



**Naval Surface Warfare Center  
Panama City Division**

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# **JOINT MANEUVER TEST RANGE ON EGLIN AIR FORCE BASE, FLORIDA**

## **FINAL ENVIRONMENTAL ASSESSMENT**

**RCS 09-462 / 09-753**



**December 2009**

Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE <b>DEC 2009</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2009 to 00-00-2009</b>	
4. TITLE AND SUBTITLE <b>Joint Maneuver Test Range on Eglin Air Force Base, Florida Final Environmental Assessment</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Science Applications International Corporation,1140 Eglin Parkway,Shalimar,FL,32579</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>81</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

**FINAL**  
**FINDING OF NO SIGNIFICANT IMPACT**  
*FOR*

**JOINT MANEUVER TEST RANGE**  
**Eglin Air Force Base, Florida**  
RCS 09-462 and RCS 09-753

Pursuant to the Council on Environmental Quality regulations for implementing the procedural provisions of the National Environmental Policy Act (40 Code of Federal Regulations 1500-1508), Chief of Naval Operations Instruction 5090.1C, and Air Force Instruction 32-7061, the Department of Navy has conducted an Environmental Assessment (EA) of the probable environmental consequences for the development of the Joint Maneuver Test Range (JMTR) on Eglin Air Force Base (AFB), Florida.

**DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

**The Proposed Action (Preferred Alternative):** The Naval Surface Warfare Center Panama City Division (NSWC PCD) proposes to develop and enhance existing test capabilities for the mine roller system and related equipment at the Joint Maneuver Test Range (JMTR) on Auxiliary Field 4 on Eglin AFB. Auxiliary Field 4 is an abandoned air strip located halfway between Eglin AFB's runway and Test Area B-71 off Range Road 236. NSWC PCD proposes to modify the JMTR to simulate the terrains encountered in Southwest Asia. Mine roller system testing must be conducted according to procedures and requirements outlined in the Allied Vehicle Testing Publication (NATO, 1991). Based on these requirements and information received directly from warfighters who operate tactical vehicles and mine roller systems in Southwest Asia, 25 testing components have been identified and would be incorporated into the research, development, test, and evaluation (RDT&E) activities at the JMTR on Auxiliary Field 4.

The JMTR is a research and development (R&D) facility that tests and evaluates mine roller systems and related equipment performance in any and all variables that are commonly encountered by warfighters in Southwest Asia. Enhancement and development of the proposed 25 testing components at the JMTR to accurately simulate all aspects of those terrains would properly test these systems under rigorous conditions to ensure potential deficiencies are identified and resolved before they are deployed. Table 1 lists all 25 components that are included in the Proposed Action for analysis in the EA. As Table 1 shows, the majority of components already exists at the JMTR and would only require minor improvements.

**Table 1. Summary of JMTR Test Components**

	Component Description	New or Existing
1.	Navy R&D mine roller complex	Existing
2.	Manufactured pot hole in sand	Existing
3.	Manufactured pot hole on pavement	Existing
4.	Manufactured pot hole on broken pavement	Existing
5.	Manufactured pot hole on grass	Existing
6.	Manufactured pot hole on gravel	Existing
7.	Target area	Existing
8.	Double/single lane change	Existing
9.	Slalom	Existing
10.	Sand steering coverage area	Existing
11.	Paved steering coverage area	Existing
12.	2.5-mile circuit	Existing
13.	Smooth paved road (Range Road 630)	Existing
14.	Range B-9	Existing
15.	Trigger pan area	New
16.	Rubble hill/wadi	New
17.	Rubble road	New
18.	V-ditch	New
19.	Rutted road	New
20.	Sand road	New
21.	Obstacle road	New
22.	Speed bumps	New
23.	Cut grooves	New
24.	Hills	New
25.	Belgian block	New

**No Action Alternative:** The No Action Alternative would not enhance existing components nor develop new components at the JMTR on Auxiliary Field 4 that would provide a centralized location to conduct mine roller systems RDT&E activities.

## **SUMMARY OF THE ANTICIPATED ENVIRONMENTAL EFFECTS**

**Water Resources:** Implementation of the Proposed Action involves clearing approximately 14 acres of trees and creating nominal amounts of impervious surface area that could increase the amount of stormwater runoff and sediment transport to other portions of the field. Potential effects to the existing sludge field from mine roller systems RDT&E activities were also addressed. Auxiliary Field 4 is predominantly landscaped/urban. There would be an addition of impervious surface areas from constructing the V-ditch (18) and restoring Runway 34, sections of Runway 06, and taxiway. This addition combined with clearing approximately 14 acres of trees for the sand steering coverage area (10), smooth asphalt road (13), rubble hill/wadi (16), rubble road (17), and sand road (20) would increase the potential for stormwater runoff. However, the amount of additional stormwater, if any, would be negligible compared to the existing condition of Auxiliary Field 4, which is already largely paved. Additionally, there are no receiving water bodies nearby and transport of runoff is unlikely due to the

flat terrain that surrounds the project area and the permeable soil conditions at the site. Groundwater would not be impacted from mine roller systems RDT&E activities. Furthermore, there would be no significant impacts to wastewater resources, specifically the sludge application field located in the southern portion of the testing site. NSWC PCD activities would not intrude on the sludge field, nor would RDT&E activities and the addition of new components restrict the Eglin AFB sludge field operator's access to the sludge field. NSWC PCD submitted a Coastal Zone Management Act (CZMA) Consistency Determination on October 1, 2009, and received concurrence from the State of Florida on November 16, 2009.

**Biological Resources:** The Proposed Action would result in the direct loss of up to 14 acres of Sandhills habitat from tree-clearing activities associated with the implementation of the Proposed Action, but many acres of high quality Sandhills habitat would continue to be maintained on other portions of Eglin. Clearing activities may also have an indirect localized effect on native terrestrial wildlife species such as squirrels, raccoons, and rabbits. However, it is anticipated that these species would either move to another location or remain within the area and utilize adjacent habitat.

**Sensitive Species/Habitats:** There are no sensitive species or sensitive habitats identified within the proposed testing site. While the Florida black bear, gopher tortoise, and indigo snake may occasionally occur in the area, no direct impacts to any of these protected species are anticipated. However, since sensitive species may pass through the project area, any individuals found during preconstruction surveys, (i.e., indigo snakes) would be relocated and would not be adversely affected. In addition, indigo snake signs will be posted around the construction site to alert personnel.

**Cultural Resources:** Archaeological surveys were conducted at the proposed site to determine the presence of resources and none were found. State Historic Preservation Officer (SHPO) concurrence with these findings is expected within 60 days after the submittal of these results. Since no cultural resources have been identified within the project area no impacts to cultural resources would be expected from implementation of the Proposed Action. However, should any inadvertent discoveries of archaeological material be made during the course of construction or land clearance, all actions in the immediate vicinity would cease and efforts would be taken to protect the find from further impact. The 96<sup>th</sup> Civil Engineer Group/Cultural Resources Branch (96 CEG/CEVSH) would then be contacted immediately. If any cultural resources are uncovered during training activities, all actions in the immediate vicinity would cease to protect the find from further impact. The 96 CEG/CEVSH would be immediately contacted and would subsequently assess the find and determine what legal mandates apply.

## **MANAGEMENT REQUIREMENTS**

**Water Resources:** The proponent will ensure that the construction contractor coordinates with the 96<sup>th</sup> Civil Engineer Group/Environmental Engineering Section

(96 CEG/CEVCE) (Compliance Engineering, 882-7660) for final stormwater design and permitting. An Environmental Resources Permit (ERP) from the Northwest Florida Water Management District in accordance with Florida Administrative Code (FAC) 62-346 and a National Pollutant Discharge Elimination System (NPDES) permit from the Florida Department of Environmental Protection (FDEP) in accordance with FAC 62-621 would be required per FDEP's response to the CZMA determination.

The proponent will ensure that the construction contractor implements the following stormwater Best Management Practices (BMPs):

- In permits and site plan designs, include site-specific management requirements for erosion and sediment control.
- Store chemicals, cements, solvents, fuels, or other potential water pollutants in locations where they cannot cause runoff pollution.
- For construction equipment, designate "staging areas" designed to contain any chemicals, solvents, or toxins and prevent them from entering surface waters.
- Inspect and maintain the aforementioned BMPs to ensure effectiveness.

**Biological Resources:** The proponent could lessen impacts to biological resources by implementing the following BMPs:

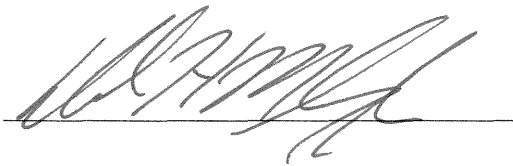
- If a threatened or endangered species such as a gopher tortoise, indigo snake, or Florida black bear is sited, construction personnel will cease all activities, allowing the animal sufficient time to move away from the site on its own before resuming any activities.
- Project and construction personnel should be alert to the potential presence of these species and avoid them.
- The 96<sup>th</sup> Civil Engineer Group/Natural Resources Section (96 CEV/CEVSN) should be contacted immediately if any of these species are encountered during construction activities.

**Cultural Resources:** The proponent will ensure that the construction contractor coordinates with the Base Historic Preservation Officer (BHPO) and the 96 CEG/CEVSH during construction activities.

- If artifacts or other biological or cultural remains are uncovered as a result of construction or training activities, the construction contractors will cease all work in the immediate vicinity and notify the BHPO and the 96 CEG/CEVSH of the discovery.
- Artifacts include any man-made object, including glass, nails, bricks, ceramics, arrowheads, metal, and structures such as fence posts and building remnants.

## **FINDING OF NO SIGNIFICANT IMPACT**

After a review of the EA by NSWC PCD and the 96<sup>th</sup> Civil Engineer Group/ Environmental Analysis Section (96 CEG/CEVSP), it has been concluded that the Proposed Action would not have a significant adverse impact of a long-term nature to the quality of the human or natural environment. Therefore, no Environmental Impact Statement will be prepared. This analysis fulfills the requirements of the National Environmental Policy Act, the President's Council on Environmental Quality, Chief of Naval Operations Instruction 5090.1C, and Air Force Instruction 32-7061.

A handwritten signature in dark ink, appearing to be "W. H. M. G.", written over a horizontal line.

15 DEC 09  
Date





# **JOINT MANEUVER TEST RANGE ON EGLIN AIR FORCE BASE, FLORIDA**

## **FINAL ENVIRONMENTAL ASSESSMENT**

**Submitted to:  
Naval Surface Warfare Center Panama City Division  
Panama City, Florida**

**Contract GS-10F-0076J  
Submitted by:**



**Science Applications International Corporation  
1140 Eglin Parkway, Shalimar, Florida 32579**

**RCS 09-462 / 09-753**

**December 2009**



**PRINTED ON RECYCLED PAPER**

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## LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS

96 CEG/CEV	96 <sup>th</sup> Civil Engineer Group/Environmental Management Division
96 CEG/CEVCE	96 <sup>th</sup> Civil Engineer Group/Environmental Engineering Section
96 CEG/CEVSH	96 <sup>th</sup> Civil Engineer Group/Cultural Resources Section
96 CEG/CEVSN	96 <sup>th</sup> Civil Engineer Group/Natural Resources Section
96 CEG/CEVSP	96 <sup>th</sup> Civil Engineer Group/Environmental Analysis Section
AF Form	Air Force Form
AFB	Air Force Base
AFI	Air Force Instruction
AVTP	Allied Vehicle Testing Publication
BHPO	Base Historic Preservation Officer
BMP	Best Management Practice
BRAC	Base Realignment and Closure
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CVOT	Combat Vehicle Operator's Test
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
ERP	Environmental Resource Permit
ESA	Endangered Species Act
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FNAI	Florida Natural Areas Inventory
ft	Feet
GIS	Geographic Information System
HAZMAT	Hazardous Materials
IED	Improvised Explosive Device
in	Inches
INS	Invasive Nonnative Species
JIEDDO	Joint Improvised Explosive Device Defeat Organization
JMTR	Joint Maneuver Test Range
JUON	Joint Urgent Operational Need
Navy	Department of the Navy
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSWC PCD	Naval Surface Warfare Center Panama City Division
OEF	Operation ENDURING FREEDOM
OIF	Operation IRAQI FREEDOM
OPNAVINST	Chief of Naval Operations Instruction
R&D	Research and Development
RDT&E	Research, Development, Test, and Evaluation
ROI	Region of Influence
RR	Rural Road
SHPO	State Historic Preservation Officer
S.R.	State Road
U.S.	United States
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
UUNS	Universal Urgent Need Statement

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## 1. INTRODUCTION

The action proponent, Naval Surface Warfare Center Panama City Division (NSWC PCD), headquartered at Naval Support Activity, Panama City, Florida, has prepared this Environmental Assessment (EA) for the development of additional testing components at the Joint Maneuver Test Range (JMTR) on Eglin Air Force Base (AFB), Florida, to conduct research, development, test, and evaluation (RDT&E) activities for mine roller systems and other counter-improvised explosive device (IED) related projects. Activities addressed in this document include actions related to the construction and enhancement of new and existing test features for mine roller systems RDT&E activities at Auxiliary Field 4 on Eglin AFB. Incorporation of these features at the JMTR will increase NSWC PCD's ability to meet increasing demands to conduct mine roller systems RDT&E activities that measure effectiveness, correct deficiencies for in-theater assets, and react to changes in theater. The United States (U.S.) Department of the Navy (Navy) is the lead agency for this Proposed Action; there is no cooperating agency. The regional setting of this action is shown in Figure 1-1.

This EA has been prepared in accordance with the following laws:

- National Environmental Policy Act of 1969 (NEPA) (42 U.S. Code [USC.] 4321 et seq.), which requires an environmental analysis for major federal actions having the potential to impact the quality of the human environment;
- Council of Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508);
- Chief of Naval Operations Instructions (OPNAVINST) 5090.1C, Chapter 5, *Procedures for Implementing the NEPA*, which delineates the Navy's internal operational procedures on how to implement the provisions of NEPA.

### 1.1 BACKGROUND INFORMATION

According to the Joint Improvised Explosive Device Defeat Organization (JIEDDO) Annual Report for Fiscal Year 2008, IEDs have continued to be the most effective weapon against coalition forces in Southwest Asia. In 2008, coalition force casualties from IEDs in certain parts of Southwest Asia were approximately double what they were in 2007 (JIEDDO, 2008). As a result, mine roller systems have been developed to combat these highly effective weapons. Mine rollers are mounted to the front of a tank or armored personnel carrier and are pushed ahead of them to trigger detonation of IEDs. In doing so, IEDs would detonate under the mine rollers instead of the vehicle, thus minimizing damage to the pusher vehicles and subsequently to the personnel inside them. To ensure these systems are effective in locating IEDs and triggering detonation, the mine roller systems must first be tested in a variety of conditions.

In direct support of Operation IRAQI FREEDOM (OIF)/Operation ENDURING FREEDOM (OEF), the NSWC PCD Marine Corps Maneuver Systems Branch has been tasked by the Marine Corps Systems Command with conducting mine roller systems RDT&E activities to assist program decisions and to maximize overall mine roller systems effectiveness. With direct, weekly contact with warfighters in-country, the Counter-IED Team at NSWC PCD stays abreast

of all requirements, logistics, and critical information. As the enemy continuously changes their tactics to counter the mine roller systems, the design of the roller must also adapt. These new designs must then be tested under environmental conditions that accurately mimic what is encountered in Southwest Asia before being deployed.

NSWC PCD chose Eglin AFB to conduct mine roller systems RDT&E activities due to the close proximity to headquarters in Panama City and because existing test tracks at the Aberdeen Proving Ground in Maryland require several months' notice to get on the schedule. In the initial standup of mine roller systems RDT&E activities, operations were based at Range B-70; operations later spread to the abandoned Auxiliary Field 4 when operational demands exceeded Range B-70 capabilities. On March 9, 2009, the sharing of Field 4 between NSWC PCD and Eglin AFB was formalized and the JMTR was established to serve as a research and development (R&D) facility for counter-IED equipment. The site also supports the evaluation of a myriad of counter-IED related projects. Currently, NSWC PCD utilizes the 14 existing testing components on a daily basis for mine roller systems RDT&E activities. In response to increased demands, the Navy proposes to optimize the 14 existing test features and further customize the JMTR site by constructing 11 new testing components to satisfy the testing requirements needed to support counter-IED missions.

## 1.2 PURPOSE AND NEED

The purpose of enhancing the JMTR is to expand RDT&E capabilities at the site for the spiral development of mine roller systems and for integration, test, and evaluation of other counter-IED systems. Spiral development is a process in which the developer, tester, and user interact with one another to develop a weapon system's capabilities and refine the system's operational requirements incrementally based on user feedback (Congressional Research Service [CRS], 2004).

The need for the Proposed Action is to satisfy Joint Urgent Operational Needs (JUONs) and Universal Urgent Need Statements (UUNS) from the Joint Service Direct Support of the War-Fighter resulting from direct regular communications with war fighters in-country through OIF/OEF and situation reports. Implementation of the Proposed Action would also satisfy the JIEDDO-sponsored IED defeat support requests.

## 1.3 PUBLIC INVOLVEMENT PROCESS

Executive Order 12372, *Intergovernmental Review of Federal Programs*, requires intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the process of Interagency and Intergovernmental Coordination for Environmental Planning, the Air Force must notify concerned federal, state, and local agencies to allow them ample time to evaluate the potential environmental impacts of the Proposed Action. Comments from these agencies are incorporated into the Environmental Impact Analysis Process (EIAP).

As part of the public involvement process, the Navy will notify the public of the completion of the Final EA/Finding of No Significant Impact and initiate a review period.





Figure 1-1. Regional Setting of the Proposed Action

## **1.4 SCOPE OF THE ENVIRONMENTAL ASSESSMENT**

NEPA and Air Force Instruction (AFI) 32-7061 require completion of an environmental impact analysis before a decision is made to proceed with a proposed action on an Air Force installation. To initiate the environmental analysis, NSWC PCD submitted an Air Force (AF) Form 813, Request for Environmental Impact Analysis, to the 96<sup>th</sup> Civil Engineer Group, Environmental Analysis Section (96 CEG/CEVSP) to review the widening of Range Roads 611, 625, and 628 on Auxiliary Field 4 for mine roller testing. Another AF Form 813 was submitted as a follow on to the previous which included other testing components to be included at Auxiliary Field 4. A review of both AF Form 813s by the 96 CEG/CEVSP determined the Proposed Action required an EA.

