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JUN 25 2010

Nevada State Clearinghouse
Department of Administration
209 East Musser Street, Room 200
Carson City, NV 89701-4298

Mesdames, Gentlemen

Nellis Air Force Base (AFB) has prepared a draft Supplemental Environmental Assessment (SEA) for the proposed expansion of training and infrastructure facilities for the U.S. Air Force Expeditionary Readiness Training (ExpeRT) Course located in southern Nevada. Construction and operations would occur on the Nevada Test and Training Range (NTTR) and Creech Air Force Base (AFB).

An Environmental Assessment (EA) resulting in a Finding of No Significant Impact (FONSI) was completed in June 2006 that evaluated the expansion of the ExpeRT Course and increase in ground combat training student capacity from 2,520 to 6,000 students per year. The current focus and magnitude of overseas contingency operations requires increased combat-ready troops who are trained in real-world scenarios to reduce the potential for casualties to the maximum extent possible; the ExpeRT Course expansion proposals evaluated in the 2006 EA are inadequate to accommodate current training requirements. This SEA evaluates potential impacts of construction and operation of additional training facilities and infrastructure and an increase of 2,000 students per year for a total potential capacity of 8,000 students annually.

In accordance with 32 CFR 989, the Air Force *Environmental Impact Analysis Process (EIAP)*, and 40 CFR 1500-1508, the *Council on Environmental Quality* guidelines, pursuant to the *National Environmental Policy Act*, as amended, Nellis AFB requests that your agency review the assessment of the proposed action. Please send any comments no later than July 24, 2010, to Ms. Lynn Haarklau at the above address or e-mail her at lynn.haarklau@nellis.af.mil. Thank you for your participation.

Sincerely

Deborah Stockdale

DEBORAH C. STOCKDALE
Chief, Asset Management flight

Attachments:
Draft SEA
Draft FONSI

Global Power For America

Expeditionary Readiness Course Expansion

Draft Supplemental Environmental Assessment

Nevada Test and Training Range
June 2010

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ACRONYMS AND ABBREVIATIONS

AEF	Air and Space Expeditionary Force
AFB	Air Force Base
Air Force	U.S. Air Force
BO	Biological Opinion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
Creech AFB	Creech Air Force Base
EA	Environmental Assessment
EO	Executive Order
ExpeRT	Expeditionary Readiness Training
FONSI	Finding of No Significant Impact
GHG	greenhouse gases
INRMP	Integrated Natural Resources Management Plan
MOUT	Military Operations in Urban Terrain
Nellis AFB	Nellis Air Force Base
NEPA	National Environmental Policy Act
NOx	Nitrogen Oxide
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
NTI	Nevada Training Initiative
NTTR	Nevada Test and Training Range
O_3	Ozone
PL	Public Law
PM10	Particulate matter less than 10 microns
RTA	Regional Training Area
RTC	Regional Training Center
SDZ	safety danger zone
SF	Security Forces
SIP	State Implementation Plan
SOx	Sulfur Oxide
TTR	Tonopah Test Range
UBC	Uniformed Building Code
U.S. 95	U.S. Highway 95
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound

FINDING OF NO SIGNIFICANT IMPACT

1.0 NAME OF THE PROPOSED ACTION

Expeditionary Readiness Training (ExpeRT) Course Additional Expansion

2.0 DESCRIPTION OF THE PROPOSED ACTION AND NO ACTION ALTERNATIVE

The U.S. Air Force (Air Force) proposes to construct and improve facilities to fulfill student training demands at the ExpeRT Course, part of the Security Forces Regional Training Center (SF RTC) based at the Nevada Test and Training Range (NTTR). Specifically, the expansion of existing SF facilities would occur at Creech Air Force Base (AFB), Range 63C, part of Range 63B, and Range 71. New facilities at Creech AFB would include administrative buildings and a training and exercise area. Range 63C improvements would include new and expanded facilities at the Military Operations in Urbanized Terrain village, tent city, cadre area, vehicle yard, and target practice ranges. New target practice ranges would be established on Range 63B, adjacent to the existing ranges on Range 63C. Two convoy routes would be improved on Range 71 and on Range 63C to support training, including road improvements and new targets.

Under the no-action alternative, the Air Force would not increase student throughput for the course or improve facilities at the current RTC at Creech AFB, Range 63, and Range 71. The RTC could continue to accommodate up to 6,000 students per year. This would not allow ground combat troops to maintain the critical skills necessary to support the Air and Space Expeditionary Force concept and provide the required number of ground combat troops needed to face the current threat.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The Environmental Assessment (EA) provides an analysis of the potential environmental impacts resulting from implementation of the proposed action. The Air Force assessed numerous resources that, in accordance with Council on Environmental Quality (CEQ) regulations, warranted no further examination. Resources that did not warrant a detailed analysis include: airspace management and use; environmental justice and protection of children; hazardous materials and waste; health and safety; land management and use, recreation, and visual resources; noise; socioeconomics; and transportation. Five resource areas were evaluated in detail to identify potential environmental consequences: air quality; biological resources; cultural resources; geology and soils; and water resources. As summarized below, implementation of the proposed action would not result in any significant impacts. Standard best management practices and mitigation measures, as appropriate, would be implemented for each of the following resources, as described below.

Air Quality. The proposed action would contribute to increased air pollutants in the study areas as a result of temporary construction activities and operational emissions. These activities would emit air pollutants (carbon monoxide, nitrogen oxides, sulfur dioxide) and fugitive dust (PM10 and PM2.5) into the air, but impacts would primarily be localized in the immediate vicinity of the construction area and along roadways. Air quality impacts would not exceed *de minimus* levels or contribute substantially to regional air quality.

Best management practices and a dust mitigation plan would be implemented during construction in compliance with the dust control permit for activities in Clark County and applicable requirements in Nye County. Specific construction measures would include watering disturbed areas to minimize dust, using a dust palliative, using low-emission equipment, and minimizing construction during high winds. Construction activities would be monitored to ensure that no visible dust plumes exit the construction area or extend over 100 feet within the area. All activities would comply with existing permits to operate for Creech AFB and Silver Flag Alpha issued by the Clark County Department of Air Quality and Environmental Management.

Biological Resources. The proposed action would result in ground disturbance in the study areas and could disturb habitat for special-status species. Ground disturbing activities could require the removal of state-protected cacti and yuccas and other special-status plants known to occur in the region. Construction activities and training operations could affect the desert tortoise, a threatened species under the Endangered Species Act; western burrowing owls, a state-protected species; and nesting migratory bird species protected under the Migratory Bird Treaty Act. Individuals could be harmed during construction or training operations, but these activities would result in a minor loss of habitat.

To avoid or minimize impacts on special-status plants and animals, construction activities would adhere to the recommendations described in the biological resources assessment (Appendix A of the EA). Prior to construction, surveys for special-status plant and wildlife species will be conducted in the construction area and an appropriate buffer area. If special-status plant or wildlife species are identified in the construction areas, additional measures would be required to transplant populations of plants, move animals outside the construction area, and monitor the area during construction.

Additional mitigation measures for desert tortoise include providing awareness training to all construction and project-related personnel who may travel through potential desert tortoise habitat, restricting speed limits in desert tortoise habitat, and restoring habitat to preconstruction conditions or paying a per-acre remuneration fee as specified by the U.S. Fish and Wildlife Service. Exclusionary fencing can be installed prior to construction activities as a preventive action.

If western burrowing owls are identified during pre-construction surveys, owl burrows will be protected from disturbance by limiting construction activities to non-nesting seasons, establishing a construction-free buffer zone around the active nest site, conducting biological monitoring of the active nest site, and delaying construction activities in the vicinity of the active nest site until the young have fledged. If species relocation is necessary, non-invasive methods and passive relocation techniques should be used.

To avoid impacts on migratory birds, construction activities should be conducted outside of the nesting season. If construction activities occur during the nesting season, a pre-construction survey should be conducted, and if active nests are found, mitigation measures should be implemented. These measures may include establishing a construction-free buffer zone around the active nest site, biological monitoring of the active nest site, and delaying construction activities in the vicinity of the active nest site until the young have fledged.

Cultural Resources. The proposed action would result in ground disturbance of the study areas and could expose or damage buried cultural resources or human remains. No eligible historic properties are expected to be affected by the proposed action. Implementation of the proposed action would primarily occur in previously disturbed areas, reducing the potential for impacts on cultural resources.

To protect cultural resources, the Air Force will be required to comply with Section 106 of the National Historic Preservation Act (36 CFR 800), other laws applicable to protecting cultural resources and human remains, and the Cultural Resources Management Plan (Nellis AFB Plan 126-7). Specific actions may include implementation of mitigation measures, consultation with tribal representatives, and coordination with the State Historic Preservation Officer and the Advisory Council for Historic Preservation. In addition, the construction area will be examined by a certified archaeologist prior to any ground disturbing activities. Any mitigation measures identified through the consultation process or further studies will be implemented prior to activities that could affect the resources.

Geology and Soils. The proposed action would remove vegetation and involve grading activities in the study areas. These activities would expose soils to water and wind erosion, which could result in fugitive dust, soil erosion, and sediment in runoff. No impacts on paleontological resources are expected, and seismic activity has a low potential of damaging new facilities or structures.

Implementation of a dust mitigation plan (see Air Quality) and best management practices, such as proper grading, stabilization, straw bales, and other devices to channel storm water runoff, and watering construction sites to limit fugitive dust, would minimize adverse effects on soils. If paleontological resources are discovered during construction, all activities in the immediate vicinity would be halted, and a qualified paleontologist would be consulted to assess the resources and to

determine whether consultation with the Secretary of the Interior is warranted. All activities would comply with the Cultural Resources Management Plan (Nellis AFB Plan 126-7).

To prevent damage from seismic events, all buildings and structures would be designed to comply with the seismic stability requirements of the area, as identified in the Uniform Building Code.

Water Resources. The proposed action would involve construction activities in the study areas that could disturb soils and discharge sediment and other pollutants in runoff, which could be transported into nearby surface water features. Direct impacts on waters of the United States may occur from road improvements at Range 63C. In addition, the proposed action would reduce the amount of groundwater recharge in the study areas as a result of the new buildings and pavement limiting surface water infiltration. The proposed groundwater well would not substantially affect the groundwater aquifer. These impacts would be minor and localized.

Standard best management practices would be implemented during construction activities to prevent water quality impacts. These measures may include establishing a no-disturbance buffer zone around surface water features to prevent the chances of accidental contamination and transportation of chemicals, such as fuels or sediment, in runoff. Nellis AFB personnel will coordinate with the USACE to determine the need for compliance with Section 404 of the Clean Water Act on a project-specific basis if activities could result in fill material in jurisdictional washes at Range 63.

4.0 CONCLUSION

On the basis of the Environmental Assessment, which is hereby incorporated by reference, I find no significant impact to human health or the natural environment would be expected from implementation of the proposed action. Therefore, issuance of this Finding of No Significant Impacts is warranted, and preparation of an Environmental Impact Statement, pursuant to the National Environmental Policy Act of 1969 (Public Law 91-190), is not required.

_____ _____

STEVEN P. WINKLMANN Date
Colonel, USAF
Vice Commander, 99th Air Base Wing

EXPEDITIONARY READINESS COURSE EXPANSION

Supplemental Draft
Environmental Assessment

Nevada Test and Training Range
June 2010

EXECUTIVE SUMMARY

This Supplemental Environmental Assessment (EA) analyzes the potential environmental consequences of the United States Air Force (Air Force) proposal to expand ground combat training facilities at the Nevada Test and Training Range (NTTR) and accommodate an increase in student capacity. This EA supplements an EA completed in June 2006 that analyzed some of the facilities proposed to support the Expeditionary Readiness Training (ExpeRT) Course expansion and accommodate up to 6,000 students per year. The 2006 EA analyzed the environmental consequences of infrastructure improvements at Range 63, two academic facilities, a convoy combat training route, and upgrades to five small arms training ranges. This Supplemental EA evaluates potential environmental impacts that could result from the additional proposed improvements at Creech Air Force Base (AFB), Range 63 and Range 71 within the Nevada Test and Training Range (NTTR) to accommodate the proposed increase in student capacity of 8,000 students per year. These additional improvements would be constructed over a period of five or more years.

This EA has been prepared by Nellis AFB in accordance with the requirements of the National Environmental Policy Act, Council on Environmental Quality guidelines, and Environmental Impact Analysis Process for the Air Force (32 CFR 989).

PURPOSE AND NEED

Congress, in the National Defense Authorization Act (Fiscal Year 2000), expressed its concern that U.S. military services have not sufficiently emphasized urban warfare training. The purpose of the proposed action is to ensure the Air Force can adequately train sufficient numbers of ground combat troops prior to deployment to combat areas and to sustain its ongoing training needs in an environment that simulates realistic and current combat conditions. This plan would support an increase from the annual student throughput of 6,000 students identified in the 2006 EA to a potential annual capacity of 8,000 students per year. Given the existing facilities and infrastructure, the current course capacity at the Security Forces (SF) Regional Training Center (RTC) within NTTR is inadequate to meet the anticipated increase in student throughput. The existing training areas need more buildings and training facilities to accommodate the increased student capacity.

PROPOSED ACTION AND NO-ACTION ALTERNATIVE

The Air Force proposes to construct and improve facilities to fulfill student training demands at the ExpeRT Course, part of the SF RTC based at the NTTR. Specifically, the expansion of existing SF facilities would occur at Creech AFB, Range 63C, part of Range 63B, and Range 71. New facilities

at Creech AFB would include administrative buildings and a training and exercise area. Range 63C improvements would include new and expanded facilities at the Military Operations in Urbanized Terrain village, tent city, cadre area, vehicle yard, and target practice ranges. New target practice ranges would be established on Range 63B, adjacent to the existing ranges on Range 63C. Two convoy routes would be improved on Range 71 and on Range 63C to support training, including road improvements and new targets.

Under the no-action alternative, the Air Force would not increase student throughput for the course or improve facilities at the current RTC at Creech AFB, Range 63, and Range 71. The RTC could continue to accommodate up to 6,000 students per year. This would not allow ground combat troops to maintain the critical skills necessary to support the Air and Space Expeditionary Force concept and provide the required number of ground combat troops needed to face the current threat.

SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

According to the analysis in this EA, implementation of the proposed action would not result in significant impacts in any resource category.

Air Quality. The proposed action would contribute to increased air pollutants in the study areas as a result of temporary construction activities and operational emissions. These activities would emit air pollutants (carbon monoxide, nitrogen oxides, sulfur dioxide) and fugitive dust (PM10 and PM2.5) into the air, but impacts would primarily be localized in the immediate vicinity of the construction area and along roadways. Air quality impacts would not exceed *de minimus* levels or contribute substantially to regional air quality.

Biological Resources. The proposed action would result in ground disturbance in the study areas and could disturb habitat for special-status species. Ground disturbing activities could require the removal of state-protected cacti and yuccas and other special-status plants known to occur in the region. Construction activities and training operations could affect the desert tortoise, a threatened species under the Endangered Species Act; western burrowing owls, a state-protected species; and nesting migratory bird species protected under the Migratory Bird Treaty Act. Individuals could be harmed during construction or training operations, but these activities would result in a minor loss of habitat.

Cultural Resources. The proposed action would result in ground disturbance of the study areas and could expose or damage buried cultural resources or human remains. No eligible historic properties are expected to be affected by the proposed action. Implementation of the proposed action would primarily occur in previously disturbed areas, reducing the potential for impacts on cultural resources.

Geology and Soils. The proposed action would remove vegetation and involve grading activities in the study areas. These activities would expose soils to water and wind erosion, which could result in fugitive dust, soil erosion, and sediment in runoff. No impacts on paleontological resources are expected, and seismic activity has a low potential of damaging new facilities or structures.

Water Resources. The proposed action would involve construction activities in the study areas that could disturb soils and discharge sediment and other pollutants in runoff, which could be transported into nearby surface water features. Direct impacts on waters of the United States may occur from road improvements at Range 63C. In addition, the proposed action would reduce the amount of groundwater recharge in the study areas as a result of the new buildings and pavement limiting surface water infiltration. The proposed groundwater well would not substantially affect the groundwater aquifer. These impacts would be minor and localized.

MITIGATION MEASURES

To minimize impacts of construction activities, a variety of standard best management practices and mitigation measures would be implemented. All activities will be required to comply with applicable federal, state, and local regulations and permits.

Air Quality. Best management practices and a dust mitigation plan would be implemented during construction in compliance with the dust control permit for activities in Clark County and applicable requirements in Nye County. Specific construction measures would include watering disturbed areas to minimize dust, using a dust palliative, using low-emission equipment, and minimizing construction during high winds. Construction activities would be monitored to ensure that no visible dust plumes exit the construction area or extend over 100 feet within the area. All activities would comply with existing permits to operate for Creech AFB and Silver Flag Alpha issued by the Clark County Department of Air Quality and Environmental Management.

Biological Resources. To avoid or minimize impacts on special-status plants and animals, construction activities would adhere to the recommendations described in the biological resources assessment (Appendix A of this EA). Prior to construction, surveys for special-status plant and wildlife species will be conducted in the construction area and an appropriate buffer area. If special-status plant or wildlife species are identified in the construction areas, additional measures would be required to transplant populations of plants, move animals outside the construction area, and monitor the area during construction.

Additional mitigation measures for desert tortoise include providing awareness training to all construction and project-related personnel who may travel through potential desert tortoise habitat, restricting speed limits in desert tortoise habitat, and restoring habitat to preconstruction conditions or

paying a per-acre remuneration fee as specified by the U.S. Fish and Wildlife Service. Exclusionary fencing can be installed prior to construction activities as a preventive action.

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To avoid impacts on migratory birds, construction activities should be conducted outside of the nesting season. If construction activities occur during the nesting season, a pre-construction survey should be conducted, and if active nests are found, mitigation measures should be implemented. These measures may include establishing a construction-free buffer zone around the active nest site, biological monitoring of the active nest site, and delaying construction activities in the vicinity of the active nest site until the young have fledged.

Cultural Resources. To protect cultural resources, the Air Force will be required to comply with Section 106 of the National Historic Preservation Act (36 CFR 800), other laws applicable to protecting cultural resources and human remains, and the Cultural Resources Management Plan (Nellis AFB Plan 126-7). Specific actions may include implementation of mitigation measures, consultation with tribal representatives, and coordination with the State Historic Preservation Officer and the Advisory Council for Historic Preservation. In addition, the construction area will be examined by a certified archaeologist prior to any ground disturbing activities. Any mitigation measures identified through the consultation process or further studies will be implemented prior to activities that could affect the resources.

Geology and Soils. Implementation of a dust mitigation plan (see Air Quality) and best management practices, such as proper grading, stabilization, straw bales, and other devices to channel storm water runoff, and watering construction sites to limit fugitive dust, would minimize adverse effects on soils. If paleontological resources are discovered during construction, all activities in the immediate vicinity would be halted, and a qualified paleontologist would be consulted to assess the resources and to determine whether consultation with the Secretary of the Interior is warranted. All activities would comply with the Cultural Resources Management Plan (Nellis AFB Plan 126-7).

To prevent damage from seismic events, all buildings and structures would be designed to comply with the seismic stability requirements of the area, as identified in the Uniform Building Code.

Water Resources. Standard best management practices would be implemented during construction activities to prevent water quality impacts. These measures may include establishing a no-disturbance buffer zone around surface water features to prevent the chances of accidental contamination and transportation of chemicals such as fuels or sediment in runoff. Nellis AFB personnel will coordinate with the USACE to determine the need for compliance with Section 404 of the Clean Water Act on a project-specific basis if activities could result in fill material in jurisdictional washes at Range 63.

TABLE OF CONTENTS

CHAPTER 1 PURPOSE OF AND NEED FOR THE PROPOSED ACTION.....1-1
1.1 Introduction.....1-1
1.2 Location of the Proposed Action.....1-1
1.3 Background.....1-2
1.4 Purpose and Need.....1-3

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND NO-ACTION ALTERNATIVE.....2-1
2.1 Alternative Identification Process.....2-1
2.2 Proposed Action.....2-2
Creech Air Force Base Improvements.....2-2
Range 63C Improvements.....2-3
Range 71 Improvements.....2-6
Utilities.....2-7
2.3 No-Action Alternative.....2-7
2.4 Other Regulatory and Permit Requirements.....2-8
2.5 Summary of Environmental Consequences.....2-8

CHAPTER 3 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES.....3-1
3.1 Analysis Approach.....3-1
Study Area Definition.....3-1
Resource Analysis.....3-2
Resources Eliminated from Further Evaluation.....3-2
3.2 Air Quality.....3-5
Regulatory Requirements.....3-6
Affected Environment.....3-6
Environmental Consequences.....3-8
3.3 Biological Resources.....3-13
Regulatory Requirements.....3-13
Affected Environment.....3-13
Environmental Consequences.....3-17
3.4 Cultural Resources.....3-20
Regulatory Requirements.....3-21
Affected Environment.....3-21
Environmental Consequences.....3-22
3.5 Geology and Soils.....3-23
Regulatory Requirements.....3-23
Affected Environment.....3-24
Environmental Consequences.....3-25

3.6 Water Resources 3-26
Regulatory Requirements 3-26
Affected Environment 3-26
Environmental Consequences 3-27

CHAPTER 4 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES 4-1
4.1 Cumulative Effects 4-1
Scope of Cumulative Effects Analysis 4-1
Cumulative Effects Discussion 4-2
4.2 Irreversible and Irretrievable Commitment of Resources 4-2

CHAPTER 5 REFERENCES CITED 5-1

CHAPTER 6 LIST OF PREPARERS AND CONTRIBUTORS 6-1
6.1 Nellis Air Force Base 6-1
6.2 North State Resources, Inc. 6-1

Table of Tables

Table 2-1. Target Practice Range Improvements 2-5
Table 2-2. Summary Matrix of Anticipated Impacts and Mitigation Measures 2-8
Table 3-1. Resources Considered in the Environmental Analysis 3-2
Table 3-2. Baseline Air Emissions (tons/year) 3-8

Table of Figures

Figure 1. Creech Air Force Base 1-5
Figure 2. Range 63C Improvements 1-7
Figure 3. Target Practice Ranges 1-9
Figure 4. Range 71 Convoy Road Corridor 1-11
Figure 5. Range 63C Convoy Route 2-11
Figure 6. Las Vegas Valley Hydrographic Basin 212 3-11

Appendix

Appendix A Biological Resources Assessment

CHAPTER 1
PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The United States Air Force (Air Force) is proposing to expand ground combat training facilities to accommodate increased student capacity at the Expeditionary Readiness Training (ExpeRT) Course on the Nevada Test and Training Range (NTTR) in southern Nevada. The ExpeRT Course is part of the Security Forces (SF) Regional Training Center (RTC) and currently includes facilities at Creech AFB and Range 63. The proposed expansion would also include a convoy route at Range 71 on the western end of the Tonopah Test Range (TTR) in Nye County, Nevada.

This Environmental Assessment (EA) was prepared to supplement an EA completed in June 2006 for partial expansion of the ExpeRT Course (Nellis Air Force Base 2006). The 2006 EA analyzed the environmental consequences of infrastructure improvements at Range 63, two academic facilities, a convoy combat training route, and upgrades to five small arms training ranges. These improvements were targeted for completion by the end of 2008 and were designed to provide the initial facilities necessary to support an increase in student capacity from 2,520 to 6,000 students per year. Some, but not all, of the improvements previously evaluated have been completed. This Supplemental EA evaluates the environmental impacts of additional training and infrastructure facilities at Creech Air Force Base (AFB), Range 63, and Range 71 to support the proposed increase in student capacity to new requirements of 8,000 students per year.

Nellis AFB prepared this EA in compliance with the National Environmental Policy Act (NEPA); the Council on Environmental Quality (CEQ) regulations implementing NEPA; Environmental Impact Analysis Process for the Air Force (32 CFR 989); and other applicable federal and state environmental legislation. This EA incorporates by reference the information presented in the previous ExpeRT Course EA (Nellis Air Force Base 2006).

1.2 LOCATION OF THE PROPOSED ACTION

The proposed action would expand existing SF facilities at Creech AFB, Range 63, and Range 71. These areas are part of the NTTR, which is composed of approximately 2.9 million acres in southern Nevada. The NTTR was withdrawn from public use as a national test and training area for military equipment and personnel under Public Law (PL) 106-65. The NTTR contains two functional areas:

the North Range and South Range, both of which are further divided into sub-ranges. Creech AFB and Range 63 are on the South Range in Clark County; Range 71 is on the North Range in Nye County (Figure 1). Creech AFB is described in the previous ExpeRT Course EA (Nellis Air Force Base 2006); descriptions of Ranges 63 and 71 are provided below.

