does not operate as anticipated (4,495.5 acres minus the IOA); however, note that the largest planned flare to be tested at TA C-53 is 25 percent smaller than the design group flares, and the majority of flares would be 50 percent smaller. There is no vegetation removal or active management proposed to occur within the Maximum Safety Buffer area, but it is analyzed in this BA due to the less than 1 percent chance that a kinematic flare could land within this area.
Figure 4. Proposed Action Area
Figure 5. Proposed HSFTT Site Plan
Four types of flares are planned to be dispensed from the flare sled, including MTV pyrotechnic, spectral, pyrophoric, and kinematic. During testing periods, inert flares would first be launched from the HSFTT to verify the anticipated trajectory of the lot. Tests include launching flares out of the turret downward at 45° and then upward at 45° after the sled has reached at least 50 feet AGL along the track. Flares would travel in the same path as the sled toward the end tower and would likely burn out before they hit the ground and land before the end tower. The majority of the flares that would be observed at the HSFTT are operational flares that are already manufactured, used in the field, and thus have established predictable outcomes. Testing any developmental flares at the HSFTT would include additional precautions beyond normal operating procedures to ensure ground safety.

The Proposed Action involves the testing and evaluation of 810 flares per year (Table 2). Use of the HSFTT would include up to 10 testing events per year, with events from 7 to 10 days in duration, for a total projected use of 10 to 15 weeks per year. The Maximum Safety Buffer would be activated to support up to two 3-day events testing the kinematic flares (or a total of 6 days) per year. Events would occur during day or night, but many would likely be concentrated in nighttime hours to increase flare visibility and tracking capability.
**Table 2. Flare Types and Quantities to be Dispensed Under the Proposed Action**

<table>
<thead>
<tr>
<th>Flare Category and Defining Characteristics</th>
<th>Example</th>
<th>Number of Dispenses per Year</th>
<th>Number of Testing Days per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTV (Magnesium, Teflon, Viton) Pyrotechnic Flares</td>
<td>MJU-7, MJU-53</td>
<td>180</td>
<td>70-100</td>
</tr>
<tr>
<td>Spectral Flares</td>
<td>MJU-62, M212</td>
<td>250</td>
<td>70-100</td>
</tr>
<tr>
<td>Pyrophoric (oxidized metal foils) Flares</td>
<td>MJU-64, MJU-66</td>
<td>40</td>
<td>70-100</td>
</tr>
<tr>
<td>Kinematic Flares</td>
<td>MJU-57, MJU-71</td>
<td>340</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>810</strong></td>
<td><strong>76-106</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Biological Information**

**Okaloosa darter**

The Okaloosa darter (*Etheostoma okaloosae*) is a small, perch-like fish found only in Northwest Florida. The global population of this species is restricted to six stream systems on Eglin AFB: Toms, Turkey, Mill, Swift, East Turkey, and Rocky Creeks. Eglin AFB contains 90 percent of these streams’ cumulative drainage area, with the remaining 10 percent occurring near the cities of Niceville and Valparaiso. The USFWS estimates that 98.7 percent of the darter’s extant range is contained within the boundaries of Eglin AFB (USFWS 2018a).

The watersheds associated with Okaloosa darter streams are dominated by the Longleaf Pine Sandhill ecological association which covers approximately 80 percent of the Eglin Reservation (USAF 2017). This community is characterized by a longleaf pine canopy, an oak and hardwood midstory, and a diverse assemblage of grasses, herbs, and other forbs in the groundcover stratum. The underlying geology includes deep, highly permeable sandy soils. Sandhill communities are fire-dependent and actively managed under Eglin’s Fire Management Program.
The streams that the Okaloosa darter inhabits are typically found at the base of sandhills, where this community grades into steephead and riparian wetland habitats. These seepage streams are primarily fed by a persistent, lateral flow of groundwater that discharges along the stream banks. Water temperature and flow is moderated by the deep sandy substrates through which these waters migrate before discharging into the stream. This natural filtration process results in clear water that may become more colored with increased distance from the headwaters and more interaction with decomposing floodplain vegetation. In-stream habitat is diverse and characterized by open sandy runs, emergent trees and herbaceous vegetation, braided channels, pools, riffles, woody debris, leaf mats, and submerged roots. Streams are typically shaded by a canopy of slash pine, sweet bay, black gum, and black titi along most of their length, with temperatures ranging from 7 to 22 degrees Celsius (°C) (44 to 72 degrees Fahrenheit (°F)) in the winter and 72° to 84°F (22° to 29°C) during the summer (USFWS 2018a). Okaloosa darters are generally found along the edges of these streams among detritus and vegetation, where they reproduce and feed on aquatic insect larvae (USFWS 2018a).

Numerous environmental factors including water physicochemical characteristics, hydrology, and in-stream habitat condition may affect Okaloosa darter populations and distribution, but erosion and sedimentation due to human-induced changes in the landscape is one of the main contributors to Okaloosa darter population declines and range reductions. Sedimentation can change in-stream habitat dramatically by reducing depths, altering flows, and smothering habitats the darter depends upon for spawning, feeding, and refuge. Urbanization around the cities of Niceville and Valparaiso, along with infrastructure development and other land use changes on Eglin AFB, have also led to water quality and other hydrological impairments, including barriers to movement created by dams and culverted road crossings.

The Okaloosa darter was listed as endangered on June 4, 1973 (38 FR 14678) and subsequently downlisted to threatened on April 1, 2011 (79 FR 18087). This species was originally listed due to its extremely limited range, habitat degradation, and apparent interspecific competition with brown darters. The downlisting of the Okaloosa darter from endangered to threatened is largely due to efforts by Eglin AFB and its partners to remove fish passage barriers (dams and culverts); reduce sedimentation and erosion from unpaved roads, clay pits, test area cleared slopes, and utility easements; restore and reconnect stream habitat; monitor populations; and, implement land management actions and other directives that reduce or minimize impacts to Okaloosa darter habitat. The USFWS’ downlisting decision was also based on the determination that the brown darter does not pose a significant threat to the recovery of the Okaloosa darter. Eglin AFB continues to make great strides in the Okaloosa darter’s recovery and has set a goal to address all objectives in the recovery plan (USFWS 1998) so the darter can be delisted by 2020 (USAF 2019).