### **1.4.1 Environmental Issues Considered and Eliminated from Detailed Analysis**

For purposes of brevity, several resource areas were eliminated from exhaustive discussion, based on the scope of the Proposed Action.

#### **Air Quality**

No air quality impacts are anticipated as vehicle operations will remain at approximately the same tempo as current levels. Impacts from dust generated by construction activities would be minimal and localized to the Auxiliary Field 4 test area.

#### **Hazardous Materials/Solid Waste**

A small hazardous materials (HAZMAT) locker already exists at the proposed site for oil storage; however, that is currently maintained by Eglin AFB and is included in their HAZMAT management processes. Mine rollers are refueled by mobile sources so no permanent tanks are needed. Furthermore, no hazardous wastes will be generated from mine roller testing activities.

No solid wastes will be generated from earth moving and construction activities, as any excavated soils will be utilized on site to build up mounds and hills that are included in the Proposed Action. Furthermore, no solid wastes will be generated from mine roller testing activities.

#### **Transportation**

Utilization of Auxiliary Field 4 for mine roller systems testing will have a positive impact to local road use. The Proposed Action incorporates the construction of a road loop well within the perimeter of Auxiliary Field 4 for mine roller systems endurance testing that would minimize the use of local roads; therefore, it is anticipated that there will be a reduction of traffic use on surrounding local roadways.

## **Socioeconomics/Environmental Justice**

The number of personnel required to implement the Proposed Action is not expected to increase from current numbers; therefore, no impacts to socioeconomics are anticipated. Furthermore, the proposed test site is in a location where military testing is regularly conducted and will not affect public areas or surrounding communities. There would be no environmental justice impacts as the action would not affect minority or low-income persons. Any modification of activities that would occur outside the existing footprint would require additional environmental documentation.

## **Infrastructure**

The current facility is used daily by approximately 10 people and this usage is not expected to increase or decrease under the Proposed Action. Therefore, no new infrastructure would be required since the number of personnel at the proposed site would not change.

### **1.4.2 Potential Environmental Issues Studied in Detail**

The following environmental features were identified for analysis in the EA:

#### **Water Resources**

Some components of the Proposed Action would alter the shape of the land, including construction of a V-ditch, trenches, and hills. Furthermore, tree clearing activities would need to occur in certain areas on the JMTR site around existing roads and to accommodate some new testing features. As a result, Environmental Resource Permits (ERPs) and National Pollutant Discharge Elimination System (NPDES) stormwater permits would be required. This EA analyzes the potential impacts to water resources and potential increases in stormwater runoff from the implementation of the Proposed Action. No wetlands are located on the proposed site.

#### **Biological Resources**

Neither threatened/endangered species nor critical habitat areas are known to occur on Auxiliary Field 4; however, the surrounding Sandhills ecosystem does support several protected species, some of which may occasionally enter the study area. These species may include the indigo snake, a federally listed threatened species, as well as the gopher tortoise and Florida black bear, both state listed threatened species. The Eglin Natural Resources Section performed a gopher tortoise survey in May 2009 and no burrows were found within the project area. However, a preconstruction survey for gopher tortoise and indigo snake may be required.

#### **Cultural Resources**

Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 USC 479[f]) requires that federal agencies analyze the impacts of federally directed or funded undertakings on historic properties. High probability areas exist in the north section of the proposed testing area. An archaeological survey of the area has been conducted by the Eglin AFB Cultural Resources Department. The findings of the survey are discussed in Section 3.3 of this EA.

## 1.5 RELATED ENVIRONMENTAL DOCUMENTATION

The following environmental and planning documents are related to actions and resources associated with the construction and development activities proposed to occur at the JMTR on Auxiliary Field 4:

- Request for Environmental Impact Analysis for the Field 4 Vehicle Test Track – AF Form 813, Log 49664, RCS 09-290
- Request for Environmental Impact Analysis for the Field 4 Test Track – AF Form 813, Log 49846, RCS 09-462
- Request for Environmental Impact Analysis for Joint Maneuver Test Track, Log #50181, RCS 09-753
- Environmental Assessment RCS 98-097 *Field 4 Sludge Field*
- Environmental Assessment RCS 99-349 *Construct and Operate U.S. Marine Corps Vehicle Maintenance Facility*
- *Integrated Natural Resources Management Plan, Eglin AFB, Florida*. 96<sup>th</sup> Civil Engineer Group/Natural Resources Section (96 CEG/CEVSN)
- *Eglin Air Force Base Integrated Cultural Resource Management Plan Implementation, 2004 – 2009*. 96<sup>th</sup> Civil Engineer Group/Cultural Resources Branch (96 CEG/CEVSH)

## 1.6 APPLICABLE REGULATORY REQUIREMENTS

The following regulatory requirements and coordination are associated with the Proposed Action:

- NSWC PCD has submitted a Coastal Zone Management Act (CZMA) Consistency Determination, pursuant to 15 CFR 930.35, to the Florida Department of Environmental Protection (FDEP) for the Proposed Action, and is currently waiting for FDEP concurrence.
- Concurrence from the State Historic Preservation Officer (SHPO) is expected within 60 days after the submittal of the findings of the archaeological survey conducted by the Eglin AFB Cultural Resources Department, pursuant to the NHPA. A NHPA Section 106 consultation with the SHPO would be required to determine potential impacts to cultural resources if any are identified.

## 2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

### 2.1 PROPOSED ACTION (PREFERRED ALTERNATIVE)

The NSWC PCD proposes to develop and enhance existing test capabilities for mine roller systems and related equipment at the JMTR on Auxiliary Field 4. Auxiliary Field 4 is an abandoned air strip located halfway between Eglin AFB's runway and Test Area B-71 off Range Road 236 (Figure 2-1). Figure 2-2 shows Range B-9 that would also be incorporated as an existing component for mine roller systems RDT&E activities. NSWC PCD proposes to modify the JMTR to simulate the terrains encountered in Southwest Asia. Mine roller systems testing must be conducted according to procedures and requirements outlined in the Allied Vehicle Testing Publication (AVTP) (NATO, 1991). Based on these requirements and information received directly from warfighters who operate tactical vehicles and mine roller systems in Southwest Asia, 25 testing components have been identified and would be incorporated into the RDT&E activities at the JMTR on Auxiliary Field 4.

#### 2.1.1 Description of the JMTR Components

The JMTR is a R&D facility that tests and evaluates mine roller systems and related equipment performance in any and all variables that are commonly encountered by warfighters in Southwest Asia. Incorporation of the proposed testing components at the JMTR would accurately simulate all aspects of those terrains and would allow these systems to be tested under rigorous conditions to ensure potential deficiencies are identified and resolved before they are deployed. Table 2-1 lists all 25 components that are included in the Preferred Alternative for analysis in the EA. As shown in Table 2-1, a majority of the components already exist at the site and would only require minor improvements.

**Table 2-1. Summary of JMTR Test Components**

	Component Description	New or Existing
1.	Navy R&D mine roller complex	Existing
2.	Manufactured pot hole in sand	Existing
3.	Manufactured pot hole on pavement	Existing
4.	Manufactured pot hole on broken pavement	Existing
5.	Manufactured pot hole on grass	Existing
6.	Manufactured pot hole on gravel	Existing
7.	Target area	Existing
8.	Double/single lane change	Existing
9.	Slalom	Existing
10.	Sand steering coverage area	Existing
11.	Paved steering coverage area	Existing
12.	2.5-mile circuit	Existing
13.	Smooth paved road (Range Road 630)	Existing
14.	Range B-9	Existing
15.	Trigger pan area	New
16.	Rubble hill/wadi	New
17.	Rubble road	New
18.	V-ditch	New
19.	Rutted road	New
20.	Sand road	New
21.	Obstacle road	New

**Table 2-1. Summary of JMTR Test Components, Cont'd**

	Component Description	New or Existing
22.	Speed bumps	New
23.	Cut grooves	New
24.	Hills	New
25.	Belgian block	New

1

## Existing Components

Existing components discussed in this section are referenced to Figure 2-1 by their number designation. The Navy R&D mine roller complex (1), also known as Building 4024, currently houses the test personnel who operate the mine roller systems. Building 4024 already has utilities and a high bay area to support approximately 10 personnel onsite. Currently this complex is used for mine roller systems configuration and maintenance. Test personnel perform wheel loading measurements, data collection, wheel deflection measurements, target preparation and calibration, and some ground testing activities. The Navy R&D mine roller complex contains a photo lab for editing stills and videos taken during testing activities and provides storage for mine rollers, pusher vehicles, and other equipment. The administration office within the complex contains a library for technical publications, provides a space for writing technical reports, and serves as a communications center. No major improvements are anticipated for Building 4024.

One objective for mine roller systems testing is to evaluate their durability in an unpredictable and unstable environment. To test mine roller systems durability, manufactured pot holes have been constructed on a variety of media including sand (2), pavement (3), broken pavement (4), grass (5), and gravel (6) in locations throughout the JMTR site. These potholes are approximately 4 feet (ft) wide, 5 ft long, and 4.5 inches (in) deep and they provide a standardized obstacle for mine roller systems to negotiate at a variety of speeds. By driving over these standardized potholes in different types of terrain and at varying speeds, test personnel can determine if any structural damages have occurred and can make the appropriate adjustments to fix them.

The target area (7) is a sandy area located on the east side of Runway 36 where IED triggers would be buried in the ground. This component provides an area where surrogate pressure-plate IEDs are buried for mine roller systems to drive over. Using specialized instrumentation and video, mine roller effectiveness for each system is captured and evaluated. The triggers are regularly modified based on the latest intelligence received from in-country assets, to be replicated and used as surrogates for testing purposes. The target area is also an IED command wire cutting area. Currently this component does not require any modifications to meet the testing objectives for the mine roller systems.

Another aspect of the mine roller systems that must be tested is maneuverability. Currently, there is an area on Runway 06 that is dedicated for double/single lane changing (8) and slalom testing (9). These components are developed in accordance with the AVTP-1. The lane changing obstacle provides a feature to test the agility and handling qualities of tactical vehicle/mine roller combinations and tests for any existing oscillations. The slalom obstacle tests the handling qualities of every tactical vehicle/mine roller systems combination.

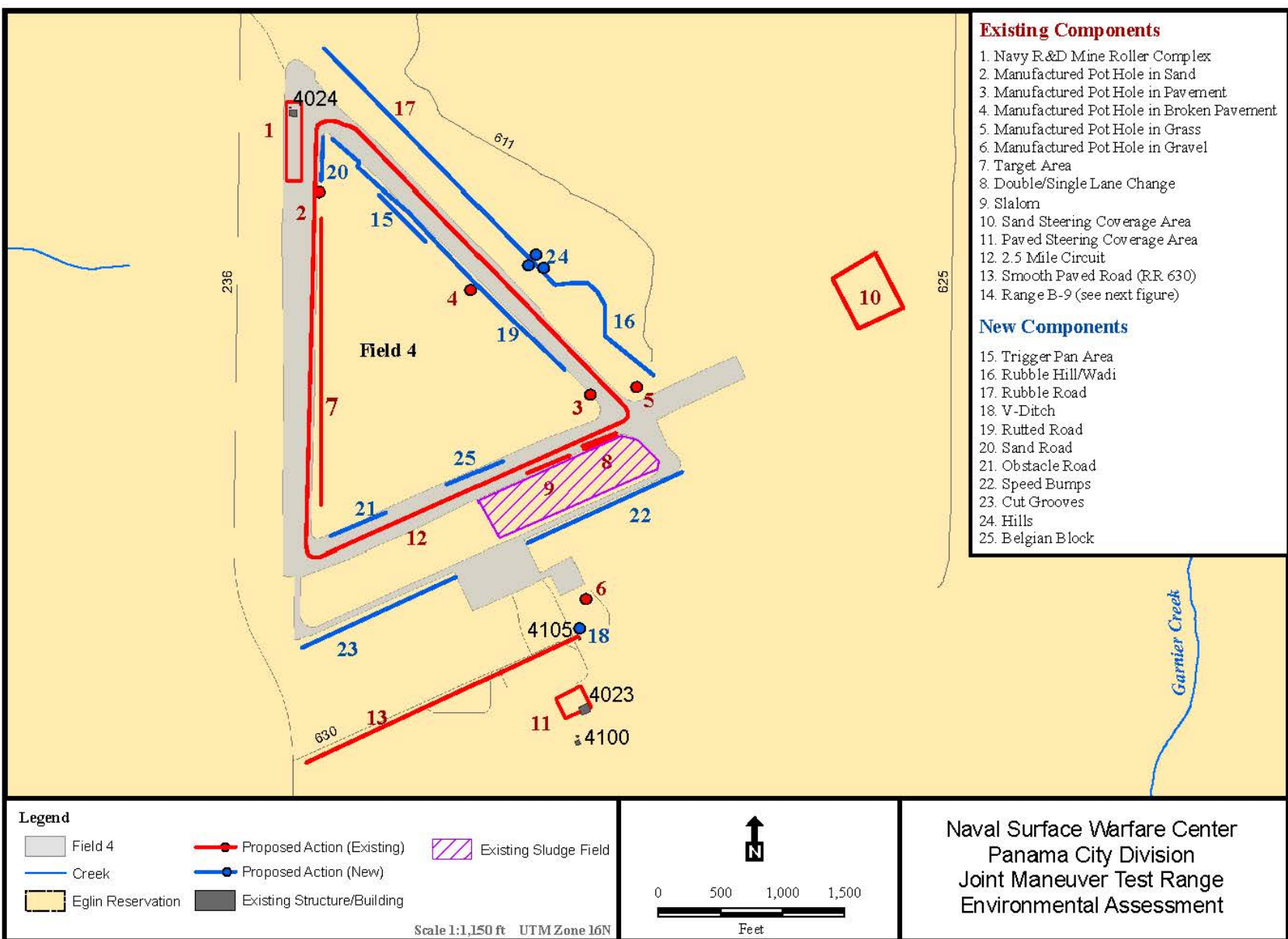


Figure 2-1. Proposed JMTR with all Components

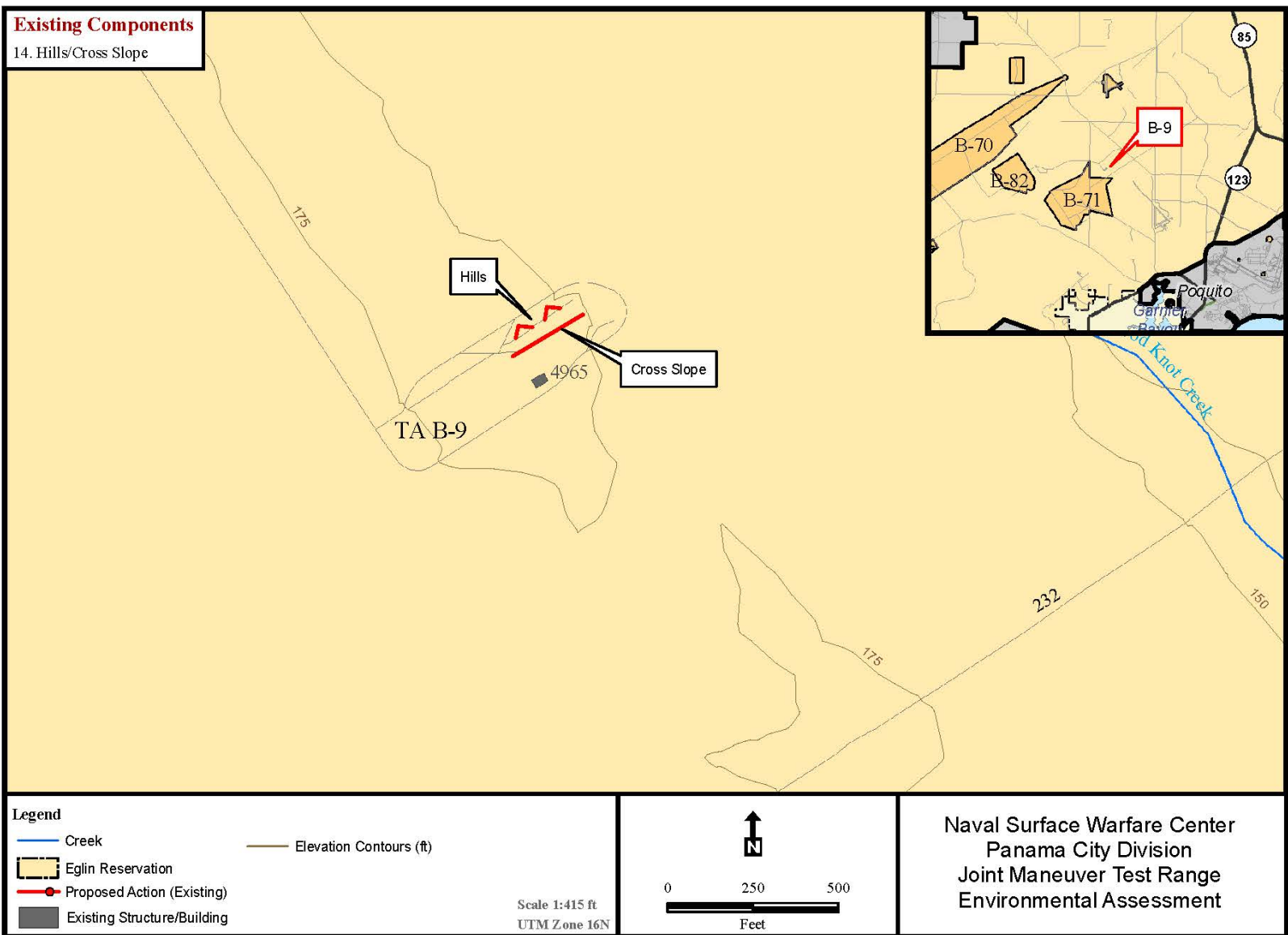


Figure 2-2. Range B-9



To evaluate performance in other conditions, the sand steering coverage area (10), an existing sand pit, provides an area to test tactical vehicle/mine roller systems ability to negotiate turns in deep, soft sand. Test personnel also collect turning radius data for each tactical vehicle/mine roller systems combination. This area currently has some vegetation growing in the sand area that would be cleared out; the terrain would be leveled as well. Furthermore, a perimeter around the area would need to be created by clearing approximately 1 acre of trees around the sand steering coverage area (10), making it approximately 500 ft long and 500 ft wide.