Ranges 63C and 63B are located approximately 12 miles east-southeast of Creech AFB and Indian Springs, Nevada (Figures 2 and 3). These areas lie on the southern edge of the South Range and are on the north side of U.S. 95, roughly 33 miles northwest of Las Vegas. Range 63 contains a mock village, cadre area, tent city, training ranges, and other facilities to support the ground combat training. Thirteen firing ranges follow an unnamed road parallel to U.S. 95 and support small arms, machine gun, grenade, and dismounted/mounted training. Additional information on Range 63C is available in the ExpeRT EA.

The TTR is a sub-range of the NTTR in the northwest corner of the NTTR. The primary function of the TTR is to support aeronautical research and development. It is used for electronic warfare and training, testing, and weapons evaluation operations for the Air Force, U.S. Army, U.S. Marine Corps, U.S. National Guard, U.S. Navy, Department of Energy, reserve forces, and other federal agencies (Nellis Air Force Base 2007). Range 71 is in the western portion of the TTR on the east side of U.S. 95, approximately 30 miles southeast of Tonopah, Nevada and 130 miles northwest of Las Vegas (Figure 4). Range 71 is used for weapons testing and convoy training.

1.3 BACKGROUND

The Air Force has completed three previous environmental assessments evaluating different aspects of the ground combat training expansion at the NTTR: *Regional Training Area (RTA) Expansion, U.S. Air Force 99th Ground Combat Training Flight, Indian Springs Air Force Auxiliary Field* [now renamed Creech AFB] *Final Environmental Assessment* (RTA EA, Nellis Air Force Base 1997), the *Nevada Training Initiative (NTI) Final Environmental Assessment* (NTI EA, Nellis Air Force Base 2003), and the *Expeditionary Readiness Training Course Expansion Final Environmental Assessment* (ExpeRT EA, Nellis Air Force Base 2006). The RTA and NTI EAs are summarized in the ExpeRT EA.

The ExpeRT EA evaluated proposed infrastructure and academic facilities at the Silver Flag Alpha training area on NTTR and at Creech AFB. The EA evaluated environmental impacts of academic and laundry/shower/latrine facilities; improvement of five small-arms training ranges; a 1-mile convoy combat route; and utility upgrades. The EA analysis concluded that no significant impacts would occur, and a Finding of No Significant Impact (FONSI) was signed on June 20, 2006. Additional background information on the ground combat training expansion is provided in the ExpeRT EA.

In aggregate, the previous environmental documentation provided substantial NEPA coverage of other proposed activities associated with the expansion of ground combat training facilities that would also support the increase in student capacity. This previous environmental documentation is incorporated by reference herein.

1.4 PURPOSE AND NEED

The purpose of and need for the expanded ExpeRT Course facilities are described in detail in the ExpeRT EA (Nellis Air Force Base 2006). In summary, the purpose of the proposed action is to ensure that the Air Force can adequately train sufficient numbers of ground combat troops prior to deployment to combat areas and to sustain its ongoing training needs in an environment that simulates realistic and current combat conditions. Existing training facilities are inadequate to fully accommodate the necessary increase in student capacity (to 8,000 students annually) and provide the range of training necessary to reflect current threats. More students need to be trained at the NTTR to respond to significant changes in the focus and magnitude of threats to Air Force personnel worldwide and meet the increased demand for real-world training scenarios from the Air Combat Command and other Major Commands. Without this increase, SF personnel risk mission failure of force protection of Air Force personnel and assets, including aircraft, in combat zones.

Existing facilities at the NTTR provide the best opportunity for ground combat troops pre-deployment training currently available in the country. However, the training facilities are inadequate for the number of troops that require the training, and many facilities require upgrades or improvements to provide adequate training. The existing training areas need more classroom, storage, and other combat-related facilities; training pads; new targets and supporting facilities at the firing ranges; and an expanded convoy combat training route to accommodate all the ground combat trainees that must receive training. Expanding the training course at the NTTR would ensure appropriate pre-deployment training and support the Air and Space Expeditionary Force (AEF) concept.

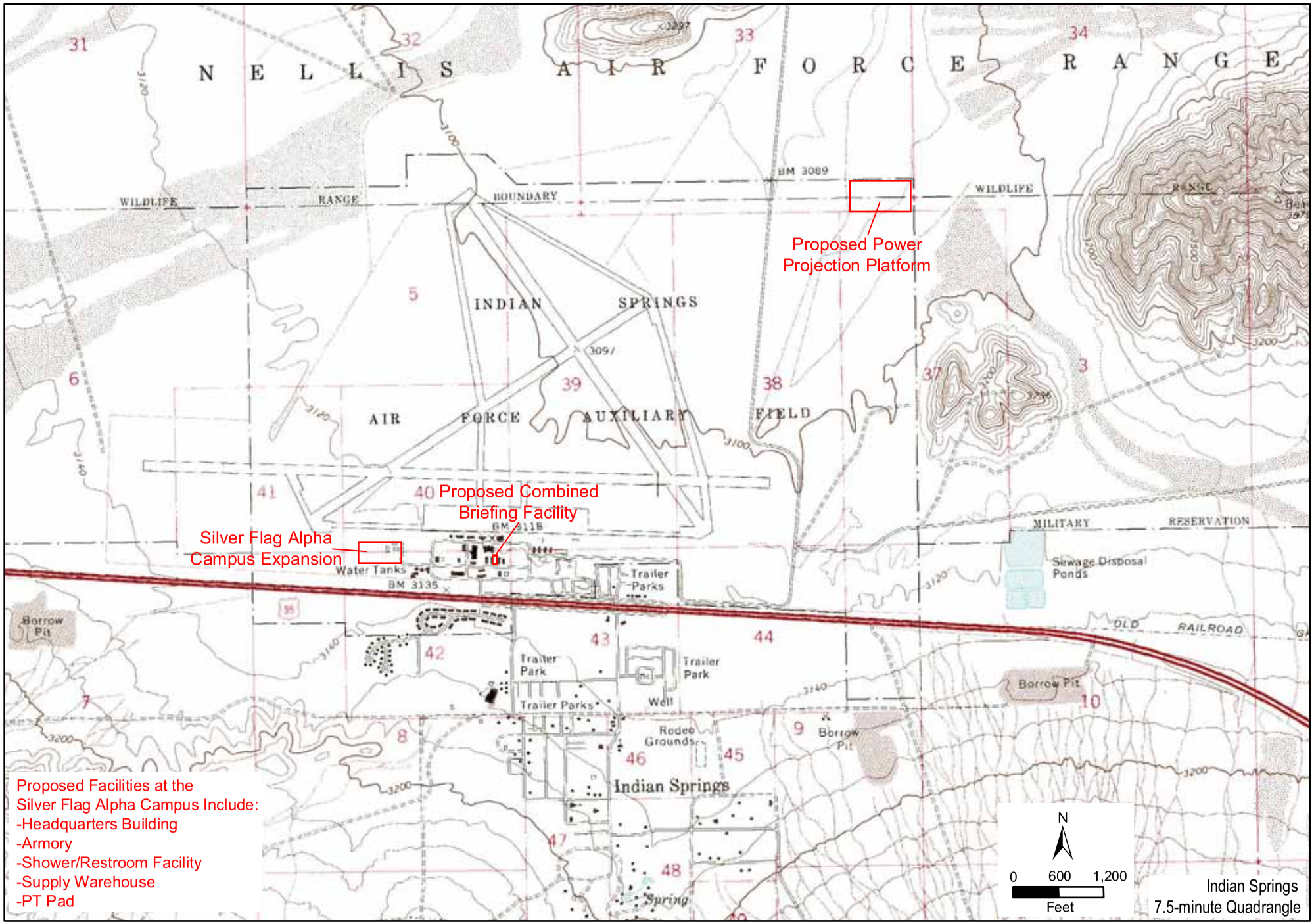

Figure 1
Creech Air Force Base

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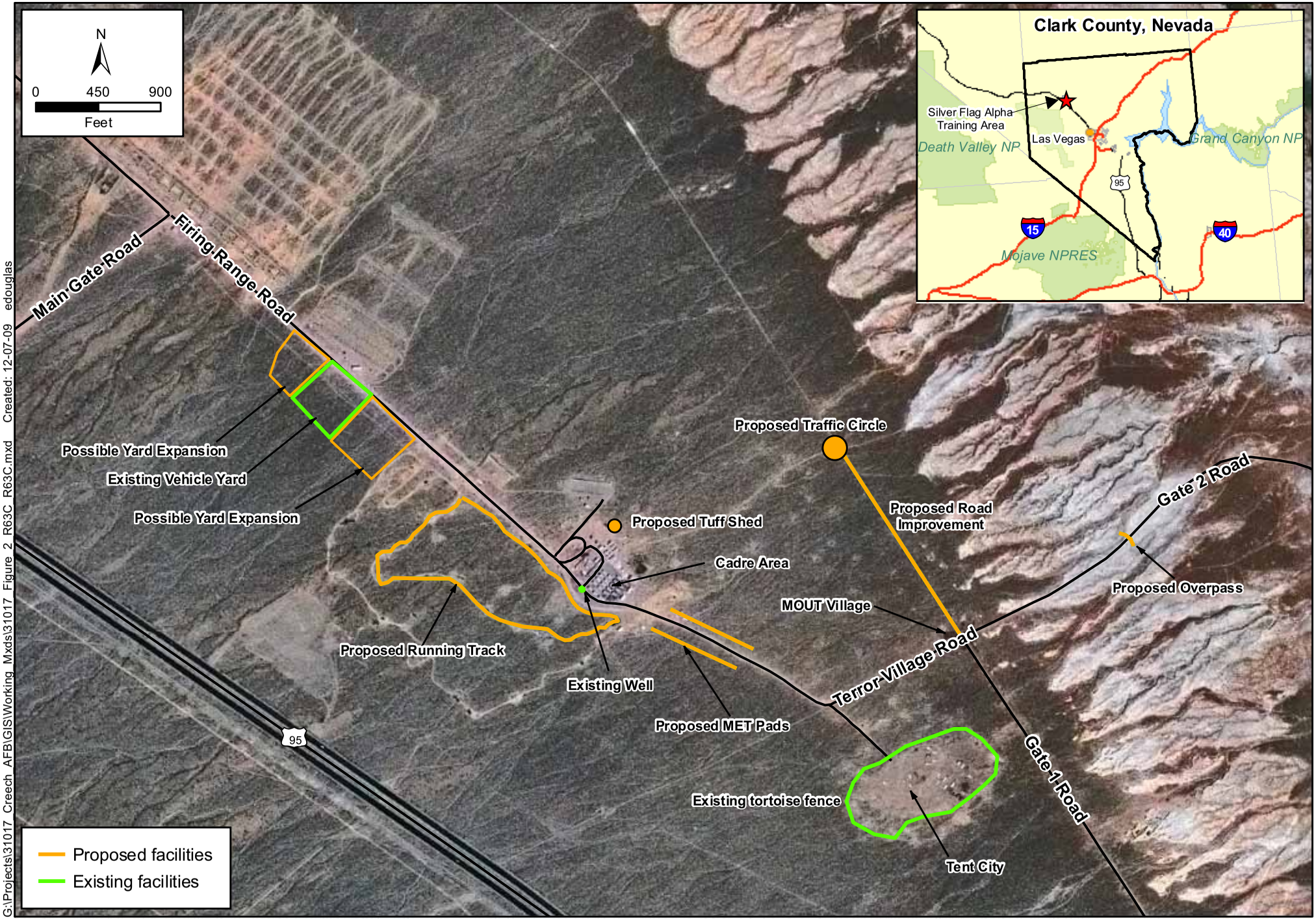

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ExpeRT Course Expansion Supplemental EA

Figure 2
Range 63C Improvements

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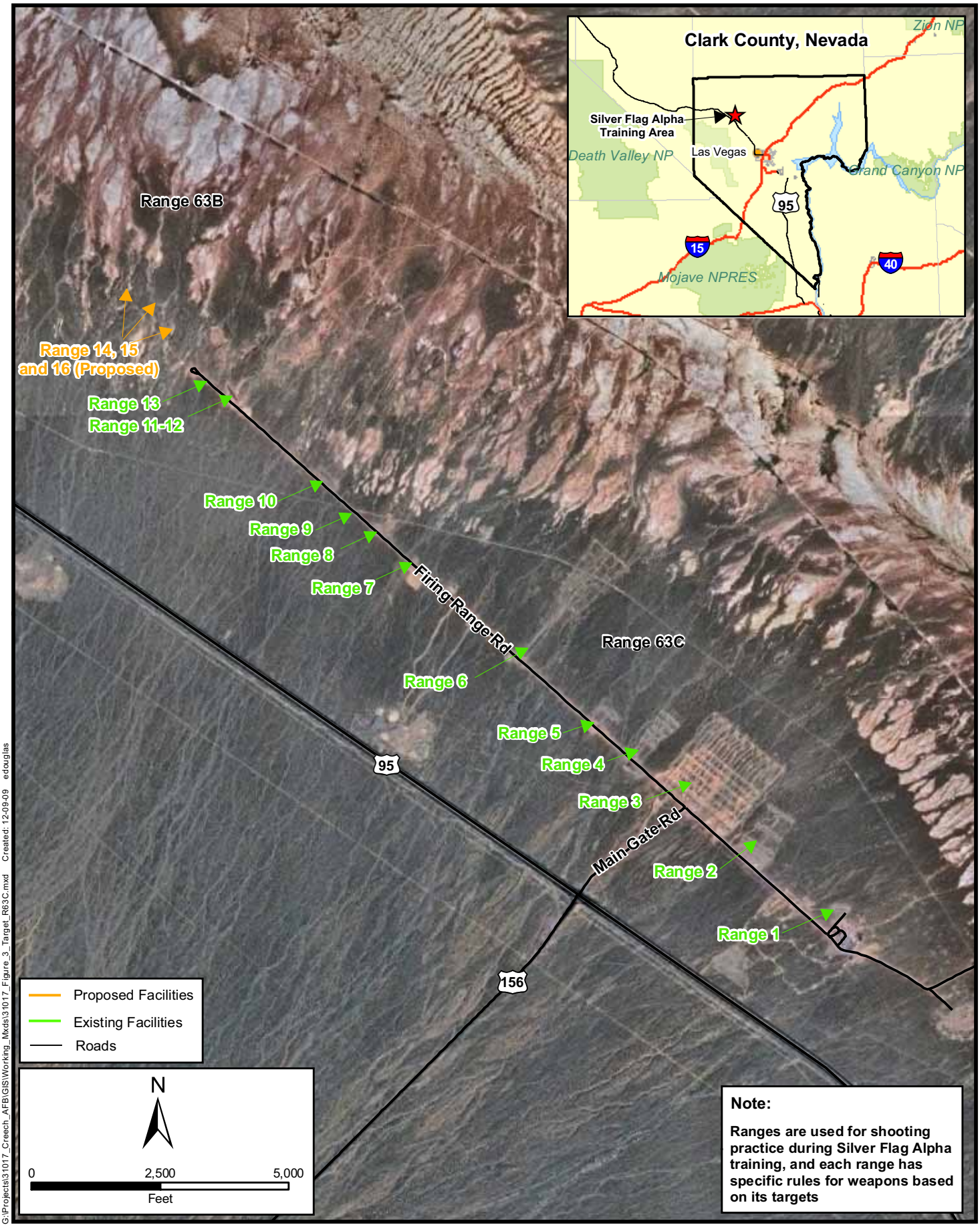

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ExpeRT Course Expansion Supplemental EA

Figure 3
Target Practice Ranges

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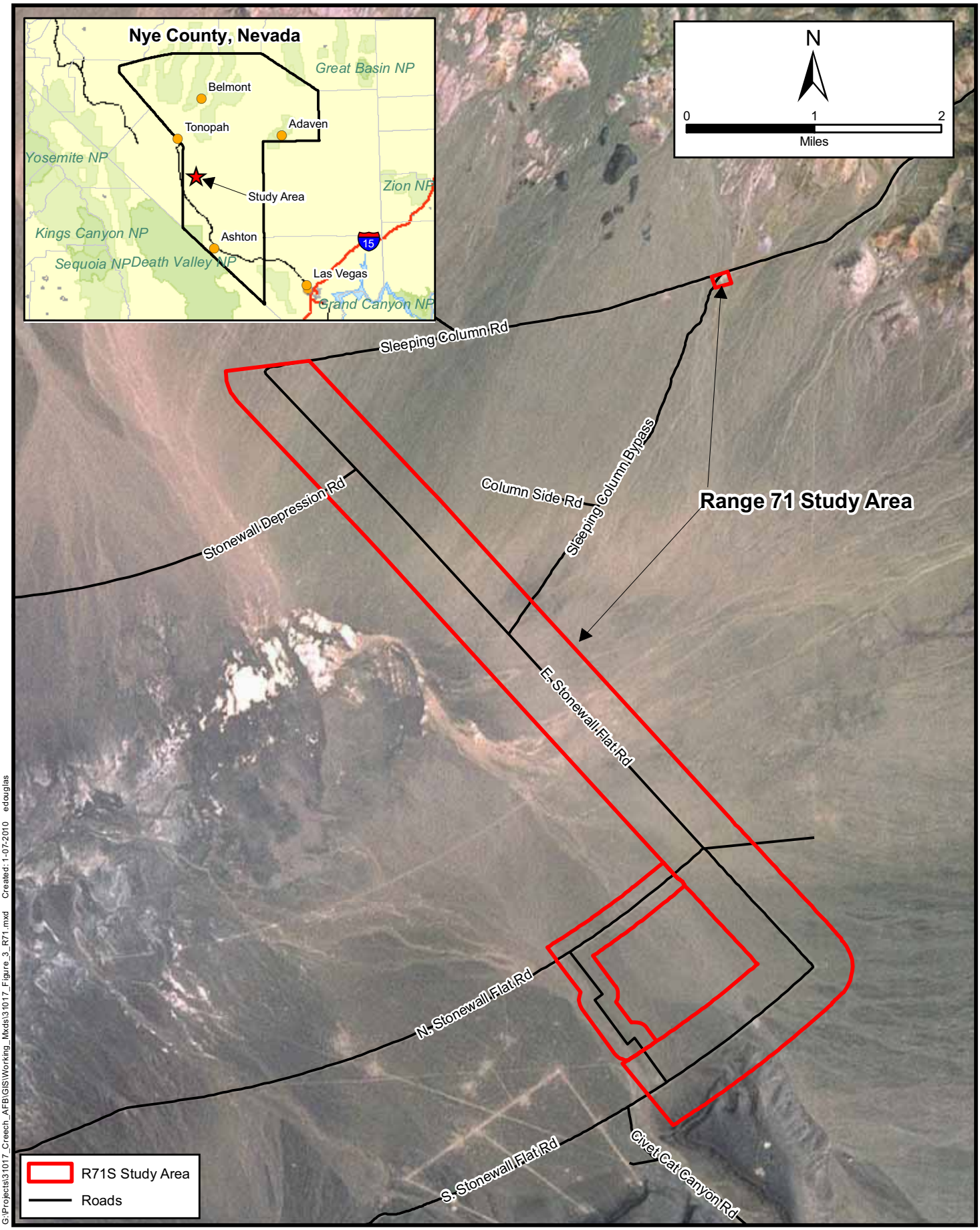

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ExpeRT Course Expansion Supplemental EA

Figure 4
Range 71 Convoy Road Corridor

Back of figure.

CHAPTER 2
DESCRIPTION OF THE PROPOSED ACTION AND NO-ACTION ALTERNATIVE

This chapter describes the Air Force proposal to expand and improve facilities at Creech AFB, Range 63, and Range 71 in support of increasing student capacity to 8,000 students per year. The proposed action would involve constructing or replacing buildings, upgrading infrastructure and roads, expanding training facilities, and expanding and upgrading training ranges. In conformance with NEPA and CEQ guidelines, this chapter also describes the no-action alternative. Under the no-action alternative, the Air Force would not expand or improve facilities in support of the increased student capacity; the existing facilities would not be adequate to properly train ground combat troops.

2.1 ALTERNATIVE IDENTIFICATION PROCESS

The Air Force considered an alternative location for a live fire ground combat convoy and dismounted operations range, but other alternatives (i.e., upgrading a different AFB) were not determined to be feasible because of the existing services available at the NTTR and ability of the NTTR to accommodate the necessary personnel, as discussed in the ExpeRT EA (Nellis Air Force Base 2006). Specific criteria considered during development of the proposed action are:

- Condition and type of existing facilities (i.e., are the existing facilities easily upgraded and do they currently provide effective training?)
- Ability to upgrade and expand existing facilities (i.e., does the AFB have space for expansion?)
- Similarity of environment to oversees environments (e.g., the dry, desert setting of Iraq and Afghanistan)
- Capacity of the AFB to support additional training

The alternative location for a live fire ground combat convoy and dismounted operations range on the NTTR was considered at Range 64, but this location was determined to be less viable than Range 71. Range 64 does not offer the space and existing training area that Range 71 does, and it would be difficult to establish a new training range on Range 64. Upgrading existing facilities at Range 71 is more cost effective than constructing a new range at Range 64, and the upgrades could be implemented in a shorter timeframe to meet the current demand for new facilities than construction of new facilities in a previously unused area.

The description of the proposed action in this EA reflects the additional facilities needed to accommodate the increased student capacity beyond the facilities previously considered in other EAs. Other facilities to support the increased capacity, such as academic, lodging, and dining facilities at Creech AFB and certain infrastructure, have been evaluated in previous EAs, including the RTA EA (Nellis Air Force Base 1997), the NTI EA (Nellis Air Force Base 2003), and the ExpeRT EA (Nellis Air Force Base 2006). Many of these other facilities have been implemented and are described as part of the affected environment in Chapter 3.

2.2 PROPOSED ACTION

Nellis AFB is proposing to further expand the ExpeRT Course at the NTTR, including improvements and facility modifications at Creech AFB, on Ranges 63C and 63B, and on Range 71 in the TTR. The improvements and facility modifications described in this EA represent the final phases of the ExpeRT Course expansion and would occur over a period of five or more years.

Use of the facilities would require a slight change in operation procedures to accommodate the increased student throughput. The ExpeRT Course would be capable of training 12 groups of students throughout the year with each group alternating between facilities at Creech AFB and Range 63C and using the convoy route at Range 71 or 63C when necessary during the training session. Half the students would train, lodge, and dine at Creech AFB for about 8 days out of the 16-day course, while the other half would train, lodge, and dine at Range 63C (Silver Flag Alpha). The improvements and modifications described under the proposed action would provide the facilities necessary to accommodate the proposed training schedule and student capacity.

Creech Air Force Base Improvements

Creech AFB serves as the administrative site for SF training. The base contains runways; hangars; maintenance, administrative, and operational facilities; and residences. The base's primary mission is to provide an emergency divert airfield for military aircraft training in NTTR airspace. New facilities would be required at the base to support the increased student capacity for the ExpeRT Course. Five new buildings would be constructed at the Creech AFB proper, and new parking areas, pavilions, and sidewalks would be installed where needed around existing and new buildings. A headquarters building, combined briefing facility, armory, shower/restroom facility, and supply warehouse (approximately 18,000 square feet) would be installed in the existing developed area at the base (see Figure 1 in Chapter 1). A pad for training and exercise (known as a PT pad) would be installed near the shower/restroom facility. Up to three additional buildings may also be constructed in the developed area, if needed. A power projection platform would be installed in the northeast corner of the base on approximately 9 acres of land disturbed by previous training operations. The platform

would serve as a staging area and may be constructed of concrete pads with overhangs to provide shading, a 60,000-square foot warehouse with hangar doors, or dormitories for students.

Range 63C Improvements

Range 63C is currently used for ground combat sustainment training and contains a Military Operations in Urbanized Terrain (MOUT) village, tent city, cadre area, vehicle yard, 13 ranges for target practice, and paved and unpaved roads. These facilities need to be expanded to accommodate the projected increase in students. Construction activities would occur primarily in previously disturbed areas associated with the MOUT village, tent city, cadre area, and ranges, and along existing roads (see Figure 2 in Chapter 1).