**Eastern indigo snake**

The federally-threatened eastern indigo snake (*Dymarchon couperi*) is a large, non-venomous snake that can reach lengths up to 8.5 feet. This species’ current geographic range includes all of Florida and a portion of southeastern Georgia, although it is considered rare or possibly extirpated in the Florida Panhandle (west of the Aucilla River); it is currently presumed...
extirpated from its historical range in southern Alabama and southeastern Mississippi (USFWS 2018b). Eastern indigo snake home ranges may cover from several hundred to several thousand acres and movements between upland and wetland habitats may vary depending on season and latitude (USFWS 2018b). In the northern part of its range, where winter temperatures can drop below freezing, this species is more dependent on the overwintering refuge provided by gopher tortoise and other animal burrows found in sandhill and other upland habitats. Humans may encounter this normally elusive species as it moves between seasonal habitats. However, it is considered extremely rare on Eglin AFB, with only 28 sightings between 1956 and 1999 and no verified sightings since 1999, which was also the last verified sighting for the entire Florida Panhandle region (USFWS 2009, USFWS 2018b). Declines in this species throughout the Florida Panhandle may be attributable to heavy human predation on gopher tortoises during the 1900s but habitat loss and fragmentation are thought to be the primary factors influencing the continued viability of the species (USFWS 2018b). Eglin does not manage directly for the eastern indigo snake but does maintain suitable habitat conditions primarily through the use of prescribed fire, which also benefits many other species including the gopher tortoise.

Gopher tortoise

The gopher tortoise is a relatively large and long-lived terrestrial turtle found in the coastal plain of the United States from southeastern Louisiana to South Carolina and throughout most of Florida. Gopher tortoises are typically found in sandhill and other well-drained upland habitats where they excavate burrows for refuge from temperature extremes and predators. Their burrows provide habitat for over 350 commensal species, including the eastern indigo snake, which makes gopher tortoises especially important to the ecosystems they inhabit. Eglin AFB uses prescribed fire and other forestry management techniques to maintain the open habitat conditions that promote the growth of groundcover plants that the gopher tortoise feeds upon. Gopher tortoises lay their eggs near their burrow entrance in May and June and hatchlings appear in August and September.

The gopher tortoise is federally-threatened in the portion of its range west of the Mobile and Tombigbee Rivers and a federal candidate species in the eastern portion of its range. In 2011, the USFWS documented its findings on a petition to list the gopher tortoise in the eastern part of its range and found that while there was enough evidence to warrant listing, other listing actions took higher priority; a proposed rule will be developed as priorities allow. Although not federally protected under the ESA in the eastern portion of its range, all Department of Defense (DoD) entities, along with a number of state agencies and non-governmental organizations, signed a Candidate Conservation Agreement in 2008 which outlines a cooperative framework to gopher tortoise management. Eglin is also nearing completion of consultation with the USFWS to develop a programmatic gopher tortoise conference opinion (CO) (USFWS 2020). The goals of the CO are to achieve conservation of the gopher tortoise while supporting military readiness and mission flexibility. The state of Florida currently lists the gopher tortoise as threatened; the Florida Fish and Wildlife Conservation Commission (FFWCC) manages this species under its Gopher Tortoise Management Plan (FFWCC 2012).
Gopher tortoise populations throughout the southeastern United States have been impacted by a number of factors including habitat loss and fragmentation, human harvesting of adult tortoises, natural predation on tortoises and their eggs, and diseases such as the Upper Respiratory Tract Disease. The primary threats and reasons for an overall low population on Eglin AFB are believed to be past human harvesting and loss of habitat due to fire suppression (USAF 2019).

**Action Area Description**

Action Area is defined as “all areas to be affected directly or indirectly by the Federal action or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR §402.02). Most areas affected by the Proposed Action will be confined to the IOA. However, since there is a less than 1 percent chance that a kinematic flare could land outside of the IOA but within the Maximum Safety Buffer, all land area within the Maximum Safety Buffer (Figure 4) is established as the Action Area for purposes of consultation under ESA §7. The Action Area encompasses a total of 4,495.5 acres.

The Sandhills ecological association predominates throughout the Action Area with streams and associated wetland systems occurring at lower elevations (Figure 7). Little Rocky Creek, including most of its tributaries, are located north and east of the IOA, and within the Maximum Safety Buffer. The headwaters of two first-order tributaries to Little Rocky Creek are located in the northern and southern portions of the IOA. Little Rocky Creek converges with Rocky Creek approximately 0.6 stream miles southeast of the Action Area. A small portion of Rocky Creek (0.3 stream miles) along with two small tributaries encroach along the eastern boundary of the Action Area. A headwaters tributary to Long Creek also occurs in the southwestern portion of the Action Area.

The Rocky Creek and Long Creek systems, including their tributaries, are Okaloosa darter habitat. However, USFWS determined during the October 16, 2019 site visit that the tributary in the northern portion of the IOA does not provide suitable habitat for the Okaloosa darter; this wetland system lacked flowing water at the northernmost reaches and is impounded by a culvert crossing on RR 200 to the north. Due to the lack of appropriate habitat, the northernmost stream is not considered further in this BA with respect to potential impacts on the Okaloosa darter. The stream in the southern portion of the IOA may provide suitable Okaloosa darter habitat, although step pools and other in-stream features may present barriers to movement and colonization in the uppermost reaches of this headwaters system. Although no data is available regarding Okaloosa darter presence or absence in this particular tributary, the analysis presented in this BA is based on the presumption that the darter is present.
Figure 7. Ecological Associations
Determination of Effects

This section analyzes the potential impacts that may occur as a result of implementation of the Proposed Action. The analysis is broken down into two distinct categories or phases of activities necessary to implement the Proposed Action (specifically, site preparation and construction phase and operation and maintenance phase), since each phase presents unique pathways of potential effects on the species under consideration. Impacts are considered with the understanding that the conservation measures discussed in this BA will be implemented.