There is also a paved steering coverage area (11) in the southern portion of the site to practice U-turns on paved areas and to test mine roller steering coverage. Similar to the sand steering coverage area (10), test personnel collect turning radius data for each tactical vehicle/mine roller systems combination. Furthermore, this area contains an abandoned hangar which would be used as an additional storage site.

Collectively, the manufactured potholes in sand (2), pavement (3), broken pavement (4), target area (7), double/single lane changing (8), and slalom (9) components are contained within the 2.5-mile circuit (12) component. Currently this component provides a complete circuit to evaluate tactical vehicle/mine roller systems handling qualities and it provides access to existing obstacles in either direction (i.e., clockwise and counter-clockwise). As the next section will describe, NSW PCD proposes to develop eight additional components along the 2.5-mile circuit (12) that will further enhance this feature.

To the south of the 2.5-mile circuit (12) and just north of the paved steering coverage area (11) is Range Road (RR) 630, which would function as the smooth paved road (13) component. This component provides an area to conduct mobility test maneuvers, acceleration tests, braking tests, and lighting tests. RR 630 is surrounded by trees on both sides with some of those trees having grown outside the original tree line, encroaching on the space between the road and the tree line. Testing on the smooth, paved road requires a 30-foot buffer between each side of the road and the tree line. As a result, NSW PCD proposes to remove the excess vegetation and sparsely scattered trees that have grown in this buffer area. Furthermore, on the southwest end of the road, a circle area with a 150-foot radius would need to be cleared to provide a turn around area for tactical vehicles/mine roller systems, as currently this cannot be accomplished without running into the tree line. The total area of tree removal for this circular area would be approximately 1.3 acres.

Range B-9 (14) contains two hills with paved up-slopes and down-slopes of 13° (approximately 23 percent grades) (Figure 2-2). A paved 0.3-mile circuit allows access to both slopes from either side. A paved cross slope of 13° is also available at this site to test tactical vehicle/mine roller systems stability, as well as brakes testing.

### **New Components**

New components discussed in this section are referenced to Figure 2-1 by their number designation.

Runway 34 is located to the east of the Navy R&D mine roller complex (1) and is connected to the northern tip of Runway 36. This abandoned runway currently has vegetation that has taken over much of the area and trees that have grown up through the pavement. Development of several components on or near the runway would require the vegetation and sparsely scattered

trees that have grown through the 5-in thick broken asphalt to be removed in order to restore Runway 34 to its 150-ft wide and 4,000-ft long dimensions. One of the components that NSWCD PCD proposes to construct on the west side of the northern portion of Runway 34 is the trigger pan area (15). The trigger pan area would consist of five 100-ft long, 15-ft wide, 5-ft deep rectangular pits placed 30 ft apart from each other. The total length and width for the trigger pan area would be 620 ft long and 15 ft wide. Each pit would be lined with plastic and filled with different soils including sand, dirt/loam, gravel, clay, and a mixture of these, respectively. Specific instrumentation and surrogate IEDs would be placed in each pit at varying depths to test counter-IED system effectiveness in different soil conditions.

The southeastern portion of Runway 34 would be the proposed site for the rubble hill/wadi (16). The component would test tactical vehicle/mine roller systems in operationally-representative terrain conditions to include hills and wadis, or dry river bedrock area, typically encountered by war fighters in-country. Tactical vehicle/mine roller systems combinations would be driven through this area to ensure that they have been robustly engineered. Development of this component would require approximately 1 acre of trees to be removed. Existing rubble less than six inches in size mixed with gravel and dirt would comprise the outside surface of the rubble hill. A large bulldozer would be used to excavate the wadi areas as well as the entry and exit routes to the hill. One exit from this component would be to the northwest onto the rubble road (17) component.

An area approximately 150 ft wide and 3,000 ft long directly adjacent to Runway 34 would need to be cleared in order to develop the rubble road (17), which equates to approximately 10 acres of trees. This purpose of this component would be to simulate terrains commonly encountered in-country to test the mobility of tactical vehicles as well as R&D activities for the mine roller systems. Debris from tree-clearing activities would remain on the site and covered with concrete/asphalt rubble cut to approximately one-cubic-foot in size mixed with gravel and dirt. The entire road would then be covered with smaller size rubble (less than 6 in) mixed with gravel and dirt. On average, the rubble road will be approximately 1.5 ft thick.

A concrete V-ditch (18) would be constructed northeast of the smooth paved road (13) component in an area where no trees or bushes are currently located. The purpose of this component would be to test the agility and clearance issues associated with each tactical vehicle/mine roller systems to negotiate this type of obstacle.

The proposed location for the rutted road (19) exists in partial form on Runway 34. As described above for the trigger pan area (15), vegetation that has grown through the broken pavement would need to be removed in order to restore the runway and to develop other testing components. The rutted road (19) would be constructed to contain operationally representative terrain encountered in-country by accentuating curves and creating varying depths of ruts in the ground using a backhoe or front end loader. This component would be used to assess tactical vehicle/mine roller systems mobility and agility over unimproved surfaces as well as providing an alternate area to conduct mine roller systems effectiveness testing and evaluation.

East of the Navy R&D mine roller complex alongside the northern portion of Runway 36 is the proposed site for the sand road (20), which would be a 1,000-ft long sand area that would include the existing manufactured pot hole in sand (2) component. Utilization of the sand road (20)

would evaluate mobility performance of tactical vehicles/mine roller systems in deep soft sand. Development of this component would involve removing the vegetation and creating a bed of sand in an area measuring approximately 50 ft wide and 1,000 ft long. This bed would be filled with homogenous soft sand to a depth of approximately 3 ft. In addition, NSWC PCD proposes to clear a 20-ft wide 1,000-ft long area (approximately 0.5 acres) adjacent to this component to allow room for tactical vehicle/mine roller systems to maneuver around the component.

An obstacle road (21) would be developed towards the southeast corner of the 2.5-mile circuit (12) component on the northern edge of Runway 06. The obstacle road (21) would be approximately 20 ft wide and 300 ft long and would test mine roller systems agility and mobility combinations over select obstacles. There would be two parallel rows of pressure-treated power poles anchored into the ground about 20 ft apart and 200 ft long. A 12-in deep bed of 4- to 6-in crushed stone would be placed between the pole borders. The first 100-ft section of the road would have 8-ft long concrete curbs. The second 100-ft section will have an obstacle consisting of 14 power poles arranged in a W-shaped pattern on top of the stone bed. The third 100-ft section would have a 12-in stone bed without borders. Development of this component would require all vegetation located outside the existing tree line and within the proposed 20-ft by 300-ft area to be cleared.

The taxiway for Runway 06, located southeast of the 2.5-mile circuit (12) which includes Runway 06, is the proposed location for the speed bumps (22) and cut grooves (23) components. In order to accommodate these testing features, the entire southern edge of the taxiway measuring approximately 20 ft wide and 1,500 ft long would need to be restored. All dirt, grass, and any other overgrown vegetation would need to be cleared to the edge of the underlying asphalt. The speed bumps (22) and cut grooves (23) would be obstacles that present standardized features to evaluate tactical vehicle/mine roller systems oscillation performance and to test their mobility and agility. The eastern half of the taxiway (750 ft) would contain approximately 250 asphalt/runner speed bumps. Each speed bump (22) would be approximately 6 ft long, 12 in wide, and 2 in high and would be arranged in various patterns along the taxiway including in pairs, staggered formations, and at diagonals to direction of travel. The west half of the taxiway would contain a series of cut grooves (23) arranged in similar patterns as the speed bumps (22). Each cut groove would be approximately 3 ft long, 2 in deep, and have widths varying between 2 and 6 in.

NSWC PCD proposes to construct three hills (24) that would be situated in a 3,000-ft long 150-ft wide area northwest of the rubble hill/wadi (16) at the southeast end of rubble road (17). The purpose of these hills would be to test the mobility of tactical vehicles and R&D activities for mine roller systems. Each hill would be composed of a mixture of gravel, dirt, and large broken slabs of concrete and asphalt. They would be approximately 20 ft tall, would contain varying degrees of inclines (specifically 14°, 18°, and 22°), and would be excavated to allow mine roller systems to approach them directly or from the sides.

The final new component NSWC PCD proposes to construct is a Belgian block (25) obstacle located along the southern portion of the 2.5-mile circuit (12) northeast of the obstacle road (21). Similar to the obstacle road, a 20-ft wide 300-ft long section of Runway 06 would need to be restored by removing loose sand, grass, and other vegetation that has grown through the underlying asphalt to accommodate the area needed for the Belgian block (25) obstacle. In

addition, a 20-ft wide 500-ft long area adjacent to the Belgian block (25) obstacle site on the north side of the runway would need to be cleared of vegetation that has grown outside the existing tree line. This component would be an engineered obstacle that would assess the torsion and twisting performance of tactical vehicle/mine roller systems combinations by placing uniform granite cobblestones of 4-in and 6-in diameters to simulate a Belgian block terrain.

## 2.2 ALTERNATIVES DEVELOPMENT

NSWC PCD needs to conduct RDT&E activities on mine roller systems, associated tactical vehicles, and other counter-IED measures to meet the increased demands received in the form of JUONs and UUNS. The following test requirements were developed and used as selection criteria to develop reasonable alternatives:

- **Facilities exist and are available for vehicle compound.** Includes an out of weather maintenance area and office space with secure storage for vehicles and documentation.
- **Infrastructure available for vehicle compound.** Office space must have local area network connectivity and other features to support test personnel on site.
- **Minimal mission impacts and run outs.** Test tracks must have existing unused hard surface area available to minimize impacts
- **Proximity to range road network and terrain.** Both the vehicle compound and test tracks need to have accessibility to these features.

## 2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED

NSWC PCD examined a wide range of alternatives for a location of the JMTR. There is a testing site at Aberdeen Proving Ground, Maryland; however, this site is not acceptable as it would impose geographic constraints on mine roller systems RDT&E activities and currently there is a long waiting period to schedule testing at that site. Given the proximity to NSWC PCD in Panama City and the relatively shorter waiting period required to schedule testing activities, NSWC PCD focused on test sites on Eglin AFB as potential alternatives for the JMTR. These areas included B-71, Field 5, Field 6, Field 10, C-3, C-52, and a northeast area on Eglin AFB. All seven of these sites were evaluated based on the criteria discussed in the previous section. Table 2-2 and Table 2-3 show how each site would fulfill the criteria for the vehicle compound and test track, respectively.

**Table 2-2. Vehicle Compound Criteria**

Potential Alternatives	Facilities Available	Infrastructure Available	Minimal Mission Impacts/Run Outs	Proximity to Range Road Network and Terrain Features
<b>Field 4</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
B-71	Potential	Yes	Potential	Yes
Field 5	No	No	No	Yes
Field 6	No	No	No	Yes
Field 10	No	No	No	Potential
C-3	No	Yes	No	Potential
C-52	No	No	No	No
Northeast Area	No	No	No	No

Table 2-3. Test Track Criteria

Potential Alternatives	Unused Hard Surface Available	Minimal Mission Impacts/Run Outs	Close Proximity to Vehicle Compound
<b>Field 4</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
B-71	No	Potential	Yes
Field 5	Yes	No	Yes
Field 6	No	No	Yes
Field 10	No	Yes	Potential
C-3	No	No	Potential
C-52	No	No	No
Northeast Area	No	No	No

As both tables show, only Field 4 satisfied all criteria needed for the vehicle compound and the test track. All other potential sites would have required utilization of other testing sites and would not meet the purpose of the Proposed Action.

## 2.4 NO ACTION ALTERNATIVE

Under the No Action Alternative, mine roller systems testing would continue to utilize several test sites on Eglin AFB which collectively do not contain all the components necessary to evaluate the effectiveness and durability of the mine roller systems. Currently, the NSWC PCD utilizes the B-75, B-12, B-4, and B-71 test areas to supplement the testing and evaluation activities presently occurring on the JMTR at Auxiliary Field 4; however scheduling conflicts with Air Force activities have occurred and would continue to do so under the No Action Alternative. This alternative would not develop one permanent and centralized location to conduct mine roller systems and other counter-IED RDT&E activities required to satisfy JUONs and UUNs from the Joint Service Direct Support of the War-Fighter as well as IED defeat support requests from JIEDDO. Furthermore, the No Action Alternative would subject NSWC PCD to continued scheduling and range conflicts with the Air Force. Thus, the No Action Alternative does not meet the Purpose and Need for the Proposed Action.

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### 3. AFFECTED ENVIRONMENT

This chapter provides a description of the resources potentially affected by the Proposed Action. The existing environmental conditions serve as the baseline from which to evaluate environmental consequences (Chapter 4) resulting from activities associated with the Proposed Action and the No Action Alternative. The existing environmental conditions within the expected geographic extent of potential impacts, known as the region of influence (ROI), are addressed for each environmental resource in this chapter, including water resources, biological resources, and cultural resources.

#### 3.1 WATER RESOURCES

##### 3.1.1 Definition of the Resource

Water resources typically include groundwater, surface waters, wetlands, floodplains, and stormwater characteristics of the study area. For reasons specific to the project site, wastewater is also included in this analysis. Figure 3-1 and Figure 3-2 depict water resources within or near the JMTR and Range B-9 locations, respectively. There are no water resources within or near the Range B-9 site, therefore, the discussion will only focus on water resources associated with the JMTR location. There are no surface waters or wetlands located on or near the JMTR; thus, surface waters and wetlands are not discussed. The closest surface waters to the JMTR are Lightwood Knot Creek to the west of the project area and Garnier Creek to the east of the project area. Both creeks are located approximately 1,000 ft from the project area. The area is not within the 100-year floodplain; thus, floodplains are not an issue and are not discussed.

##### Groundwater Resources

Groundwater is defined by the Water Quality Association as “all subsurface water.” Subsurface water that is in significant amounts to tap via a well is referred to as an aquifer.

##### The Coastal Zone

The term *coastal zone* is defined as coastal waters and adjacent shorelands strongly influenced by each other and in proximity to the several coastal states, including islands, transitional and inner tidal areas, salt marshes, wetlands, and beaches. The entire state of Florida is considered part of the coastal zone and is subject to the CZMA.

##### Stormwater

Stormwater-carried sediment can alter water quality, aquatic habitats, hydrologic characteristics of streams and wetlands, and increase flooding. Land-disturbing activities (such as clearing) and the addition of impermeable surfaces (concrete, asphalt, etc.) can result in increases in stormwater runoff. The effects, however, vary based on the amount of new impervious surface areas, topography, rainfall, soil characteristics, and other site conditions. The rate and volume of stormwater runoff has the potential to impact the quality and utility of water resources (FDEP, 2002).