Improvements at the MOUT village would include new buildings; two mock overpasses; road improvements; placement of guardrails; and parking areas, pavilions, and sidewalks where needed around existing and new buildings. Up to 30 new urban tactical training buildings would be constructed in or near the existing village; some buildings would be placed in previously undisturbed areas. One mock overpass (26 feet wide, 140 feet long) would be constructed of Conexs across an existing dirt road approximately 0.3 mile east of the MOUT village. A second mock overpass (same dimensions and materials) would be constructed across an existing dirt road approximately 0.4 mile northwest of the existing MOUT village. The mock overpasses would be used to support training and would not serve as a functioning bridges for vehicle access (no cross road would be constructed). The road improvements would include a four-way traffic circle (roundabout) along an existing dirt road approximately 0.3 mile northwest of the village and paving of the road between the village and the circle (0.3 mile). The traffic circle would replace a four-way intersection and provide large vehicles with the ability to turn around. It would encompass an area larger than the existing intersection and would require grading and paving in an undisturbed area. Approximately 80 pre-made guardrails would be installed along the roads and around the traffic circle, as needed, to serve as barriers along the roads. Parking areas, pavilions, and sidewalks would be constructed along existing roads near the MOUT village and would primarily be constructed in previously disturbed areas.

Improvements at tent city would include new buildings, tents, concrete pads, and a new desert tortoise fence. The buildings would include a 1,500-square-foot morale building and up to two additional buildings for student supplies and a student support arms room (size and location to be determined). The new buildings and tents would be installed inside proposed tortoise fence in areas that are mostly disturbed. New parking areas, pavilions, and sidewalks would be constructed around the buildings and tents as needed. Seven concrete pads (approximately 12 feet by 24 feet) would be installed to the east of tent city, where towers currently exist. Five of the pads would include new towers to replace the existing towers. The pads would be accessed via existing roads or disturbed areas, although some new disturbance may be necessary to construct the new pads and remove the existing pads.

A new tortoise fence is proposed around tent city to prevent impacts on tortoises during facility construction and training operations. The existing fence is in need of repairs, and additional space is needed at tent city to accommodate the increase in students and proposed improvements. The new fence would encompass approximately 9.5 acres and would be approximately 100 feet out from the existing fence. Perimeter lighting may be installed around the fence to provide nighttime lighting of tent city. Security fencing, gates, and HESCO (Hercules Engineering Solutions Consortium) barriers would be installed to protect students from real world threats.

The cadre area would experience the greatest expansion, with new buildings, parking areas, an exercise area, and expanded fire suppression services. The new buildings would include two 3,000 square-foot office buildings, one 4,000 square-foot classroom, and up to three 2,400 square-foot administration/supply warehouses to support training. The new buildings would replace existing wooden buildings and would be constructed in the previously disturbed area. Three existing metal buildings would remain. A tuff shed would be installed to the northeast of the cadre area in a less disturbed area, across from the proposed office building. New parking areas, covered personnel assembly areas, and sidewalks would be installed around the proposed buildings to accommodate the increased student capacity. A 0.75-mile running track and a PT pad for exercise and training would also be installed for students on the west side of the main access road. The track would be graded and paved or covered with an impact absorbent surface, similar to that used at playgrounds. Up to six new MET pads would be installed along the road to the southeast of the cadre area. The MET pads are concrete pads with overhangs, approximately 90 feet by 90 feet. An overhang would be installed on an existing pad. All facilities would be upgraded to current fire codes. A fire suppression system would be installed in existing buildings. A second groundwater well would be installed at the cadre area or nearby to serve tent city and the cadre area, as discussed under Utilities below.

A vehicle yard is located northwest of the cadre area, and improvements in this area would include a 6,000-square-foot administrative building, 4,000-square-foot warehouse, one 10,000 gallon diesel fuel pump and one 10,000 gallon gas pump, and parking areas with pavilions and sidewalks. The vehicle yard is an approximately 500-foot by 700-foot paved area with a fence around it. The fuel pumps would be installed at the center of the vehicle yard. The administration building and warehouse would be installed either inside the yard, if space is available, or to the northwest or southeast, immediately adjacent to the yard. The administration building would be used for staffing and vehicle maintenance and support. The warehouse would be used for maintenance and storage of parts. A new paved parking area would be constructed on the northern side of the road in a previously disturbed area; it would be sized to support five buses and 20 vehicles.

Additional expansion of the training facilities at Range 63C would involve expansions to the target practice ranges, referred to as Ranges 1 through 13, and creation of up to three new ranges, Ranges 14

through 16. Ranges 15 and 16 would be located on Range 63B and would be temporary practice ranges for the Silver Flag Alpha training. New gates and fencing for perimeter security would be installed to protect Department of Defense assets, students, and serve in the interest of public safety. Nellis South Range Security currently provides security by patrols, ground sensors, and maintenance of the range gate. Table 2-1 summarizes the proposed improvements at each range; range locations are depicted in Figure 3 in Chapter 1.

Existing roads and trails at the target practice ranges would be improved to incorporate live fire exercises, MOUT, mounted patrols with mine resistant ambush protected vehicles, and newer tactical vehicle live fire routes. The road improvements would include additional culverts for drainage, varying in width from 15 feet to 50 feet wide to allow for tactical training scenarios, and round-about intersections to accommodate up to 70,000-pound tactical vehicles. The routes would run the length of the live fire ranges. An existing dirt road that provides access to the target practice ranges from the MOUT village would be used as a convoy route for training (see Figure 5 at the end of this chapter). Additional live fire targets would be placed in the existing ranges. Safety danger zones (SDZs) would be created and depicted to show firing areas for all weapons systems up to the .50 caliber (5.56, 7.62, 40 mm HEDP/TP, .50 Cal) along the restricted road reaching out into Range 63C (Figure 5); similar SDZs would be established along the convoy route at Range 71. All SDZs would be contained within Department of Defense lands.

Table 2-1. Target Practice Range Improvements

Range No.	***Improvement***
1	Concrete pad with overhang in existing disturbed area along road.
2	Concrete pad with overhang and parking area in existing disturbed area along road.
3	Replace pop-up targets. Underground lines may be necessary to connect to targets and allow remote activation. An overhang would be installed at the brass compound between Ranges 3 and 4.
4	Install new targets and a 7,000 square-foot, fully contained, 360-degree shoot house with closed-circuit television cameras and viewing catwalks.
5	Repair targets and place new dirt on mounds.
6	No improvements proposed.
7	No improvements proposed.

Table 2-1. Target Practice Range Improvements	
Range No.	***Improvement***
8	Replace shoot house (may move to Range 4).
9	Repair pop-up targets and place new dirt on mounds.
10	Replace elevated platform. Fill in existing trench with dirt.
11	No improvements proposed.
12	Construct new towers. Move half of tank targets to Range 14.
13	Construct new control tower. Replace targets and install underground line between targets and control tower. New targets would be placed every 100 meters up to 1,000 meters from the control tower.
14	Establish a new range with tank targets (from Range 12). Specific details not known at this time.
15	Establish a new range with wood targets. Specific details not known at this time.
16	Establish a new range. Specific details not known at this time.

Range 71 Improvements

Range 71 is a live bombing and gunnery range and contains several unpaved roads with targets and a live fire training area along roads in the southern portion of the range. Students in the training program at Creech AFB are currently transferred between the base and Range 71 using U.S. 95 and U.S. 6. This route would continue to be used, but the increase in students would require the use of approximately three to four additional buses to transport students and approximately four semi-trucks to transport equipment twice per year.

Existing roads within the TTR would be used to access the convoy training route. Approximately 9.3 miles of the existing Stonewall Flat Road (east and portions of the south and north roads) would be graded and possibly paved to improve the convoy route; road widening is not expected to be necessary. A new road, approximately 1.4 miles long, would be constructed between South Stonewall Flat Road and North Stonewall Flat Road (see Figure 4 in Chapter 1). The training area along the roads would be improved to provide realistic scenarios and handle various tactical vehicles, including low- and high-speed sections for tactical live fire.

New targets, such as silhouettes, buildings, vehicles, and pop-up targets, would be installed along the roads for live fire training. Targets along the existing road would be placed out to 1,640 feet (500 meters) from the road, and targets along the new road would be placed out to 6,560 feet (2,000 meters) from the road. An approximately 1.5-mile-wide corridor along the road is evaluated in this EA to account for bullet impacts during target practice. The pop-up targets would require an underground fiber connected to a shoothouse or tower near the road and a generator to operate the targets.

An assembly area would be established off the main entrance road to the area. It would be approximately 700 feet by 500 feet (8.03 acres) and would be located where a recycling/salvage yard exists. The assembly area would be used for personnel briefing and the temporary storage and issuing of fuel and ammunition. Students training at Range 71 would be required to clean up brass at the end of the training session and transport it back to Creech AFB for proper disposal. Other cleanups would occur similar to existing operations and as needed. All students will comply with NTTR safety procedures established by the range operating agency (Air Force).

Utilities

To support the proposed improvements, water, sewer, and communication lines would be extended from existing service areas on Creech AFB and at the tent city and cadre area. Additional generator systems and fuel storage tanks would also be needed at Creech AFB and Range 63C to support the expanded facilities and student capacity. A new groundwater well would be installed at the cadre area or nearby on Range 63C to supply additional water to accommodate increased student capacity. The existing well at the cadre area is not capable of supplying the needed water to meet the increased student demands. Approximately 1.47 million gallons per year are allocated by State water rights for the proposed well. The new well would require water rights to withdraw water; therefore, unused water rights from an existing well (in the same aquifer) would be transferred to the new well. Because of the availability of unused rights, the transfer of rights is easier that allocating new rights from the State.

2.3 NO-ACTION ALTERNATIVE

In conformance with NEPA and CEQ guidelines, the no-action alternative is also evaluated in this EA. Under the no-action alternative, the Air Force would not increase the total number of students entering the training program each year and would not need to construct the additional facilities and infrastructure upgrades to support the continued expansion of the ExpeRT Course. Facilities that were previously approved or constructed would still be used, but no additional facilities would be constructed or expanded. The no-action alternative does not meet the purpose and need. Without the additional improvements, student capacity would not be increased to the level necessary, and the Air

Force would not have the ability to properly train students, reducing their ability to execute a real world mission in theater. In addition, a viable rotation schedule to support the AEF concept would not be met nor would the required number of ground combat troops needed to face the current threat be trained. No other Air Force facility has the organic range space to support this critical testing and training.

2.4 OTHER REGULATORY AND PERMIT REQUIREMENTS

The NEPA process is intended to assist the decision makers in understanding the environmental consequences of a proposed action and in taking appropriate actions that protect, restore, and enhance the environment to minimize the effects of a proposed action. In addition to the lead agency's review and approval process, permits or authorizations from other federal, state, or local agencies may be required prior to implementation of a proposed action. The proposed action would be subject to similar environmental statutes, regulations, and Executive Orders (EOs) as described in the ExpeRT EA (Table 2-3 in Nellis Air Force Base 2006).

2.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 2-2 summarizes the anticipated environmental consequences of the no-action alternative and proposed action and identifies mitigation measures for impacts associated with the proposed action.

Table 2-2. Summary Matrix of Anticipated Impacts and Mitigation Measures

Resource Topic	***Proposed Action***		***No-Action***
Air Quality	*Impacts:* ▪ Increased air pollutants from temporary construction activities, less than *de minimis* thresholds. ▪ Increased long term vehicle and operational emissions.	*Mitigation Measures:* ▪ Acquire a dust control permit prior to construction activities. ▪ Implement best management practices and dust mitigation plan. ▪ Comply with applicable laws and existing permits to operate for Creech AFB and Silver Flag Alpha.	*Impacts:* ▪ Same emissions and fugitive dust from ongoing operations as existing conditions.

Table 2-2. Summary Matrix of Anticipated Impacts and Mitigation Measures

Resource Topic	***Proposed Action***		***No-Action***
Biological Resources	*Impacts:* ▪ Ground disturbing activities could affect special-status plant and wildlife species and habitat. ▪ Training activities could affect desert tortoise, western burrowing owl, and nesting migratory birds.	*Mitigation Measures:* ▪ Comply with INRMP. ▪ Conduct pre-construction surveys for special-status plant and wildlife species. ▪ Restore disturbed habitat to pre-construction conditions. ▪ If necessary, relocate special-status plant and wildlife species outside of the construction area. ▪ Implement speed limit restrictions. ▪ Install fencing around ground disturbing activity, if needed. ▪ Limit construction activities to non-nesting season. ▪ Establish construction-free buffer zones around nests.	*Impacts:* ▪ Same plant and wildlife impacts from ongoing operations as existing conditions.
Cultural Resources	*Impacts:* ▪ Construction and ground disturbing activities could expose or damage buried cultural resources or human remains. ▪ No known, eligible resources would be affected.	*Mitigation Measures:* ▪ Conduct a pre-construction archaeological survey in areas not previously surveyed. ▪ Comply with the Cultural Resources Management Plan. ▪ Comply with Section 106 of the National Historic Preservation Act. ▪ Use monitors and implement data recovery efforts, if determined necessary during consultations.	*Impacts:* ▪ Same potential for cultural resource impacts from ongoing operations as existing conditions.

Table 2-2. Summary Matrix of Anticipated Impacts and Mitigation Measures			
Resource Topic	***Proposed Action***		***No-Action***
Geology and Soils	*Impacts:* ▪ Vegetation removal would expose soils to wind and water erosion. ▪ Construction and training activities would disturb soils. ▪ Ground disturbance could expose or damage paleontological resources.	*Mitigation Measures:* ▪ Implement best management practices and a dust mitigation plan. ▪ Comply with the Cultural Resources Management Plan. ▪ If paleontological resources are discovered, stop activities and consult a qualified paleontologist. ▪ Comply with the seismic stability requirements of the Uniform Building Code.	*Impacts:* ▪ Same soil disturbance from ongoing operations as existing conditions. ▪ Very low potential for paleontological resource impacts.
Water Resources	*Impacts:* ▪ Construction activities could discharge sediment and pollutants into surface waters. ▪ Construction activities at Range 63C may discharge fill into waters of the United States. ▪ Facilities could reduce groundwater infiltration.	*Mitigation Measures:* ▪ Implement best management practices. ▪ Comply with Section 404 of the Clean Water Act, if needed.	*Impacts:* ▪ Same water quality impacts from ongoing operations as existing conditions.

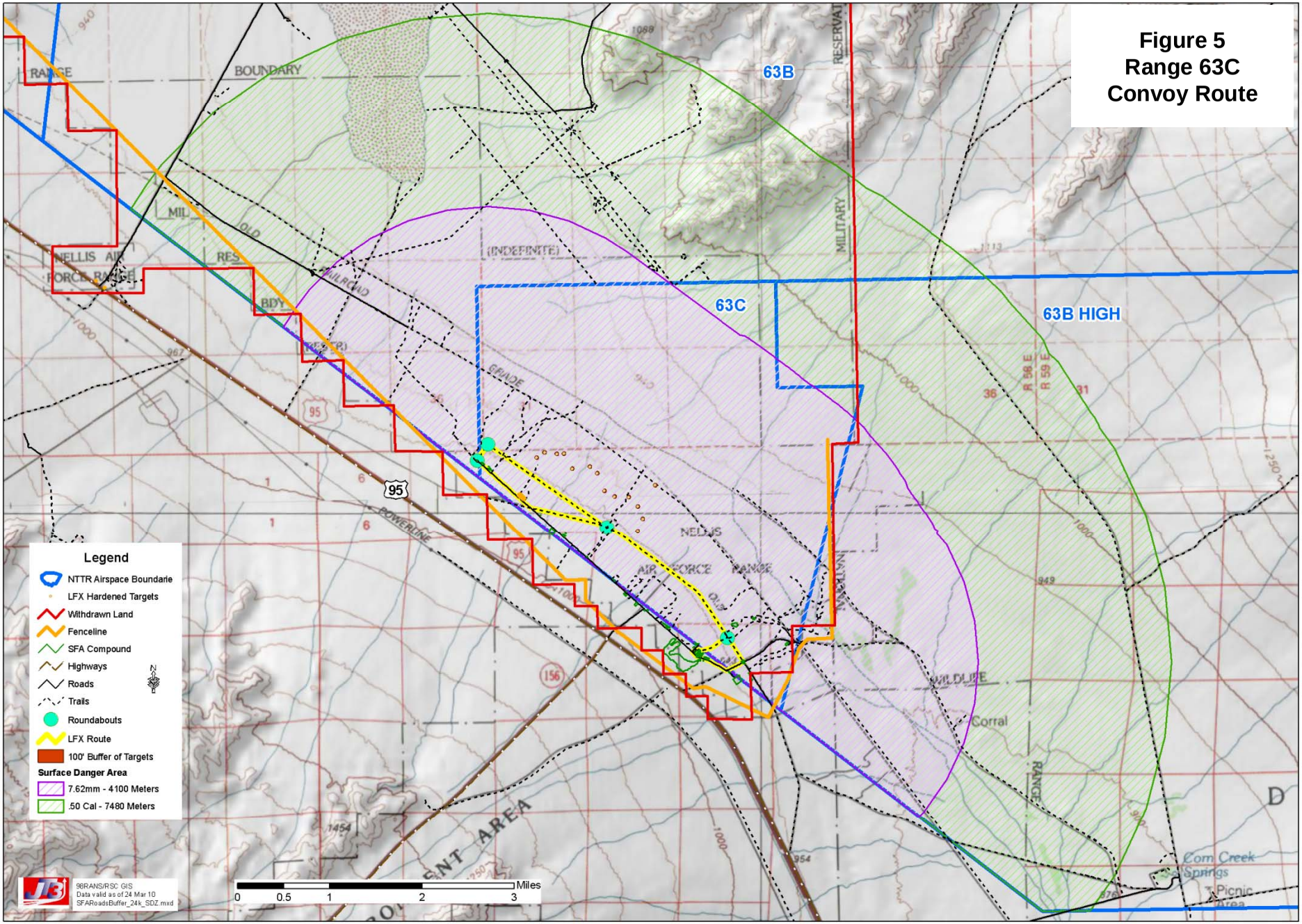
Figure 5
Range 63C
Convoy Route
63B
63C
63B HIGH
Legend
NTTR Airspace Boundarie
LFX Hardened Targets
Withdrawn Land
Fenceline
SFA Compound
Highways
Roads
Trails
Roundabouts
LFX Route
100' Buffer of Targets
Surface Danger Area
7.62mm - 4100 Meters
.50 Cal - 7480 Meters
Miles
0
0.5
1
2
3
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CHAPTER 3
DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 ANALYSIS APPROACH

This chapter describes the affected environment at the NTTR, with a focus on Creech AFB, Range 63, and Range 71, and discusses the anticipated environmental consequences of implementing the proposed action and no-action alternative described in Chapter 2. NEPA requires a focused analysis of the resources potentially affected by a federal agency's action or alternative to its action. This EA focuses on those resources that would be affected by the proposed activities at the NTTR to support expansion of the ExpeRT Course student capacity.

CEQ regulations (40 CFR Parts 1500-1508) for NEPA require an EA to discuss impacts in proportion to their significance and present only enough discussion of other-than-significant issues to show why more study is not warranted. The analysis approach in this EA considers the current conditions of the affected environment and compares them to conditions that might occur should either the proposed action or the no-action alternative be implemented.

To the extent practicable, information on the applicable regulations and affected environment is referred to the previous ExpeRT EA. Because of the differences in the proposed action and locations of proposed facilities evaluated in this EA, much of the information presented in this chapter is new or expanded from the ExpeRT EA.

Study Area Definition

The description of the affected environment and analysis of environmental consequences in this EA are focused on three primary study areas at Creech AFB, Range 63, and Range 71 (see Figures 1 through 5 in Chapters 1 and 2 for locations of these areas). These study areas correspond to the boundaries of the proposed action at each location, with a buffer, where appropriate, to accommodate operational impacts beyond where facilities are proposed. The description of the affected environment for each resource topic evaluated in this EA includes a regional overview of the general vicinity and a more localized setting of proposed facilities and surrounding areas, as appropriate. The environmental consequences focus on sensitive resources that could be adversely affected in each study area.

Resource Analysis

The Air Force conducted a preliminary assessment of various resources to determine which resources warranted further evaluation in this EA (Table 3-1). Several resources did not warrant further evaluation in accordance with CEQ regulations; a brief discussion of these resources and the reasons for their elimination from further evaluation is provided below. The remaining resources (Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Water Resources) are discussed in more detail in the following sections.

Table 3-1. Resources Considered in the Environmental Analysis

Resources	***Analyzed in this EA***	
	Yes	***No***
Airspace Management and Use		✓
Air Quality	✓	
Biological Resources	✓	
Cultural Resources	✓	
Environmental Justice and Protection of Children		✓
Geology and Soils	✓	
Hazardous Materials and Waste		✓
Health and Safety		✓
Land Management and Use, Recreation, and Visual Resources		✓
Noise		✓
Socioeconomics		✓
Transportation		✓
Water Resources	✓	

Resources Eliminated from Further Evaluation

Airspace Management and Use. Airspace management and use would not be affected by the proposed action. No part of the action employs or would influence airspace operations or air traffic management on the NTTR, including the airspace overlying the NTTR. Construction and operation of additional training facilities would occur on the ground and would not conflict with overlying airspace activities. For this reason, airspace management was eliminated from further analysis.

Environmental Justice and Protection of Children. Environmental justice addresses the disproportionate effect a federal action may have on low-income or minority populations. The proposed action would not pose a risk to communities or population centers nor disproportionately affect low income or minority populations. The town of Indian Springs is the closest community to the ExpeRT Course and proposed facility improvements, but the ground combat training activities on the NTTR would not adversely affect low income or minority populations in Indian Springs. In addition, the proposed action would not create environmental health or safety risks to children because all activities would occur on the NTTR, which has restricted access. The increase in student capacity at the ExpeRT Course could benefit the nearby communities by increasing visitors to the area, but such an effect would not be disproportionate or adverse. Therefore, environmental justice and protection of children were eliminated from further analysis.

Hazardous Materials and Waste. The proposed action would entail the use of hazardous materials during construction and operation (e.g., fuel, solvents, live ordnance) and would generate some hazardous waste, but existing environmental and clean up programs at the NTTR would continue to be implemented to minimize impacts of hazardous materials or waste. Cleaning of 63C ranges is currently accomplished by Coronet Cleaning (NTTR contractor). Coronet sweeps the ranges to remove debris and maintain large target emplacement every two years. Brass residue clean up and turn in is currently accomplished by 99 GCTS personnel through 99 DRMO on an as needed basis. Personnel responsible for brass residue clean up and transport would continue to comply with NTTR safety procedures established by the range operating agency (Air Force). Similar cleanup procedures are used at Range 71.

Training-related activities would be implemented in compliance with existing Air Force instructions, Nellis AFB plans 16 (Aboveground Storage Tank Management Plan) and 35 (Creech AFB Spill Prevention Control and Countermeasures Plan, March 2009), policies, and procedures and would comply with applicable federal and state laws regulating hazardous materials and waste. Adherence to policies relating to hazardous materials and waste storage and use during operation would be monitored under the Air Force's Environmental Compliance Assessment Management Program, which requires both internal audits and examination by independent reviewers.

In addition, the proposed facilities would not be located in contaminated areas or where hazardous material or waste sites have been identified; the facilities would be specifically sited to avoid such areas. Given the enforced requirements to ensure safe handling and proper disposal of hazardous materials and waste, including recycling when feasible, the potential for adverse effects from such hazards would be low. Therefore, hazardous materials and waste were eliminated from further analysis.

Health and Safety. Effects on human health and safety related to construction and operation of the proposed action would be similar to current, on-going activities occurring at the NTTR. None of the proposed facilities would create unique or extraordinary safety issues. All facilities used for weapons firing at Range 63 and Range 71 would be on withdrawn military lands, be contained within prescribed safety zones, and would not endanger civilian populations (which are more than 10 miles away from both areas). Existing safety procedures are established by the range operating agency (Air Force) and would continue to be followed under the proposed action. Aircraft safety would not be an issue because current operations and safety procedures in the airspace overlying the NTTR would not change. Development within Creech AFB would involve activities similar to current, standard, on-going activities that already occur at the AFB. For these reasons, health and safety were eliminated from further analysis.