Okaloosa Darter

Site Preparation and Construction

Direct and indirect impacts to the Okaloosa darter and in-stream habitat could result from selective timber harvest operations within the riparian wetland areas lying adjacent to the stream in the southern portion of the IOA. Canopy trees may need to be cut so that the line-of-sight between the instrumentation pads and the HSFTT is unobstructed; however, many of the subcanopy trees and tall shrubs within lower-elevation areas will be able to remain. Figure 8, which was developed using high-resolution Light Detection and Ranging (LiDAR) topographic data (NOAA 2020), shows that trees and other vegetation within the riparian zone can be up to 35-feet in height while maintaining line-of-sight requirements. Trees that need to be removed will be hand-cut so that the canopy of the tree falls towards the uplands and away from the stream. The possibility exists, however, that one or more trees could inadvertently fall into the stream and strike a darter (if present) or impact in-stream habitat. Such a scenario would require that the tree be picked up with equipment staged on adjacent uplands and relocated outside of the riparian area. Any incidental tree limb fall into the stream would be removed by hand. This process could also result in temporary damage to shrub and other emergent vegetation in the riparian zone. Impacts to in-stream habitat would be temporary and may include increases in turbidity from suspended stream bed sediments, dislodging of woody debris and leaf packs, and minor alteration to stream banks, exposed root systems, and other relatively stable features. The likelihood of this scenario is considered low with the employment of skilled forestry crews and implementation of the conservation measures outlined in this BA, including adherence to Florida Forest Service Silviculture Best Management Practices (FDACS 2008). Removing the canopy also has the potential to increase sunlight penetration and impact darters through increases in stream temperature. Temperature may play a role in darter distribution, with few or no darters observed in streams with higher temperatures (USFWS 2018a). However, the canopy currently only provides moderate shading and lower-growing shrub vegetation that flanks the stream banks will remain in place and continue to provide shade. The temperature of the groundwater feeding this stream is also heavily influenced by the geologic strata through which it flows before discharging into the stream. Therefore, any potential increases in stream temperature due to canopy removal would be minor and not expected to impact darters or potential future colonization of this stream segment (if not already present).

Initial site clearing outside of the riparian zone could potentially impact Okaloosa darter habitat through erosion and sedimentation. This process will consist of merchantable timber harvest,
mechanical understory reduction to ground level, and potential application of herbicides to control oaks and woody shrubs. Mechanical understory reduction on stream slopes will be limited to the minimum necessary to achieve line-of-sight between the measurement instrumentation and the towers. No root raking or grubbing will be conducted anywhere within the IOA. Forestry operations may disturb soils, resulting in downhill erosion towards the stream system. The potential for soil erosion will be higher during and immediately following timber harvest and mechanical vegetation reduction since soils will be more exposed to rainfall and will have been loosened by forestry operations and off-road foot traffic. Roller chopping, which can disturb surface soils, will not be used on the upland slopes along the stream corridor. The potential for soil erosion will be further mitigated by leaving mulched vegetation and roots in place. A staked silt fence will be installed upslope of the wetland boundary as close to the construction activity as possible to minimize the potential for wetland and stream sedimentation in the event of silt fence failure. Silt fences will be left in place following site clearing until soils have stabilized and construction is complete. Additional erosion mitigation measures, as detailed in Eglin’s Erosion Control Component Plan (USAF 2018b), may be utilized if soil erosion becomes apparent during site preparation or construction.

Construction elements associated with the HSFTT project include towers, concrete pads, access roads, utilities, and perimeter fencing. None of these elements will be located in or near the stream in the southern portion of the IOA, as shown in Figure 5. Downhill erosion and sedimentation from unstabilized soils is the primary pathway for effects to Okaloosa darter habitat during construction. Impervious areas created by concrete pads will individually be relatively small (225 - 440 sq. ft.) and discontinuous; cumulatively, these elements do not exceed the threshold for requiring a stormwater management system under Florida’s Environmental Resource Permitting Program (ERP), however, an ERP permit may be required due to the overall project area exceeding 5 acres (FAC 62-330.020). All proposed roads will be unpaved although limerock or other semi-impermeable material(s) may be used for road stabilization. A stormwater management facility is not an anticipated permitting requirement.

The USFWS reviewed forestry operations, including site preparation, timber harvest, and herbicide application, and Eglin’s erosion control program as part of the 2012-2016 INRMP ESA §7 consultation (FWS 04EF3000-2012-F-0180, FWS 04EF3000-2012-CPA-0068, FWS 04EF3000-2012-TA-0179), including the amendment addressing new or modified proposed actions as part of the 2017-2022 INRMP (FWS Log No. 2018-I-0200). They determined that these activities, when conducted in accordance with protocols outlined in the INRMP and which may occur as part of the Proposed Action, are not likely to adversely affect the Okaloosa darter.
Figure 8. Vegetation Height Below Line-of-Sight Requirements
Operation and Maintenance

Direct or indirect impacts to the Okaloosa darter and its habitat could potentially result from mission-induced wildfires and suppression efforts, a minimal likelihood of a kinematic flare landing in a stream, long-term vegetation control within the IOA, and other operational elements related to long-term use of the HSFTT.

A flare that does not burn out completely before landing on the ground can potentially ignite a wildfire depending on where it lands and climatic conditions. The fire itself and fire suppression activities have the potential to impact Okaloosa darters. Eglin AFB has a robust *Wildland Fire Management Plan* (WFMP) (USAF 2018a) that details climatic conditions under which flares can be deployed, wildfire monitoring, suppression tactics to be employed, and measures to minimize impacts to wetlands and protected species habitat during wildfire suppression activities.

The first step to minimizing the potential impact of flare-induced wildfires is prevention through planning. Eglin’s WFMP includes the *Wildfire Specific Action Guide*, which provides guidance on operational decision making for missions that involve the use of flares. Mission restrictions may be implemented depending on fire danger as shown in **Table 3**.

<table>
<thead>
<tr>
<th>Fire Danger Rating</th>
<th>Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>No restrictions on missions.</td>
</tr>
<tr>
<td>Moderate</td>
<td>No restrictions on pyrotechnics. Post a fire watch for at least 20 minutes after completing use of pyrotechnics.</td>
</tr>
<tr>
<td>High</td>
<td>Use caution with pyrotechnics. Post a fire watch for at least 30 minutes after completing use of pyrotechnics.</td>
</tr>
<tr>
<td>Very High</td>
<td>NO FLARES below 1,000 feet AGL.</td>
</tr>
<tr>
<td>Extreme</td>
<td>NO PYROTECHNICS (including flares) allowed without prior approval from the Wildland Fire Program Manager or their designee.</td>
</tr>
</tbody>
</table>