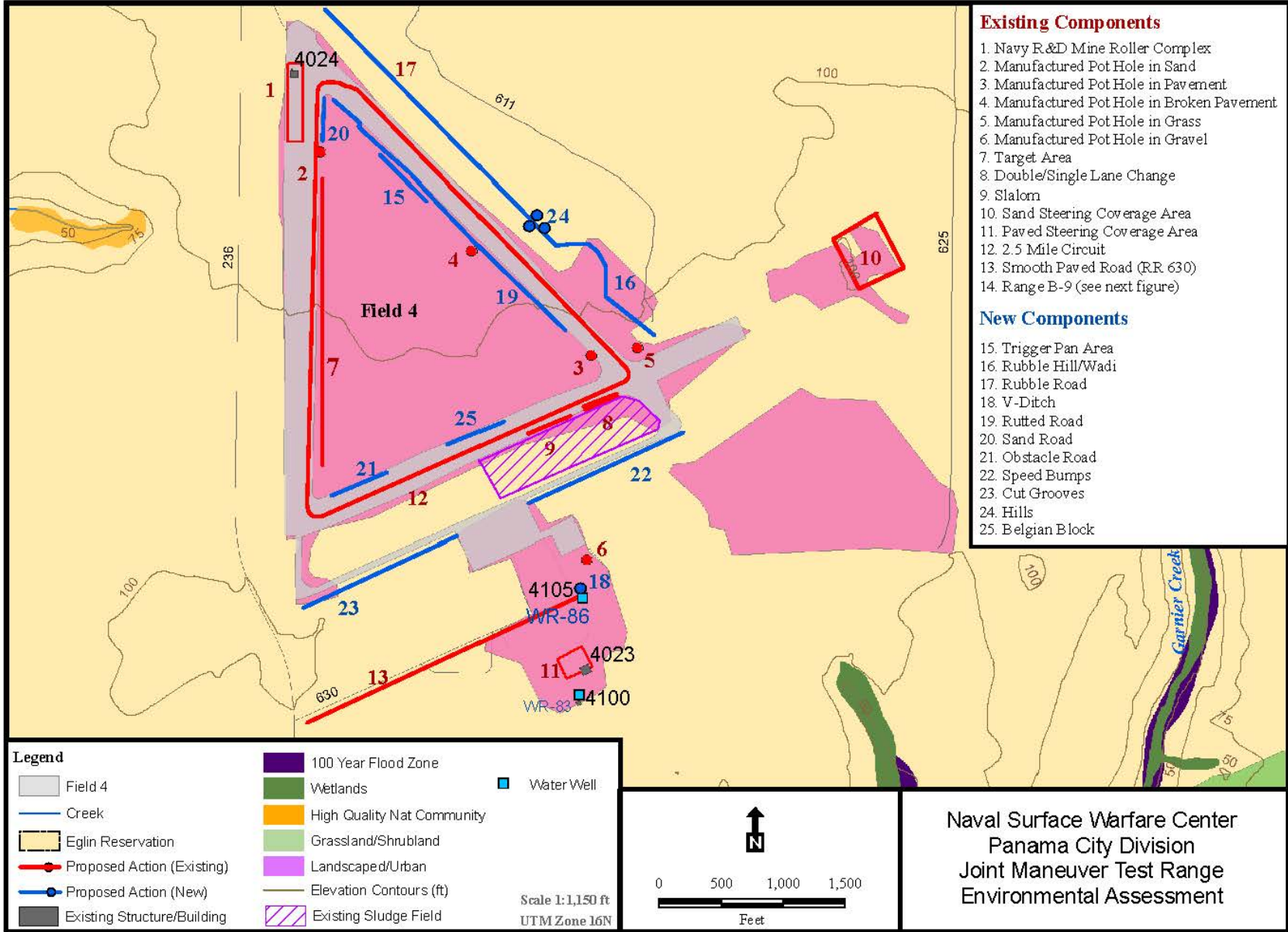


Figure 3-1. Physical and Biological Resources Within the JMTR Study Area



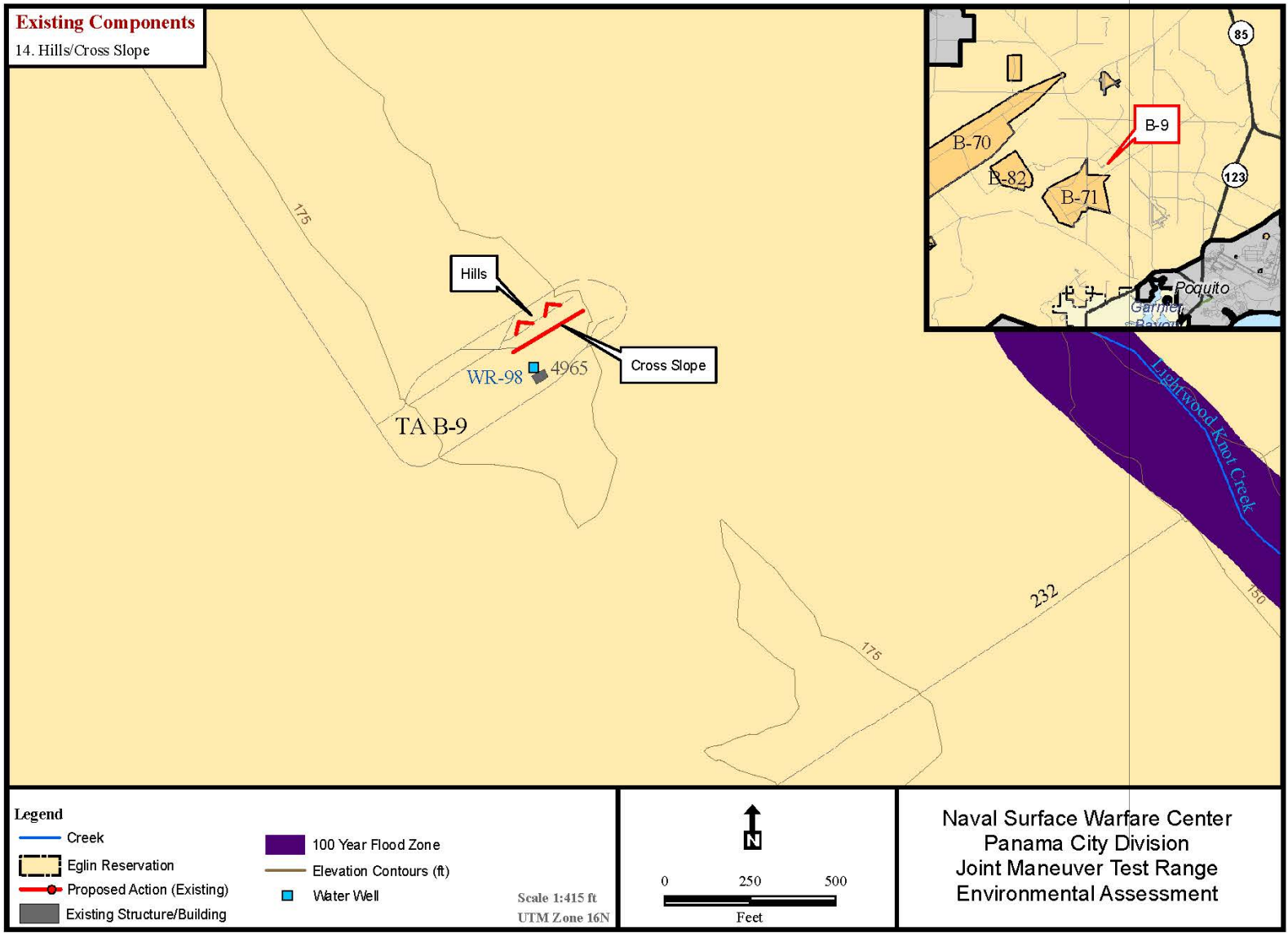


Figure 3-2. Physical and Biological Resources Within Range B-9

## Wastewater

The Clean Water Act (33 USC 1151 et seq., 1251 et seq.) is the basic federal legislation governing wastewater discharges. The implementing federal regulations include the NPDES permitting process (40 CFR 122), general pretreatment programs (40 CFR 403), and categorical effluent limitations, including limitations for pretreatment of direct discharges (40 CFR 405 et seq.).

The Florida Air and Water Pollution Control Act (Florida Statutes, Title 28 Section 403) governs industrial and domestic wastewater discharges in the state. The implementing state regulations are contained in the Florida Administrative Code (FAC) 62. These regulations establish water quality standards, regulate domestic wastewater facility management and industrial waste treatment, establish domestic wastewater treatment plant monitoring requirements, and regulate stormwater discharge.

### 3.1.2 Existing Conditions

#### Groundwater Resources

There are two aquifers located under Eglin AFB including the Sand and Gravel Aquifer and the Floridan Aquifer. The major source of groundwater supply in Florida is the Floridan Aquifer System, which underlies the majority of the state (FDEP, 2009). The descriptions of the Sand and Gravel Aquifer and the Floridan Aquifer given below apply to all of Eglin AFB, and therefore to the Proposed Action in this EA.

#### *Sand and Gravel Aquifer*

The Sand and Gravel Aquifer consists of sand and gravel with interbedded layers of silt and clay. The clay layers form local confined conditions within the aquifer. Groundwater flow is generally towards the coast. The aquifer contains two high-permeability zones separated by less permeable sands and clays. The lower zone, which is under confined conditions, is referred to as the “main producing zone” because most of the groundwater use is withdrawn from this zone (FDEP, 2009). The quality of water in the aquifer has been rated good (i.e., meets its intended use) by the FDEP (U.S. Air Force, 1995). Water from this aquifer is not a primary source of domestic or public supply water on Eglin AFB because of the large quantities of higher quality water available from the underlying upper limestone of the Floridan Aquifer (Overing et al., 1995).

#### *Floridan Aquifer*

The Floridan Aquifer consists of a thick sequence of interbedded limestone and dolomite. Water flow direction is northeast to southwest (FDEP, 2009). Throughout the Eglin Reservation, the Floridan Aquifer exists under confined conditions, bounded above and below by the Pensacola Clay Formation confining bed. This clay layer restricts the downward migration of pollutants and restricts saline water from Choctawhatchee Bay and the Gulf of Mexico from entering the upper limestone layer of the aquifer. There are two inactive wells, WR-83 and WR-86, connected to the Floridan Aquifer, which are for potable use.

## Coastal Zone

Some components of the Proposed Action would take place within the jurisdictional concerns of the FDEP and therefore required a consistency determination with respect to Florida's Coastal Zone Management Plan and the CZMA. The Eglin Natural Resources Section submitted a CZMA Consistency Determination pursuant to 15 CFR 930.35 to the FDEP for the Proposed Action (Appendix A, CZMA Determination).

## Stormwater

As a largely paved airfield, Auxiliary Field 4 is currently characterized as impervious surface. The mechanisms for overland sediment transport or surface water runoff are limited because the terrain is flat and the surrounding area is vegetated. In addition, there are no receiving water bodies nearby. The quality of the current runoff is unknown but not expected to be of concern since contaminant sources are limited to the few vehicle operations associated with the existing mine roller systems testing.

## Wastewater

The 96<sup>th</sup> Civil Engineer Group (96 CEG/CEOIT) manages, operates, and maintains Eglin AFB's wastewater treatment plants. There are five wastewater treatment plants located on Eglin AFB. Sludge from each of the wastewater treatment plants is transported via truck to a 20-acre sludge application field located on Auxiliary Field 4 (shown in Figure 3-1). The application field area is divided into subsections and each subsection only accepts wastewater sludge from one of the five main treatment plants on the Eglin Reservation.

## 3.2 BIOLOGICAL RESOURCES

### 3.2.1 Definition of the Resource

Biological resources include native and introduced terrestrial and aquatic plants and animals that inhabit areas on and around Eglin AFB, along with the habitats where they reside. The habitats of Eglin AFB are home to an unusually diverse biological community, including several sensitive species and habitats.

Eglin applies a classification system of ecological associations to all its lands, based on floral, faunal, and geophysical characteristics (U.S. Air Force, 2007). Four broad ecological associations exist on Eglin AFB: sandhills, flatwoods, wetlands/riparian, and barrier island. Artificially maintained open grasslands/shrublands and urban/landscaped areas also exist on Eglin AFB, but are primarily on test areas and on Eglin Main Base.

Sensitive habitats include areas that the federal government, state government, or the Department of Defense has designated as worthy of special protection due to certain characteristics, such as high species diversity, rare plant species, or other unique features.

Sensitive species are those species protected under federal or state law (see Appendix B), to include migratory birds and threatened and endangered species. A *migratory bird* is defined by

the U.S. Fish and Wildlife Service (USFWS) as any species or family of birds that lives, reproduces, or migrates within or across international borders at some point during their annual life cycle. An *endangered* species is one that is in danger of extinction throughout all or a significant portion of its range. A *threatened* species is any species that is *likely* to become endangered within the foreseeable future throughout all or a significant portion of its range.

### 3.2.2 Existing Conditions

#### Flora and Fauna

Of the four broad ecological associations that exist on Eglin AFB, only the Sandhills ecological association occurs adjacent to the landscaped/urban area on the Proposed Action site (Figure 3-1). Appendix B provides descriptions of this ecological association at Eglin AFB and includes typical flora (plants) and fauna (animals) found within the association. No invasive nonnative plant species have been documented within or adjacent to the Proposed Action site.

#### Sensitive Habitats and Sensitive Species

Based on existing information, species documented to occur or to potentially be present within the proposed sites are identified in Table 3-1. There have been no sensitive species known to occur within or adjacent to the Proposed Action site (U.S. Air Force, 2007). However, due to the habitat type surrounding the project area, the indigo snake, gopher tortoise, and Florida black bear may pass through the project area. Several Florida black bear sightings have been recorded in areas around the proposed site but none have been reported within it. Appendix B provides additional detail on the natural history of sensitive species potentially occurring near or within the study area of the Proposed Action.

**Table 3-1. Potentially Occurring Sensitive Species Within or Adjacent to the Proposed Action Site**

Scientific Name	Common Name	Status	
		State	Federal
Amphibians and Reptiles			
<i>Drymarchon corais couperi</i>	Eastern Indigo Snake	LT	LT
<i>Gopherus polyphemus</i>	Gopher Tortoise	LT	-
Mammals			
<i>Ursus americanus floridanus</i>	Florida Black Bear	LT	-

Source: U.S. Air Force, 2007

LT = Threatened: species likely to become endangered within the foreseeable future throughout all or a significant portion of its range

### 3.3 CULTURAL RESOURCES

As a federal agency, Eglin AFB is required to consider the effects its actions may have on historic properties existing on the Eglin AFB. This includes all properties being utilized by other federal agencies, such as the Navy and Marine Corps in this case. These requirements are considered under AFI 32-7065 (U.S. Air Force, 2004). Mandating federal regulations are the Antiquities Act of 1906, the Historic Sites Act of 1935, the NEPA of 1969, the NHPA of 1966 as

amended, 36 CFR Part 800, the Archaeological Resources Protection Act of 1979, among others (U.S. Air Force, 2004).

The NHPA of 1966 was enacted to set federal policy for managing and protecting significant historic properties. Federal agencies must identify historic properties and consult with the Advisory Council on Historic Preservation and the SHPO (U.S. Air Force, 2004). Section 106 of the NHPA requires that federal agencies analyze the impacts of federal activities on historic properties or cultural resources included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

### **3.3.1 Definition of the Resource**

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, and any other physical evidence of human activity considered relevant to a culture or community for scientific, traditional, religious, or other reasons. They include archaeological resources (both prehistoric and historic), historic architectural resources, and American Indian sacred sites and traditional cultural properties. Historic properties (as defined in 36 CFR 60.4) are significant archaeological, architectural, or traditional resources that are defined as either eligible or ineligible for listing in the National Register. Under the NHPA, Eglin AFB is required to consider the effects of its undertakings on historic properties listed or eligible for listing in the National Register. NHPA obligations for a federal agency are independent from NEPA and must be complied with even when an environmental document is not required.

### **3.3.2 Existing Conditions**

The proposed site has been fully surveyed in order to protect any resources from impact that may result from implementing the Proposed Action. Concurrence from the State Historic Preservation Officer (SHPO) is expected 60 days after the results of the survey were submitted. No NRHP eligible archaeological resources were identified within the Proposed Action area. No additional archaeological survey or evaluation would be required prior to development (Shreve, 2009). No Traditional Cultural Properties, historic cemeteries, or historic structures and districts would be adversely affected by the Proposed Action.

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## 4. ENVIRONMENTAL CONSEQUENCES

This chapter discusses potential impacts to environmental resources from the activities associated with implementing the Proposed Action. Specific actions that would potentially impact environmental resources include tree clearing activities associated with the development of various testing components at the JMTR site. Approximately 14 acres of trees would need to be removed to accommodate several testing components. Table 4-1 lists each component with their associated tree-removal requirements.

**Table 4-1. Acres of Trees to be Cleared Under the Proposed Action**

<b>Component (#)</b>	<b>Acres</b>
Sand steering coverage area (10)	1
Smooth asphalt road (13)	1.3
Rubble hill/wadi (16)	1
Rubble road (17)	10
Sand road (20)	0.5
<b>Approximate total from Proposed Action</b>	<b>13.8</b>

In addition, implementation of the Proposed Action would require the creation of nominal amounts of impervious surface areas from constructing the V-ditch (18) and restoring Runway 34 and sections of Runway 06 and taxiway. Other testing components would change the shape of the land, including the construction of the rubble hill/wadi (16), the V-ditch (18), the rutted road (19), and the hills (24). Potential impacts from these activities are discussed in the sections below.

### 4.1 WATER RESOURCES

This section discusses the potential impacts to water resources from activities associated with enhancing existing components and developing new components at the JMTR to conduct mine roller systems RDT&E activities.

#### 4.1.1 Proposed Action

##### Groundwater

The enhancement/development of testing components on the JMTR site would not have an impact on groundwater resources, as no testing components would require access to the groundwater supply nor would they introduce potential pollutants to the area that could contaminate either of the aquifers under the Eglin Reservation. In addition, there would be no impacts to groundwater from mine roller systems RDT&E activities conducted at the JMTR and B-9 Range.

##### Coastal Zone

Implementation of the Proposed Action requires consistency with Florida's CZMA. A CZMA Consistency Determination for the Proposed Action was prepared and submitted to the State of

Florida on October 1, 2009. Concurrence with this Consistency Determination was received on November 16, 2009. Refer to Appendix A for the CZMA Consistency Determination and concurrence.

### **Stormwater**

Constructing the V-ditch (18); restoring Runway 34, sections of Runway 06, and taxiway; and tree clearing activities required for the components listed in Table 4-1 all have the potential to increase stormwater runoff at the JMTR on Auxiliary Field 4. The proposed location for the V-ditch (18) is in close proximity to RR 630 (13) and therefore is in an area that already contains stormwater provisions associated with that road. Re-exposing asphalt areas on abandoned runways that have been overgrown with vegetation would increase the amount of impervious surface area at the JMTR, but not to a significant degree as this site is already predominantly landscaped/urban.

Tree removal activities associated with constructing or enhancing testing components would occur in small areas scattered throughout the JMTR. Removing trees near the sand steering coverage area (10) would not generate an increase in stormwater runoff as this area is not an impervious surface. The 1.3 acres of trees required to be cleared for the creation of a turn around area at the southwest end of the smooth paved road/RR 630 (13) would increase the volume of stormwater runoff generated at that site but not to a significant degree. While the rubble hill/wadi (16) and rubble road (17) components would require a combined total of 11 acres of trees to be cleared, the resulting cleared areas would not be paved flat surfaces and in the case of the rubble road (17), most of the debris would remain onsite to create the unimproved terrains necessary to satisfy mine roller systems RDT&E objectives. Similarly, while the 0.5 acre strip that would need to be cleared adjacent to the sand road (20) would cut into the tree line, neither the proposed cleared area nor surrounding areas would be paved and therefore would not contribute appreciably to any increase in stormwater runoff. Collectively, the increase of stormwater runoff generated from the development and enhancement of testing components at the JMTR would be negligible when compared to the existing condition of Auxiliary Field 4, which is already largely paved. Furthermore, there are no receiving water bodies nearby and transport of runoff is unlikely due to the flat terrain that surrounds the project area and the permeable soil conditions at the site.

In accordance with FAC 62-621, the Proposed Action would likely require an application for a NPDES Permit from the FDEP for disturbing 1 or more acres of land and would be subject to stormwater and erosion control best management practices (BMPs) during construction activities. Furthermore, in accordance with FAC 62-346, an ERP would also be required for the activities that may alter surface water flows including the proposed tree-clearing needed for the development and/or construction of the components listed in Table 4-1. This permitting process would determine if the construction of a stormwater discharge and on-site treatment feature(s) are required. Design of the project would consider the area landscape and physical features to determine whether the site would include a retention pond or series of swales to contain runoff. A Florida registered professional engineer would design the proposed retention feature to meet FDEP regulations, if needed. Also, an Erosion, Sedimentation, and Pollution Control Plan would be required. This would serve to further ensure that erosion and the transport of sediment off the project site do not occur.