Land Management and Use, Recreation, and Visual Resources. The proposed action would occur entirely on withdrawn military lands within the NTTR. Development on Creech AFB would occur on previously developed land that has been zoned for military purposes. Land management and use would not change from existing military-related activities. Recreation resources would not be affected by the proposed action because recreational use of these lands is restricted and would continue to be restricted under the proposed action. Visual resources would not be affected because the study areas are not considered visually sensitive areas due to existing disturbances and man-made facilities. New facilities would be visually similar to existing facilities and would not affect the scenic qualities of surrounding mountains or be visually dominant across the landscape from public viewpoints, such as U.S. 95. Nighttime lighting of any facilities would be consistent with the Nevada Division of State Lands requirements and would be directed away from nearby roads, highways, and other public viewpoints. In summary, the proposed action would have negligible effects on land management and use, recreation, and visual resources; therefore, no further analysis is warranted.

Noise. Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying. Response to noise varies by the type and characteristics of the noise source, distance from the source, receptor sensitivity, and time of day. Noise can be intermittent or continuous and steady or impulsive, and it may be generated by stationary or mobile sources. Noise generated from construction activities associated with the proposed action would be confined to remote areas at the NTTR and in developed areas at Creech AFB. Noise from increased SF training activities would result from vehicles and small arms firing. These types of noise would remain confined to the NTTR, an area already affected by louder, more frequent noise from aircraft operations overhead. No new noise sources would be introduced to new areas, and people in local communities, such as Indian Springs, would not be exposed to substantial levels of construction or

operation noise associated with the proposed action given the distance between the proposed activities and the nearest sensitive receptors. Therefore, noise has been eliminated from further analysis.

Socioeconomics. Socioeconomic resources are the general features of the local economy, such as employment, revenue, or economic growth, that could be affected by the proposed action. The proposed action would accommodate an increase in ground combat students at the NTTR, which would increase visitation to the area throughout the year. This, in turn, could increase revenue at local restaurants, stores, and other community facilities, although the increase would not be substantial because the training facilities provide food and housing for the students. The proposed action would not directly provide new jobs in the local communities because most activities would be implemented by Air Force personnel. However, an increase in students would benefit the small communities of Beatty and Tonopah by increasing local revenues as the students are transported between Creech AFB and Range 71. Because no adverse effects are anticipated, socioeconomics has been eliminated from further analysis.

Transportation. The proposed action would generate short-term construction-related traffic and would increase traffic to Creech AFB and the NTTR as the number of students able to be trained at the facilities increases. Primary access to the training areas at the NTTR is via U.S. 95, and this highway can accommodate the anticipated level of traffic. Students would be transported from Creech AFB to Range 71 using existing routes (U.S. 95, U.S. 6, and local roads on the TTR). The anticipated traffic increase would be on the order of approximately three to four busses and four semi-trucks twice per year. This increase would be negligible compared to existing traffic conditions and would not create traffic issues or conflicts beyond existing operations. Student traffic would occur throughout the year, with periodic peaks in traffic at the beginning and end of each training session. Traffic in local communities along the highway, such as Indian Springs, could be affected by the traffic, but the effect would be minimal and temporary. Transportation onto the range by approved personnel for use and maintenance of the training facilities would increase; however, this increase would be limited to 12 times per year and would not adversely affect existing transportation patterns or resources. The existing road system and roads improved under the proposed action would be able to accommodate the increase in traffic. For these reasons, transportation has been eliminated from further analysis.

3.2 AIR QUALITY

Air quality in a given location is described by the concentration of various pollutants in the atmosphere and the climate of the region. The significance of the pollutant concentration is determined by comparing it to the federal and state ambient air quality standards. Understanding air quality in the study areas requires knowledge of (1) applicable regulatory requirements; (2) types and

sources of air quality pollutants; and (3) the extent of ongoing and proposed activities in the study areas.

Regulatory Requirements

Applicable laws and regulations for air quality, including federal, state, and local (Clark County) requirements, are described in the ExpeRT EA (Nellis Air Force Base 2006). The Nye County Air Quality Department reviews dust control plans for projects in Nye County that disturb more than 0.5 acre and is responsible for approving best practicable methods identified in the plan.

In October 2009, federal EO 13514—*Federal Leadership in Environmental, Energy, and Economic Performance*—was passed, requiring federal agencies to increase energy efficiency and consider the effects of their activities on greenhouse gas emissions, among other sustainability goals. Specific to NEPA, the EO requires federal agencies to identify and analyze impacts from energy use in NEPA documents.

Affected Environment

Regional Setting. Clark and Nye counties are in southern Nevada on the eastern side of the Sierra Nevada mountain range. This range forms a barrier to wind patterns coming off the Pacific Ocean and influences the overall climatic patterns throughout the state. Seasons in southern Nevada consist of long, hot summers with short, mild winters. Daily temperatures vary greatly due to strong surface heating and rapid nighttime cooling. The average annual temperature near Creech AFB and Range 63 is 60°F (Western Regional Climate Center 2010), which is generally representative of valley surfaces, and cooler temperatures are anticipated at higher elevations. The average annual temperature near Range 71 is 51°F, but temperatures frequently fall below zero during winter (Western Regional Climate Center 2010). Variations in precipitation are due mainly to differences in elevation and exposure to precipitation-bearing storms. Slightly more rain falls in the North Range than in the South Range, and higher elevations tend to receive significantly more precipitation than lower elevations. The study areas are in the foothills and valley floors at elevations between 3,000 and 4,800 feet, and average annual precipitation is relatively low, between 3 and 5 inches (Nellis Air Force Base 2007).

The outlying areas of Clark County have generally good air quality, but air pollutants from the Las Vegas Valley are occasionally transported outside the valley to Creech AFB, Range 63, and other northern county areas during strong northwesterly or northerly winds. Currently, Clark County, specifically the Las Vegas planning area hydrographic basin 212, is in nonattainment for particulate matter (PM10), 8-hour ozone (O_3), and carbon monoxide (CO), primarily because of the high levels of pollutants in the Las Vegas Valley. A PM10 State Implementation Plan (SIP) was developed in

2004 to provide objectives for meeting the National Ambient Air Quality Standards, and a SIP for 8-hour ozone has not yet been approved. A CO SIP was also prepared, and the County is seeking redesignation to attainment status because it currently meets CO 8-hour standards. The majority of the Silver Flag Alpha training facilities are in hydrographic basin 212 (Figure 6).

Air quality in Nye County is generally good, with localized variations in the more urbanized areas, such as Tonopah and Pahrump. Prevailing winds through these urban centers do not likely influence air quality in Range 71 because mountains surrounding the range block local wind patterns. Nye County meets the national standards for CO and 8-hour ozone and is in attainment for all pollutants. Portions of the county periodically exceed attainment standards for PM10, and, as a result, the Pahrump Valley is being managed under a Memorandum of Understanding to reduce PM10 levels (Nevada Division of Environmental Protection 2010).

Local Setting. Air quality in the vicinity of the study areas is generally good, with the exception of occasional periods of smog near Creech AFB and Range 63 due to winter northwesterly winds transporting pollutants from the Las Vegas Valley. On-range emissions sources are similar in all study areas and include emissions typical of military operations, such as convoy training vehicles along roads, weapons testing in designated ranges, aircraft, and operation of maintenance shops and equipment. Emission sources near Creech AFB include vehicle travel along U.S. 95 and nearby local roads, residential and commercial uses at Indian Springs, and other emissions common to urban areas. The major source of emissions at Creech AFB is associated with airfield operations. Strong winds can produce vagrant dust on Ranges 63C and 71 from unpaved roads and soft soils. Additional emission sources in the vicinity of Range 63 include vehicle use along U.S. 95 and nearby local roads. Emission sources near Range 71 are limited to on-range sources, due to the range's distance from heavily used roadways and urban areas. Periodic maintenance and construction activities in all study areas can temporarily affect air quality due to diesel emissions and dust from ground disturbance.

Pollutants considered in the analysis for this EA include the criteria pollutants measured by state and federal standards: CO, nitrogen oxides (NO_x), sulfur oxides (SO_x), O_3 (which volatile organic compounds [VOCs] are precursors), and PM10. The annual emission inventory for Creech AFB, Silver Flag Alpha, and Point Bravo was recently updated to document 2009 estimated emissions in these areas (Nellis Air Force Base 2010). The purpose of the inventory is to provide emissions data to support annual emission fee calculations and comply with permit requirements under the Clean Air Act and Clark County rules. Creech AFB is considered a minor source for all criteria pollutants, and all emission sources are currently in compliance with permit limits. A 2009 inventory was also completed for the Tonopah and Tolicha Peak areas on the TTR (Lopez 2010).

Table 3-2 summarizes the combined baseline emissions for Creech AFB, Silver Flag Alpha, and Point Bravo in Clark County and the estimated emissions in the Tonopah and Tolicha Peak areas in Nye County. Clark County and Nye County baseline emissions were not available for 2009; therefore, baseline emissions from 2005 are reported. Air Force activities at Creech AFB, Silver Flag Alpha, and the TTR contribute minimal emissions compared with the overall county emissions (less than 0.05 percent in Clark County and less than 0.15 percent in Nye County).

Table 3-2. Baseline Air Emissions (tons/year)

	CO	***VOCs***	***NO_x***	***SO_x***	***PM10***
Creech AFB, Silver Flag Alpha, and Point Bravo	5.71	3.20	29.56	1.37	1.21
Clark County*	311,441	44,293	73,403	52,798	85,815
% Contribution	0.0018	0.0072	0.040	0.0026	0.0014
Tonopah and Tolicha Peak	0.0085	1.76	0.039	0.0026	0.0041
Nye County*	8,987	1,523	1,048	134	7,157
% Contribution	0.000	0.12	0.0037	0.0019	0.000

Sources: Nellis Air Force Base 2010; Lopez 2010; U.S. Environmental Protection Agency 2009.
*Baseline emissions are for 2005; more recent inventories for the counties were not available.

Children, the elderly, and other health-sensitive people who have increased sensitivity to air pollution are considered to be sensitive receptors. Land uses that may attract sensitive receptors are considered sensitive uses. In the vicinity of the study areas, sensitive uses include residential uses in Indian Springs and outlying areas and military personnel working and living at Creech AFB and Range 63. Highways and recreational areas that could have sensitive receptors are fairly distant from the study areas or separated by existing development, such as in the area between Creech AFB and Indian Springs. The study areas are located on withdrawn lands, and public access is prohibited.

Environmental Consequences

Proposed Action. The proposed action would contribute to increased air pollutants at Creech AFB, Range 63, and Range 71, as a result of temporary construction activities and longer term operational emissions from construction equipment, increased vehicle use along roadways, and use of generating units during training. Construction activities would involve equipment and vehicle use that would emit pollutants into the air (CO, NO_x, SO_x), ground disturbance that would result in fugitive dust (PM10 and PM2.5), and possible demolition activities that could release hazardous materials or

chemicals into the air. Furthermore, ground disturbance and construction activities would result in temporary emissions of greenhouse gases (GHG) from construction equipment and could contribute to regional GHG emissions.

Construction and vehicle emissions at Creech AFB and Range 63 would primarily be confined to the study areas, but some pollutants could be transported south into the Las Vegas Valley, which has existing violations of air quality standards. Construction activities in Clark County would conform to the PM10 and CO SIPs and applicable permits and regulations (e.g., dust control permit). Increased emissions at Creech AFB could affect the nearby community of Indian Springs, which may include sensitive receptors. Emissions generated at Range 63 could affect travelers along U.S. 95 and local roads.

Specific equipment needs and schedules for each construction project are not known at this time, but they would be similar to the activities evaluated in the 2006 ExpeRT EA (e.g., placement of concrete slabs, trenching, road grading, range improvements). Because of the anticipated 5-year development plan for the training facilities, construction emissions would be spread out over several years, with smaller activities occurring simultaneously, resulting in minimal emissions at any one time and in any year. Estimated emissions from the 2006 ExpeRT EA were well below the *de minimis* thresholds for CO (100 tons per year), PM10 (70 tons per year), and VOCs (100 tons per year). Annual emissions for construction activities associated with the final phase of the ExpeRT Course expansion would be expected to be less than 1 ton per year for any of the criteria pollutants (Nellis Air Force Base 2006). All activities would be required to comply with existing or future permits from Clark County and would not be allowed to exceed permit requirements. Therefore, construction emissions at Range 63 would conform with the PM10 and CO SIPs and would not affect regional air quality, and a conformity analysis would not be required.

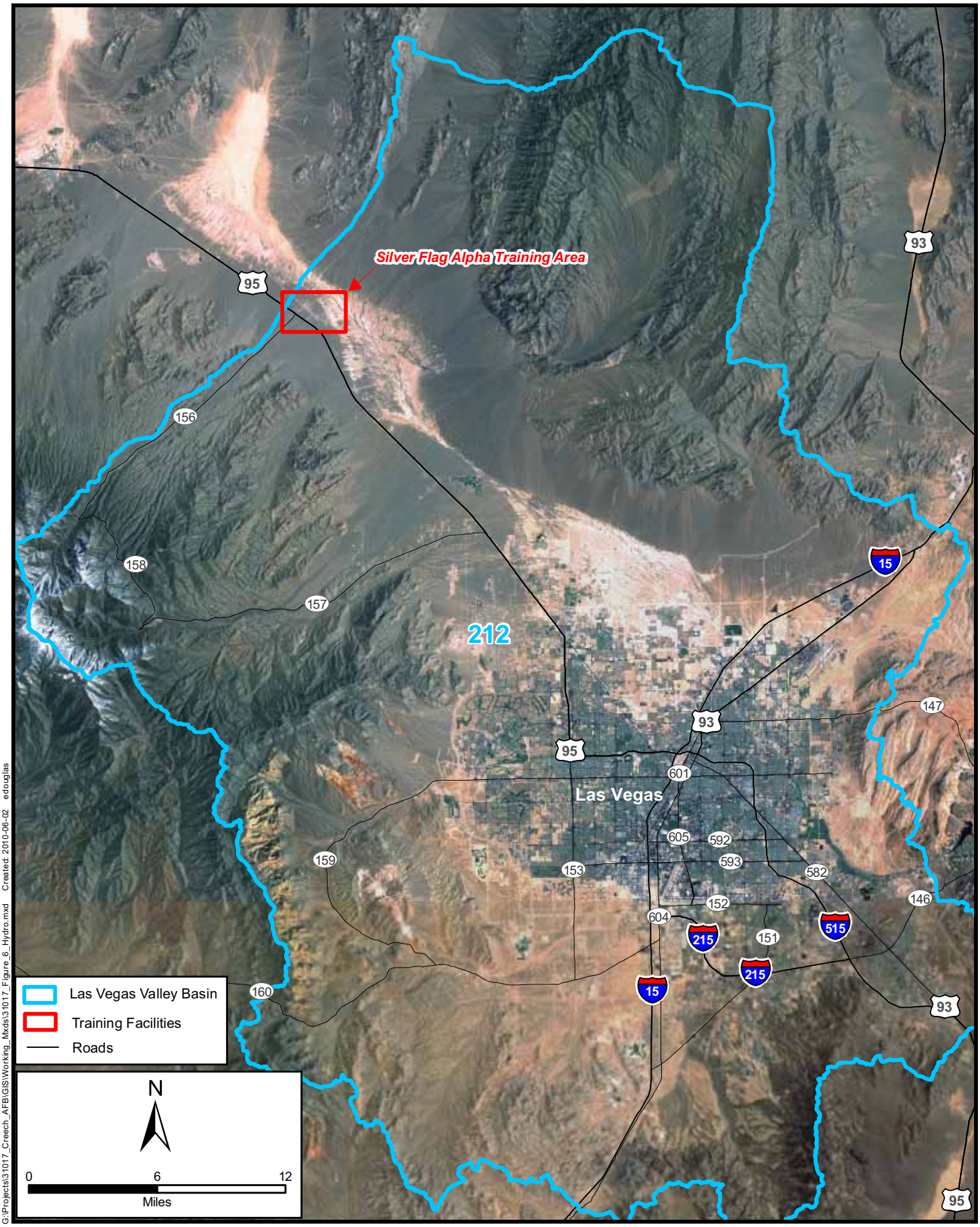
Construction activities associated with the improved convoy training route and increased vehicle travel to Range 71 would elevate air emissions in Nye County, which is currently in attainment status for criteria pollutants. However, emissions and dust at Range 71 would be confined to the TTR due to surrounding mountain ranges and would not affect regional air quality. Pollutants would likely readily disperse, reducing the concentration of localized pollutants. Furthermore, construction activities occurring at Range 71 are anticipated to be comparable to the convoy trail and road improvements evaluated in the 2006 ExpeRT EA. Emissions associated with the convoy training route would be less than 0.6 tons per year for any of the criteria pollutants (Nellis Air Force Base 2006). These emissions would be minimal and would not contribute substantially to air quality standards in Nye County. Range 71 activities would not affect sensitive receptors because of the range's distance from public facilities, highways, and recreational areas.

Indirect, long-term emissions of GHG would occur due to increased student and personnel vehicle trips and energy generation associated with the training activities. The modified training program would require travel between the study areas, requiring approximately three to four busses to transfer students between the areas and approximately two to four oversize vehicles to transport equipment twice per year. The increased student numbers would also increase vehicle travel along U.S. 95 between Las Vegas and Indian Springs, resulting in increased vehicle emissions over the long-term. In addition, travel at each study area on unpaved roads could disturb soils and generate fugitive dust.

Construction emissions from construction vehicle exhaust and fugitive dust in all study areas would be temporary and localized. Longer term vehicle emissions would be periodic throughout the year, with peaks when students begin and end their training, and would remain localized along the roadways. These emissions represent negligible ground-level releases with little initial dispersion or buoyancy, so their effects would remain in the immediate vicinity (less than 1 mile). Visibility impacts within Class I areas more than 50 miles from the study areas are not expected.

To further decrease the potential for air quality impacts, best management practices would be implemented during construction, and a dust control permit would be obtained from Clark County Department of Air Quality and Environmental Management prior to activities at Creech AFB or Range 63. A dust mitigation plan would be required for activities that disturb more than 0.25 acre. Specific construction measures would include watering disturbed areas to minimize dust, using a dust palliative, using low-emission equipment, and minimizing construction during high winds. Construction activities would be monitored to ensure no visible dust plumes exit the construction area or extend over 100 feet within the area. Construction activities at Creech AFB, Range 63C, and Range 71would conform to all applicable laws and regulations. All activities would comply with existing permits to operate for Creech AFB and Silver Flag Alpha issued by the Clark County Department of Air Quality and Environmental Management.

No-Action Alternative. Under the no-action alternative, the Air Force would not construct new facilities, modify existing facilities, or increase the number of students at Creech AFB, Range 63, and Range 71 to 8,000 students annually. Ongoing operations at Creech AFB and the ExpeRT Course would continue to generate emissions, but no new emission sources would be created. Air quality would be similar to baseline conditions described under the affected environment section.



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North State Resources, Inc.

ExpeRT Course Expansion Supplemental EA

Figure 6
Las Vegas Valley Hydrographic Basin 212

Back of figure.

3.3 BIOLOGICAL RESOURCES

Biological resources consist of living, native, or naturalized plant and animal species and the habitats within which they occur. The focus of this discussion is on special-status plant and animal species, which are defined below. A biological resources assessment was prepared in support of the EA, which included field surveys, a review of special-status species with potential to occur in the region, and a characterization of the study areas (see Appendix A).

Regulatory Requirements

The proposed action may be subject to compliance with several federal and state laws that protect biological resources, including special-status species, waters of the United States, and other sensitive biological resources. The ExpeRT EA provides an overview of most of the applicable laws (Nellis Air Force Base 2006). In addition to the Endangered Species Act and Clean Water Act, the Air Force must comply with the Migratory Bird Treat Act and applicable Nevada Revised Statutes (i.e., NRS 501, 527, 555). The Integrated Natural Resources Management Plan (INRMP) provides guidance on Air Force Actions at the NTTR and Nellis AFB to sustain military readiness while maintaining ecosystem integrity and dynamics (Nellis Air Force Base 2007).

Specifically applicable to proposed activities on Creech AFB and Range 63, a programmatic Biological Opinion (BO) was issued by U.S. Fish and Wildlife Service (USFWS) to the Air Force to address desert tortoise (*Gopherus agassizii*) impacts on the lands jointly managed by Nellis AFB and the Desert National Wildlife Refuge (U.S. Fish and Wildlife Service 2003). The BO, as amended, requires Air Force projects that may involve surface disturbance to be cleared of desert tortoises and to implement specific avoidance and protection measures. In support of the programmatic BO, the Air Force submitted a desert tortoise habitat delineation map to the USFWS on July 20, 2009, to request concurrence and to provide direction on Endangered Species Act compliance for Air Force actions on the South Range. On August 27, 2009, the USFWS concurred with the delineation of potential desert tortoise habitat and recommended that the habitat map be used to determine the need to implement measures identified in the BO (U.S. Fish and Wildlife Service 2009).

Affected Environment

Regional Setting. The study areas are in southern Nevada in the Mojave Desert Basin (Creech AFB and Range 63) and Great Basin Range (Range 71). This desert complex region is bordered by the southern Sierra Nevada on the west, the Great Basin Desert to the north, the Colorado River to the east, and the San Bernardino Mountains and the Sonoran Desert to the south. The Sierra Nevada forms a massive mountain barrier that markedly influences the climate of the state. The region is characterized by generally north-trending, linear mountain ranges separated by intervening valleys.

Precipitation in Nevada is lightest over the southern portion of the state where the NTTR is located. In valleys, the average annual precipitation is less than 5 inches. The region is subject to high-intensity storms that can generate high peak surface flows during the late winter and summer months. Runoff from precipitation is practically non-existent during the rest of the year.

The Mojave Desert is the smallest of the four North American deserts, lying primarily in California, but also including the southern quarter of Nevada and small portions of Utah and Arizona (Royo 2002). Unlike the Sonoran Desert, the lower elevations of the Mojave Desert have only one species of tree, the Joshua tree. This tree-like yucca is endemic to the Mojave Desert and usually grows at elevations of 3,500 feet above mean sea level and higher. The Mojave Desert also hosts approximately 200 other plants that are not found in the Sonoran or Great Basin deserts. Although a published flora of the Mojave Desert is incomplete, approximately 2,600 vascular plant taxa are known to occur in the Mojave Desert floristic province (excluding the higher elevations, more than 8,000 feet, of the Spring, Sheep, and Panamint Mountain Ranges), representing one of the most diverse floristic regions in the United States. Although home to about 200 endemic plant species, the proportion of the Mojave Desert flora constituting special-status taxa is relatively low (10 percent of flora). Cheatgrass, red brome, halogeton, and Russian thistle are invasive species that have been documented on the NTTR (Nellis Air Force Base 2007).

Wildlife species are more abundant in the Mojave Desert than they are in the Great Basin Desert (MacMahon 1992), which may be due to the occurrence of fewer plant species in the Great Basin Desert. Plant communities are home to specific wildlife assemblages. For example, the creosote bush community (Mojave Desert) is known to have at least 30 species of reptiles, 33 species of birds (eight of which are permanent residents), and 44 species of mammals. The blackbrush community (Great Basin Desert) has fewer species—19 reptiles, 26 birds, and 33 mammals—but it still contains diverse fauna.

Local Setting. The study areas support two general biological communities or habitat types: Sonora-Mojave-Baja Creosotebush-White Bursage Desert Scrub and Mixed Salt Desert Scrub. The Creosotebush-White Bursage Desert Scrub is the dominant habitat type at Creech AFB and Range 63. The Mixed Salt Desert Scrub is the dominant habitat type at the Range 71 study area. Descriptions of the habitats and wildlife species at Creech AFB and Range 63 are available in the ExpeRT EA (Nellis Air Force Base 2006); additional descriptions are provided in the biology report in Appendix A of this EA.

Range 63 and Creech AFB lie in the northeastern portion of the Mojave Desert at an elevation of approximately 3,100 feet. These study areas are located in Sonora-Mojave-Baja Creosote-White Bursage Desert Scrub habitat. Portions of the study areas have been disturbed by previous military

activities. The desert basin surrounding the study areas supports plant communities dominated by creosote bush and white bursage with less disturbance. Several dry washes traverse the Range 63 study area and drain toward a major wash or dry lake to the east. At Creech AFB, a drainage ditch with wetland vegetation was encountered along a road in the northeast corner of the AFB. Little vegetation is present at Creech AFB because of the regular disturbances associated with base operations and the clearing and grading of the land to support development. Range 63 is less disturbed, but the areas where facilities are located are dominated by invasive and disturbance-tolerant plants (Russian thistle and various grasses) with native vegetation dominating in the outlying areas.