Eglin AFB’s Wildland Support Module responds to mission-induced fires in accordance with the protocols outlined in the WFMP. Fire suppression tactics are dependent on many factors including location, fuels, fire behavior, unexploded ordnance (UXO) risk, weather, number of fires burning, and suppression resources available at the time of the fire. Eglin AFB maintains a Suppression Considerations Map that shows restricted suppression areas and guides the response of all firefighting resources on Eglin. The entirety of TA C-53, including minor portions immediately outside of the TA C-53 boundary, along with areas east of Rocky Creek are designated as a “restricted suppression zone”. This designation may be applied due to areas with high concentrations of UXO, high ecological value, or to keep fuel loads in those wildfire prone areas down. The remainder of the lands within the Action Area do not have a special designation with regard to fire suppression. However, firefighters employ restricted suppression zone tactics, known as Minimum Impact Suppression Tactics (MIST), when working near threatened and endangered species habitat and other high value natural resources, including Outstanding Natural
Areas, isolated wetlands, seepage slopes, and steepheads. These areas are shown on the Suppression Considerations Map which is kept behind the seat of all over-the-road firefighting equipment. The WFMP prohibits the use of tractors and plow lines in these areas unless wildfire conditions are such that plowed lines are deemed necessary to prevent catastrophic natural resource damage, protect firefighters, and/or enhance mission support. Hand lines or wet lines are used in these areas whenever feasible. With implementation of the habitat protective measures outlined in the WFMP, the potential for impacts to the Okaloosa darter from wildfire suppression activities is considered low. The USFWS reviewed the WFMP as part of the 2012-2016 INRMP ESA §7 consultation (FWS 04EF3000-2012-F-0180, FWS 04EF3000-2012-CPA-0068, FWS 04EF3000-2012-TA-0179), including the amendment addressing new or modified proposed actions as part of the 2017-2022 INRMP (FWS Log No. 2018-I-0200). They determined that wildfire support activities, such as those that may occur in connection with the Proposed Action, are not likely to adversely affect the Okaloosa darter.

The fire itself also has the potential to alter darter habitat through increased erosion and vegetation destruction. However, wildfires typically do not damage streams and riparian areas as only the upper portion of vegetation is burned and root systems are left intact, with regrowth occurring soon thereafter. The potential for mission-induced wildfires within the IOA will be very low since there will be little vegetative fuel available to carry a fire and less than 1 percent of all flares would be expected to land outside of the Minimum Safety Buffer. Wildfire potential within the Maximum Safety Buffer is also very low with less than 1 percent of kinematic flares expected to land outside of the IOA per year. With the implementation of the protocols outlined in the WFMP to minimize the potential for mission-induced wildfires and the low likelihood of a kinematic flare landing outside the IOA, potential impacts to the Okaloosa darter from mission-induced wildfires are considered low.

A kinematic flare has a less than 1 percent chance of landing outside of the 200-foot Minimum Safety Buffer or IOA, but as such does have a nominal chance of landing in a darter stream. The potential for a flare to land directly on a darter is highly unlikely based on the darter’s small size and the extremely low likelihood of this scenario considering the land area encompassed by streams within the Action Area and a less than 1 percent chance that a kinematic flare could land outside of the Minimum Safety Buffer. If a kinematic flare lands in or near a darter stream, the item would be removed quickly in the least invasive manner and in coordination with the Eglin NRO. Impacts to water quality, if any, are presumed to be transient and localized.

Long-term vegetation control within the IOA will be required to maintain line-of-sight between the measurement instrumentation and the towers. A bush hog or similar equipment will be used once or twice a year to keep vegetation below 3 feet relative to the ground-level sight view of the towers from the instrumentation pads. Herbicides may also be used to control oaks and woody shrubs. Figure 8 shows that vegetation on the upper limits of the stream slopes can be up to 10 feet in height while maintaining line-of-sight requirements; therefore, little to no mechanical vegetation maintenance will be required in these areas. Mechanical vegetation maintenance will be primarily limited to the flatter, higher-elevation portions of the IOA. Although this process can cause soil disturbance leading to downhill erosion, groundcover and shrub vegetation on the
slopes will slow down overland flow and attenuate any eroded soil before reaching the stream. The high infiltration rates characteristic of Lakeland soils will also minimize the potential for overland flow during rain events. Based on these factors, downhill erosion that could lead to in-stream siltation is unlikely. Eglin conducted informal ESA §7 consultation with the USFWS on Long-term Vegetation Control with various herbicides (FWS No. 4-P-07-036) and the USFWS concurred with Eglin’s determination that application of those herbicides is **not likely to adversely affect** the Okaloosa darter with adherence to the avoidance and minimization measures outlined in the Long-term Vegetation Control Biological Assessment (USAF 2007) (including the July 2007 amendment).

Operation of the HSFTT will require installation of a water well onsite. Eglin AFB primarily taps the Floridan Aquifer for both non-potable and potable uses on the reservation (USAF 2017). Okaloosa darter streams are primarily fed by the sand-and-gravel (surficial) aquifer, which has limited hydraulic connectivity with the deeper Floridan Aquifer due to the low permeability of the Pensacola Clay confining layer. Water well withdrawals within Okaloosa darter stream basins have not been shown to affect flows in darter streams (USFWS 2018a); therefore, impacts to flow rates and volume in the stream located in the southern portion of the IOA are not anticipated.

In summary, adverse impacts to the Okaloosa darter and its habitat from implementation of the Proposed Action are not anticipated. The primary pathway of effect to this species is associated with erosion and sedimentation from site preparation and construction activities, long-term vegetation control, and wildfire suppression activities. However, the potential for impacts will be eliminated or substantially reduced with adherence to the conservation measures outlined in this BA and protocols contained in the USFWS-approved INRMP. Based on this analysis, activities associated with the Proposed Action may affect, but are **not likely to adversely affect** the Okaloosa darter.

**Eastern Indigo Snake**

**Site Preparation and Construction**

Although eastern indigo snake sightings are very rare on Eglin AFB, with the last sighting over 20 years ago, initial site clearing and construction activities could impact this species in the form of direct impacts, harassment, or habitat modification. Indigo snakes could be physically struck by vehicles and equipment during site clearing and construction activities. However, an indigo snake would likely move away from the area if it sensed ground disturbance in the immediate vicinity. Such avoidance could result in changes to normal movement patterns, feeding, and breeding behavior. Eglin will conduct a protected species survey within 30 days prior to site disturbance activities to minimize the potential for impacting any indigo snakes during site preparation and construction. Eglin NRO will also conduct a pre-construction site briefing to educate onsite personnel about the appearance of indigo snakes, impact avoidance measures, and actions to take in the event an indigo snake is sighted. In the unlikely event an indigo snake is encountered during pre-construction surveys or during construction, Eglin NRO or onsite personnel would follow the protocols established in the *Eastern Indigo Snake Programmatic
Biological Opinion (USFWS 2009). Suitable habitat within the IOA will also be modified by both site clearing and construction, however, this is unlikely to significantly impact the species given the substantial habitat available outside of the IOA.