## **Wastewater**

There would be no impacts to wastewater resources, specifically the sludge application field located in the southern portion of the testing site. NSWCD activities would not intrude on the sludge field, nor would testing activities and the addition of new components restrict the Eglin AFB sludge field operator's access to the sludge field (refer to Figure 2-1). According to the sludge field environmental assessment, the field is expected to have a 50-year capacity (U.S. Air Force, 1999). Thus, while the sludge application is expected to gradually reduce the percolation characteristics of the soil (due to the application of fine organic particles in the sludge) it would be several decades before runoff from the sludge field becomes an issue with regard to JMTR activities.

### **4.1.2 No Action Alternative**

There would be no potential impacts to water resources under this alternative. Under the No Action Alternative, no enhancements to existing components and no new components would be constructed at the JMTR. Mine roller systems RDT&E activities would continue to utilize several test sites on Eglin AFB, which collectively do not contain all the components necessary to evaluate the effectiveness and durability of the mine roller systems.

## **4.2 BIOLOGICAL RESOURCES**

The analysis considered the locations of sensitive habitats and species in relation to the Proposed Action. Areas depicted on maps generated by the Eglin AFB Geographic Information System (GIS) were examined in order to locate sensitive species and habitats. Additional surveys were conducted by the Eglin Natural Resources Section to confirm locations of sensitive species and habitats. Where available, information was also gathered relative to management considerations, incompatible resource management activities, and threats to each sensitive species. Impact analyses were then conducted based on the information gathered from the literature review and from discussions with experts in these areas. The analyses included an assessment of the impacts on biological resources resulting from activities associated with developing the JMTR on Eglin AFB.

Existing conditions were analyzed against the Proposed Action and a determination was made as to whether direct or indirect impacts would occur. For biological resources, conclusions were drawn regarding the extent of impacts in which the level of anticipated impact is or is not likely to result in jeopardizing the continued existence of the species. Direct and indirect impacts to species and their habitat are included in the analysis. The USFWS considers any impact to be significant if potential impacts are anticipated and the action is likely to jeopardize the continued existence of the species. Therefore, significance was determined by the likelihood of an action to jeopardize the continued existence of a species.

### **4.2.1 Proposed Action**

The Proposed Action would result in the direct loss of up to 14 acres of Sandhills habitat from tree-clearing activities associated with the implementation of the Proposed Action. Refer to for the list of components and their associated contributions from tree clearing activities. Despite the

loss, many acres of high quality Sandhills habitat would continue to be maintained on other portions of Eglin AFB. Clearing activities may also have an indirect, localized effect on native terrestrial wildlife species such as squirrels, raccoons, and rabbits. However, it is anticipated that these species would either move to another location or remain within the area and utilize adjacent habitat.

Based on the surveys conducted by the Eglin Natural Resources Section no sensitive habitats or sensitive species were identified within the proposed testing site. While the Florida black bear, gopher tortoise and indigo snake may occasionally occur in the area, no direct impacts to any of these protected species are anticipated. However, since sensitive species may pass through the project area, any individuals found during preconstruction surveys, (i.e., indigo snakes) would be relocated and would not be adversely affected. In addition, indigo snake signs will be posted around the construction site to alert personnel. Thus, there would not be a significant impact to biological resources, including threatened and endangered species.

#### **4.2.2 No Action Alternative**

There would be no impacts to biological resources under the No Action Alternative. NSWC PCD would continue to utilize the B-75, B-12, B-4, and B-71 test areas to supplement RDT&E activities on the JMTR. This alternative would not enhance existing components nor develop new components at the JMTR and, therefore, would not meet the Purpose and Need for the Proposed Action.

### **4.3 CULTURAL RESOURCES**

#### **4.3.1 Proposed Action**

As no cultural resources have been identified within the project area, no impacts to cultural resources would be expected from implementation of the Proposed Action. However, should any inadvertent discoveries of archaeological material be made during the course of construction or land clearance, all actions in the immediate vicinity would cease and efforts would be taken to protect the find from further impact. The 96 CEG/CEVSH would then be contacted immediately.

If any cultural resources are uncovered during testing activities, all actions in the immediate vicinity would cease to protect the find from further impact. The 96 CEG/CEVSH would be immediately contacted and would subsequently assess the find and determine what legal mandates apply.

#### **4.3.2 No Action Alternative**

No impacts to cultural resources are expected under the No Action Alternative. The No Action alternative would result in no changes to the JMTR at Auxiliary Field 4 or the current suite of testing activities.

## **5. CUMULATIVE IMPACTS**

According to the CEQ regulations, cumulative impact analysis in an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7).

### **5.1 DEFINITION OF CUMULATIVE IMPACTS**

Cumulative effects may occur when there is a relationship between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. Actions overlapping with or in close proximity to the Proposed Action can reasonably be expected to have more potential for cumulative effects on “shared resources” than actions that may be geographically separated. Similarly, actions that coincide temporally would tend to offer a higher potential for cumulative effects.

### **5.2 PAST AND PRESENT ACTIONS RELEVANT TO THE PROPOSED ACTION AND ALTERNATIVES**

No other past or present actions that are relevant to the current Proposed Action have been identified.

### **5.3 RELEVANT REASONABLY FORESEEABLE ACTIONS**

Actions associated with the 2005 Base Realignment and Closure (BRAC) activities on Eglin AFB would have a cumulative impact on water and biological resources. Since no cultural resources have been identified within the proposed testing site, no cumulative impacts are expected. The analyses of the cumulative impacts are described below.

#### **5.3.1 Water Resources**

Constructing the V-ditch (18), restoring Runway 34 and sections of Runway 06 and taxiway would increase the amount of impervious surface area at the JMTR. Furthermore tree clearing activities required for the creation of a turn around area at the southwest end of the smooth paved road/RR 630 (13) would increase the volume of stormwater runoff generated at the JMTR on Auxiliary Field 4. Combined together, there would likely be an increase in the potential occurrence of stormwater runoff. However, the increase of stormwater runoff associated with the implementation of the Proposed Action would be negligible compared to the existing condition of Auxiliary Field 4, which is already predominantly paved. In addition, there are no receiving water bodies nearby and transport of runoff is unlikely due to the flat terrain that surrounds the project area and permeable soil conditions at the site.

**5.3.2 Biological Resources**

The clearing of approximately 14 acres of Sandhill ecological association on Eglin AFB would contribute to the amount of Sandhill ecological association cleared by the BRAC activities. At this time, the total amount of Sandhills cleared due to BRAC actions is unknown. However, many acres of high quality Sandhills habitat would continue to be maintained on other portions of Eglin AFB.

There are no sensitive species or habitats identified in the project area. No significant cumulative impacts to biological resources would be expected. Practices for protecting sensitive species and habitats would be consistent with existing documented procedures, and site conditions would dictate these considerations.

## **6. PLANS, PERMITS, AND MANAGEMENT PRACTICES**

The following is a list of plans, permits, and management actions associated with implementing the Proposed Action. Management practices described below are one of two types, either mandatory or recommended. Mandatory management practices are identified as actions the proponent will do, whereas recommended management practices are identified as impact minimization measures the proponent should consider implementing. The need for these requirements was identified by the EIAP for this EA and was developed through cooperation between the proponent and interested parties involved in the Proposed Action. Requirements to be considered as part of the Proposed Action are identified as such. The proponent is responsible for adherence to and coordination with the listed entities to complete the plans, permits, and management practices.

### **6.1 PLANS**

- Site Design Plan
- Storm Water Pollution Prevention Plan
- CZMA Consistency Determination

### **6.2 PERMITS AND OTHER REQUIREMENTS**

- Stormwater facility design and construction permit.
- ERP from Northwest Florida Water Management District to ensure water resources would not be harmed as a result of the Proposed Action (in accordance with FAC 62-346)
- NPDES permit from the FDEP for stormwater discharge from construction activities that disturb one or more acres of land (in accordance with FAC 62-621).

### **6.3 MANAGEMENT PRACTICES**

The proponent is responsible for the implementation of the following management actions.

#### **6.3.1 Water Resources**

The proponent will ensure that the construction contractor coordinates with the 96<sup>th</sup> Civil Engineer Group/Environmental Engineering Section (96 CEG/CEVCE) (Compliance Engineering, 882-7660) for final stormwater design and permitting.

The proponent will ensure that the construction contractor implements the following stormwater Best Management Practices (BMPs):

- In permits and site plan designs, include site-specific management requirements for erosion and sediment control.

- Store chemicals, cements, solvents, fuels, or other potential water pollutants in locations where they cannot cause runoff pollution.
- For construction equipment, designate “staging areas” designed to contain any chemicals, solvents, or toxins and prevent them from entering surface waters.
- Inspect and maintain the aforementioned BMPs to ensure effectiveness.

### **6.3.2 Biological Resources**

The proponent could lessen impacts to biological resources by implementing the following BMPs:

- If a threatened or endangered species such as a gopher tortoise, indigo snake, or Florida black bear is sighted, construction personnel will cease all activities, allowing the animal sufficient time to move away from the site on its own before resuming any activities.
- Project and construction personnel should be alert to the potential presence of these species and avoid them.
- The 96 CEG/CEVSN should be contacted immediately if any of these species are encountered during construction activities.

### **6.3.3 Cultural Resources**

The proponent will ensure that the construction contractor coordinates with the Base Historic Preservation Officer (BHPO) and the 96 CEG/CEVSH during construction activities.

- If artifacts or other biological or cultural remains are uncovered as a result of construction or training activities, the construction contractors will cease all work in the immediate vicinity and notify the BHPO and the 96 CEG/CEVSH of the discovery.
- Artifacts include any man-made object including glass, nails, bricks, ceramics, arrowheads, metal, and structures such as fence posts and building remnants.

## 7. LIST OF PREPARERS

Name/Title	Project Role	Subject Area	Experience
<b>Boes, Amanda</b> Environmental Scientist B.S. Environmental Science	Author, Technical Lead	Description of Proposed Action Alternatives; Water Resources	3 years, environmental science
<b>Koralewski, Jason</b> Archaeologist M. Liberal Studies, Archaeology M.A. Anthropology B.A. Anthropology	Author	Cultural Resources	11 years, environmental science
<b>McKee, W. James (Jamie)</b> Environmental Scientist B.S. Marine Biology	Author, Project Manager		24 years, environmental science with experience in freshwater, estuarine and marine applications
<b>Nation, Mike</b> Environmental Scientist B.S. Environmental Science/Policy, Minor in Geography; A.A. General Science	GIS developer	All subject areas	7 years, environmental consultant, interagency coordination, GIS Arc View applications
<b>Quattrin, Debbie</b> Technical Editor B.F.A. Visual Communications	Technical Editor		10 years, editing; 19 years, document production
<b>Safford, Pamela</b> Economist M.A. Applied Economics B.S. Business Administration	Author	Biological Resources; Water Resources	3 years, socioeconomics and environmental science

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## **References**

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**APPENDIX A**

**COASTAL ZONE MANAGEMENT ACT**

**CONSISTENCY DETERMINATION AND CONCURRENCE**



## **FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION**

### **Introduction**

This document provides the State of Florida with the U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 sub-part C. The information in this Consistency Determination is provided pursuant to 15 C.F.R. Section 930.39 and Section 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930.

This consistency determination addresses the proposed action for the development of the Joint Maneuver Test Range on Eglin Air Force Base (AFB), Florida (Figures 1 and 2).

### **Proposed Federal agency action:**

The Naval Surface Warfare Center Panama City Division (NSWC PCD) proposes to develop and enhance existing test capabilities for the mine roller systems and related equipment at Auxiliary Field 4 on Eglin AFB. Auxiliary Field 4 is an abandoned air strip located halfway between Eglin AFB's runway and Test Area B-71 off Range Road 236 (Figure 2). NSWC PCD would modify this site to simulate the terrains encountered in Southwest Asia. Mine roller systems testing must be conducted according to procedures and requirements outlined in the Allied Vehicle Testing Publication (NATO, 1991). Based on these requirements and information received directly from warfighters who use the mine roller systems in Southwest Asia, 24 testing components have been identified and would be incorporated into the Joint Maneuver Training Range (JMTR) on Auxiliary Field 4.

NSWC PCD proposes to use Auxiliary Field 4 as an all-inclusive site that would test mine roller systems and related equipment against any and all variables that are encountered in Southwest Asia. Once completed, the JMTR would simulate all aspects of those terrains and would allow these systems to be tested under rigorous conditions to ensure potential deficiencies are identified and resolved before they are deployed. As shown in Table 1, a majority of the components already exist at the site and would only require minor improvements.

### **Existing Components**

Existing components discussed in this section are referenced to Figure 3 by their number designation. The Navy Mobility Development Complex (1), also known as Building 4024, currently houses the test personnel who operate the mine roller systems. Building 4024 already has utilities and a high bay area to support approximately 10 personnel onsite. No major improvements are anticipated for this component.

The target area (3) is a sandy area located on the east side of Runway 36 where improvised explosive device (IED) triggers would be buried in the ground. Currently this component does not require any modifications to meet the testing objectives for the mine roller systems. On the west side of Runway 36, there is a designated 4,000-foot earth work/moving test area (22). This test area is located against the tree line of Auxiliary Field 4 where farm equipment would be used to disrupt the land in the area in another effort to set off buried IED triggers. This area is partially cleared as a fire break; however, it would require an additional 0.69 acre of trees to be cleared to allow room for the equipment to operate in the area (Table 2).

One objective for mine roller systems testing is to evaluate their durability in an unpredictable and unstable environment. To test mine roller systems durability, manufactured pot holes have been constructed on a variety of media including sand (2), pavement (6), broken pavement (7), grass (11), and gravel (14) in locations throughout the Auxiliary 4 testing site. These potholes are approximately 4 feet (ft) wide, 5 ft long, and 4.5 inches (in) deep. By driving over these standardized potholes in different types of terrain and at varying speeds, test personnel can determine if any structural damages have occurred and can make adjustments to fix them. In addition, a rubble hill/wadi area (12) on the site is being used for durability testing. The rubble in this area includes concrete blocks and debris. The wadi area simulates a dry river bedrock desert area typically found in Southwest Asian environments; it is a rocky area with varying inclines and declines. Mine roller systems are driven through this area to ensure that they have been robustly engineered. IED triggers are also planted in these areas to test the ability of the systems to identify and trigger IEDs in an unstable terrain.

Another aspect of the mine roller systems that must be tested is maneuverability. Currently, there is an area on an abandoned runway that is dedicated for double/single lane changing (4) and slalom testing (5). This area is part of the 2-mile oval component (21) that would be the site for other durability tests described below. The lane changing and slalom tests would determine the mine roller's ability to weave back and forth on a regular road. Traffic cones have been set up for these tests, and mine roller systems would be driven through the course at varying speeds.

To evaluate performance in other conditions, the earthen turn basin (13), an existing sand pit, assesses the ability of mine roller systems to make U-turns in sandy areas. This area currently has some vegetation growing in the sand pit that would be cleared out; the terrain would be leveled as well. Furthermore, a perimeter of the area would need to be created by clearing approximately 1 acre of trees around the earthen turn basin (13). There is also a paved turn around area (15) in the southern portion of the site to practice U-turns on paved areas and to test mine roller steering coverage. In addition, this area contains an abandoned hangar that would be used as an additional storage site.

To the south of the 2-mile oval (21) and just north of the paved turn area (15) is an existing paved road which is the proposed site for the smooth asphalt test area (23). Surrounded by trees on both sides, some have grown outside the natural tree line, encroaching on the space between the road and the tree line. As a result, an area along the sides of the road totaling approximately 0.046 acre would need to be cleared. Furthermore, on the southwest end of the road, a 0.69-acre area would need to be cleared on each side of the road to allow room for U-turns, as currently this cannot be done without running into the tree line. Total tree removal for this component would be approximately 1.4 acres. The existing road area would remain paved with minimal obstacles and would test the ability of mine roller systems to adapt from switching between hard and soft/sandy surfaces. It would also serve as acceleration/brake testing area.

### New Components

New components discussed in this section are referenced to Figure 3 by their number designation.

Runway 34 is located to the east of the Navy Mobility Development Complex (1) and Runway 36. This abandoned runway currently has vegetation that has taken over much of the area and trees that have grown up through the pavement. This area would be cleared and the Navy would construct three concrete pan trigger areas (8) on the west side of the runway. Each trigger pan would be approximately 15 ft by 100 ft and would contain three different types of soils, similar to that found in Southwest Asia, to perform surrogate IED trigger testing. The present location of Runway 34 would be used to develop a rubble road (9), which would consist of broken pavement from the existing runway and loose gravel areas that would test mine roller systems durability. Since Runway 34 has not been used in a long time, vegetation and trees have encroached onto and through portions of the pavement, therefore development of the rubble road (9) component would require vegetation and some tree removal to restore the paved area to its original width and length of 150 ft and 4,300 ft, respectively. Furthermore, the Navy proposes to clear additional areas on the approach from the rubble road (9) to the manufactured potholes in pavement (6), broken pavement (7), and grass (11) components mentioned above. However, this would only include cutting down trees and leaving the stumps in the ground, thus leaving the integrity of the ground and soils intact.

The southern tip of Runway 34 connects with the northern tip of the 2-mile oval component (21). As mentioned in the previous section, the 2-mile oval (21) already contains an area for lane changing (4) and slalom testing (5). The Navy is proposing to add new features to this oval to further test mine roller systems durability including speed bumps (16), trenches (17), and a Belgian block road area (18) along the course. Equal numbers of strips for speed bumps (16) and trenches (17) would be constructed with the same dimensions. Each strip would be 20 ft long with varying heights and widths. Twenty strips of each would be 2 in tall and 6 in wide; 20 strips of each would be 4 in tall and 12 in wide; and 20 strips of each would be 6 in tall and 18 in wide.