The study areas do not appear to contain gypsiferous soils, and no rock outcrops or other rocky areas were observed during the field surveys. These features are important habitat components for several special-status plant and animal species known to occur in the Sonora-Mojave-Baja Creosotebush-White Bursage Desert Scrub biological community. In addition, the highly disturbed nature of the study areas reduces the suitability of the habitats for special-status plant and animal species, although species such as the western burrowing owl are known to use disturbed habitats.

The Range 71 study area is at an elevation of approximately 5,200 feet and is located within Mixed Salt Desert Scrub habitat. The blackbrush community is dominant in this area. The vegetation of the basin floor near Range 71 is typified by blackbrush, shadscale, and greasewood and may include winter fat, ephedra, Joshua tree, and hopsage. The study area is dominated by an unpaved road and targets that have resulted in varying levels of disturbance in the blackbrush community. Vast expanses of undisturbed vegetation surround the study area. Several washes also traverse the study area. Several songbirds and rabbits were observed during field surveys.

Protected Plant Species. Several state and federally protected special-status plants have been documented on or have potential to occur on the NTTR, nearby Nellis AFB, or Desert National Wildlife Refuge. These species include Las Vegas buckwheat (*Eriogonum corymbosum var. nilesil*, federal candidate), Las Vegas bearpoppy (*Arctomecon californica*, state fully protected), clokey buckwheat (*Eriogonum heermannii var. clokeyi*, state rare), and white bearpoppy (*Arctomecon merriamii*, state rare). Based on field surveys, suitable habitat for these species is not present in most of the study areas (lack of gypsiferous soils), and the plants have a low potential to occur, although portions of the study areas not specifically surveyed may contain suitable habitat (i.e., less disturbed areas at Range 63B). The State of Nevada also protects all cactus and yucca species, which are present in the study areas.

Desert Tortoise. The Mojave Desert population of the desert tortoise was listed as threatened by the USFWS on April 2, 1990. The species' range in the NTTR vicinity lies primarily within the Mojave desert scrub habitat at elevations below 4,000 feet (Nellis Air Force Base 2006). Background information on desert tortoise surveys at the NTTR are available in the ExpeRT EA. In 2009, Nellis AFB and USFWS biologists completed a delineation of desert tortoise habitat within the NTTR. All of Range 63C is in potential tortoise habitat, but Creech AFB and Range 71 are not in suitable habitat. Tortoises may occur at Range 63C, although no evidence of tortoises was observed during field surveys. The disturbed nature of the training area at Range 63C may preclude tortoises from becoming residents, but the proximity of suitable habitat surrounding the training area creates a potential for individuals to move through the area.

As a precautionary measure, which was completed prior to the 2009 tortoise habitat delineation, Nellis AFB installed an exclusionary tortoise fence completely around the existing facilities at tent city in the Range 63 study area. This tortoise fence was inspected during field surveys and determined to be in a state of disrepair. The fence has several locations where damage has created breaches in the fence-line; large gaps below the fence were also observed in several locations.

Western Burrowing Owl. The western burrowing owl (*Athene cunicularia hypugaea*) is a species native to southern Nevada that adapts well to urban environments. It is a former federal species of concern and is a state-protected species in Nevada (Nevada Administrative Code 503.050). Western burrowing owls in southern Nevada may be summer residents, winter visitors, or year-round residents (Nellis Air Force Base 2007). Burrowing owls typically nest in abandoned rodent or other small mammal burrows.

The majority of documented owl sightings at the NTTR are not in the immediate vicinity of the study areas. During biological surveys in support of previous projects at the Indian Springs Air Force Auxiliary Field (now known as Creech AFB), one western burrowing owl was observed (Nellis Air Force Base 2007). Small mammal burrows (necessary to support western burrowing owls) are sparse in the study areas. However, the Sonora-Mojave-Baja Creosotebush-White Bursage Desert Scrub habitat, found in the vicinity of the Creech AFB and Range 63 study areas, provides suitable habitat for burrowing owls. It is unlikely that burrowing owls will breed in the study areas due to a lack of small mammal burrows; it is more likely that burrowing owls will occur nearby and possibly forage in the study areas.

Nesting Migratory Birds. Migratory birds may nest in Joshua trees, shrubs, and other vegetation in and around the study areas. Species known to occur in the study areas that could potentially nest include mourning dove, sage sparrow, black-throated sparrow, roadrunner, lesser nighthawk, Gambel's quail, and Scott's oriole.

Environmental Consequences

Proposed Action

Special-Status Plants. Ground disturbance associated with installation of targets, building construction, and training operations in habitat suitable for special-status plants could remove individuals or render the habitat unsuitable. Special-status plants (excluding cacti and yucca) have a low potential to occur in the study areas. Cacti and yuccas are known to occur in the study areas and would need to be removed and transplanted/relocated to accommodate the new training facilities. The INRMP provides guidelines to evaluate impacts on rare plants and implement measures to prevent or minimize adverse impacts. During the planning or implementation of any component of the proposed action, the natural resource manager should be consulted concerning the following:

- Location of any rare plant populations that could be potentially affected by the action.
- If rare plant populations are identified and could be affected by the action, the action should be modified to avoid or minimize impacts to the rare plants where practical.
- If impacts to rare populations cannot be avoided, methods of mitigation should be developed, which may include transplanting the plant population to another suitable habitat.
- If plants are transplanted to a new location, the location should be selected such that it can be avoided by future impacts if practical.

In compliance with the INRMP, once details on building footprints and target locations at the study areas are known, focused surveys for special-status (rare) plants, including cacti, yucca, and other special-status species, will be conducted by a qualified botanist. Plant surveys would be conducted during the appropriate blooming period to locate individuals or populations that need to be protected or transplanted. Consultations with the natural resource manager should commence once detailed project information is known.

Desert Tortoise. No desert tortoises or their burrows have been identified in the study areas, but construction activities and training operations at Range 63 have potential to affect the desert tortoise and its habitat. As part of the proposed action, the Air Force would install a new tortoise exclusion fence around tent city to prevent tortoises from entering the area and minimize the potential for tortoise impacts. The fence should be installed under the supervision of a qualified biologist and following tortoise fence standards provided by the USFWS. Other activities outside this fence could result in direct impacts on the desert tortoise or its burrows and could reduce the amount of suitable habitat in the area. The loss of habitat would be minimal because most new facilities would be installed in previously disturbed areas, with minimal vegetation removal. Activities at Creech AFB

and Range 71 are not expected to affect the desert tortoise because the areas do not support suitable habitat (Creech AFB) or are outside the tortoise's distribution range (Range 71).

Based on the programmatic BO the likelihood of tortoise presence in the study areas is low; however, protective measures should be implemented to minimize impacts on desert tortoises. The following measures, outlined in programmatic BO and subsequent amendment, will ensure that, if desert tortoises are present, they would not be harmed:

- Provide desert tortoise awareness training to all construction and project-related personnel who may travel through potential desert tortoise habitat. This training should provide information on how to identify the tortoise and potential burrows as well as provide information regarding who to contact if a tortoise (or sign of tortoise) is encountered.

- A qualified biologist will conduct pre-construction clearance surveys for desert tortoises within 500 feet of areas to be disturbed at Range 63 no more than 15 days prior to the initiation of construction activities. If tortoises are found, they will be removed from the area by a qualified biologist, and the construction area will be monitored to ensure tortoises do not return to the area. As an alternative option, exclusionary fencing can be installed prior to construction activities as a preventative action. No monitoring would be necessary if fencing is installed before construction. Desert tortoise exclusionary fencing will be at least 18 inches high and must be installed flush to the ground along the entire perimeter. The preferred option is to clear the construction area of desert tortoise and use a monitor during construction.

- On a case by case basis, as determined by the Nellis AFB natural resources manager and the USFWS, and based on the size (acreage) of and the type of activities that will be conducted, desert tortoises found and removed from the construction area and perimeter areas may be fitted with a radio transmitter. Tortoises may be moved up to 1 mile from the construction area out of harm's way. Tortoises fitted with a radio transmitter will be monitored and data collected until project construction is completed to determine movement and possibility of returning to the area of capture. Returning tortoises will continue to be moved out of harm's way until completion of the earth disturbing activities. Telemetry data will be collected during the construction monitoring phase and as possible for the life of the transmitter or until the transmitter is removed from the tortoise. Telemetry data collected on desert tortoise moved out of harm's way will be provided to the USFWS.

- A qualified desert tortoise monitor will be present on the construction site, during all construction/earthmoving activities until the activities are completed.

- Impose a speed limit of 25 miles per hour in desert tortoise habitat. Speed limit signs will be posted on roads that enter tortoise habitat and should be monitored to ensure that the speed limit is enforced.

- Rehabilitate any temporary impacts to desert tortoise habitat to preconstruction conditions or pay a per-acre remuneration fee as specified by the USFWS.

Western Burrowing Owl. No western burrowing owls have been identified in the study areas, and small mammal burrows typically used by this species are generally lacking. However, suitable habitat is present in the vicinity of Creech AFB and Range 63, and burrowing owls may establish territories in the vicinity of these study areas. Construction activities and training operations within the vicinity of burrowing owl territories (occupied burrows and adjacent areas) could result in adverse impacts on western burrowing owls, if present.

The following measures are recommended to minimize or avoid impacts on burrowing owls:

- Pre-construction surveys for western burrowing owls within 500 feet of the Creech AFB and Range 63 construction areas will be conducted by a qualified biologist no more than 15 days prior to the initiation of construction activities. Survey protocol will follow the guidelines set forth in the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 1995) or established in consultation with the Nevada Department of Wildlife. If no western burrowing owls are detected, no further measures are necessary. If burrows used by western burrowing owls are identified within the 500-foot buffer, the burrows will need to be protected from disturbance.

- Burrows occupied by western burrowing owls, and a 250-foot buffer around the burrow, will not be disturbed during the nesting season (March 1 through August 31) unless a qualified biologist verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

- If burrowing owls must be moved away from the construction area, passive relocation techniques (e.g., one-way doors) will be used rather than trapping. All passive relocation measures will be implemented by a qualified biologist. Construction activities within 250 feet of burrows (formerly occupied by burrowing owls) containing passive relocation devices will not be initiated for a minimum of 15 days after installation or as determined appropriate by a qualified biologist, based on observations of the owls successfully relocating to alternate burrows.

Nesting Migratory Birds. The study areas provide suitable nesting habitat and may support nesting migratory bird species protected under the Migratory Bird Treaty Act. Removal of trees, shrubs, or other vegetation during the nesting season can cause direct impacts to nesting birds. Construction noise, vibration, and increased human activity can cause indirect impacts (e.g., nest abandonment, mortality of chicks, etc.). The following measures are recommended to avoid or minimize adverse impacts on nesting migratory birds:

- If practicable, construction activities (especially removal of woody vegetation) will be conducted outside of the nesting season (i.e., conduct construction from August to February). If construction activities are conducted outside of the nesting season, no further measures are necessary.

- If construction activities are scheduled during the nesting season, pre-construction surveys for active migratory bird nests within the construction area and a 300-foot buffer will be conducted by a qualified biologist within 15 days prior to the initiation of construction activities. If active nests (more than half completed) are identified within the surveyed area, appropriate conservation measures (as determined by a qualified biologist) will be implemented. These measures may include, but are not limited to the following: establishing a construction-free buffer zone around the active nest site, biological monitoring of the active nest site, and delaying construction activities in the vicinity of the active nest site until the young have fledged.

No-Action Alternative. Under the no-action alternative, the Air Force would not construct new facilities, modify existing facilities, or increase the number of students at Creech AFB, Range 63, and Range 71 to 8,000 students annually. Ongoing operations at Creech AFB and the ExpeRT Course would continue to have potential to affect special-status plant and animal species, but they would comply with applicable regulations, plans, and existing permits, including the programmatic BO for desert tortoise.

3.4 CULTURAL RESOURCES

Cultural resources include prehistoric, historic, and traditional cultural resources or properties. Nellis AFB conducted a Class III cultural resources survey of Range 63C, encompassing approximately 4,026 acres, to determine the potential for cultural resources and assess eligibility for listing to the National Register of Historic Places (NRHP) (Hughes 2010). A cultural resources inventory is underway for the study area at Range 71. A cultural resources inventory was completed for Creech AFB in 1996 according to Nellis AFB.

Regulatory Requirements

Cultural resources management is directed by federal and state laws, primarily the National Historic Preservation Act, which is described in the ExpeRT EA (Nellis Air Force Base 2006).

Affected Environment

Regional Setting. Human use of the Great Basin dates back to approximately 12,000 years ago (Roberts, et al. 2007). During the earlier periods, Native Americans relied heavily on hunting large game for subsistence. As the region became increasingly more arid, they broadened their resource base and began to exploit more plants and other kinds of game. By about 9,000 years ago, Native Americans began to cluster around permanent water sources. The main tribe in southern Nevada was the Southern Paiute, whose territory encompassed the Las Vegas and Pahrump valleys and extended into part of Amargosa Valley. Primarily foragers, with varying degrees of dependence on horticulture, the Paiutes would congregate near bodies of water at different times of the year to collect pine nuts and agave and to hunt mountain sheep, deer, and small game. Few records exist of these nomadic peoples, most likely due to violent interactions with neighboring tribes and territorial loss from invasive Spanish and Mexican settlers who established territories in the area in the 16th century.

During the mid-1800s, southern Nevada became home to Mormon settlers intent on expanding their religious territory and bringing their doctrine to the local native populations (Roberts, et al. 2007). Expansion of settlers to the area brought the formation of the Old Spanish Trail, which served as a popular trading route between Santa Fe and Los Angeles. By the late 1850s, the small Las Vegas Valley community focused on ranching and farming to supply regional mining interests. In the Las Vegas, Moapa, and Virgin Valleys, farming communities continued to develop from the 1850s until the early 1900s. Mining ventures in southern Nevada were typically short-lived, and most of the areas survived as transportation hubs or ranching centers.

Railroad development began in the Las Vegas Valley in the early 1900s. Tent towns sporting saloons, stores, and boarding houses, were developed to entertain and accommodate men working on the railroads. The Los Angeles, San Pedro, and Salt Lake railroad were completed in 1905, all later engrossed by the Union Pacific Railroad.

Local Setting. The survey of Range 63C identified three prehistoric and eight historic sites (Hughes 2010). Artifact assemblages at the prehistoric sites indicate that the area was likely used for hunting small animals. Processing tools, such as grinding implements, knives, pounding stones, and roasting pits, were not present at any of the prehistoric sites. Based on the lack of these tools, these sites were not likely used for foraging purposes or temporary settlements. Seven of the historic sites were associated with 18 miles of the historic Las Vegas and Tonopah (LV&T) Railroad alignment. These

sites contain scatters of small containers and bottles, representative of smuggling activities that occurred on railroad-associated sites of that era. Remnants of a historic structure are located west of the LV&T Railroad. This site contains configurations of Owens Siding and was likely dismantled 90 years ago. Due to factors, such as erosion and artifact collecting, a building imprint is no longer visible.

All sites were assessed for NRHP eligibility and were determined to be ineligible, pending concurrence from the State Historic Preservation Officer. All information from the sites' limited surface components have been recorded. No eligible sites are known to occur in the study area at Creech AFB. The survey for Range 71, conducted as a separate project due to the large differences in cultural resources and distance between Range 63C and Range 71, is in process. The environmental context and the presence of a vast existing target complex indicate very low potential for the presence of eligible sites.

Environmental Consequences

Proposed Action. Under the proposed action, construction and ground disturbing activities in each study area could expose or damage buried cultural resources or human remains. Specific activities that involve trenching or digging, such as installation of utility lines or the groundwater well, have the greatest potential to affect buried resources. However, construction activities would primarily occur on previously disturbed lands, reducing the potential for impacts on cultural resources.

Documented resources at Range 63C were assessed for NRHP eligibility and were determined to be ineligible. Based on these conclusions, previous studies at Creech AFB, and the low potential for eligible resources at Range 71, no eligible historic properties are expected to be affected by the proposed action.

To protect cultural resources, the Air Force will be required to comply with Section 106 of the National Historic Preservation Act (36 CFR 800) and laws applicable to protecting cultural resources and human remains and will need to consult with the State Historic Preservation Officer and the Advisory Council for Historic Preservation. Compliance with these laws may require implementation of mitigation measures, such as use of tribal representatives and archaeologists for construction monitoring, data recordation or recovery, or preservation of historic properties. If cultural resources or human remains are identified during ground disturbing activities, these activities would be halted, and a qualified archaeologist or tribal representative would be contacted to assess the find; the State Historic Preservation Officer, Native American tribes, and County coroner may be consulted to determine further actions. Portions of the study areas that have not been previously surveyed will be examined by a certified archaeologist prior to any ground disturbing activities in accordance with the Cultural Resources Management Plan (Nellis AFB Plan 126-7, Nellis Air Force Base 1998). Any

mitigation measures identified through the consultation process or further studies will be implemented prior to activities that could affect the resources.

No-Action Alternative. Under the no-action alternative, the Air Force would not construct new facilities, modify existing facilities, or increase the number of students at Creech AFB, Range 63, and Range 71 to 8,000 students annually. Ongoing operations at Creech AFB and the ExpeRT Course would continue to disturb the ground and could expose or disturb buried cultural resources. All future actions would comply with applicable laws and regulations, including the Cultural Resources Management Plan (Nellis AFB Plan 126-7). Impacts on eligible cultural resources are not anticipated, and any new projects in previously undisturbed areas would require a cultural resources inventory.

3.5 GEOLOGY AND SOILS

The geology of an area influences its ability to support structures and defines the underlying material that makes up the earth and that may cause seismic or other hazards. Soil, in general, refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability of the ground to support structures and facilities. Paleontological resources may be found in underlying geologic formations and are considered a sensitive resource.

Regulatory Requirements

The Paleontological Resources Preservation Act was proposed in the 110th Congress (H.R. 554), but did not become law until the Omnibus Public Land Management Act (PL 111-11) was passed in 2009. The act provides for the protection of Fossils of National Significance on federal lands and prohibits the excavation, removal, exchange, transport, or any such activity that would result in damage to paleontological resources before first securing a permit from the Secretary of the Interior.

The Uniform Building Code (UBC) contains provisions that pertain to the seismic design of both structural components and nonstructural components. The UBC requires building components to be built to resist moderate earthquakes without significant structural damage and to resist severe earthquakes without collapse. Furthermore, additional regulatory guidance related to soils is provided indirectly through the management and protection of air quality and water resources. These include the Clean Air Act and Clean Water Act (see Sections 3.2 and 3.6 for further details).

Affected Environment

Regional Setting. The study areas lie in the Great Basin and Mojave deserts, both of which are a part of the Basin and Range physiographic province. This province is characterized by interspersed north-south trending, rugged mountain ranges and flat valley floors. Elevations throughout the province vary substantially from about 1,900 feet in the valleys to over 8,500 feet in the surrounding mountain ranges. Elevations in the study area range from 3,000 to 4,800 feet. Topographic features in the north appear less pronounced, and valleys appear broader than those in the south. This is a result of the province's active volcanic past. Heavy accumulations of volcanic material have buried the dramatic features of the Basin and Range that are more evident in the south. Several active and inactive faults occur in southern Nevada; however, the Yucca fault in the south-central portion of the NTTR is the only active fault in the vicinity of the study areas. Other nearby faults include the Carpetbag fault and Pahranagat fault.

Tertiary and quaternary materials, like those found in the study areas, have high fossil-containing potential for algae, echinoderm, and fusilinid. Quaternary materials also have the potential to contain common types of fossils, such as mollusks, corals, barnacles, algae, and other invertebrates. Spring, playa (dry lake), and lake deposits have high paleontological potential for mollusk shells. Creech AFB and Range 63 are in alluvium-filled valleys, which contain thick deposits of tertiary material originating from erosion of the adjacent mountain ranges and faulting activities that uplifted the underlying Paleozoic bedrock (Nellis Air Force Base 2007). Range 71 is in an alluvium-filled playa derived from carbonate parent material. Paleozoic carbonate rocks mixed with smaller amounts of quartzite, sandstone, and shale comprise the ranges that surround all study areas.

Local Setting. Creech AFB is located in the southern portion of Indian Springs Valley. The valley is bound by the Pintwater Range to the east and the Spotted Range and Buried Hills to the west. Range 63 is in the southern end of Three Lakes Valley, with the Pintwater Range to the west and the Desert Range to the east and north. The geologic terrane of the mountains surrounding both the Indian Springs and Three Lakes valleys is dominated by Paleozoic rocks, including limestone, dolomite, shale, and quartzite (Longwell et al. 1964). Soils in these valleys are derived from alluvial deposits and are typically fine-grained fertile soils that are easily eroded in areas not protected by desert pavement. The primary soil association at Creech AFB and Range 63 is Tencee. Tencee soils are well-drained, moderately permeable soils, typically found on slopes ranging from 0 to 40 percent (Natural Resources Conservation Service 2008).

Range 71 is on the eastern portion of Stonewall Flat, an alluvial deposition extending from Stonewall Mountain. This area is surrounded by Stonewall Mountain to the south, the Cactus Ranges to the east, Ralston Valley to the north, and Goldfield Hills to the west. Geologic features around Range 71 include playas and small outcroppings of limestone. Unsel and Cirac soils associations underlie

Range 71. These soils are very deep and well-drained silty soils characteristic of those that develop from alluvial processes. Unsel soils are typically present along fan remnants and fan skirts on slopes ranging from 0 to 30 percent. Cirac soils are present along alluvial flats, lake plains, lagoons, and fan skirts, and on 0 to 4 percent slopes.

There are no known records of paleontological resources in or near the study areas.

Environmental Consequences

Proposed Action. Construction and ground disturbing activities would occur in all study areas and could involve vegetation removal and grading activities. Construction activities would primarily occur on previously disturbed lands with little vegetation present. Where vegetation removal and grading are necessary, soils would be temporarily exposed to water and wind erosion, which could result in fugitive dust, soil erosion, and sediment in runoff. Soils found in the study areas have a moderate potential for water erosion, and sandier soils, such as those in dry washes and on the eastern portion of Range 63C, have a high potential for wind erosion and dust generation. Operation of construction equipment on unpaved roads would also disturb soils and could create fugitive dust. However, as described under Section 3.2, Air Quality, dust mitigation plans would be implemented to reduce the potential for dust. Furthermore, implementation of best management practices such as proper grading, stabilization, straw bales and other devices to channel storm water runoff, and watering construction sites to limit fugitive dust would minimize adverse effects on soils.

The study areas contain tertiary and quaternary materials, which have high fossil-containing potential. Although no paleontological resources have been documented in or near the study areas, paleontological resources could be exposed or disturbed during ground disturbing activities. Most construction activities would require little ground disturbance, although some trenching or pipe installation may be required that could affect paleontological resources, if present. If paleontological resources are discovered during construction, all activities in the immediate vicinity would be halted, and a qualified paleontologist would be consulted to assess the resources and to determine whether consultation with the Secretary of the Interior is warranted. Construction activities would comply with the Cultural Resources Management Plan (Nellis AFB Plan 126-7).

The study areas are in an area of low seismic activity, but in the event of seismic activity from nearby faults, new buildings or structures could be moderately to severely damaged. To prevent against seismic damage, all buildings and structures would be designed to comply with the seismic stability requirements of the area, as identified in the UBC. The UBC requires buildings to be built to resist moderate earthquakes without significant structural damage and to resist severe earthquakes without collapse.

No-Action Alternative. Under the no-action alternative, the Air Force would not construct new facilities, modify existing facilities, or increase the number of students at Creech AFB, Range 63, and Range 71 to 8,000 students annually. Ongoing operations at Creech AFB and the ExpeRT Course would continue to disturb soils in exposed areas, but they would comply with regulations and existing permits. The potential for a geologic hazard to affect training facilities would remain low, and paleontological resources would have potential to be discovered during training activities that disturb the ground.

3.6 WATER RESOURCES

Water resources include surface and groundwater hydrology and water quality. Lakes, rivers, and streams constitute surface water resources that are important for economic, ecological, recreational, and human health reasons. Groundwater is used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition. Attributes of water resources considered in this EA include hydrologic setting, availability, use, flood hazard, and adjudicated claims to water rights for both surface and groundwater.