**Operation and Maintenance**

Eastern indigo snakes could be directly or indirectly impacted by long-term vegetative maintenance within the IOA, routine activities associated with use of the HSFTT, wildfire suppression activities, being physically struck by a flare, or habitat modification and/or mortality due to flare-induced wildfires. An indigo snake could be crushed by equipment or vehicles during long-term vegetative maintenance, routine vehicular use on access roads, or wildfire suppression activities. A flare could also land directly on an indigo snake. The likelihood of these scenarios is considered extremely low or discountable given the rarity of the species, the low probability (less than 1 percent) that a flare could land outside the Minimum Safety Buffer, and Eglin’s adherence to the protective measures outlined in the *Eastern Indigo Snake Programmatic Biological Opinion* (USFWS 2009) and INRMP.

A flare-induced wildfire could impact this species through harassment, injury, mortality, or habitat modification. A wildfire could kill an indigo snake if it ignited in proximity to an individual and it was unable to find underground shelter in sufficient time. The likelihood of this scenario is considered low, however. A flare-induced wildfire also may temporarily result in unsuitable habitat conditions, but given the significant amount of available habitat within and adjacent to the Action Area, the potential for long-term adverse habitat impacts are considered low.

Due to the rarity of this species, low potential for flare-induced wildfires, and Eglin’s adherence to the protective measures outlined in this BA, the Long-term Vegetation Control Biological Assessment (USAF 2007) (including the July 2007 amendment), the *Eastern Indigo Snake Programmatic Biological Opinion* (USFWS 2009), and INRMP, the Proposed Action may affect, but is not likely to adversely affect the eastern indigo snake.

**Gopher Tortoise**

**Site Preparation and Construction**

The range of potential impacts on the gopher tortoise during site preparation and construction are similar to those discussed for the eastern indigo snake. Gopher tortoises could be directly struck by vehicles or equipment or harassed by site clearing and construction activity. Forestry or other site clearing equipment could also run over a burrow resulting in collapse and potential mortality of an adult, juvenile, and/or eggs, if present. Eglin NRO will significantly minimize the potential for these types of impacts by conducting gopher tortoise burrow surveys within 30 days prior to commencing site clearing operations. If burrows are found that cannot be avoided by 25 feet, the tortoise(s) will be relocated in accordance with the protocols listed in Eglin’s *Threatened and Endangered Species Component Plan* (USAF 2019). If gopher tortoise burrows are found in close proximity to the IOA boundary, silt fencing or other temporary exclusion devices may be used to keep tortoises from moving into the construction area after surveys have been completed.
Operation and Maintenance

Long-term vegetative maintenance and routine use of the HSFTT could potentially impact tortoises that remain within the IOA because their burrows were outside of the 25-foot construction footprint buffer, and therefore not relocated, or those that move onto the site following completion of construction. Vegetation maintenance equipment could directly strike a tortoise or collapse a burrow. Vehicles operating on access roads could also strike a tortoise if one were present on the road. Neither of these scenarios is likely, however, since Eglin’s Forestry maintenance personnel are familiar with gopher tortoises and their burrows and all onsite personnel will be educated regarding the appearance of gopher tortoises and steps to take in the event one is encountered.

Flare-induced wildfires or suppression activities could also impact the gopher tortoise and its habitat. Potential impacts are similar to those discussed above for the eastern indigo snake. Adverse impacts to the species or its habitat as a result of a flare-induced wildfire is unlikely, however, given the low probability (less than 1 percent) that a kinematic flare would land outside of the Minimum Safety Buffer. In the unlikely event of a wildfire, Eglin will follow all protocols contained within the WFMP regarding wildfire suppression tactics in protected species habitat to minimize the potential for direct or indirect impacts on gopher tortoises.

In summary, adverse impacts to the gopher tortoise are not anticipated with adherence to the protective measures outlined in this BA, including those contained in the USFWS Gopher Tortoise Programmatic Conference Opinion (FWS Log No. 04EF3000-2018-F-0139).

Conservation Measures

Eglin AFB will implement the following conservation measures to reduce or eliminate the potential for adverse impacts on protected species and their habitats.

General Conservation Measures

- Ensure that all mission personnel are briefed and provided with restrictions regarding protected species (i.e., Range Standard Operating Procedures [RSOP] briefing), including maps when necessary;
- Eglin will follow protocols detailed in the latest USFWS-approved INRMP regarding wildfire protection, forestry management, and erosion control measures for sensitive species and habitats; and,
- Follow the requirements identified in the Eglin Air Force Base Instruction 13-212 Range Planning and Operations for wildfire prevention, reporting, and suppression procedures.

Okaloosa Darter Conservation Measures

- Ground-disturbing activities will be avoided within 200 feet of Okaloosa darter streams to the maximum extent practicable;
- Vegetation removal near streams, riparian zones, and adjacent uplands will be the minimum necessary to achieve and maintain line-of-sight requirements;
Follow *Florida Silviculture Best Management Practices* for timber management operations within stream riparian zones and adjacent upland slopes;

Install staked silt fence upslope of the stream’s riparian wetland boundary after trees within this zone are felled and removed. Other erosion control devices or methods will be employed as necessary to ensure no eroded soils reach the stream. Erosion control devices will remain in place through project completion and be periodically inspected and maintained in accordance with all required pre-construction permits;

The construction contractor will keep all equipment and personnel out of the stream and riparian zone at all times; and,

Contact Eglin NRO prior to attempting to retrieve a flare that lands in a stream.

**Eastern Indigo Snake and Gopher Tortoise Conservation Measures**

Follow all relevant protective, avoidance, and minimization measures contained in the *Eastern Indigo Snake Programmatic Biological Opinion* (USFWS 2009) and USFWS-approved INRMP (USAF 2017) including, but not limited to, the following:

- Eglin NRO will conduct a gopher tortoise burrow and eastern indigo snake survey within 30 days prior to any land disturbance activities;
- Construction activities will avoid any gopher tortoise burrows by 25 feet. If a gopher tortoise burrow cannot be avoided, the tortoise and commensals (including indigo snakes and gopher frogs) will be relocated in accordance with protocols established by the FFWCC and those contained in Eglin’s *Threatened and Endangered Species Component Plan* (USAF 2019);
- Silt fence or another type of temporary exclusion barrier will be installed around the construction site when burrows are identified near construction activities to keep tortoises out of the construction area;
- Follow the *Standard Protection Measures for the Eastern Indigo Snake*, as adapted by Eglin. This requirement includes, but is not limited to, the following protection measure:
  - Eglin NRO will provide signage to the construction manager for posting at the construction site. This signage will include an image of the eastern indigo snake, protections afforded under federal law, instructions to avoid disturbing or coming into direct physical contact with an eastern indigo snake, and a requirement to contact Eglin NRO immediately if a live or dead eastern indigo snake is encountered.