To the west of the intersection of Runway 34 and the northern tip of the 2-mile oval is the proposed site for Turk's Hill (19) and the fording trough (20). Turk's Hill would be constructed to be approximately 200 ft long, 100 ft wide, and 60 ft tall. The hill would be vegetated on the

north side and paved with asphalt on the south side, facing the runway. It would be constructed to contain varying degrees (up to 35 degrees) of inclines, slopes, and cross slopes for performing brakes testing and evaluating the durability of the mine roller systems. The fording trough would be used to perform water-proofing tests on mine roller systems. This would require construction of a 20 ft wide, 200 ft long, and 4 ft deep trough filled with water for mine rollers to drive through. The trough would be lined with a polypropylene pond material and the liner would be covered with several feet of sand/clay. The pond would be able to hold up to 100 thousand gallons of water. The Navy would rely on precipitation as the water source, allowing the trough to fill naturally with rain water and would commence testing on this component once water depth is at the desired level. The proposed site for the fording trough is currently a wooded area which would need to be cleared to accommodate these new features. The total area to be cleared to accommodate the trough and Turk's Hill (19) is approximately 11 acres. The Navy proposes to use the excavated soils generated from digging the trough for the construction of Turk's Hill (19); therefore, no solid waste would leave Auxiliary Field 4.

The northwest corner of the 2-mile oval connects to the southernmost point of Runway 36. To the east of this intersection is the proposed site for an engineered concrete V-ditch (10). This ditch would be approximately 200 ft long, 3 ft deep on both sides sloping inward and 4 in wide at the bottom and would test mine roller systems durability. This area is currently wooded and would require approximately 1.7 acres of trees to be cleared for construction of this component. Materials generated from digging the V-ditch would be used for the construction or development of other components such as Turk's Hill.

The final component proposed is a 6.3-mile loop named the Combat Vehicle Operator's Test (CVOT) course (24), which would be located just inside the perimeter of Auxiliary Field 4, which is defined by Range Roads 611, 625, and 628. Utilization of Range Roads 611, 625, and 628 would be minimized as the CVOT course (24) would be at least 100 ft away from Range Roads 625 and 628 and would be approximately 50 ft wide. The road segment would be predominantly dirt/clay restricted to mine roller training activities only. The proposed site is currently forested and construction of the new road segments would require approximately 38 acres of trees to be cleared. As Figure 2-1 of the EA shows, the CVOT course (24) would be a winding road with varying degrees of inclines and declines, creating cross slopes and curves that would lead into other obstacles such as other wadis (dried up stream bed) and hills. All the features for this component would simulate the topography encountered in Southwest Asia and would be part of the 1,000-mile endurance testing required for mine roller systems. Utilization of the CVOT course will be limited only to mine roller systems and other related system testing activities and would not be used for recreational activities. Currently, the Navy utilizes Range Roads 236 and 213, which connect to State Road (SR) 85 to the east and SR 87 to the west, to run this endurance testing. Construction of the CVOT course will alleviate traffic on these roads as they are occasionally used by the public for recreational purposes. Similar to Turk's Hill (20), materials from digging other components such as the fording trough (19), and the V-ditch (10) would be used to develop certain features for the CVOT course.



**Table 1. Summary of JMTR Test Components**

	Component Description	New or Existing
1.	Navy Mobility Developmental Complex	Existing
2.	Manufactured pot hole in sand	Existing
3.	Target area	Existing
4.	Double/Single lane change	Existing
5.	Slalom	Existing
6.	Manufactured pot hole on pavement	Existing
7.	Manufactured pot hole on broken pavement	Existing
8.	Concrete pan trigger area	New
9.	Rubble road	New
10.	V-ditch	New
11.	Manufactured pot hole on grass	Existing
12.	Rubble hill/wadi	Existing
13.	Earthen turn basin	Existing
14.	Manufactured pot hole on gravel	Existing
15.	Paved turn around	Existing
16.	Speed bumps	New
17.	Trenches	New
18.	Belgian block road	New
19.	Turk's Hill	New
20.	Fording trough	New
21.	2-mile oval	Existing
22.	4,000-foot earth work/moving test area	Existing
23.	Smooth asphalt test area	Existing
24.	Combat Vehicle Operator's Test (CVOT) course	New

**Table 2. Acres of Trees to be Cleared under the Proposed Action**

Component (#)	Acres to be cleared
V-ditch (10)	1.7
Earthen turn basin (13)	1
Turk's Hill (19) and fording trough (20)	11
4,000-ft earth working/moving test area (22)	0.69
Smooth asphalt test area (23)	1.4
CVOT course (24)	38
<b>Approximate total from Proposed Action</b>	<b>54</b>

### Federal Review

Statutes addressed as part of the Florida Coastal Zone Management Program consistency review and considered in the analysis of the Proposed Action are discussed in the following table.

Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document in which to concur with or object to this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Florida's concurrence will be presumed if Eglin AFB does not receive its response on the 60th day from receipt of this determination.

## Florida Coastal Management Program Consistency Review

Statute	Consistency	Scope
Chapter 161 <i>Beach and Shore Preservation</i>	<p>The proposed action would not affect beach and shore management, specifically as it pertains to:</p> <ul style="list-style-type: none"> <li>• The Coastal Construction Permit Program.</li> <li>• The Coastal Construction Control Line (CCCL) Permit Program.</li> <li>• The Coastal Zone Protection Program.</li> </ul> <p>All land activities would occur on federal property.</p>	Authorizes the Bureau of Beaches and Coastal Systems within DEP to regulate construction on or seaward of the states' beaches.
Chapter 163, Part II <i>Growth Policy; County and Municipal Planning; Land Development Regulation</i>	The proposed action would not affect local government comprehensive plans.	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.
Chapter 186 <i>State and Regional Planning</i>	The proposed action would not affect state plans for water use, land development or transportation.	Details state-level planning efforts. Requires the development of special statewide plans governing water use, land development, and transportation.
Chapter 252 <i>Emergency Management</i>	<p>The proposed action would not affect the state's vulnerability to natural disasters.</p> <p>The proposed action would not affect emergency response and evacuation procedures.</p>	Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and manmade disasters.
Chapter 253 <i>State Lands</i>	All activities would occur on federal property; therefore the proposed action would not affect state public lands.	Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.
Chapter 258 <i>State Parks and Preserves</i>	The proposed action would not affect state parks, recreational areas and aquatic preserves.	Addresses administration and management of state parks and preserves.
Chapter 259 <i>Land Acquisition for Conservation or Recreation</i>	The proposed action would not affect tourism and/or outdoor recreation.	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands.
Chapter 260 <i>Recreational Trails System</i>	The proposed action would not include the acquisition of land and would not affect the Greenways and Trails Program.	Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system.

## Florida Coastal Management Program Consistency Review, Cont'd

Statute	Consistency	Scope
Chapter 375 <i>Multipurpose Outdoor Recreation; Land Acquisition, Management, and Conservation</i>	The proposed action would not affect opportunities for recreation on state lands.	Develops comprehensive multipurpose 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.
Chapter 267 <i>Historical Resources</i>	The project area has been fully surveyed for cultural resource concerns. There were no eligible resources found within the project area. However, in the event that additional archaeological resources are inadvertently discovered during construction, 96th CEG/CEVH, Cultural Resources Branch would be notified immediately and further ground-disturbing activities would cease in that area. Identified resources would be managed in compliance with Federal law and Air Force regulations.  Therefore the proposed action would not affect cultural resources of the state.	Addresses management and preservation of the state's archaeological and historical resources.
Chapter 288 <i>Commercial Development and Capital Improvements</i>	The proposed action would not affect future business opportunities on state lands, or the promotion of tourism in the region.	Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy.
Chapter 334 <i>Transportation Administration</i>	The proposed action would not affect transportation.	Addresses the state's policy concerning transportation administration.
Chapter 339 <i>Transportation Finance and Planning</i>	The proposed action would not affect the finance and planning needs of the state's transportation system.	Addresses the finance and planning needs of the state's transportation system.
Chapter 370 <i>Saltwater Fisheries</i>	The proposed action would not affect saltwater fisheries.	Addresses management and protection of the state's saltwater fisheries.
Chapter 372 <i>Wildlife</i>	A gopher tortoise survey was completed on May 14, 2009. No burrows were found within the project area. However, at least one month prior to any ground disturbance from construction activities, another gopher tortoise survey will be conducted to ensure no new tortoises have inhabited the project area.  Therefore, the proposed action would be	Addresses the management of the wildlife resources of the state.

## Florida Coastal Management Program Consistency Review, Cont'd

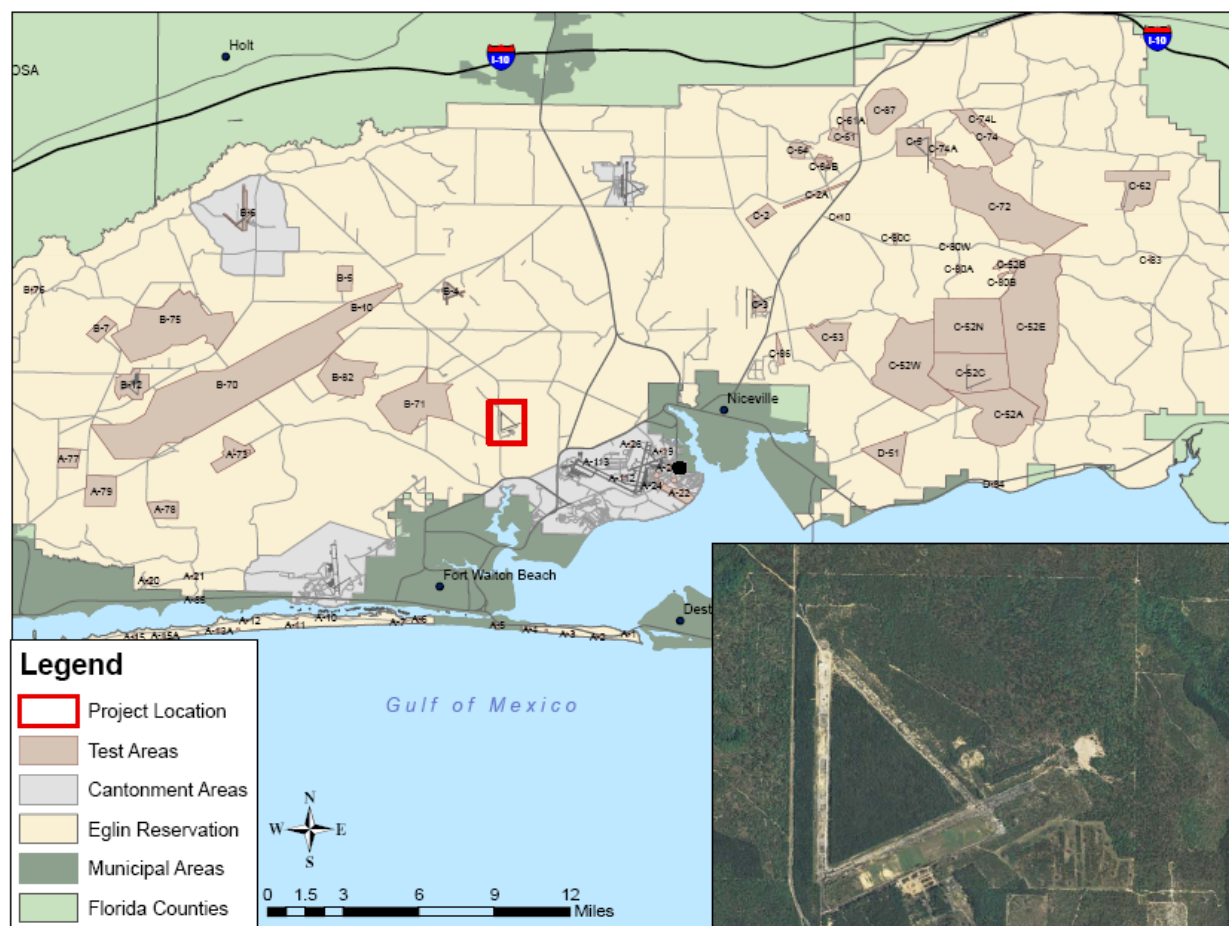
Statute	Consistency	Scope
	consistent with the State's policies concerning wildlife resource management.	
Chapter 373 <i>Water Resources</i>	<p>Eglin Water Resources (96 CEG/CEVCE) would ensure that all applicable permitting requirements would be satisfied in accordance with Chapters 62-621 and 62- 346 of the Florida Administrative Code (FAC).</p> <p>An Environmental Resource Permit (ERP) from the Northwest Florida Water Management District (NFWMD) per FAC 62-346 may be required for the proposed action.</p> <p>Applicable permitting requirements would be satisfied in accordance with FAC 62-25 and National Pollutant Discharge Elimination System (NPDES). Eglin AFB would submit a notice of intent to use the generic permit for stormwater discharge under the NPDES program prior to project initiation according to Section 403.0885, Florida Statutes (FS). The proposed action would also require coverage under the generic permit for stormwater discharge from construction activities that disturb one or more acres of land (FAC 62-621).</p> <p>All applicable best management practices (BMPs), such as erosion and sediment controls as well as stormwater management measures would be implemented to minimize erosion and stormwater run-off, and to regulate sediment control.</p> <p>Therefore, the proposed action would be consistent with Florida's statutes and regulations regarding the water resources of the state.</p>	Addresses the state's policy concerning water resources.
Chapter 376 <i>Pollutant Discharge Prevention and Removal</i>	The proposed action would not affect the transfer, storage, or transportation of pollutants.	Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.
Chapter 377 <i>Energy Resources</i>	The proposed action would not affect energy resource production, including oil and gas, and/or the transportation of oil and gas.	Addresses regulation, planning, and development of oil and gas resources of the state.

## Florida Coastal Management Program Consistency Review, Cont'd

Statute	Consistency	Scope
Chapter 380 <i>Land and Water Management</i>	The proposed action would not affect development of state lands with regional (i.e. more than one county) impacts. The Proposed action would not include changes to coastal infrastructure such as capacity increases of existing coastal infrastructure, or use of state funds for infrastructure planning, designing or construction.	Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.
Chapter 381 <i>Public Health, General Provisions</i>	The proposed action would not affect the state's policy concerning the public health system.	Establishes public policy concerning the state's public health system.
Chapter 388 <i>Mosquito Control</i>	The proposed action would not affect mosquito control efforts.	Addresses mosquito control effort in the state.
Chapter 403 <i>Environmental Control</i>	<p>Eglin Water Resources (96 CEG/CEVCE) would ensure that all applicable permitting requirements would be satisfied in accordance with Chapters 62-621 and 62- 346 of the FAC.</p> <p>Air quality impacts from the proposed action would be minimal. Eglin AFB would take reasonable precautions to minimize fugitive particulate (dust) emissions during any construction activities in accordance with FAC 62-296.</p> <p>Therefore, the proposed action would be consistent with Florida's statutes and regulations regarding water quality, air quality, pollution control, solid waste management, or other environmental control efforts.</p>	Establishes public policy concerning environmental control in the state.
Chapter 582 <i>Soil and Water Conservation</i>	<p>All applicable BMPs, such as erosion and sediment controls and stormwater management measures would be implemented to minimize erosion and storm water run-off, and to regulate sediment control.</p> <p>Therefore, the proposed action would not affect soil and water conservation efforts.</p>	Provides for the control and prevention of soil erosion.



**Figure 1. Eglin AFB, Florida**



**Figure 2. Proposed Site for Joint Maneuver Test Range**

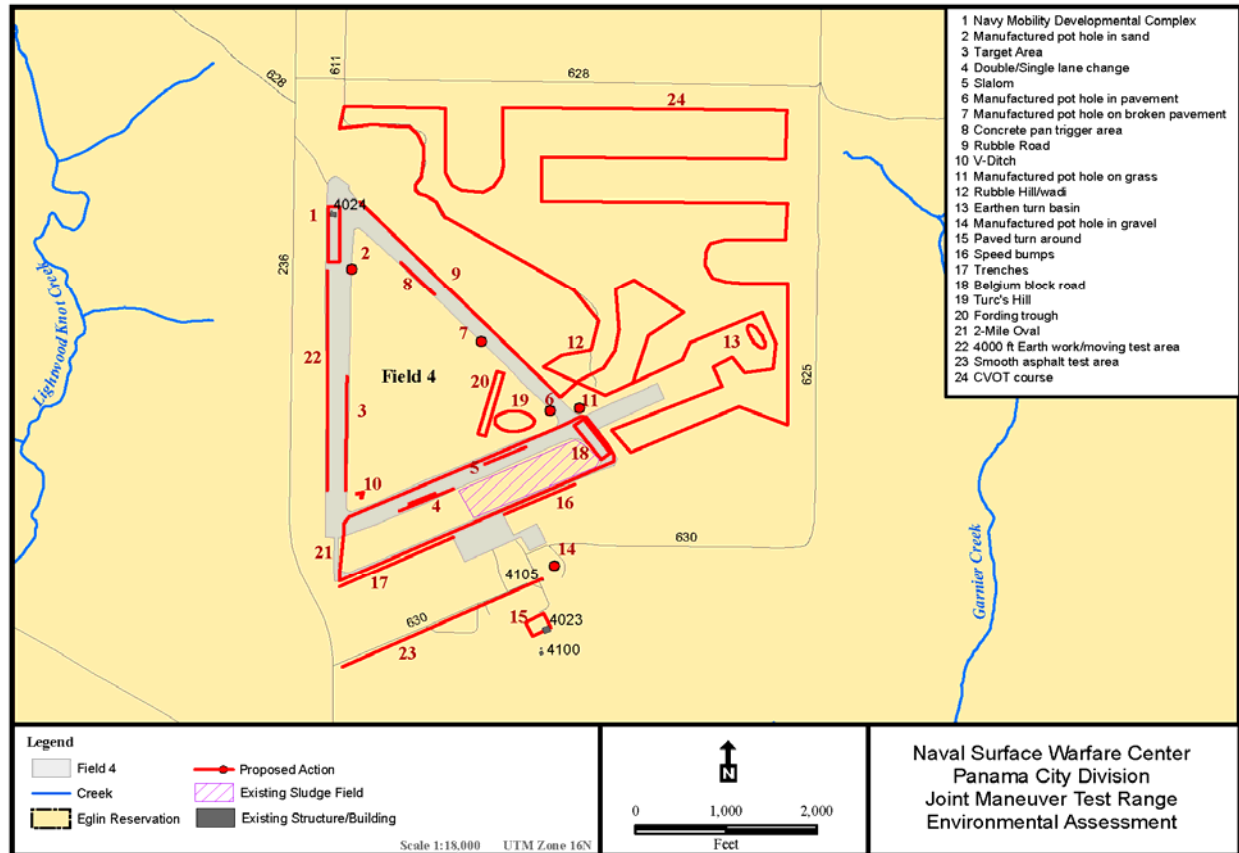


Figure 3. Joint Maneuver Test Range on Eglin AFB



**Boes, Amanda C.**

---

**From:** Milligan, Lauren [Lauren.Milligan@dep.state.fl.us]  
**Sent:** Monday, November 16, 2009 2:32 PM  
**To:** Knight, Kelly E CTR USAF AFMC 96 CEG/CEVSNW  
**Cc:** Miller, Bob CIV USAF AFMC 96 CEG/CEVSNW; Boes, Amanda C.; Nunley, Jerry M Mr CTR USAF AFMC 96 CEG/CEVSN  
**Subject:** RE: Department of the Air Force - CZMA Consistency Determination - Joint Maneuver Test Range

Hi Kelly:

That's fine – as long as the Air Force consults with NWFWMDC ERP and DEP NPDES staff on the earthwork and additional impervious areas added at Auxiliary Field 4, the state would have no objections to the proposed work. Thank you for checking with us.