Regulatory Requirements

Applicable federal, state, and local regulations for water resources management, including the Clean Water Act, Safe Drinking Water Act, and Nevada Administrative Code, are described in the ExpeRT EA (Nellis Air Force Base 2006).

Affected Environment

Regional Setting. Clark and Nye counties are relatively arid because of minimal precipitation and high evaporation rates. Surface water in the region is primarily from runoff of precipitation and springs at higher elevations. Most precipitation occurs during summer and winter storms and forms ephemeral streams that flow for varying amounts of time, from hours to weeks. Most of these ephemeral streams drain internally into playas found throughout the region. The study areas lie in three watersheds; Creech AFB is in the Indian Springs Valley Basin, Range 63 is in the Southern Three Lakes Valley Basin, and Range 71 is in the Stonewall Flat Basin. Aside from Range 63, which flows into the Colorado River via the Las Vegas Wash, these watersheds are closed basins, limited to internal drainage only (i.e., not entering the ocean).

Average annual precipitation in the study areas ranges from 3 to 5 inches. During winter and summer storms, sudden heavy rainfall may occur. Large quantities of precipitation can quickly saturate the soils, resulting in large volumes of runoff from the mountains and foothills and flash flooding or ponding in valleys and other low-lying regions, such as playas found near the study areas.

Groundwater in the Basin and Range physiographic province occurs within two interconnected aquifer systems: a deep regional system and a shallow system confined to individual basins and watersheds. Carbonate rocks that compose the Great Basin are highly permeable and support extensive regional groundwater flow systems. Recharge to these aquifer systems comes mainly from the infiltration of winter precipitation that falls in the surrounding mountain. Groundwater discharge occurs primarily through evapotranspiration from the valley floors and spring discharge.

The state of Nevada manages groundwater rights in Clark County, in both Indian Springs and Three Lakes valleys (Southern Nevada Water Authority 2008). Groundwater pumping in Clark County occurs at 100 permitted municipal wells, and these wells supply 10 percent of southern Nevada's water needs. The remaining 90 percent is taken from the Colorado River (Southern Nevada Water Authority 2008). Primary water use within both basins is pumped for domestic uses.

Local Setting. Surface waters originating at higher elevations drain into the low-lying depressions in or near the study areas. At Creech AFB, these waters generally drain to the north and into Indian Springs Valley. At Range 63, surface waters drain south into the Las Vegas Valley. Surface waters at Range 71 generally drain northwest in the direction of Tonopah.

Surface water features, such as ephemeral playas and dry washes, exist near all study areas. A small drainage ditch with wetland vegetation occurs west of the proposed power projection platform on Creech AFB. Alluvial washes occur along the eastern portion of Range 63. These washes are extensions of a dry lake at the southern end of Three Lakes Valley. A dry lake occurs west of Range 71. These low-lying depressions temporarily fill with water during large precipitation events.

Creech AFB operates three groundwater pumping wells and has water rights to 154,140 gallons of water per day or 172.57 acre-feet per year (U.S. Air Force 2008). As of 2008, Creech AFB used approximately 61,000 gallons per day, which leaves 93,000 gallons per day free for additional use (Nellis Air Force Base 2008). At this rate, the existing groundwater supply can support between 2,700 and 3,400 additional personnel (U.S. Air Force 2008). A groundwater well is located at the cadre area on Range 63C (see Figure 2 in Chapter 1).

Environmental Consequences

Proposed Action. Construction activities in each study area would disturb soils and could discharge sediment and other pollutants in runoff, which could be transported into nearby surface water features. These activities would not affect surface water flow or drainage and would not result in direct impacts on the dry washes and dry lakes in the vicinity of the study areas. To prevent water quality impacts, standard best management practices to prevent pollutants in runoff would be implemented during construction. No stockpiling or equipment storage should not occur within 50

feet of the drainage features to prevent the chances of accidental contamination and transport of chemicals such as fuels or fill material.

Direct impacts (i.e., placement of fill) on waters of the United States or wetlands are not anticipated during construction activities or training operations at Creech AFB or Range 71. Surface water features at these study areas are not expected to fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE), based on the descriptions of these areas in the INRMP. In addition, the surface water features in the vicinity of these study areas can be avoided by construction, and no facilities are proposed to be located in the drainage ditch at Creech AFB.

Culverts associated with road improvements at Range 63 may require the placement of fill material (concrete or similar material) in dry washes. Prior to any construction activities, Nellis AFB personnel would meet with the USACE at the project area(s) at Range 63 to determine if a delineation of waters of the United States should be prepared and if a Section 404 permit and Section 401 water quality certification may be required prior to implementation of the activities. All terms and conditions of the Section 404 permit, if needed, would be adhered to during construction.

The proposed action could reduce the amount of groundwater recharge in the study areas as a result of the new buildings and pavement limiting surface water infiltration. However, surface water infiltration has historically been a minimal source of groundwater recharge in the study areas, due to low average annual precipitation and lack of year-round surface waters. Therefore, impacts to groundwater recharge would be minimal and localized.

Operation of a new groundwater well at Range 63C would withdraw water from the local groundwater aquifer. Water rights for the well would be transferred from another well in the same aquifer operated by Nellis AFB. Unused rights would be adequate to meet the demand from the increased student capacity without the need to request new rights from the State Water Engineer. The specific design of the well would be based on the projected demand. The transfer of rights would be approved by the State Water Engineer prior to construction of the well. The new groundwater well is not expected to substantially affect the groundwater aquifer or result in excessive pumping of water that is not authorized.

No-Action Alternative. Under the no-action alternative, the Air Force would not construct new facilities, modify existing facilities, or increase the number of students at Creech AFB, Range 63, and Range 71 to 8,000 students annually. Ongoing operations at Creech AFB and the ExpeRT Course would continue to result in ground disturbance and potential discharges into surface waters, but all activities would comply with applicable regulations and permits. Groundwater supply would be similar to current conditions, with sufficient water and rights to meet the demands of the existing student capacity.

CHAPTER 4
CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.1 CUMULATIVE EFFECTS

Scope of Cumulative Effects Analysis

The scope of the cumulative effects analysis in this EA encompasses a similar geographic extent as the analysis in the ExpeRT EA (Nellis Air Force Base 2006). This cumulative effects analysis also encompasses Range 71. The ExpeRT EA describes related actions at Creech AFB and Range 63. In addition to the projects discussed in the cumulative analysis in the 2006 ExpeRT EA, the following projects were considered for analysis of cumulative impacts for this EA:

- Upper Las Vegas Wash Conservation Transfer Area: The U.S. Bureau of Land Management is preparing a Supplemental Environmental Impact Statement for the establishment of a conservation area in North Las Vegas, approximately 15 miles southeast of Range 63.

- Solar Energy Right-of-Way Projects: The Department of Energy is proposing rights-of-way for various solar energy projects along U.S. 95 near Indian Springs and U.S. 6 near Tonopah.

- Upgrade of the Indian Springs Collection and Treatment System: The Air Force and Clark County Water Reclamation District recently completed an Environmental Assessment that evaluated the proposed upgrades to the Indian Springs wastewater treatment plant. Creech AFB will tie into the upgraded system and close its treatment facilities.

- Southwest Intertie Project: Idaho Power Company and Great Basin Transmission are working with the U.S. Bureau of Land Management to install a power line along U.S. 93 (30 miles east of Range 63) through Nevada.

- Creech AFB Area Development Plan: The Air Force is in the process of updating the area development plan for Creech AFB, which will incorporate the proposed facilities described in this EA and provide direction for new facilities that may be needed in the future to accommodate changes in the AFB operations.

- Desert National Wildlife Refuge Complex Comprehensive Conservation Plan: The USFWS is in the process of implementing the comprehensive conservation plan for the Desert

National Wildlife Refuge Complex, which includes the Desert National Wildlife Refuge that overlaps the NTTR.

- Las Vegas Resource Management Plan Revision: The U.S. Bureau of Land Management is in the process of revising and updating its resource management plan for the Las Vegas area, which includes land near Range 63.

Cumulative Effects Discussion

The proposed action would result in minor, but adverse, impacts on air quality, biological resources, soils, and water resources and could adversely affect cultural resources. Other projects listed above and ongoing operations at the NTTR could result in similar types of impacts, and, when combined with the proposed action, these impacts may become substantial. Depending on the specific nature of each project's activities and the timing of the activity, impacts may include increased emissions during construction activities and from traffic, modifications to desert tortoise habitat, potential effects on other special-status species, damage to buried or previously undiscovered cultural or paleontological resources, soil disturbance, increased runoff, discharge of pollutants into water bodies, or increased withdrawal of groundwater. Each federal project would comply with NEPA, and the agencies would be required to comply with applicable federal, state, and local laws and regulations to minimize impacts and protect resources. With implementation of mitigation measures similar to those described for the proposed action, cumulative impacts would not be substantial.

The activities, when evaluated with the proposed action, would not generate additive cumulative effects in the region. Because implementation of the proposed action and other actions would result in temporary or very minor impacts to the resources analyzed, it is not anticipated that the proposed action, when combined with other past, present, or future proposed actions, would have a negative cumulative effect on other resources.

4.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The proposed action would result in similar irreversible and irretrievable commitments of resources as described in the ExpeRT EA (Nellis Air Force Base 2006). Additional commitments are not anticipated.

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APPENDIX A

Biological Resources Assessment

EXPERT COURSE EXPANSION

Biological Resources Assessment

Nevada Test and Training Range,
Nellis Air Force Base, Nevada

January 2010

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Table of Contents

ExpeRT Course Expansion

INTRODUCTION 1

Proposed Action 1

Study Area Locations 1

METHODOLOGY 3

Background Research 3

Field Investigation 7

REGULATORY FRAMEWORK 7

Endangered Species Act 7

Migratory Bird Treaty Act 8

Clean Water Act 8

Nevada Revised Statutes 8

Integrated Natural Resources Management Plan – Nellis Air Force Base 9

BIOLOGICAL SETTING 9

Biological Communities 10

Special-Status Species Assessment 12

Nesting Migratory Birds 14

Noxious Weeds and Invasive Plant Species 14

Jurisdictional Waters 15

DISCUSSION AND RECOMMENDATIONS 15

Potential Impact 1: Protected Plants 15

Potential Impact 2: Desert Tortoise 16

Potential Impact 3: Western Burrowing Owl 17

Potential Impact 4: Migratory Birds 18

Potential Impact 5: Jurisdictional Waters 18

REFERENCES 20

FIGURES

Figure 1. Creech Air Force Base 2

Figure 2. Range 63C Improvements 4

Figure 3. Target Practice Ranges 5

Figure 4. Range 71 Convoy Road Corridor 6

ATTACHMENTS

Attachment A: U.S. Fish and Wildlife Service Species List

Attachment B: Nevada Natural Heritage Program List

ExpeRT Course Expansion

Biological Resources Assessment

INTRODUCTION

This biological resources assessment report provides background information on biological resources in support of the Supplemental Environmental Assessment for the Expeditionary Readiness Training (ExpeRT) Course Expansion at Nellis Air Force Base (AFB) in southern Nevada. This report contains an overview of the proposed action and study areas; a description of the regulatory framework, study methodology, and biological setting; and a summary of recommendations for compliance with applicable laws and regulations. The purpose of this report is to characterize biological resources in the study areas, with emphasis on sensitive biological resources, including federal- and state-listed species, other special-status species, and jurisdictional waters. North State Resources, Inc. (NSR) prepared this report on behalf of Nellis AFB and in coordination with AFB staff.

PROPOSED ACTION

The U.S. Air Force (Air Force) proposes to construct and improve facilities to fulfill student training demands at the ExpeRT Course, part of the Security Forces (SF) Regional Training Center (RTC) based at the Nevada Test and Training Range (NTTR). Specifically, the expansion of existing SF facilities would occur at Creech AFB, Range 63C, part of Range 63A, and Range 71. New facilities at Creech AFB would include administrative buildings and a training and exercise area. Range 63C improvements would include new and expanded facilities at the Military Operations in Urbanized Terrain (MOUT) village, tent city, cadre area, vehicle yard, and target practice ranges. New target practice ranges would be established on Range 63A, adjacent to the existing ranges on Range 63C. A convoy route would be improved on Range 71 to support SF training, including road improvements and new targets.

STUDY AREA LOCATIONS

The study areas discussed in this report include Creech AFB, Range 63C, the southern portion of Range 63A, and the southern portion of Range 71. These study areas are located within the NTTR, which comprises approximately 2.9 million acres in southern Nevada. The NTTR contains two functional areas: the North Range and South Range, both of which are further divided into sub-ranges. Creech AFB and Ranges 63C and 63A are part of the South Range in Clark County. Range 71 is part of the Tonopah Test Range (TTR), a sub-range of the North Range, in Nye County.

Creech AFB encompasses approximately 2,000 acres on the north side of U.S. Highway 95 (US 95), north of the community of Indian Springs. The AFB is located on the *Indian Springs, Nevada* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Township 16 South, Range 56 East, Sections 5, 37, 38, 39, 40, 41, 42, and 43 as well as Township 15 South, Range 56 East, Section 33). Within the Creech AFB study area, three smaller areas have been designated for expansion activities (Figure 1).

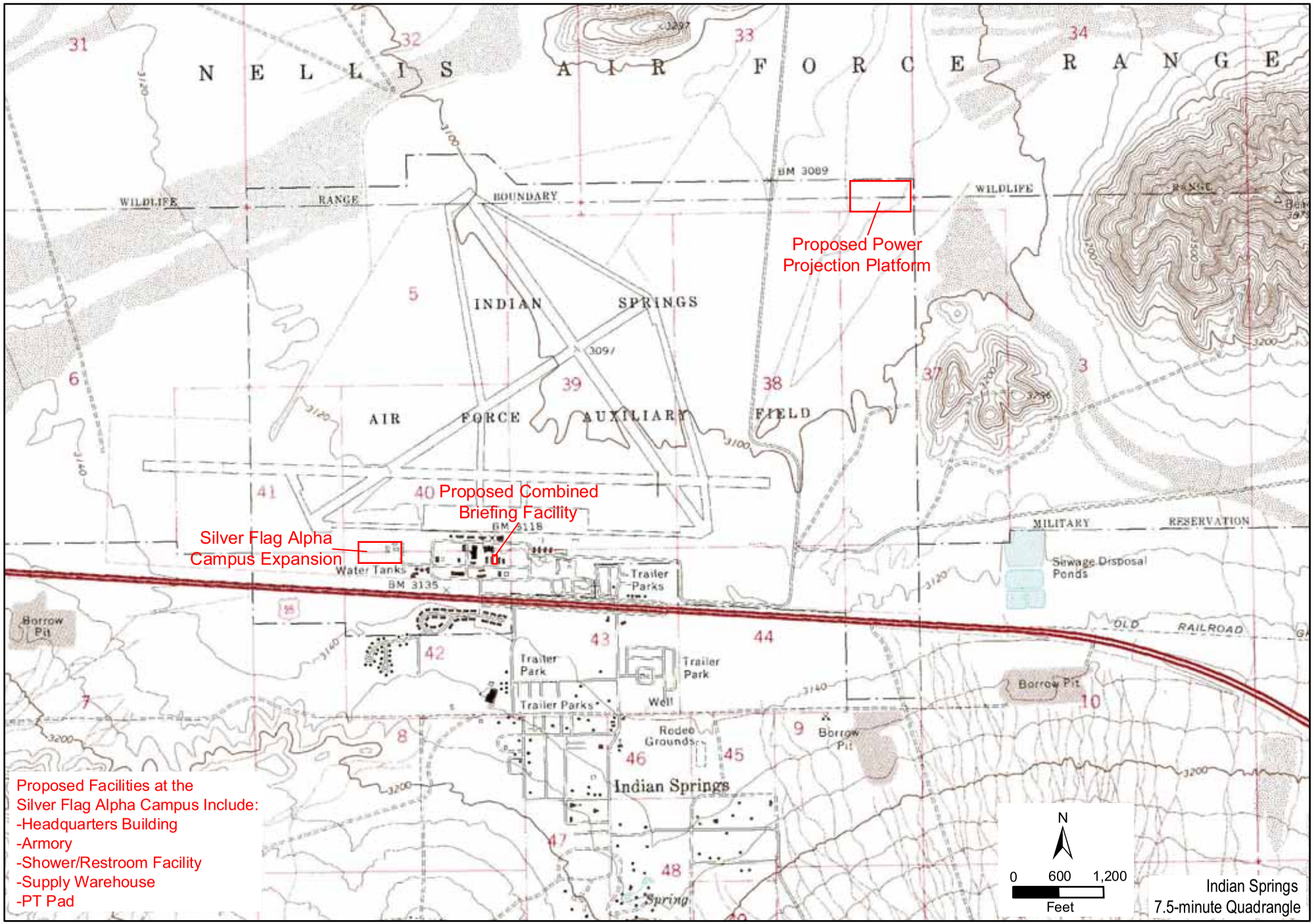


Figure 1
Creech Air Force Base

The ExpeRT Course at Range 63C encompasses approximately 6,000 acres on the east side of US 95 across from Lee Canyon Road (State Route 156) (Figure 2). Range 63C includes various training facilities with several shooting practice ranges. The portion of Range 63A in the study area is adjacent to the northern boundary of Range 63C (Figure 3). The southern portion of Range 63A is not currently developed and is not used for SF training. The Range 63C/63A study area is located on the *Black Hills SW* and *Corn Creek Springs NW, Nevada* USGS 7.5-minute topographic quadrangles (Township 17 South, Range 58 East, in an unsectioned portion of NTTR and Sections 9, 14, 15, and 16).

The Range 71 study area encompasses approximately 4,000 acres on the east side of US 95, southeast of Tonopah, Nevada (Figure 4). The study area is located in the *Stonewall Spring, Nevada* USGS 7.5-minute topographic quadrangle (Township 3 South, Range 45 East, Sections 12, 13, 16, 17, 20, 21, 22, 26, 27, 28, 34, 35, and 36; Township 4 South, Range 45 East, Sections 1, 2, 11, 12, 13, and 14; Township 4 South, Range 46 East, Sections 6 and 7).

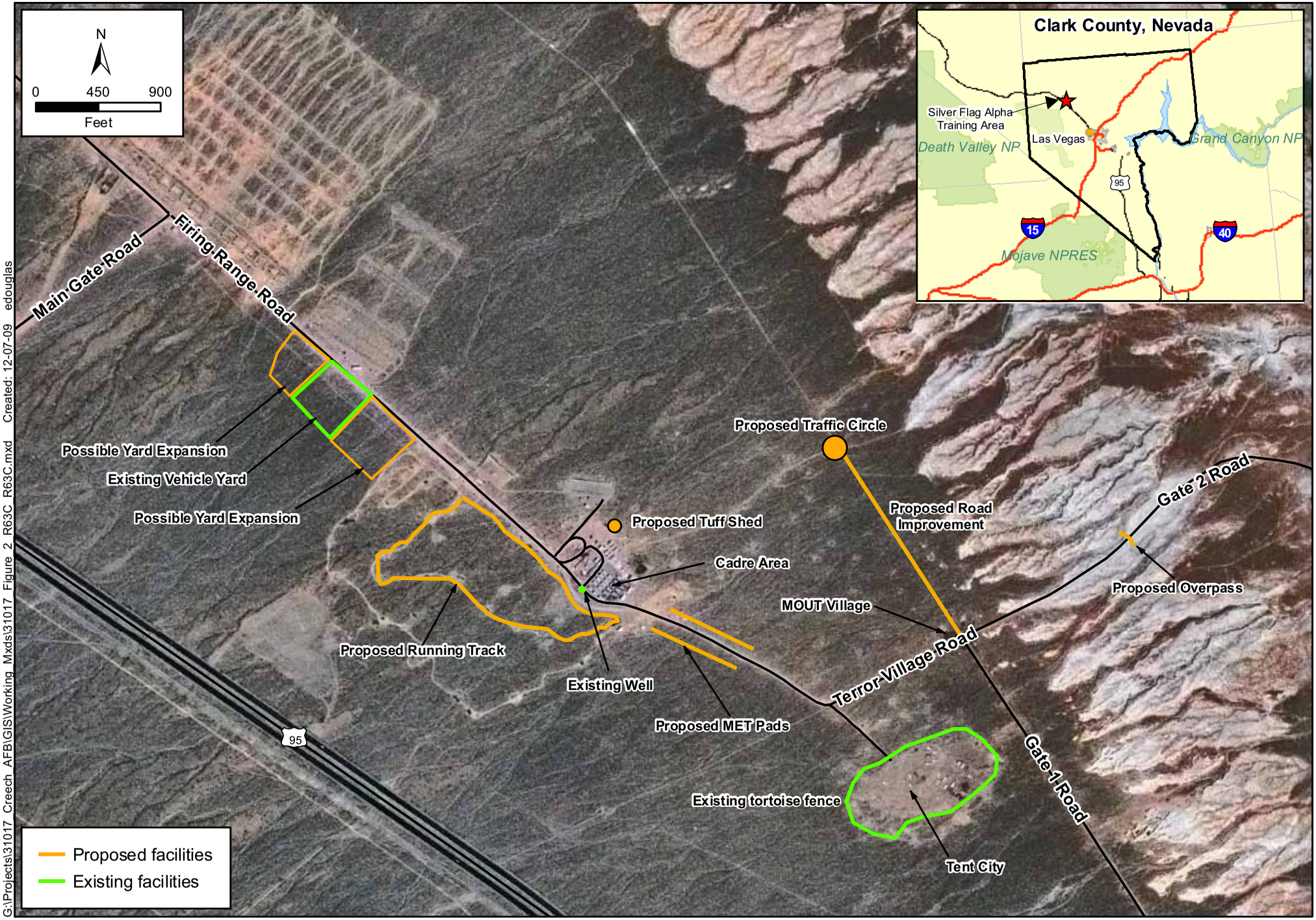
METHODOLOGY

BACKGROUND RESEARCH

NSR conducted background research on the biological resources in the study areas using information provided by Nellis AFB and information retrieved via database searches and review of pertinent literature. The primary sources of information on resources at the NTTR are the Integrated Natural Resource Management Plan (INRMP), drafted in May 2007 (Nellis Air Force Base 2007), and the 2003 programmatic biological opinion and subsequent amendment for desert tortoise (*Gopherus agassizii*) impacts on the South Range of the NTTR. The INRMP is intended to serve as a practical management guideline for the day-to-day operations and management of the natural resources on the NTTR. The programmatic biological opinion covers the South Range of the NTTR and provides protection measures for the desert tortoise and its habitat; the amendment modified some of the protection measures. Other sources of information include the previous Environmental Assessment for the ExpeRT Course Expansion, completed in 2006 (Nellis Air Force Base 2006); the Nevada Natural Heritage Program (NNHP) website; and the U.S. Fish and Wildlife Service (USFWS) website.

The focus of this evaluation is on special-status plant and animal species that have the potential to be affected by the proposed action. For the purposes of this evaluation, special-status species are those species that are designated as threatened, endangered, sensitive, at-risk, or rare, or are currently candidates to be designated under one of these categories by the USFWS, Nevada Division of Forestry (NDF), Nevada Department of Wildlife (NDOW), or the NNHP. Plant species protected under the Nevada Revised Statutes, but with no other status (i.e., cacti and yuccas), are also considered special-status.

A list of potentially occurring special-status species was compiled from a request to the NNHP for a list of species known to occur in the vicinity of the study areas (Attachment A); a list of Nevada's endangered, threatened, proposed, and candidate species generated by the USFWS for Clark and Nye counties (Attachment B); and previous documentation of special-status species on the NTTR (primarily from the INRMP). The INRMP describes sensitive species that have been observed or have potential to occur on the NTTR. The list of species was refined in coordination with Nellis AFB and resource agency personnel, reconnaissance surveys of the study areas, and reviews of pertinent environmental documents.