Follow all relevant conservation measures contained in the USFWS *Gopher Tortoise Programmatic Conference Opinion*.

**Conclusion**

Based on the analysis of potential impacts associated with the TA C-53 HSFTT project, the Okaloosa darter and eastern indigo snake may be affected, but are not likely to be adversely affected by the Proposed Action. No adverse impacts to the gopher tortoise are anticipated. Eglin will implement all conservation measures described in this BA to eliminate or minimize potential negative effects on these species.
Eglin NRO will notify the USFWS immediately if any actions considered in this BA are modified or if additional information on listed species becomes available, as a re-initiation of consultation may be required. If impacts to listed species occur beyond what has been considered in this assessment, all operations will cease, and the USFWS will be notified. Any modifications or conditions resulting from consultation with the USFWS will be implemented prior to commencement of activities. Eglin NRO believes this fulfills all requirements of the ESA and no further action is necessary. If you have any questions regarding this letter or any of the proposed activities, please do not hesitate to contact Mr. Rodney Felix at (850) 883-1153, or myself at (850) 882-8391.

Sincerely,

Bruce Hagedorn, NH-03
Chief, Eglin AFB Natural Resources Office
Eglin Air Force Base, FL
References


**Section 7 Consultation Tracking Sheet**

Date: 20200211   Due Date: 20200411

FWS Project Number (TAILS): 2020-I-0315

Project Title: Eglin AFB C-53 High Speed Flare Test Track

Consultation Lead: Lisa Yarbrough

Species listed in consultation

<table>
<thead>
<tr>
<th>Species</th>
<th>Biologist Analyzing Determination</th>
<th>No Effect – Acknowledge or Disagree</th>
<th>MANLAA - Concur</th>
<th>Time spent per species (hr:min)</th>
</tr>
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<tbody>
<tr>
<td>Eastern indigo snake</td>
<td>Lisa Yarbrough</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Okaloosa Darter</td>
<td>Lisa Yarbrough</td>
<td>X</td>
<td></td>
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</tbody>
</table>

Reason for Concurring:
- Eastern indigo snake: Best management practices for Eastern indigo snake will be utilized during construction.
- Okaloosa Darter: Service staff located at Eglin AFB has completed a site visit with Natural Resources’ staff and have determined best management practices within and outside of the 200-ft Minimum Safety Buffer, normally used for construction activities near streams, would minimize any impacts to the rear by streams.
Appendix D: Coastal Consistency Determination
FLORIDA COASTAL MANAGEMENT PROGRAM STATE STATUTE CONSISTENCY

<table>
<thead>
<tr>
<th>Statute</th>
<th>Consistency Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 161 <em>Beach and Shore Preservation</em> acknowledges that coastal areas are among the state’s most valuable natural, aesthetic, and economic resources and authorizes FDEP to regulate certain activities on or seaward of the States’ beaches.</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>The Proposed Action would not occur on or seaward of any state beach. The Proposed Action would not adversely affect coastal areas that could jeopardize the stability of the beach-dune system, accelerate erosion, provide inadequate protection to upland structures, endanger adjacent properties, or interfere with public beach access.</td>
<td></td>
</tr>
<tr>
<td>Chapter 163, Part II <em>Intergovernmental Programs: Growth Policy; County and Municipal Planning; Land Development Regulation</em> requires the local governments to prepare, adopt, and implement comprehensive plans that guide and control future development toward the most appropriate use of land and natural resources in a manner consistent with the public interest.</td>
<td>Consistent</td>
</tr>
<tr>
<td>The Proposed Action would be implemented in accordance with local government comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.</td>
<td></td>
</tr>
<tr>
<td>Chapter 186 <em>State and Regional Planning</em> details state-level planning requirements; requires the development of special statewide plans governing the orderly social, economic, and physical growth of the state.</td>
<td>Consistent</td>
</tr>
<tr>
<td>The Proposed Action would be developed in accordance with any special statewide plans governing water use, land development, and transportation.</td>
<td></td>
</tr>
<tr>
<td>Chapter 252 <em>Emergency Management</em> provides for planning that would reduce the State’s vulnerability to or impacts from natural or manmade disasters and would enhance recovery efforts in the event of such emergencies.</td>
<td>Consistent</td>
</tr>
<tr>
<td>The Proposed Action does not increase the vulnerability of people or property to natural disasters. Emergency response and evacuation procedures would not be adversely impacted.</td>
<td></td>
</tr>
<tr>
<td>Chapter 253 <em>State Lands</em> addresses the state’s administration of public lands and property and provides direction regarding the acquisition, disposal, and management of all state lands.</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Implementation of the Proposed Action does not require acquisition of or result in any impacts to state lands that would prevent the conservation, protection, enhancement, or preservation of State-owned natural areas, ecosystems, or archaeological and historical resources.</td>
<td></td>
</tr>
<tr>
<td>Chapter 258 <em>State Parks and Preserves</em> addresses administration and management of state parks, aquatic preserves, and recreation areas.</td>
<td>Consistent</td>
</tr>
<tr>
<td>Chapter 259 <em>Land Acquisition for Conservation or Recreation</em> authorizes acquisition to protect air, land, and water quality and abundance, and natural resource-based recreation opportunities.</td>
<td>No effect to state parks, recreational areas/opportunities, or wild and scenic rivers. The Proposed Action would not cause disruptive physical activities or polluting discharges into Rocky Bayou State Aquatic Preserve. State tourism and outdoor recreation areas owned and operated by the State would not be affected. Opportunities for recreation on state lands would not be affected.</td>
</tr>
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</table>
## Statute