*Lauren*

Lauren P. Milligan, Environmental Manager  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3900 Commonwealth Blvd, M.S. 47  
Tallahassee, FL 32399-3000  
ph. (850) 245-2170  
fax (850) 245-2190

*The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on [this link to the DEP Customer Survey](#). Thank you in advance for completing the survey.*

**From:** Knight, Kelly E CTR USAF AFMC 96 CEG/CEVSNW [mailto:Kelly.Knight.ctr@Eglin.af.mil]  
**Sent:** Monday, November 16, 2009 2:01 PM  
**To:** Milligan, Lauren  
**Cc:** Miller, Bob CIV USAF AFMC 96 CEG/CEVSNW; Boes, Amanda C.; Nunley, Jerry M Mr CTR USAF AFMC 96 CEG/CEVSN  
**Subject:** RE: Department of the Air Force - CZMA Consistency Determination - Joint Maneuver Test Range

Ms. Milligan,

Attached to this email is a list of recent changes to the proposed Joint Maneuver Test Range development for which we received concurrence on Friday, November 13. I have also attached the original CZMA determination for reference. In your opinion, would these changes warrant a new CZMA consistency determination or would this email serve as sufficient notification to FDEP of the proposed changes to the project? Please notify us if any further action is required. If you require additional information or have any questions or concerns, I can be reached at (850) 883-5525.

11/18/2009

Thank you,

Kelly E. Knight | SAIC  
Environmental Scientist | Eglin AFB Natural Resources  
107 Highway 85 North | Niceville FL 32578  
phone: 850.883.5525 | fax 850.882.5321  
email: kelly.knight.ctr@eglin.af.mil

-----Original Message-----

From: Milligan, Lauren [mailto:Lauren.Milligan@dep.state.fl.us]  
Sent: Friday, November 13, 2009 4:07 PM  
To: Miller, Bob CIV USAF AFMC 96 CEG/CEVSNW  
Cc: Nunley, Jerry M Mr CTR USAF AFMC 96 CEG/CEVSN; Knight, Kelly E CTR USAF AFMC 96 CEG/CEVSNW  
Subject: Department of the Air Force - CZMA Consistency Determination - Joint Maneuver Test Range

Mr. Bob Miller  
Department of the Air Force  
96 CEG/CEVSNW  
501 DeLeon Street, Suite 101  
Eglin AFB, FL 32542-5133

RE: Department of the Air Force – Notice of Intent – Naval Surface Warfare Center Panama City Division, Development of the Joint Maneuver Test Range at Auxiliary Field 4 on Eglin Air Force Base – Okaloosa County, Florida.  
SAI # FL200911135015C

Dear Bob:

Florida State Clearinghouse staff has reviewed the Consistency Determination provided for the Joint Maneuver Test Range project under the following authorities: Presidential Executive Order 12372; Section 403.061(40), Florida Statutes; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended.

As noted in the submittal, the project will require an Environmental Resource Permit (ERP) from the Northwest Florida Water Management District (NFWFMD) per Chapter 62-346, Florida Administrative Code. Please contact the NFWFMD's ERP Office in Crestview at (850) 683-5044 for further assistance and permitting information. An NPDES permit will also be required from the Department's NPDES Stormwater Program in Tallahassee – please call (850) 245-7522 for additional information.

Based on the information contained in the submittal and minimal project impacts, the state has determined that, at this stage, the proposed activities are consistent with the Florida Coastal Management Program (FCMP). The regulatory issues identified above must, however, be addressed

11/18/2009

prior to project implementation. The state's continued concurrence with the project will be based, in part, on the adequate resolution of any issues identified during subsequent permitting reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting stage in accordance with Section 373.428, Florida Statutes.

Thank you for the opportunity to review this proposal. If you have any questions or need further assistance, please don't hesitate to contact me at (850) 245-2170 or [Lauren.Milligan@dep.state.fl.us](mailto:Lauren.Milligan@dep.state.fl.us).

Best regards,

Lauren

Lauren P. Milligan, Environmental Manager  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3900 Commonwealth Blvd, M.S. 47  
Tallahassee, FL 32399-3000  
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11/18/2009

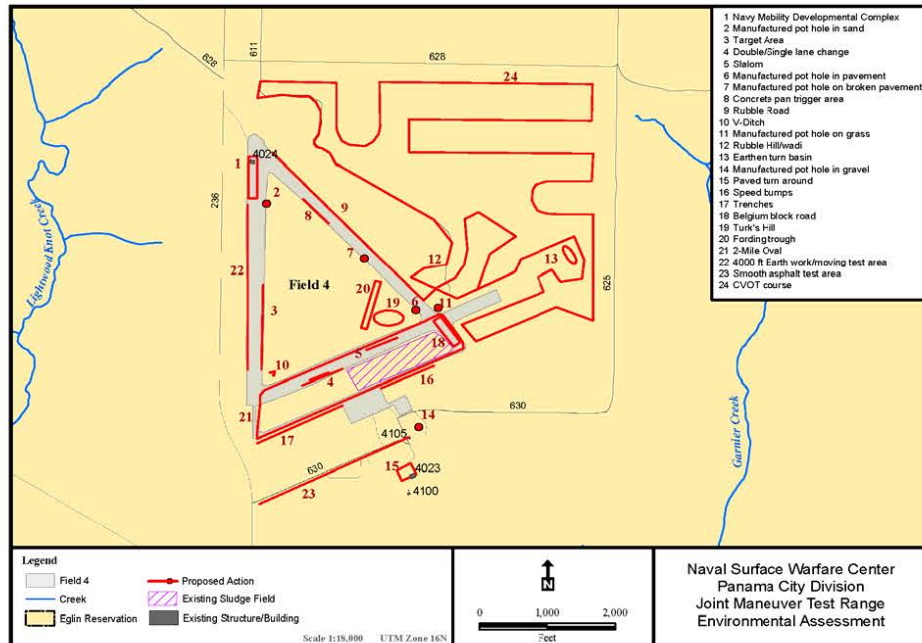
### Changes to the JMTR Final EA

The Navy has indicated that they wish to update the description of the testing components to be included at the JMTR site. The table and figure below lists and depicts the components that were analyzed in the Draft EA.

Components presented in the Draft EA			
1.	Navy Mobility Developmental Complex	13.	Earthen turn basin
2.	Manufactured pot hole in sand	14.	Manufactured pot hole on gravel
3.	Target area	15.	Paved turn around
4.	Double/Single lane change	16.	Speed bumps
5.	Slalom	17.	Trenches
6.	Manufactured pot hole on pavement	18.	Belgium block road
7.	Manufactured pot hole on broken pavement	19.	Turk's Hill
8.	Concrete pan trigger area	20.	Fording trough
9.	Rubble road	21.	2-mile oval
10.	V-ditch	22.	4,000-foot earth work/moving test area
11.	Manufactured pot hole on grass	23.	Smooth asphalt test area
12.	Rubble hill/wadi	24.	Combat Vehicle's Operator's Training (CVOT) course

Components proposed to be constructed are **bolded**

Components to be deleted from Proposed Action



The table and figure below show the final list of components the Navy proposed to develop at the JMTR site on Auxiliary Field 4. Overall they changed the numbering of the components where all existing components are numbered 1 – 14 and components to be developed/constructed are numbered 15 – 25. The Final EA will incorporate the updated list with a new map and rearranging of the descriptions within the text. In addition, clarified descriptions of certain components were provided by the Navy, which will also be incorporated into the Final.

Components to be presented in the Final EA		Changes from the Draft EA
1.	Navy R&D Mine Roller Complex	Same as component #1 – renamed
2.	Manufactured pot hole in sand	Same as component #2
3.	Manufactured pot hole in pavement	Same as component #6
4.	Manufactured pot hole in broken pavement	Same as component #7
5.	Manufactured pot hole in grass	Same as component #11
6.	Manufactured pot hole in gravel	Same as component #14
7.	Target area	Same as component #3
8.	Double/single lane change	Same as component #4 – slightly different location
9.	Slalom	Same as component #5 – slightly different location
10.	Sand steering coverage area	Same as component #13 – renamed
11.	Paved steering coverage area	Same as component #15 – renamed
12.	2.5 mile circuit	Same as component #21 – renamed
13.	Smooth paved road (RR 630)	Same as component #23
14.	<b>Range B-9</b>	<b>New component</b>
15.	<b>Trigger pan area</b>	<b>Same as component #8</b>
16.	<b>Rubble hill/wadi</b>	<b>Same as component #12</b>
17.	<b>Rubble road</b>	<b>Same as component #9</b>
18.	<b>V-ditch</b>	<b>Same as component #10</b>
19.	<b>Rutted road</b>	<b>New component</b>
20.	<b>Sand road</b>	<b>New component</b>
21.	<b>Obstacle road</b>	<b>New component</b>
22.	<b>Speed bumps</b>	<b>Same as component #16</b>
23.	<b>Cut grooves</b>	<b>Same as component #17 – renamed</b>
24.	<b>Hills</b>	<b>New component</b>
25.	<b>Belgian block</b>	<b>Same as component #18 – new location</b>

Components proposed to be constructed are bolded

**New components incorporated into the Proposed Action**





As the Tables above show, 4 components that were included in the Draft EA have been deleted, including Turk's Hill (19), the fording trough (20), the 4,000-ft earth work/moving test area (22), and the CVOT course (24). In exchange, 5 new components were incorporated. A brief description is provided below:

- Range B-9 (14) offers two hills with paved upslopes and downslopes of 13° (approximately 23% grades). A paved 0.3-mile circuit allows access to both slopes from either side. A paved cross slope of 13° is also available at this site to test mine roller system stability. Utilization of B-9 existing features would replace the need to construct Turk's Hill at Auxiliary Field 4.



- Rutted road (19) would be located adjacent to Runway 34 on the opposite side of proposed location for the Rubble road component. Development of the rutted road component would involve the use of a backhoe/front end loader to accentuate the existing curves and create varying depths of ruts to assess mine roller system mobility and agility over unimproved terrain.
- Sand road (20) component would be approximately 1,000 ft long and located on the northern edge of runway 36 and would evaluate the mobility of mine roller systems to negotiate deep soft sand. Development of this component would involve raking the surface to remove existing vegetation and creating a bed of sand that is 50 ft wide, 1,000 ft long, and 3 ft thick.
- Obstacle road (21) would be approximately 20 ft wide and 300 ft long and would be located on the northern edge of runway 06. This component would test mine roller system agility and mobility combinations over select obstacles. There would be two parallel rows of pressure-treated power poles anchored into the ground about 20 ft apart and 200 ft long. A 12 inch deep bed of 4- to 6-inch crushed stone will be placed between the pole borders. The first 100-ft section of the road will have 8 ft long concrete curbs. The second 100-ft section will have a 14 power pole obstacle shown in a W-shape placed on top of the stone bed. The third 100-ft section would have a 12-inch stone bed without borders.
- 3 Hills (24) would be constructed at the south-east end of the rubble road component and north-west of the rubble hill/wadi component. Each hill would be composed of large broken slaps of concrete/asphalt/gravel/dirt. Each will be constructed to varying degrees of inclines (14°, 18°, and 22°) to a height of approximately 20-ft and excavated to allow mine roller systems to negotiate directly of from the sides.

As mentioned above, the existing features at Range B-9 would offer the same functionality that Turk's Hill would have provided, but with a lower potential for impacts as this component already exists and would not require additional tree clearing or other associated construction costs. Collectively, the rutted road, sand road, obstacle road, and hills would accomplish the same functionality that the CVOT course was intended to fulfill, but in a more compact area than what was proposed in the Draft EA. Given the uncertainty about the specifics of the fording trough, the Navy decided not to incorporate this testing feature at the JMTR site. Furthermore, it was decided that the 4,000 ft earth work/moving test area was no longer a necessary feature.

The table below shows the acreage of tree removal activities that were proposed in the Draft EA compared to what will be proposed in the Final EA. As this table shows, the deletion of Turk's Hill, the fording trough, the 4,000-ft earth work/moving test area, and the CVOT course drastically reduces the amount of trees that would have to be cleared. Tree removal requirements for the Final EA were based on the clarified descriptions of new and existing components provided by the Navy and will be explained in detail in the document.

Acres of Tree Removal	
DRAFT EA	
Component (#)	Acres
Rubble road (9)	5
V-ditch (10)	1.7
Earthen turn basin (13)	1
Turk's Hill (19) and fording trough (20)	11
4,000-ft earth working/moving test area (22)	0.7
Smooth asphalt test area (23)	1.4
CVOT course (24)	38
<b>TOTAL</b>	<b>58.8</b>
FINAL EA	
Component (#)	Acres
Sand steering coverage area (10)	1
Smooth asphalt road (13)	1.3
Rubble hill/wadi (16)	1
Sand road (20)	0.5
<b>TOTAL</b>	<b>3.8</b>



**APPENDIX B**  
**BIOLOGICAL RESOURCES**



## BIOLOGICAL RESOURCES

### ECOLOGICAL ASSOCIATIONS

Only the Sandhills ecological association exists on the Proposed Action site. The ecosystem is defined by floral, faunal, and geophysical similarities.

#### Sandhills Matrix

This system is the most extensive natural community type on the Eglin Range, accounting for approximately 78 percent or 362,000 acres of the base. Longleaf Pine Sandhills are 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. Its structure and composition are maintained by frequent fires (every three to five years), which control hardwood, sand pine, and titi encroachment. Longleaf Pine Sandhills consist of a high diversity of species adapted to fire and the heterogeneous conditions that fires create. The dominant native grass species in Eglin AFB sandhills is either wiregrass or bluestem, depending on location. Sandhills are often associated with and grade into scrub, upland pine forest, xeric hammock, or slope forests. This matrix is also known as longleaf pine-turkey oak, longleaf pine-xerophytic oak, longleaf pine-deciduous oak, or high pine (U.S. Air Force, 2007).

The functional significance of the Sandhills Matrix is to provide maintenance of regional biodiversity. As little as 5,000 acres of old growth longleaf pine forest remains globally, and Eglin AFB's sandhills contain more than any other forest in the world. The Eglin Range represents the largest and least-fragmented longleaf pine ownership in the world, and has the best remaining stand of old-growth longleaf pine (U.S. Air Force, 2007).

#### Flora and Fauna of Ecological Associations

Table B-1 provides a summary of some of the plant and animal species commonly found within the ecological association described above. The list is not a comprehensive inventory of the species found within these ecological associations; the table provides a reference summary.

### SENSITIVE HABITATS

#### High Quality Natural Communities

Eglin AFB's contribution to southeastern conservation is evident in its extraordinary biodiversity and in the exemplary quality of its many remnant natural communities. While the greater part of the installation is globally significant due to its biodiversity, specific areas have been designated "High Quality Natural Communities" due to their exceptional high quality or the presence of rare species. These areas were identified by the Florida Natural Areas Inventory (FNAI) through a project funded by the Department of Defense Legacy Resource Management Program. These areas are distinguished by the uniqueness of the community, ecological condition, species diversity, and/or presence of rare species. These high quality areas, totaling 75,266 acres and covering approximately 16 percent of the installation, are tangible examples of the successful

restoration actions of the Eglin Natural Resources Section and the compatibility of these communities with most mission activities (U.S. Air Force, 2007).

**Table B-1. Typical Plant and Animal Species of Eglin AFB by Ecological Association**

Plants		Animals	
Scientific Name	Common Name	Scientific Name	Common Name
<b>Sandhills Ecological Association</b>			
<i>Pinus palustris</i>	Longleaf Pine	<i>Picoides borealis</i>	Red-cockaded Woodpecker
<i>Quercus laevis</i>	Turkey Oak	<i>Colinus virginianus</i>	Bobwhite Quail
<i>Q. marilandica</i>	Blackjack Oak	<i>Bubo virginianus</i>	Great Horned Owl
<i>Q. incana</i>	Bluejack Oak	<i>Gopherus polyphemus</i>	Gopher Tortoise
<i>Aristida stricta</i>	Wiregrass	<i>Cnemidophorus sexlineatus</i>	Six-lined Racerunner
<i>Serena repens</i>	Saw Palmetto	<i>Crotalus adamanteus</i>	Diamondback Rattlesnake
<i>Pteridium aquilinum</i>	Bracken Fern	<i>Procyon lotor</i>	Raccoon
<i>Vaccinium</i> spp.	Blueberry	<i>Ursus americanus floridanus</i>	Florida Black Bear
<i>Ilex vomitoria</i>	Yaupon	<i>Sciurus niger</i>	Fox Squirrel
<i>Ilex glabra</i>	Gallberry	<i>Cryptotis parva</i>	Least Shrew
<i>Licania michauxii</i>	Gopher Apple	<i>Sylvilagus floridanus</i>	Cottontail Rabbit
<i>Rubus cuneifolius</i>	Sand Blackberry	<i>Geomys pinetus</i>	Pocket Gopher
<i>Andropogon arctatus</i>	Pine-woods Bluestem	<i>Castor canadensis</i>	White-tailed Deer

## SENSITIVE SPECIES

Table B-2 shows all of the FNAI-tracked and state and federally listed species present on or adjacent to Eglin Air Force Base (AFB). Most of these species are found within the interstitial areas of Eglin AFB. Descriptions for species of particular concern within the action area at Eglin AFB are provided below. Additional information on the other species listed in Table B-2 is available in the *Eglin Military Complex Environmental Baseline Study Resource Appendices Volume 1--Eglin Land Test and Training Range* (U.S. Air Force, 2003).