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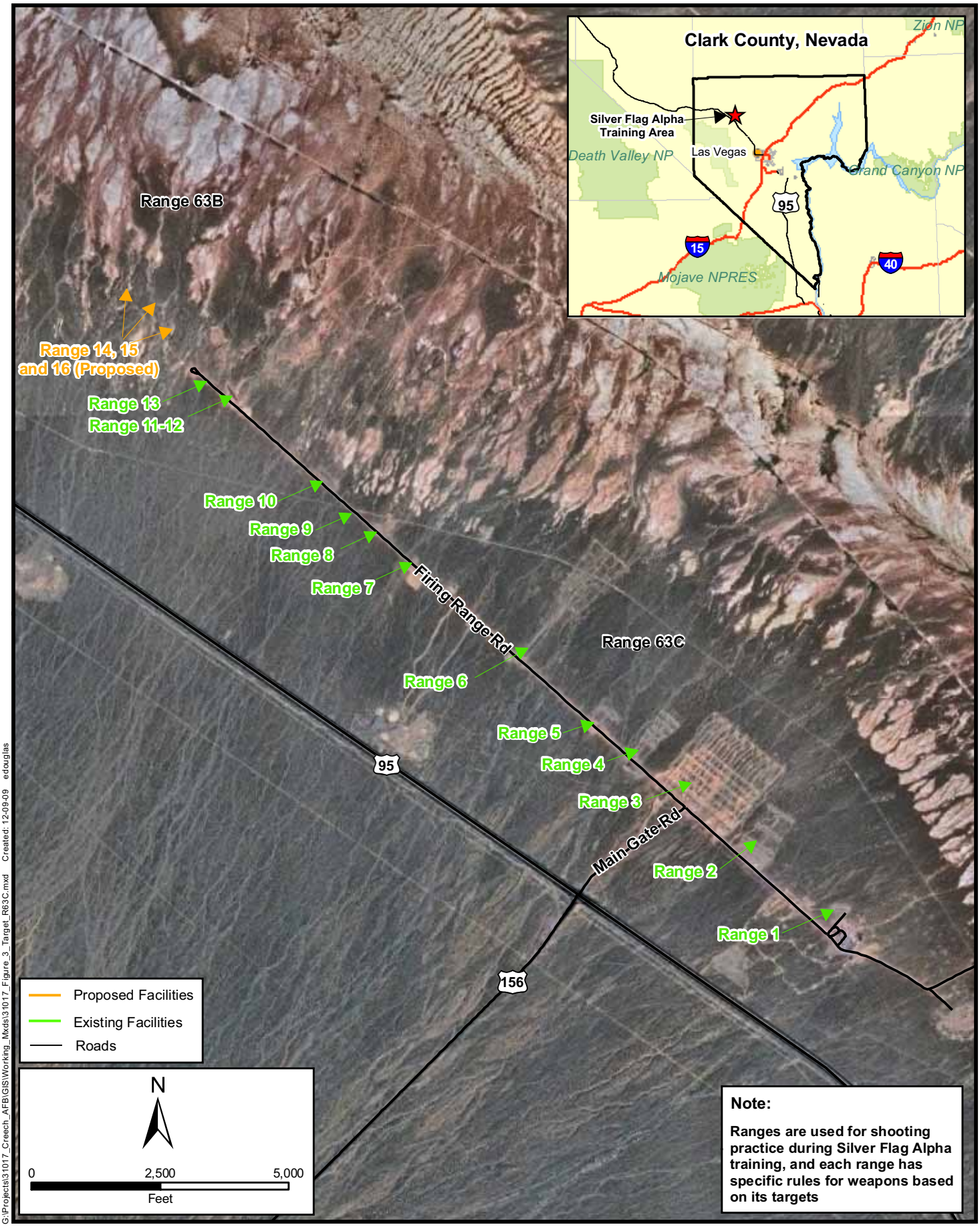
North State Resources, Inc.

ExpeRT Course Expansion Supplemental EA

Figure 2
Range 63C Improvements



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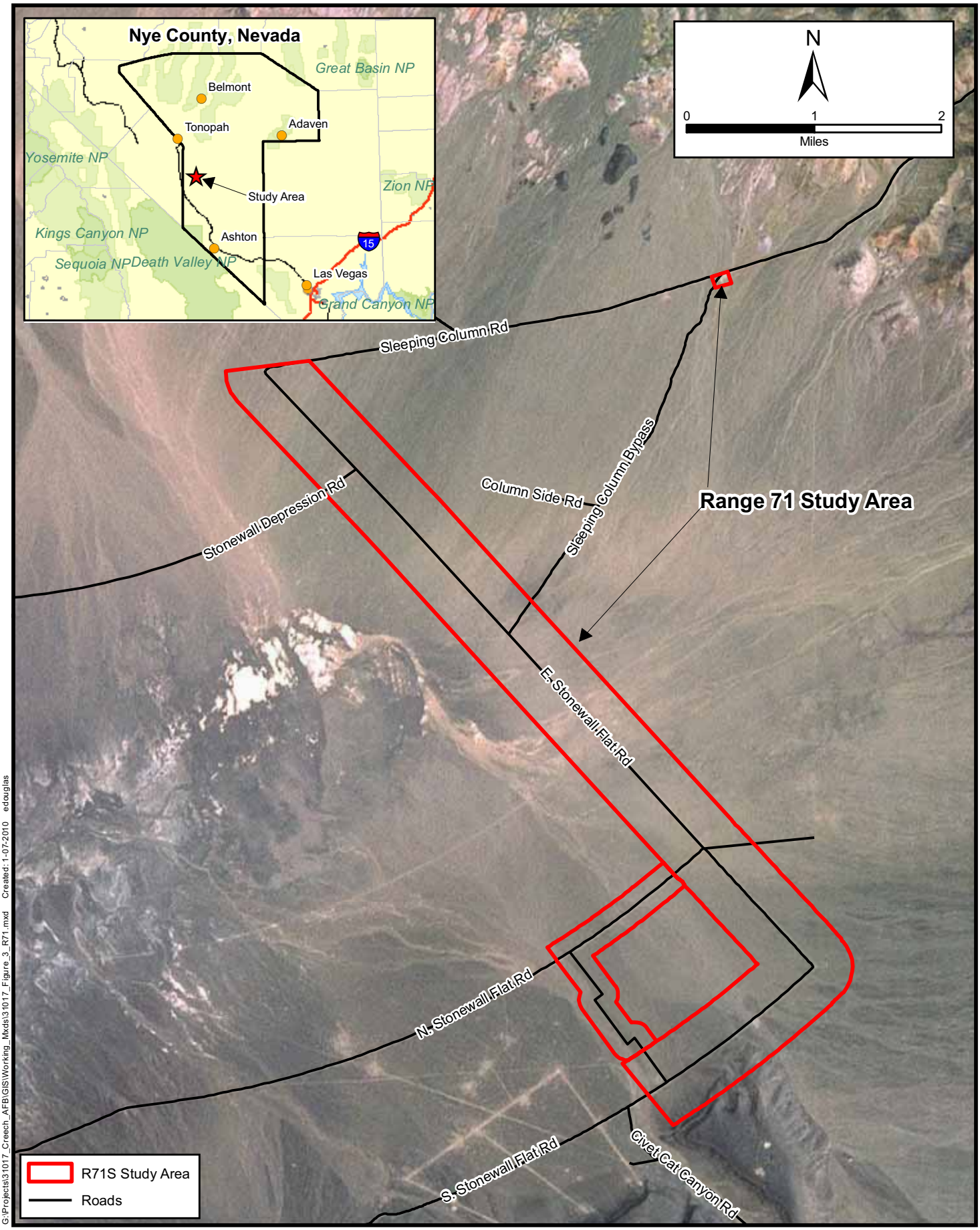
ExpeRT Course Expansion Supplemental EA

Figure 3
Target Practice Ranges



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North State Resources, Inc.

ExpeRT Course Expansion Supplemental EA

Figure 4
Range 71 Convoy Road Corridor

The potential for special-status species to occur in the study areas was determined based on the suitability of the habitat(s) to support the species, the known or potential distribution ranges of the species, documented occurrences in the area, and other pertinent information on the species. Species not expected to occur in the study areas are not further discussed or analyzed in this report.

FIELD INVESTIGATION

Reconnaissance-level surveys for special-status plant and wildlife species were conducted by NSR biologists on November 23 and 24, 2009, at Creech AFB, Range 63C, and Range 63A and on November 28, 2009, at Range 71. During the surveys, the biologists recorded information on habitats, environmental conditions, plant and wildlife species, sensitive habitats, and potential waters of the United States. To supplement the surveys, high resolution aerial photographs were reviewed. No protocol-level surveys for special-status species nor an official waters of the United States delineation were conducted as part of the reconnaissance-level surveys.

REGULATORY FRAMEWORK

The proposed action may be subject to compliance with several federal and state laws that protect biological resources. This section describes applicable regulations that apply to special-status species, waters of the United States, and other sensitive biological resources that may be found in the study areas.

ENDANGERED SPECIES ACT

The Endangered Species Act (ESA) defines "take" (Section 9) and generally prohibits the "taking" of animal species listed as endangered or threatened (16 USC. 1532, 50 CFR 17.3). Under the ESA, the "take" of a federally listed species is deemed to occur when an intentional or negligent act or omission causes the agent of the action "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The term "harm" includes acts that actually kill or injure wildlife. Such acts may include significant habitat modification or degradation when it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Listed plants are not protected from take; however, it is illegal to collect or maliciously harm them on federal lands. The ESA also prohibits interstate or international trade of listed plant and animal species.

Section 7 of the ESA requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species (plant or animal) or result in the destruction or adverse modification of designated critical habitat for these species.

In June 2003, a programmatic Biological Opinion (BO) was issued by USFWS to the Air Force to address desert tortoise impacts on the lands jointly managed by Nellis AFB and the Desert National Wildlife Refuge (U.S. Fish and Wildlife Service 2003). The BO restricted military ground use (training and testing) to established targets on lands below the 3,600 feet contour line of Indian Springs Valley and below the 3,940 feet contour line of Three Lakes Valley. On June 30, 2004, the USFWS approved an amendment to the BO to revise Term and Condition 1.a. and 1.d (U.S. Fish and Wildlife Service 2004). Basically, it stated that the Nevada Training Initiative Project (640 acres), Target 62-6, and new proposed projects that may involve surface disturbance should be cleared of desert tortoises in accordance with the

previous BO, in lieu of using exclusionary fencing. Specific avoidance and protection measures were identified in the BO and are incorporated into the Recommendations section of this report.

In support of the programmatic BO, the Air Force submitted a desert tortoise habitat delineation map to the USFWS on July 20, 2009, to request concurrence and to provide direction on ESA compliance for Air Force actions on the South Range. On August 27, 2009, the USFWS concurred with the delineation of potential desert tortoise habitat and recommended that the habitat map be used to determine the need to implement measures identified in the BO (U.S. Fish and Wildlife Service 2009).

MIGRATORY BIRD TREATY ACT

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Most of the birds found in the study areas are protected under the MBTA. Often, construction activities have the potential to directly take nests, eggs, young, or individuals of protected species. Further, construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to the abandonment of nests, which may be a violation of the MBTA.

CLEAN WATER ACT

The objective of the Clean Water Act (CWA 1977, as amended) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands, is regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA (33 USC 1251-1376). USACE regulations implementing Section 404 define waters of the United States to include intrastate waters, including lakes, rivers, streams, wetlands, and natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3; 40 CFR 230.3). To comply with the federal policy of no net loss of wetlands, project proponents must mitigate for impacts that result in the direct or indirect loss of wetlands. The USACE oversees a permit program for projects affecting waters of the United States. Projects may be permitted under an individual or general (i.e., nationwide) permit, depending on the nature, size, and type of the project. Section 401 of the CWA requires that applicants for a federal permit or license request state certification for activities that may result in a discharge into a water body to demonstrate that the proposed activity would not violate state and federal water quality standards.

NEVADA REVISED STATUTES

Under Nevada State law, General Provision NRS (Nevada Revised Statutes) 501 and sub-sections, the State defines wildlife as: any wild mammal, wild bird, fish, reptile, amphibian, mollusk or crustacean found naturally in a wild state, whether indigenous to Nevada or not and whether raised in captivity or not. This chapter also outlines various classifications of wildlife and explains that the State of Nevada can classify wildlife as protected. Protected wildlife may be further classified as either sensitive,

threatened, or endangered. The State tracks and provides public access to various lists and classifies protected species in one of these categories.

Under Nevada State law, General Provision NRS 527.060 through 527.120 it is unlawful to cut, destroy, mutilate, remove, or possess any Christmas tree, cactus, yucca, or branches thereof from any of the lands owned by or under the jurisdiction of the State of Nevada or its counties, or on any reserved or unreserved lands owned by the United States, or from any privately owned lands, without written permission from the State Forester Firewarden or his designate. The definition of "Cactus" includes any member of the Cactaceae family. "Christmas tree" includes any evergreen tree or part thereof, and "Yucca" includes any member of the genus Yucca. The State Forester Firewarden monitors, permits, and regulates removal of these plants under these provisions.

Under Nevada State law, General Provision NRS 555.010 provides a list of designated noxious weeds. The Inspection and Destruction of Noxious Weeds Section of NRS 555 advises that the control of noxious weeds is the responsibility of every landowner or occupant and shall be eradicated as required by the state quarantine officer. The state quarantine officer shall ascertain the name of the owner or occupant of infested lands. The state quarantine officer may serve notice in writing upon the owner or occupant to cut, destroy, or eradicate the weeds within such a time and in such a manner as described in the notice.

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN – NELLIS AIR FORCE BASE

The INRMP was prepared under authority of Air Force Instruction 32-7064 (Integrated Natural Resources Management, Sept. 17, 2004) as implemented by Air Force Policy Directive 32-70 (Environmental Quality) and Department of Defense Instruction 4715.3 (Environmental Conservation Program). The authority to establish natural resources management programs at Department of Defense installations is provided by 16 United States Code 670 or the Sikes Act (Conservation Programs on Military Installations).

The primary function of the Nellis AFB INRMP (drafted in 2007) is to sustain military readiness while maintaining ecosystem integrity and dynamics on Nellis AFB and the NTTR. Maintaining ecosystem integrity promotes good stewardship by supporting existing biodiversity, ensuring sustainable use of the installation, and minimizing management costs and efforts (Leslie, et al. 1996). Ecosystem management on Nellis AFB and the NTTR is a goal-driven program that supports present and future military mission requirements while managing natural and cultural resources and supporting ecosystem integrity. It is planned at a scale that is compatible with natural processes; it is cognizant of natural processes' time scales; it is adaptable to complex, changing requirements; and it is implemented through effective partnerships among private, local, state, tribal, and federal interests. Ecosystem management considers the environment as a complex system functioning as a whole, not as a collection of parts, and recognizes that people and their social and economic needs are a part of the whole.

BIOLOGICAL SETTING

The study areas are in southern Nevada in the Mojave Desert Basin and Great Basin Range. This desert complex region is bordered by the southern Sierra Nevada Mountains on the west, the Great Basin Desert to the north, the Colorado River to the east, and the San Bernardino Mountains and the Sonoran Desert to the south. The Sierra Nevada Mountains form a massive mountain barrier that markedly influences the

climate of the state. The region is characterized by generally north-trending, linear mountain ranges separated by intervening valleys. Precipitation in Nevada is lightest over the southern portion of the state where the NTTR is located. In valleys, the average annual precipitation is less than 5 inches. The region is subject to high-intensity storms that can generate high peak surface flows during the late winter and summer months. Runoff from precipitation is practically non-existent during the rest of the year.

The Mojave Desert is the smallest of the four North American deserts, lying primarily in California, but also including the southern quarter of Nevada and small portions of Utah and Arizona (Royo 2002). Unlike the Sonoran Desert, the lower elevations of the Mojave Desert have only one type of tree, the Joshua tree (*Yucca brevifolia*). This tree-like yucca is endemic to the Mojave Desert and usually grows at elevations of 3,500 feet above mean sea level and greater. The Mojave Desert also hosts approximately 200 other plants that are not found in the Sonoran or Great Basin deserts. Although a published flora of the Mojave Desert is incomplete, approximately 2,600 vascular plant taxa are known to occur in the Mojave Desert floristic province (excluding the higher elevations, greater than 8,000 feet, of the Spring, Sheep, and Panamint Mountain Ranges), representing one of the most diverse floristic regions in the United States. Although home to about 200 endemic plant species, the proportion of the Mojave Desert flora comprising special-status taxa is relatively low (10 percent of flora).

Wildlife species are more abundant in the Mojave Desert than they are in the Great Basin Desert (MacMahon 1992), which may be due to the occurrence of fewer plant species in the Great Basin Desert. Plant communities are home to specific wildlife assemblages. For example, the creosote bush community is known to have at least 30 species of reptiles, 33 species of birds (eight of which are permanent residents), and 44 species of mammals. The blackbrush (*Coleogyne ramosissima*) community has fewer species—19 reptiles, 26 birds, and 33 mammals—but it still contains diverse fauna.

BIOLOGICAL COMMUNITIES

The study areas support two general biological communities or habitat types: Sonora-Mojave-Baja Creosotebush-White Bursage Desert Scrub and Mixed Salt Desert Scrub. The Creosotebush-White Bursage Desert Scrub is the dominant habitat type at Creech AFB and Range 63. The Mixed Salt Desert Scrub is the dominant habitat type at the Range 71 study area. Habitat types were characterized based on descriptions provided in Nevada's Wildlife Action Plan (Wildlife Action Plan Team 2006).

The harsh conditions and abundant xerophytic (water tolerant) and halophytic (salt tolerant) vegetation types associated with these biological communities would, at first glance, give the impression of a somewhat inhospitable and uninviting habitat. However, a large complement of wildlife species, including many bird, small mammal, and reptile species, depend on or at least partially use these specific habitats as well as other nearby habitats. A host of heat-tolerant reptile species, for example, are dependent on these habitats, including the desert iguana (*Dispsosaurus dorsalis*), spotted leafnosed snake (*Phyllorhynchus decurtatus*), and the western diamondback (*Crotalus atrox*) and sidewinder rattlesnakes (*Crotalus cerastes*). Sparsely vegetated creosote and saltbush areas are home to the Le Conte's thrasher (*Toxostoma lecontei*). Desert kangaroo rats (*Dipodomys deserti*) and desert pocket mice (*Chaetodipus penicillatus*) depend on wind-blown sandy areas sometimes associated with these habitats, and creosote seeds make up a large part of the desert pocket mouse's diet. In turn, these small mammals and others are important prey sources for snakes as well as various bird species including the western burrowing owl

(*Athene cunicularia hypugaea*) and loggerhead shrike (*Lanius ludovicianus*). Several bat species also occur in the desert, most of which are considered sensitive.

SONORA-MOJAVE-BAJA CREOSOTEBUSH-WHITE BURSAGE DESERT SCRUB

The complex of vegetation types that comprise the Creosotebush-White Bursage Desert Scrub habitat are uniquely adapted to the harsh conditions present in desert ecosystems. Plants are typically tolerant of low humidity, prolonged droughts, desiccating winds, high alkalinity or salinity, rocky or very sandy soils, and the periodic influx of high quantities of water in the form of surface flooding. Extensive alluvial fans, or bajadas, reach from the perimeter of the mountains down to the low intervening basins, typically ending at the playas that characterize the valley bottoms. These alluvial fans and playa ecotones are where the Mojave/Sonoran Warm Desert Scrub plant communities are found. Creosote bush scrub (Sonora-Mojave-Baja Creosote-White Bursage Desert Scrub) occurs on well-drained sandy flats and bajadas throughout most of the Mojave Desert from 500 to 4,900 feet elevation. Its range extends from the Colorado River on the south to Pahranagat Valley on the north. Dominant plant species are creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), and beavertail cactus (*Opuntia basilaris*).

Range 63 and Creech AFB lie in the northeastern portion of the Mojave Desert at approximately 3,100 feet elevation. These study areas are located in Sonora-Mojave-Baja Creosote-White Bursage Desert Scrub habitat, but portions of the study areas have been disturbed by previous military activities. The desert basin surrounding the study areas supports plant communities dominated by creosote bush and white bursage with less disturbance. Common species observed in the study areas include saltbush species (*Atriplex* spp.), ephedras (*Ephedra* spp.), brittlebush (*Encelia virginensis*), desert mallow (*Sphaeralcea ambigua*), cacti (especially chollas [*Opuntia* spp.]), Mojave yucca (*Yucca shidigera*), and Joshua tree. Other species observed in this habitat include tamarisk species (*Tamarix spp*.), pincushion cactus (*Coryphantha vivipara*), Russian thistle (*Salsola tragus*), and desert trumpet (*Eriogonum inflatum*). Several birds were observed during field surveys, including a roadrunner (*Geococcyx californianus*) and various songbirds. Evidence of rabbits (scat) and rodents (burrows) were also observed in some areas.

Several dry washes traverse the Range 63 study area and drain toward a major wash or dry lake to the east. At Creech AFB, a drainage ditch with wetland vegetation was encountered along a road in the northeast corner of the AFB. Little vegetation is present at Creech AFB because of the regular disturbances associated with base operations and the clearing and grading of the land to support development. Range 63 is less disturbed, but the areas where facilities are located are dominated by invasive and disturbance-tolerant plants (Russian thistle and various grasses) with native vegetation dominating in the outlying areas.

The study areas do not appear to contain any gypsiferous soils, and no rock outcrops or other rocky areas were observed during the field surveys. These features are important habitat components for several special-status plant and animal species known to occur in the Sonora-Mojave-Baja Creosotebush-White Bursage Desert Scrub biological community. In addition, the highly disturbed nature of the study areas reduces the suitability of the habitats for special-status plant and animal species, although species such as the western burrowing owl are known to use disturbed habitats.

MIXED SALT DESERT SCRUB

The North Range of the NTTR is a transitional area between the Mojave Desert and Great Basin that supports a mixture of biological communities, including creosote bush scrub, Joshua tree woodland, mixed desert scrub community, Great Basin sagebrush scrub, black sagebrush scrub, and a sparsely vegetated rock outcrop community (Nellis Air Force Base 2007). Collectively, these community types are referred to as Mixed Salt Desert Scrub. The north extreme of the North Range fully transitions to the Great Basin Desert, dominated by sagebrush and saltbush vegetation. Community composition is largely influenced by soil salinity and drainage. At the lowest flats of the valleys where soils drain poorest and salinities are highest (typically on the margins of dry lake beds), the most salt-tolerant plants are found, including iodinebush (*Allenrolfea occidentalis*) and quailbush (*Atriplex lentiformis*).

The Range 71 study area is at approximately 5,200 feet elevation. The blackbrush community is dominant in this area. The vegetation of the basin floor near Range 71 is typified by blackbrush, shadscale (*Atriplex confertifolia*), and greasewood (*Sarcobatus baileyi*) and may include winter fat (*Ceratoides lanata),* ephedra, Joshua tree, and hopsage (*Grayia spinosa*). The study area is dominated by an unpaved road and targets that have resulted in varying levels of disturbance in the blackbrush community. Vast expanses of undisturbed vegetation surround the study area. Several washes also traverse the study area. Several songbirds and rabbits were observed during field surveys.

SPECIAL-STATUS SPECIES ASSESSMENT

Several special-status plant and animal species have documented occurrences or distributions in the region. Most of these species have specialized habitat requirements (i.e., gypsiferous-rich soils or wetland habitat) or narrow distribution ranges and are not expected to occur in the study areas due to a lack of suitable habitat. Several plant species with specific habitat requirements and narrow distributions, specifically those occurring at Ash Meadows National Wildlife Refuge and in the Amargosa Valley of Nye County, were eliminated from further consideration. Fish, amphibians, invertebrates, and riparian-dependent birds from the USFWS and NNHP lists were eliminated from further consideration because of an obvious lack of suitable habitat in the study areas (based on field surveys). Several reptiles from the INRMP were also eliminated from further consideration due to a lack of suitable rock outcrops in the study areas.

Of the species listed in Appendices A and B and identified in the INRMP, several plant species have a low potential to occur in the study areas, and two wildlife species have potential to occur in the study areas: desert tortoise and western burrowing owl. Various special-status bat species may also occur in or near the study areas. Cactus and yucca species protected by the Nevada Revised Statutes were encountered in the study areas. No other special-status plant or animal species were detected during the field surveys.

PROTECTED PLANT SPECIES

Several state and federally protected special-status plants have been documented on or have potential to occur on the NTTR, nearby Nellis AFB, or Desert National Wildlife Refuge. These species include: Las Vegas buckwheat (*Eriogonum corymbosum var. nilesil*), Las Vegas bearpoppy (*Arctomecon californica*), clokey buckwheat (*Eriogonum heermannii var. clokeyi*), and white bearpoppy (*Arctomecon merriamii*). Based on field surveys, suitable habitat is not present in most of the study areas (lack of gypsiferous

soils), and the plants have a low potential to occur, although portions of the study areas not specifically surveyed may contain suitable habitat (i.e., less disturbed areas at Range 63A). The state of Nevada also protects all cactus and yucca species, which are present in the study areas.