<table>
<thead>
<tr>
<th>Statute</th>
<th>Consistency Review</th>
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<tbody>
<tr>
<td>Chapter 375 <em>Outdoor Recreation and Conservation Lands</em> develops a comprehensive outdoor recreation plan to document recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs.</td>
<td>Consistent</td>
</tr>
<tr>
<td>Chapter 267 <em>Historical Resources</em> addresses management and preservation of the State’s archaeological and historical resources.</td>
<td>Consistent</td>
</tr>
<tr>
<td>Chapter 288 <em>Commercial Development and Capital Improvements</em> provides the framework for promoting and developing the general business, trade, and tourism components of the State’s economy.</td>
<td>Consistent</td>
</tr>
<tr>
<td>Chapter 334 <em>Transportation Administration</em> addresses the state’s policy concerning transportation administration and establishes the responsibilities of the state, counties, and municipalities to assure the development of an integrated, balanced statewide transportation system.</td>
<td>Consistent</td>
</tr>
<tr>
<td>Chapter 339 <em>Transportation Finance and Planning</em> addresses the finance and planning needs of the state’s transportation system.</td>
<td>Consistent</td>
</tr>
<tr>
<td>Chapter 373 <em>Water Resources</em> addresses sustainable water management; conservation of surface and ground waters; preservation of natural resources, fish, and wildlife; protection of public land; and promotion of health and welfare of Floridians. Chapter 376 <em>Pollution Discharge Prevention and Removal</em> regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.</td>
<td>Consistent</td>
</tr>
<tr>
<td>Chapter 377 <em>Energy Resources</em> addresses the regulation, planning, and development of energy resources of the state.</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Chapter 379 <em>Fish and Wildlife Conservation</em> provides the framework for the management and</td>
<td>Consistent</td>
</tr>
<tr>
<td>Statute</td>
<td>Consistency Review</td>
</tr>
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<td>------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>protection of the state’s wide diversity of fish and wildlife resources.</td>
<td>state’s fish and wildlife resources, including EFH. The USFWS concluded that the Proposed Action is not likely to adversely affect resources protected by the Section 7 of the Endangered Species Act (21 April 2020).</td>
</tr>
<tr>
<td>Chapter 380 Land and Water Management establishes land and water management policies to guide and coordinate local decisions relating to growth and development, including the establishment of the Areas of Critical State Concern, Florida Communities Trust, and the Florida Coastal Management Program.</td>
<td>Not Applicable The Proposed Action would not affect development of state lands, change coastal infrastructure, or use state funds for infrastructure planning, designing, or construction.</td>
</tr>
<tr>
<td>Chapter 381 Public Health: General Provisions establishes public policy concerning the state’s public health system.</td>
<td>Not Applicable The Proposed Action would not impact the state’s public health system.</td>
</tr>
<tr>
<td>Chapter 388 Mosquito Control addresses mosquito control efforts in the state.</td>
<td>Not Applicable The Proposed Action would not affect mosquito control efforts.</td>
</tr>
<tr>
<td>Chapter 403 Environmental Control provides wide-ranging authority to address various environmental control concerns including air and water pollution, electrical power plant and transmission line siting, the Interstate Environmental Control Compact, resource recovery and management, solid and hazardous waste management, drinking water protection, pollution prevention, ecosystem management, and natural gas transmission pipeline siting.</td>
<td>Consistent The Proposed Action would comply with all state regulations regarding air quality, water quality, solid and hazardous waste management, pollution prevention, and ecosystem management. No adverse impacts are expected as a result of the Proposed Action.</td>
</tr>
<tr>
<td>Chapter 553 Building and Construction Standards addresses building construction standards and provides for a unified Florida Building Code.</td>
<td>Not Applicable The Proposed Action does not include the construction of buildings; however, site preparation will be conducted in accordance with any relevant Florida Building Codes.</td>
</tr>
<tr>
<td>Chapter 582 Soil and Water Conservation provides for the control and prevention of soil erosion, prevention of floodwater and sediment damages, and further conservation, development, and use of soil and water resources.</td>
<td>Consistent The Proposed Action would require the incorporation of best management practices that mitigate the loss or transport of soil or other floodwater damages.</td>
</tr>
<tr>
<td>Chapter 597 Aquaculture establishes public policy concerning the cultivation of aquatic organisms in the state.</td>
<td>Not Applicable The Proposed Action would not impact the cultivation of aquatic organisms.</td>
</tr>
</tbody>
</table>

Appendix E: Section 106 Consultation
Ms. Maria D. Rodriguez
Chief, Environmental Management Branch
Department of the Air Force
96 CEG/CEIE
501 Deleon Street, Suite 101
Eglin Air Force Base, Florida 32542-5105

Re: DHR Project File No.: 2020-1629
Proposed High Speed Flare Test Tract at Test and Training Area C-53
Eglin Air Force Base, Okaloosa County

Dear Ms. Rodriguez:

This office reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places. The review was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended and 36 CFR Part 800: Protection of Historic Properties.

We have reviewed the updated Resource Group form for the Range C-53 Historic District (8OK2615) which includes new boundaries and consist of three contributing resources; MS2-Berm and Rail Line (8OK956), Bombproof Shelter (8OK957) and Moving Target (8OK2546). We find the updated Range C-53 Historic District appears to meet the criteria for listing in the National Register.

We note that a portion of the area of potential effect for the undertaking is located within the Range C-53 Historic District (8OK2615). However, based on the information provided, this office concurs with your determination that the proposed undertaking will have no adverse effect on historic properties or the district.

We will forward the updated Range C-53 Historic District Resource Group form and the survey report (Completing the Range C-53 Inventory) to the Florida Master Site File Office. We would like to compliment your office, Mr. Ben Aubuchon and Mr. Joe Myers on the thoroughness of the documentation.
Ms. Rodriguez
DHR Project No.: 2020-1629
April 15, 2020
Page 2 of 2

If you have any questions concerning our comments, please contact Scott Edwards, Historic Preservationist, by electronic mail scott.edwards@dos.myflorida.com, or at 850.245.6333 or 800.847.7278.

Sincerely,

[Signature]

Timothy A. Parsons, Ph.D.
Director, Division of Historical Resources
and State Historic Preservation Officer
Maria D. Rodriguez  
Chief, Environmental Management Branch  
96 CEG/CEIE  
501 DeLeon Street, Suite 100  
Eglin AFB FL 32542-5105

Timothy A. Parsons, Division Director  
State Historic Preservation Officer  
Division of Historical Resources  
R.A. Gray Building  
500 South Bronough Street  
Tallahassee FL 32399-0250

RE: Proposed High Speed Flare Test Tract at Test and Training Area C-53, Eglin AFB  
CR-19-0012

Dear Mr. Parsons,

The 96th Test Wing Civil Engineer Group of the United States Air Force (USAF) proposes to activate and utilize the extant Test and Training Area (TTA) C-53 on Eglin Air Force Base (AFB) property to install and operate a High Speed Flare Test Track (HSFTT) with associated instrumentation and support infrastructure. Eglin Cultural Resources Management (96 CEG/CEIA) has reviewed the proposed plans for TTA C-53 at Eglin AFB in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended and determined this action to be an undertaking with the potential to cause effects to historic properties.

96 CEG/CEIA has determined that the proposed undertaking will have No Adverse Effect on historic properties within the Area of Potential Effect (APE). The APE is defined as an area encompassing ±220 acres of cleared land which overlaps a portion of Resource Group 8OK2615, the Range C-53 Historic District (Attachment 1). 8OK2615 has been previously determined as eligible for listing on the National Register of Historic Places (NRHP), but the proposed action will not impact any of the contributing elements of the district. This area has been completely surveyed and all cultural resources have been identified and evaluated, albeit over the course of multiple projects over the years (Table 1).