**Table B-2. State Listed, Federally Listed, and Florida Natural Area Inventory-tracked Species On or Adjacent To Eglin AFB**

Scientific Name	Common Name	Status	
		State	Federal
Fish			
<i>Acipenser oxyrinchus desotoi</i>	Gulf Sturgeon	LS	LT
<i>Awaous banana</i>	River Goby	-	-
<i>Etheostoma okaloosae</i>	Okaloosa darter	LE	LE
<i>Pteronotropis welaka</i>	Bluenose Shiner	LS	-
Amphibians and Reptiles			
<i>Alligator mississippiensis</i>	American Alligator	LS	T (S/A)
<i>Ambystoma bishopi</i>	Reticulated Flatwoods Salamander	LS	LE (proposed)*

**Table B-2. State Listed, Federally Listed, and Florida Natural Area Inventory-tracked Species On or Adjacent To Eglin AFB, Cont'd**

Scientific Name	Common Name	Status	
		State	Federal
<i>Amphiuma pholeter</i>	One-toed Amphiuma	-	-
<i>Caretta caretta</i>	Atlantic Loggerhead Turtle	LT	LT
<i>Chelonia mydas</i>	Atlantic Green Turtle	LE	LE
<i>Crotalus adamanteus</i>	Eastern Diamondback Rattlesnake	-	-
<i>Dermochelys coriacea</i>	Leatherback Turtle	LE	LE
<i>Drymarchon corais couperi</i>	Eastern Indigo Snake	LT	LT
<i>Eumeces anthracinus</i>	Coal Skink	-	-
<i>Gopherus polyphemus</i>	Gopher Tortoise	LT	-
<i>Graptemys ernsti</i>	Escambia Map Turtle	-	-
<i>Hemidactylium scutatum</i>	Four-Toed Salamander	-	-
<i>Heterodon simus</i>	Southern Hognose Snake	-	-
<i>Hyla andersonii</i>	Pine Barrens Treefrog	LS	-
<i>Lepidochelys kemp</i>	Kemp's ridley	LE	LE
<i>Macrolemys temmincki</i>	Alligator Snapping Turtle	LS	-
<i>Pituophis melanoleucus mugitus</i>	Florida Pine Snake	LS	-
<i>Rana capito</i>	Gopher Frog	LS	-
<i>Rana okaloosae</i>	Florida Bog Frog	LS	-
<b>Birds</b>			
<i>Accipiter cooperii</i>	Cooper's Hawk	-	-
<i>Aimphila aestivalis</i>	Bachman's Sparrow	-	-
<i>Ardea alba</i>	Great Egret	-	-
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	LS	-
<i>Charadrius alexandrinus</i>	Snowy Plover	LT	-
<i>Charadrius melodus</i>	Piping Plover	LT	LT
<i>Charadrius wilsonia</i>	Wilson's Plover	-	-
<i>Egretta caerulea</i>	Little Blue Heron	LS	-
<i>Egretta thula</i>	Snowy Egret	LS	-
<i>Elanoides forficatus</i>	Swallow-tailed Kite	-	-
<i>Eudocimus albus</i>	White Ibis	LS	-
<i>Falco sparverius paulus</i>	Southeastern American Kestrel	LT	-
<i>Haematopus palliatus</i>	American Oystercatcher	LS	-
<i>Haliaeetus leucocephalus</i>	Bald Eagle	LT	-
<i>Pelecanus occidentalis</i>	Brown Pelican	LS	-
<i>Picoides borealis</i>	Red-cockaded Woodpecker	LS	LE
<i>Picoides villosus</i>	Hairy Woodpecker	-	-
<i>Rynchops niger</i>	Black Skimmer	LS	-
<i>Sterna antillarum</i>	Least Tern	LT	-
<i>Sterna caspia</i>	Caspian Tern	-	-
<i>Sterna maxima</i>	Royal Tern	-	-
<i>Sterna sandvicensis</i>	Sandwich Tern	-	-
<b>Mammals</b>			
<i>Peromyscus polionotus leucocephalus</i>	Santa Rosa Beach Mouse	-	-
<i>Trichechus manatus</i>	Manatee	LE	LE
<i>Ursus americanus floridanus</i>	Florida Black Bear	LT**	-
<b>Invertebrates</b>			
<i>Lampsilis australis</i>	Southern Sandshell	-	C
<i>Pleurobema strodeanum</i>	Fuzzy Pigtoe	-	C

**Table B-2. State Listed, Federally Listed, and Florida Natural Area Inventory-tracked Species On or Adjacent To Eglin AFB, Cont'd**

Scientific Name	Common Name	Status	
		State	Federal
<i>Ptychobranhus jonesi</i>	Southern Kidneyshell	-	C
<i>Villosa choctawensis</i>	Choctaw Bean	-	C
<b>Plants</b>			
<i>Andropogon arctatus</i>	Pine-Woods Bluestem	LT	-
<i>Asclepias viridula</i>	Southern Milkweed	LT	-
<i>Baptisia calycosa var villosa</i>	Pineland Wild Indigo	LT	-
<i>Calamintha dentata</i>	Toothed Savory	LT	-
<i>Calamovilfa curtissii</i>	Curtiss' Sand Grass	LT	-
<i>Calycanthus floridus var floridus</i>	Sweet Shrub	LE	-
<i>Carex baltzelli</i>	Baltzell's Sedge	LT	-
<i>Carex tenax</i>	Sandhill Sedge	-	-
<i>Chrysopsis godfreyi</i>	Godfrey's Golden Aster	LE	-
<i>Chrysopsis gossypina ssp cruiseana</i>	Cruise's Golden Aster	LE	-
<i>Cladium mariscoides</i>	Pond Rush	-	-
<i>Coelorachis tuberculosa</i>	Piedmont Jointgrass	LT	-
<i>Drosera intermedia</i>	Spoon-Leaved Sundew	LT	-
<i>Eleocharis rostellata</i>	Beaked Spikerush	LE	-
<i>Epigaea repens</i>	Trailing Arbutus	LE	-
<i>Hexastylis arifolia</i>	Heartleaf	LT	-
<i>Hymenocallis henryae</i>	Henry's Spider Lily	LE	-
<i>Ilex amelanchier</i>	Serviceberry Holly	LT	-
<i>Juncus gymnocarpus</i>	Coville's Rush	LE	-
<i>Kalmia latifolia</i>	Mountain Laurel	LT	-
<i>Lachnocaulon digynum</i>	Bogbuttons	LT	-
<i>Lilium catesbaei</i>	Pine Lily	LT	-
<i>Lilium iridollae</i>	Panhandle Lily	LE	-
<i>Lilium michauxii</i>	Carolina Lily	LE	-
<i>Lindera subcoriacea</i>	Bog Spice Bush	LE	-
<i>Linum westii</i>	West's Flax	LE	-
<i>Litsea aestivalis</i>	Pondspice	LE	-
<i>Lupinus westianus</i>	Gulfcoast Lupine	LT	-
<i>Macranthera flammea</i>	Hummingbird Flower	LE	-
<i>Magnolia ashei</i>	Ashe's Magnolia	LE	-
<i>Magnolia pyramidata</i>	Pyramidal Magnolia	LE	-
<i>Malaxis unifolia</i>	Green Adder's-Mouth	LE	-
<i>Matela alabamensis</i>	Alabama Spiney Pod	LE	-
<i>Medeola virginiana</i>	Indian Cucumber-Root	LE	-
<i>Monotropa hypopithys</i>	Pine Sap	LE	-
<i>Myriophyllum laxum</i>	Piedmont Water-Milfoil	-	-
<i>Nuphar luteum ssp ulvaceum</i>	West Florida Cow Lily	-	-
<i>Panicum nudicaule</i>	Naked-Stemmed Panic Grass	LT	-
<i>Pinguicula lutea</i>	Yellow Butterwort	LT	-
<i>Pinguicula planifolia</i>	Swamp Butterwort	LT	-
<i>Pinguicula primuliflora</i>	Primrose-Flowered Butterwort	LE	-
<i>Platanthera integra</i>	Southern Yellow Fringeless Orchid	LE	-
<i>Polygonella macrophylla</i>	Large-Leaved Jointweed	LT	-
<i>Quercus arkansana</i>	Arkansas Oak	LT	-

**Table B-2. State Listed, Federally Listed, and Florida Natural Area Inventory-tracked Species On or Adjacent To Eglin AFB, Cont'd**

Scientific Name	Common Name	Status	
		State	Federal
<i>Rhexia parviflora</i>	Small-Flowered Meadow Beauty	LE	-
<i>Rhexia salicifolia</i>	Panhandle Meadowbeauty	LT	-
<i>Rhododendron austrinum</i>	Orange Azalea	LE	-
<i>Rhynchospora crinipes</i>	Hairy-Peduncled Beakrush	LE	-
<i>Rhynchospora stenophylla</i>	Narrow-Leaved Beakrush	LT	-
<i>Sarracenia leucophylla</i>	White-Top Pitcherplant	LE	-
<i>Sarracenia rubra</i>	Sweet Pitcherplant	LT	-
<i>Sideroxylon thornei</i>	Thorne's Buckthorn	LE	-
<i>Stewartia malacodendron</i>	Silky Camellia	LE	-
<i>Tephrosia mohrii</i>	Pineland Hoary Pea	LT	-
<i>Xanthorhiza simplicissima</i>	Yellow-Root	LE	-
<i>Xyris longisepala</i>	Karst Pond Yellow-Eyed Grass	LE	-
<i>Xyris scabrifolia</i>	Harper's Yellow-Eyed Grass	LT	-
<i>Zigadenus leimanthoides</i>	Coastal Death Camas	LE	-
<b>Lichens</b>			
<i>Cladonia perforata</i>	Florida Perforate Cladonia	LE	LE

C = Candidate: species that will soon be listed as threatened or endangered

LE = Endangered: species in danger of extinction throughout all or a significant portion of its range

LS = Species of Special Concern: a species, subspecies, or isolated population that is facing a moderate risk of extinction in the future

LT = Threatened: species likely to become endangered within the foreseeable future throughout all or a significant portion of its range

T(S/A) = Similarity of Appearance (Threatened): threatened due to similarity of appearance to a species that is federally listed such that enforcement personnel have difficulty differentiating between the listed and unlisted species

- = Not currently listed, but tracked by the Florida Natural Area Inventory due to rarity

\* = Flatwoods salamander is undergoing final rule to have the species on Eglin AFB redesignated as *Ambystoma bishopi*. This species will be listed as federally endangered.

\*\* = State listed as LT but not applicable in Baker and Columbia Counties or the Apalachicola National Forest.

## FEDERALLY LISTED SPECIES

### Eastern Indigo Snake

The eastern indigo snake (*Drymarchon corais couperi*), the largest nonvenomous snake in North America, is listed as a federal and state threatened species. The primary reason for the snake's listing is population decline resulting from habitat loss and fragmentation. Movement along travel corridors between seasonal habitats exposes the snake to danger from increased contact with humans. Eastern indigo snakes frequently utilize gopher tortoise burrows and the burrows of other species for over-wintering. The snake frequents flatwoods, hammocks, stream bottoms, riparian thickets, and high ground with well-drained, sandy soils. The eastern indigo snake could occur anywhere on the Eglin Range because it uses such a wide variety of habitats (U.S. Air Force, 2006).

The species is extremely uncommon on the Eglin Range, with the sighting of only 29 eastern indigo snakes throughout the Eglin Range from 1956 to 1999, and no sightings reported since 1999 (Gault, 2006). Most of these snakes were seen crossing roads or after being killed by

vehicles. It is difficult to determine a precise number or even estimate of the number of these snakes due to the secretive nature of this species (U.S. Air Force, 2006).

## STATE LISTED AND RARE SPECIES

Eglin AFB provides habitat for many state listed and rare species, in addition to the federally listed species described in the previous sections. Air Force Instruction (AFI) 32-7064 calls for the protection and conservation of state listed species when not in direct conflict with the military mission. The conservation of state listed species and other rare but unlisted species is encouraged and in some cases is critical to ensuring continued mission flexibility. Management actions conducted by Eglin AFB for many of the federally listed species provide direct and indirect benefits to many state listed and rare species. There are 67 state listed threatened and endangered species found on Eglin AFB. Most (55) of the 67 state listed species are plants. An additional 17 animal species are not listed by the Florida Wildlife Commission or the U.S. Fish and Wildlife Service, but are tracked by the FNAI due to their rarity and/or declining population trends. Below are descriptions of some of the state listed and rare animal species of particular concern within the action area at Eglin AFB.

### Florida Black Bear

The Florida black bear (*Ursus americanus floridanus*) is currently listed as a state threatened species, except in Baker and Columbia Counties and in the Apalachicola National Forest. Florida black bear populations are currently found in Florida and Georgia, and there is also a small population in Alabama. Eglin AFB is considered to be the smallest population, with an estimated 60 to 100 individuals; however, Eglin AFB's black bear population has shown signs of increase since the early 1990s. Reasons for population declines include loss of habitat due to urban development and direct mortality due to collisions with vehicles. Black bear in Florida breed in June and July, and young are born in January and February. Most black bears within the Eglin Range utilize the large swamps and floodplain forests in the southwest and northern portions of the Eglin Range, where they feed on fruits, acorns, beetles, and yellow jackets. Black bear sightings have occurred at numerous locations throughout the Eglin Range, the majority of which have been within the interstitial areas (U.S. Air Force, 2006).

### Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is a state threatened species and may become a federal "candidate" species in the near future. The tortoise is found primarily within the Sandhills and Open Grassland ecological associations on the Eglin Range, where it excavates a tunnel-like burrow for shelter from climatic extremes and refuge from predators. The primary features of good tortoise habitat are sandy soils, open canopy with plenty of sunlight, and abundant food plants (forbs and grasses). Prescribed fire is often employed to maintain these conditions. Gopher tortoise burrows serve as important habitats for many species, including the federally listed eastern indigo snake (U.S. Air Force, 2006). A Candidate Conservation Agreement for the gopher tortoise has been developed as a cooperative effort among state, federal, nongovernmental, and private organizations. The purpose of this agreement is to collectively implement proactive gopher tortoise conservation measures across its eastern range.



### Florida Bog Frog

The Florida bog frog (*Rana okaloosae*), a species of special concern by the state, can only be found within Walton, Okaloosa, and Santa Rosa Counties. Most of the habitat for the frog lies on Eglin AFB property, with all known locations of the frog in small tributary streams of the Yellow, Shoal, and East Bay rivers. There are 65 documented bog frog locations on the Eglin Range, but only 58 of those have been verified.

### Southeastern American Kestrel

The southeastern American kestrel (*Falco sparverius paulus*), a state threatened species, is a common permanent resident of Eglin AFB. This small raptor typically preys on small rodents, reptiles, and insects in clearings or woodland edges. The species can be found within the Sandhills and Open Grassland/Shrubland ecological associations, and may occur on or near any of the test areas at Eglin AFB.

### Florida Pine Snake

The Florida pine snake (*Pituophis melanoleucus mugitus*), a state species of concern, inhabits dry areas such as the longleaf pine, oak woodlands, and sand pine scrub communities found within the Sandhills ecological association. The species is physically adapted for digging into loosely packed sand. The snake also enters into rodent burrows and occasionally into gopher tortoise burrows.

### Gopher Frog

Gopher frogs (*Rana capito*), a state species of concern, are associated with gopher tortoise habitat, as they use gopher tortoise burrows for cover, but are also known to flourish where the tortoises no longer occur. The frogs also use old field mouse burrows, hollow stumps, and other holes for cover. The species requires nearby seasonally flooded grassy ponds, depression marshes, or Sandhills upland lakes that lack fish populations, found within the Sandhills ecological association, for breeding. They have been found in the longleaf pine, turkey oak, pine flatwood, sand pine scrub, and xeric hammock open or forested communities of the Sandhills and Open Grassland/Shrubland ecological associations up to 2 kilometers from the breeding ponds. Eglin AFB supports the largest known concentration of reproductive sites of the gopher frog subspecies anywhere within its range (Florida Natural Areas Inventory [FNAI], 1993).

### Migratory Birds

Migratory birds pass through the region of influence (ROI), but neither Eglin AFB nor Hurlburt Field are considered an important stopover area or concentration site for neotropical migratory birds in the spring or fall (Tucker et al., 1996). Breeding neotropical migrants at Eglin AFB and Hurlburt Field are primarily found in riparian, hammock, and barrier island habitats. These areas can serve as temporary habitats for neotropical birds migrating to and from the Caribbean and South and Central America. Neotropical migrants are more common within the ROI during fall migration than spring migration (Tucker et al., 1996).

## INVASIVE NONNATIVE SPECIES

Invasive nonnative species (INS) include plants, animals, insects, diseases, and other organisms that are becoming established and spreading at an alarming rate throughout the world. An invasive species can be defined as a species that is nonnative to an ecosystem and whose intentional or accidental introduction causes or is likely to cause environmental or economic damage or harm to human health.

The Eglin AFB INS Management Program focuses on invasive nonnative plant and animal species that cause or may cause negative environmental impacts to Eglin AFB ecosystems (U.S. Air Force, 2006). Some of the main invasive nonnative species of concern are Chinese tallow, cogon grass, Japanese climbing fern, Chinese privet, torpedo grass, feral pigs, and feral cats. The program's purpose is to protect the integrity of Eglin AFB's natural ecosystems by reducing and controlling the spread of INS. The plan includes a recommendation to limit foot traffic and vehicle traffic in areas where INS are present to prevent the spread of the invasive and exotic species. Equipment moving through these areas needs to be washed so that all seedlings are removed before the equipment is transferred to a noncontaminated area. Standard operating procedures dictate that all vehicles are cleaned prior to use, which would lessen or eliminate the potential for the spread of INS.