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>X-248</td>
<td>MS395-0001</td>
<td>1994</td>
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<td>(Ph.II Testing)</td>
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<td>X-457</td>
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<td>X-940</td>
<td>CR-07-0085</td>
<td>2007</td>
<td>2007-8912</td>
</tr>
</tbody>
</table>
Range C-53 was originally documented by Prentice Thomas and Associates (PTA), but a proper historical context for evaluation of the site was not available at that time (Mathews et al. 1994). Most relevant for this review, as it is within the APE, is what they recorded as MS4, a concrete bombing target (8OK957). PTA reported the resources as a World War II-era (WWII) range and supporting infrastructure. Site 8OK931 was also recorded by PTA as a historical homestead and later tested and found to be ineligible for listing on the NRHP (Bourgeois, Jr., et al. 1999). No pre-contact period archaeological sites are present within the APE.

In 2006, Hardlines Design Company evaluated historical structures at Eglin AFB, including the properties within the C-53 Range: 8OK2572, 8OK2546, 8OK956, 8OK957. These resources grouped under the 8OK2615 umbrella were recommended as an eligible historic district under Criterion A (Hampton and Kennedy 2007). Hardlines also recorded and recommended 8OK2546 as individually eligible under Criterion C for significance during WWII and into the 1950s.

Staff archaeologists from 96 CEG/CEIEA and the Center for Environmental Management of Military Lands recently completed an update to the C-53 Range Resource Group (Attachment 2). Meyer and Aubuchon (2020) found that the boundary of historic Range C-53 was larger than that recorded as 8OK2615 and propose to expand the boundary based on historical maps and aerial images. The authors also documented 8OK3871 (Control Tower), 8OK3972 (Old Rocket Tower), 8OK3973 (a Paradrag Target) and 8OK3974 (Tower 3); and recommended that 8OK1922 (Range House) be included as part of the historic district, although it has been demolished (Table 2). These new resources are considered to be non-contributing due to lack of integrity. The authors also recommend that 8OK2572 be removed as a contributing element from the district. They determined that 8OK2572 is not the original emergency landing strip described by Weitze (2007), but rather the Assault Landing Strip constructed in 1965. As such, it postdates the period of significance. The original emergency landing strip is no longer extant and no evidence of it has been located in the field.

<table>
<thead>
<tr>
<th>Trinomial</th>
<th>Element</th>
<th>Resource Type</th>
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<tbody>
<tr>
<td>8OK931</td>
<td>Historical Homestead</td>
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<td>Non-Contributing, Ineligible</td>
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<td>8OK955</td>
<td>MS2-Berm and Rail Line</td>
<td>Archaeological</td>
<td>Ineligible</td>
</tr>
<tr>
<td>8OK956</td>
<td>Bombproof Shelter</td>
<td>Structural</td>
<td>Contributing</td>
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<tr>
<td>8OK957</td>
<td>MS4- Bombing Target</td>
<td>Structural</td>
<td>Contributing</td>
</tr>
<tr>
<td>8OK1922</td>
<td>Range House</td>
<td>Structural</td>
<td>Non-Contributing, Demolished</td>
</tr>
<tr>
<td>8OK2546*</td>
<td>Moving Target</td>
<td>Archaeological</td>
<td>Contributing, Individually Eligible</td>
</tr>
<tr>
<td>8OK2572</td>
<td>MS1-Emergency Landing Strip</td>
<td>Structural</td>
<td>Non-Contributing</td>
</tr>
<tr>
<td>8OK3971</td>
<td>Control Tower</td>
<td>Structural</td>
<td>Non-Contributing, Demolished</td>
</tr>
<tr>
<td>8OK3972</td>
<td>Old Rocket Target</td>
<td>Structural</td>
<td>Non-Contributing, Destroyed</td>
</tr>
<tr>
<td>8OK3973</td>
<td>Paradrag Target</td>
<td>Structural</td>
<td>Non-Contributing</td>
</tr>
<tr>
<td>8OK3974</td>
<td>Tower 3</td>
<td>Structural</td>
<td>Non-Contributing, Demolished</td>
</tr>
</tbody>
</table>

*This would appear to be the same site as 8OK955, which was tested by PTA in 2000 (Meyer et al. 2000) and determined ineligible. Hardline does not appear to have realized that the site had been previously recorded and obtained trinomial 8OK2546 and recommended it as eligible.
It is the opinion of 96 CEG/CEIEA that it has located all historic properties within the proposed HISFTT APE. The APE overlaps the boundary of the 80K2516 historic district and three resources are recorded within the APE: 80K931, 80K957 and 8OK3971. Site 80K931 is non-contributing and has been tested and determined to be ineligible. Site 8OK3971 lacks integrity and in the attached report is recommended as non-contributing. Structure 8OK957 is considered to be a contributing element of the 80K2516 historic district. Meyer and Aubuchon (2020) recommend:

Eglin should protect the contributing members of the district from mission impacts through avoidance, but allow continued use and development of the range. If avoidance of the contributing elements cannot be accomplished, then HABS/HAER survey should be carried out in consultation with State Historic Preservation Office and other interested parties.

Currently, Range C-53 is designated as idle but reserved for future missions. The proposed development will include construction of concrete pads and anchor pads for the tower, new access roads, utilities and fencing. Site preparation would include timber harvest, grubbing and debris removal. Based on the recommendations put forth in Meyer and Aubuchon (2020), HABS/HAER documentation should be completed for 8OK957 if it is determined that it cannot be avoided and will be impacted by ground disturbing activities.

Once again, 96 CEG/CEIEA is pleased to work with DHR in identifying, evaluating and protecting our nation’s heritage and we look forward to further consultation. If we have not received any comments from you within thirty days of receipt of this letter, we will assume that you concur with our recommendations. Should you have any questions regarding this letter, please contact my representative, Mr. Benjamin Aubuchon, 96 CEG/CEIEA, 850-882-3324, benjamin.aubuchon.1@us.af.mil.

Sincerely

[Signature]
MARCIA D. RODRIGUEZ, NH-04
Chief, Environmental Management Branch

4 Attachments:
1. Map showing project APE and C-53 Historic District
2. Report: Completing the Range C-53 Inventory
3. FMSF Survey Log, Structure Forms, and revised Historic District Form
4. DVD containing electronic report, forms, and GIS data
Attachment 1: Map showing project APE and C-53 Historic District