DESERT TORTOISE

The Mojave Desert population of the desert tortoise was listed as threatened by the USFWS on April 2, 1990. The species' range in the NTTR vicinity lies primarily within the Mojave desert scrub habitat at elevations below 4,000 feet (Nellis Air Force Base 2006). Desert tortoise home ranges vary with location and year, but may encompass between 25 and 200 acres. Basic habitat requirements include quality forage; shelter from predators and environmental extremes; suitable soil types for burrowing, nesting and over-wintering; vegetation for cover and shelter; and adequate areas for movement and dispersal. Soil structure is an important limiting factor for tortoise habitat. Soils must be firm enough to hold burrows, but soft enough to allow digging. A variety of soil types, from sandy to sandy-gravely, may be used. Tortoises are herbivorous, with the most important food being desert annuals, cacti, and grasses.

Desert tortoise mating starts in spring and may continue until fall dormancy. Nesting occurs from May to July. Females dig nests, deposit eggs, and abandon the nest; incubation varies from 90 to 120 days. Tortoises depend on bushes for shade and protection from predators such as ravens and coyotes. To escape the temperatures of cold winters and very hot summers, tortoises typically live in burrows. The spring and summer burrows vary from 18 inches to five feet long, but may only be a few inches from the surface. Winter burrows tend to be about eight feet long and may be two to three feet from the surface. They often share burrows and may use multiple burrows scattered across the landscape. They hibernate for up to nine months each year, becoming most active from March to June and September to October. When they are young tortoises seldom venture more than 150 feet from their burrow. As they get older, they may go as far as 0.75 mile in a day and use a network of burrows. In the most densely populated areas, tortoises can be found at densities of one tortoise per 2.5 acres. Typically, tortoises densities are closer to one tortoise per 100 acres (U.S. Fish and Wildlife Service 2008).

In 2009, Nellis AFB and USFWS biologists completed a delineation of desert tortoise habitat within the NTTR. All of Range 63C is in potential tortoise habitat, but Creech AFB and Range 71 are not in suitable habitat. Tortoises may occur at Range 63C, although no evidence of tortoises was observed during field surveys. The disturbed nature of the training area at Range 63C may preclude tortoises from becoming residents, but the proximity of suitable habitat surrounding the training area creates a potential for individuals to move through the area.

As a precautionary measure (which was completed prior to the 2009 tortoise habitat delineation), tent city, in the Range 63 study area, is surrounded by an exclusionary tortoise fence that encompasses the existing facilities. This tortoise fence was inspected during field surveys and determined to be in a state of disrepair. The fence has several locations where damage has created breaches in the fence-line, and several large gaps between the fence and the ground were observed.

WESTERN BURROWING OWL

The western burrowing owl is a species native to southern Nevada that adapts well to urban environments. It is a former federal species of concern and is a state-protected species in Nevada (Nevada Administrative Code 503.050). Western burrowing owls in southern Nevada may be summer residents,

winter visitors, or year-round residents (Nellis Air Force Base 2007). They average 24 centimeters in length and are distinguished from other small owls by bold spots and bars with relatively long, unfeathered legs. Burrowing owls typically nest in abandoned rodent or other small mammal burrows. Desert tortoise burrows and abandoned kit fox dens may also be used by the owls. The owl is an arid land resident that is relatively tolerant of urban development and is found in many areas of Clark County. Western burrowing owls are known to use developed areas such as golf courses, airports, and road shoulders for habitat. They adapt their hunting to take advantage of the most readily available food source and frequently hunt during the day.

Western burrowing owl have been observed on the NTTR on several occasions. According to the INRMP, in July 1996, owls were observed during daytime work on the sanitary landfill at the south end of Nellis AFB, where one adult was observed raising four young. Owls have also been observed along flood control channels on the southeast side of Nellis AFB and in other areas of the AFB. During biological surveys of the Indian Springs Air Force Auxiliary Field (now known as Creech AFB), one western burrowing owl was observed (Nellis Air Force Base 2007).

The majority of these documented owl sightings are not in the immediate vicinity of the study areas, and small mammal burrows (necessary to support western burrowing owls) are sparse in the study areas. However, the Sonora-Mojave-Baja Creosotebush-White Bursage Desert Scrub habitat, found in the vicinity of the Creech AFB and Range 63 study areas, provides generally satisfactory habitat for burrowing owls. It is unlikely that burrowing owls will breed in the study areas due to a lack of small mammal burrows; it is more likely that burrowing owls will occur nearby and possibly forage in the study areas.

NESTING MIGRATORY BIRDS

Migratory birds may nest in Joshua trees, shrubs, and other vegetation in and around the study areas. Species known to occur in the study areas that could potentially nest include: mourning dove (*Zenaida macroura*), sage sparrow (*Amphispiza belli*), black-throated sparrow (*Amphispiza bilineata*), roadrunner, lesser nighthawk (*Chordeiles acutipennis*), Gambel's quail (*Callipepla gambelii*), and Scott's oriole (*Icterus spurius*).

NOXIOUS WEEDS AND INVASIVE PLANT SPECIES

Cheatgrass (*Bromus tectorum*), red brome (*Bromus madritensis var. rubens*), halogeton (*Halogeton glomeratus*), and Russian thistle are invasive species that have been documented on the NTTR (Nellis Air Force Base 2007). Cheatgrass has the widest distribution and is found throughout the North Range. Red brome is mostly restricted to valley bottoms and alluvial fans in the South Range. Both of these grasses are commonly found in areas where soil has been disturbed. Halogeton appears to be restricted to areas that are either regularly or severely disturbed and do not contain a perennial plant component or on undisturbed sites that have saline soils and low cover from native perennial species. Russian thistle appears to be restricted to areas that are regularly or severely disturbed, such as roadsides, or to sites with sandy soils and a low density of perennial plants. Russian thistle was encountered at Creech AFB and Range 63.

JURISDICTIONAL WATERS

Creech AFB and Range 71 occur in the Central Region Basin, and Ranges 63C and 63A are in the Colorado River Basin. Water features in these basins are primarily ephemeral washes and dry lakes; some springs occur scattered throughout the area. Aside from Range 63, the study areas drain into closed basins and are not subject to USACE's jurisdiction (Nellis Air Force Base 2007). Range 63 drains into the Las Vegas Valley and eventually the Las Vegas Wash and Colorado River, which is a navigable water.

An ephemeral wash and dry lake occur to the east of the Range 63C study area, and several smaller dry washes traverse the study area. The larger features are just outside the existing developed area where the training facilities are located. A dry lake (Mud Lake) also occurs to the north of the Range 71 study area, and several dry washes occur throughout the study area, with a fairly large wash in the southwest portion.

An intermittent or perennial drainage occurs just outside the northeastern portion of the Creech AFB study area. The feature appears to be an artificially fed man-made drainage ditch that is approximately 3 feet wide and no more than 1 foot deep at its ordinary high water mark. The drainage supports emergent vegetation (cattails and reed); however, plant growth appears to be controlled based on evidence of recent sheering. This feature follows a road and drains to the south, but it does not appear to drain beyond the Creech AFB boundary.

DISCUSSION AND RECOMMENDATIONS

The proposed action has potential to affect biological resources in the study areas. Most of the activities would occur in previously disturbed areas, but some new facilities would be located in less disturbed areas, and training activities would be expanded to include these areas. Construction activities could remove sensitive plants, including cacti and yucca, and have the potential to disturb sensitive wildlife, including the desert tortoise, western burrowing owl, and nesting birds. Future (ongoing) training activities would be similar to current training activities and could disturb habitat and individual species. This section discusses potential impacts on sensitive biological resources and provides recommendations to minimize or reduce adverse impacts. The discussion incorporates guidance from the INRMP, which provides direction on how to resolve environmental impacts related to project implementation on the NTTR.

POTENTIAL IMPACT 1: PROTECTED PLANTS

Ground disturbance associated with installation of targets, building construction, and training operations in habitat suitable for special-status plants could remove individuals or render the habitat unsuitable. Special-status plants (excluding cacti and yucca) have a low potential to occur in the study areas. Cacti and yuccas are known to occur in the study areas and would need to be removed to accommodate the new training facilities.

The INRMP provides guidelines to evaluate impacts on rare plants and implement measures to prevent or minimize adverse impacts. During the planning or implementation of any proposed action, the natural resource manager should be consulted concerning the following:

- Location of any rare plant populations that could be potentially affected by the action.

- If rare plant populations are identified and could be affected by the action, the action should be modified to avoid or minimize impacts to the rare plants where practical.
- If impacts to rare populations cannot be avoided, methods of mitigation should be developed, which may include transplanting the plant population to another suitable habitat.
- If plants are transplanted to a new location, the location should be selected such that it can be avoided by future impacts if practical.

In compliance with the INRMP, once details on building footprints and target locations at the study areas are known, focused surveys for special-status (rare) plants, including cacti, yucca, and those species listed under the Biological Setting above, should be conducted by a qualified botanist. Plant surveys should be conducted during the appropriate blooming period to locate individuals or populations that need to be protected or transplanted. Consultations with the natural resource manager should commence once detailed project information is known.

POTENTIAL IMPACT 2: DESERT TORTOISE

No desert tortoises or their burrows have been identified in the study areas, but construction activities and training operations at Range 63 have potential to affect the desert tortoise and its habitat. As part of the proposed action, the Air Force would install a new tortoise exclusion fence around tent city to prevent tortoises from entering the area and allow future activities to commence without potential for tortoise impacts. The fence should be installed under the supervision of a qualified biologist and following tortoise fence standards provided by the USFWS. Other activities outside this fence could result in direct impacts to the desert tortoise or its burrows and could reduce the amount of suitable habitat in the area. The loss of habitat would be minimal because most new facilities would be installed in previously disturbed areas, with minimal vegetation removal. Activities at Creech AFB and Range 71 are not expected to affect the desert tortoise.

Based on the programmatic BO the likelihood of tortoise presence in the study areas is low; however, protective measures should be implemented to minimize impacts on desert tortoises. The following measures, outlined in programmatic BO and subsequent amendment, will ensure that, if desert tortoises are present, they would not be harmed:

- Provide desert tortoise awareness training to all construction and project-related personnel who may travel through potential desert tortoise habitat. This training should provide information on how to identify the tortoise and potential burrows as well as provide information regarding who to contact if a tortoise (or sign of tortoise) is encountered.
- A qualified biologist shall conduct pre-construction clearance surveys for desert tortoises within 500 feet of areas to be disturbed at Range 63 no more than 15 days prior to the initiation of construction activities. If tortoises are found, they will be removed from the area by a qualified biologist, and the construction area will be monitored to ensure tortoises do not return to the area. As an alternative option, exclusionary fencing can be installed prior to construction activities as a preventative action. No clearance surveys are

necessary if fencing is installed before construction. Desert tortoise exclusionary fencing shall be at least 18 inches high and must be installed flush to the ground along the entire perimeter. The preferred option is to clear the construction area of desert tortoise and use a monitor during construction.

- On a case by case basis, as determined by the Nellis AFB natural resources manager and the USFWS, and based on the size (acreage) of and the type of activities that will be conducted, desert tortoises found and removed from the construction area and perimeter areas may be fitted with a radio transmitter. Tortoises may be moved up to 1 mile from the construction area out of harm's way. Tortoises fitted with a radio transmitter will be monitored and data collected until project construction is completed to determine movement and possibility of returning to the area of capture. Returning tortoises will continue to be moved out of harm's way until completion of the earth disturbing activities. Telemetry data will be collected during the construction monitoring phase and as possible for the life of the transmitter or until the transmitter is removed from the tortoise. Telemetry data collected on desert tortoise moved out of harm's way will be provided to the USFWS.
- A qualified desert tortoise monitor will be present on the construction site, during all construction/earthmoving activities until the activities are completed.
- Impose a speed limit of 25 miles per hour in desert tortoise habitat. Speed limit signs shall be posted on roads that enter tortoise habitat and should be monitored to ensure that the speed limit is enforced.
- Rehabilitate any temporary impacts to desert tortoise habitat to preconstruction conditions or pay a per-acre remuneration fee as specified by the USFWS.

POTENTIAL IMPACT 3: WESTERN BURROWING OWL

No western burrowing owls have been identified in the study areas, and small mammal burrows typically used by this species are generally lacking. However, suitable habitat is present in the vicinity of Creech AFB and Range 63, and burrowing owls may establish or have territories in the vicinity of these study areas. Construction activities and training operations within the vicinity of burrowing owl territories (occupied burrows and adjacent areas) could result in adverse impacts on western burrowing owls.

The following measures are recommended to minimize or avoid impacts on burrowing owls:

- Pre-construction surveys for western burrowing owls within 500 feet of the Creech AFB and Range 63 construction areas shall be conducted by a qualified biologist no more than 15 days prior to the initiation of construction activities. Survey protocol shall follow the guidelines set forth in the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 1995) or established in consultation with the NDOW. If no western burrowing owls are detected, no further measures are necessary. If burrows used by western burrowing owls are identified within the 500-foot buffer, the burrows will need to be protected from disturbance.

- Burrows occupied by western burrowing owls, and a 250-foot buffer around the burrow, shall not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- If burrowing owls must be moved away from the construction area, passive relocation techniques (e.g., one-way doors) shall be used rather than trapping. All passive relocation measures shall be implemented by a qualified biologist. Construction activities within 250 feet of burrows (formerly occupied by burrowing owls) containing passive relocation devices shall not be initiated for a minimum of 15 days after installation or as determined appropriate by a qualified biologist, based on observations of the owls successfully relocating to alternate burrows.

POTENTIAL IMPACT 4: MIGRATORY BIRDS

The study areas provide suitable nesting habitat and may support nesting migratory bird species protected under the MBTA. Removal of trees, shrubs, or other vegetation during the nesting season can cause direct impacts to nesting birds. Construction noise, vibration, and increased human activity can cause indirect impacts (e.g., nest abandonment, mortality of chicks, etc.).

The following measures are recommended to avoid or minimize adverse impacts on nesting migratory birds:

- If practicable, construction activities (especially removal of woody vegetation) shall be conducted outside of the nesting season (i.e., conduct construction from August to February). If construction activities are conducted outside of the nesting season, no further measures are necessary.
- If construction activities are scheduled during the nesting season, pre-construction surveys for active migratory bird nests within the construction area and a 300-foot buffer shall be conducted by a qualified biologist within 15 days prior to the initiation of construction activities. If active nests (more than half completed) are identified within the surveyed area, appropriate conservation measures (as determined by a qualified biologist) shall be implemented. These measures may include, but are not limited to the following: establishing a construction-free buffer zone around the active nest site, biological monitoring of the active nest site, and delaying construction activities in the vicinity of the active nest site until the young have fledged.

POTENTIAL IMPACT 5: JURISDICTIONAL WATERS

Direct impacts (i.e., placement of fill into) to waters of the United States or wetlands are not anticipated during construction activities or training operations. The surface water features in the vicinity of the study areas can be avoided by construction, and no facilities are proposed to be located in the dry washes or drainage ditch. If facility designs are altered to require placement of fill material or structures in dry washes at Range 63, a waters of the United States delineation should be prepared and submitted to the USACE for verification, and a Section 404 permit and Section 401 water quality certification may be

required prior to implementation of the activities. Surface water features at Range 71 and Creech AFB are not expected to fall under the jurisdiction of the USACE, based on the descriptions of these areas in the INRMP.

To prevent indirect impacts on surface water features, standard best management practices to protect water quality and prevent pollutants in runoff should be implemented during construction. No stockpiling or equipment storage should occur within 50 feet of the drainage features to prevent the chances of accidental contamination and transport of chemicals such as fuels or fill material.

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ATTACHMENT A

U.S. FISH AND WILDLIFE SERVICE LIST

Nevada's Protected Species by County

U.S. FISH AND WILDLIFE SERVICE
NEVADA FISH AND WILDLIFE OFFICE

NEVADA'S ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES BY COUNTY
(Updated May 2, 2008)

CLARK COUNTY

Birds

E	Southwestern willow flycatcher ●	*Empidonax traillii extimus*
C	Yellow-billed cuckoo (Western U.S. Distinct Population Segment)	*Coccyzus americanus*
E	Yuma clapper rail	*Rallus longirostris yumanensis*

Reptile

T	Desert tortoise (Mojave population) ●	*Gopherus agassizii*

Amphibian

C	Relict leopard frog	*Rana onca*

Fishes

E	Bonytail chub ●	*Gila elegans*
E	Colorado pikeminnow *	*Ptychocheilus lucius*
E	Humpback chub *	*Gila cypha*
T	Lahontan cutthroat trout	*Oncorhynchus clarkii henshawi*
E	Moapa dace	*Moapa coriacea*
E	Pahrump poolfish	*Empetrichthys latos*
E	Razorback sucker ●	*Xyrauchen texanus*
E	Virgin River chub + ●	*Gila seminuda*
E	Woundfin ●	*Plagopterus argentissimus*

Plant

C	Las Vegas Buckwheat	*Eriogonum corymbosum* var. *nilesil*

NYE COUNTY

Birds

C	Yellow-billed cuckoo (Western U.S. Distinct Population Segment)	*Coccyzus americanus*
E	Southwestern willow flycatcher	*Empidonax traillii extimus*

Reptile

T	Desert tortoise (Mojave population) ●	*Gopherus agassizii*

Amphibian

C	Columbia spotted frog (Great Basin Distinct Population Segment)	*Rana luteiventris*

Fishes

E	Ash Meadows Amargosa pupfish ●	*Cyprinodon nevadensis mionectes*
E	Ash Meadows speckled dace ●	*Rhinichthys osculus nevadensis*
E	Devil's Hole pupfish	*Cyprinodon diabolis*
T	Lahontan cutthroat trout	*Oncorhynchus clarkii henshawi*
T	Railroad Valley springfish ●	*Crenichthys nevadae*
E	Warm Springs pupfish	*Cyprinodon nevadensis pectoralis*
E	White River spinedace ●	*Lepidomeda albivallis*

Invertebrate

T	Ash Meadows naucorid ●	*Ambrysus amargosus*

Plants

E	Amargosa niterwort	*Nitrophila mohavensis*
T	Ash Meadows blazing star ●	*Mentzelia leucophylla*
T	Ash Meadows gumplant ●	*Grindelia fraxinopratensis*
T	Ash Meadows ivesia (mousetail) ●	*Ivesia eremica* (= *I. kingii var. eremica*)
T	Ash Meadows milkvetch ●	*Astragalus phoenix*
T	Ash Meadows sunray ●	*Enceliopsis nudicaulis var. corrugata*
T	Spring-loving centaury ●	*Centaurium namophilum*

Notes:

E = Endangered T = Threatened C = Candidate
● = Designated Critical Habitat in County * = Believed extirpated from Nevada
+ = Endangered only in the Virgin River, Muddy River population is a sensitive species.

ATTACHMENT B

NEVADA NATURAL HERITAGE PROGRAM LIST

ALLEN BIAGGI
Director

Department of Conservation
and Natural Resources

JENNIFER E. NEWMARK
Administrator

JIM GIBBONS
Governor

Nevada Natural Heritage Program
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STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

Nevada Natural Heritage Program

http://heritage.nv.gov

09 December 2009

Leslie Wagner
North State Resources, Inc.
1321 20th Street
Sacramento, CA 95814

RE: Data request received 30 November 2009

Dear Ms. Wagner:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or At Risk plant and animal taxa recorded within or near the Creech AFB ExpeRT Course Project area. We searched our database and maps for the following, a five kilometer radius around:

Township 17S Range 58E Sections 09 and 14-16
Township 16S Range 56E Sections 05 and 37-43
Township 15S Range 56E Section 33
Township 03S Range 45E Sections 12, 13, 16, 17, 20-22, 26-28 and 34-36
Township 04S Range 45E Sections 01, 02 and 11-14
Township 04S Range 46E Sections 06 and 07

The enclosed printout lists the taxa recorded within the given area. Please be aware that habitat may also be available for, the desert tortoise, *Gopherus agassizii*, a Federally Threatened Taxon, and the Ripley gilia, *Gilia ripleyi*, a Taxon determined to be Vulnerable by the Nevada Natural Heritage Program. We do not have complete data on various raptors that may also occur in the area; for more information contact Chet Vandellen, Nevada Division of Wildlife at (775) 688-1565. Note that all cacti, yuccas, and Christmas trees are protected by Nevada state law (NRS 527.060-.120), including taxa not tracked by this office.

In addition to the species location data provided with this response, the Nevada Natural Heritage Program (NNHP) has other location records in your project area that are awaiting final quality-control and data input processes. Within the boundary that was searched for your project, this includes:

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,

Eric S. Miskow
Biologist /Data Manager

At Risk Taxa Recorded Near the Creech AFB ExpeRT Course Project Area (Range 63C Study Area)

Compiled by the Nevada Natural Heritage Program for North State Resources, Inc.

09 December 2009

Scientific name	Common name	Usfws	Blm	Usfs	State	Srank	Grank	Lat	Long	Prec	Last observed
Plants											
Eriogonum heermannii var. *clokeyi*	Clokey buckwheat		N	S		S2	G5T2	362525N	1153249W	G	1976-PRE
Reptiles											
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	362812N	1152902W	S	1987-1990
Gopherus agassizii	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	363015N	1152848W	M	1991-POST

U. S. Fish and Wildlife Service (Usfws) Categories for Listing under the Endangered Species Act:

- LT — Listed Threatened - likely to be classified as Endangered in the foreseeable future if present trends continue

Bureau of Land Management (Blm) Species Classification:

- S — Nevada Special Status Species - USFWS listed, proposed or candidate for listing, or protected by Nevada state law
- N — Nevada Special Status Species - designated Sensitive by State Office

United States Forest Service (Usfs) Species Classification:

- S — Region 4 (Humboldt-Toiyabe NF) sensitive species
- T — Region 4 and/or Region 5 Threatened species

Nevada State Protected (State) Species Classification:

Fauna:

- YES — Species protected under NRS 501.

Precision (Prec) of Mapped Occurrence:

Precision, or radius of uncertainty around latitude/longitude coordinates:

- S — Seconds: within a three-second radius
- M — Minutes: within a one-minute radius, approximately 2 km or 1.5 miles
- G — General: within about 8 km or 5 miles, or to map quadrangle or place name

Nevada Natural Heritage Program Global (**Grank**) and State (**Srank**) Ranks for Threats and/or Vulnerability:

- G — Global rank indicator, based on worldwide distribution at the species level
- T — Global trinomial rank indicator, based on worldwide distribution at the infraspecific level
- S — State rank indicator, based on distribution within Nevada at the lowest taxonomic level
  - 1 — Critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors
  - 2 — Imperiled due to rarity or other demonstrable factors
  - 3 — Vulnerable to decline because rare and local throughout its range, or with very restricted range
  - 4 — Long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery
  - 5 — Demonstrably secure, widespread, and abundant
    - A — Accidental within Nevada
    - B — Breeding status within Nevada (excludes resident taxa)
    - H — Historical; could be rediscovered
    - N — Non-breeding status within Nevada (excludes resident taxa)
    - Q — Taxonomic status uncertain
    - U — Unrankable
    - Z — Enduring occurrences cannot be defined (usually given to migrant or accidental birds)
    - ? — Assigned rank uncertain

At Risk Taxa Recorded Near the Creech AFB ExpeRT Course Project Area (Creech Study Area)

Compiled by the Nevada Natural Heritage Program for North State Resources, Inc.

09 December 2009

Scientific name	Common name	Usfws	Blm	Usfs	State	Srank	Grank	Lat	Long	Prec	Last observed
Plants											
Arctomecon merriamii	white bearpoppy		N	S		S3	G3	363057N	1154334W	G	1954-05-10
Astragalus nyensis	Nye milkvetch					S3	G3	363845N	1154301W	G	1941-05-14
Astragalus nyensis	Nye milkvetch					S3	G3	363407N	1153853W	G	1906-05
Birds											
Empidonax traillii extimus	Southwestern Willow Flycatcher	LE	S	E	YES	S1B	G5T1T2	363427N	1153950W	G	1932-07-11

U. S. Fish and Wildlife Service (Usfws) Categories for Listing under the Endangered Species Act:

- LE — Listed Endangered - in danger of extinction in all or a significant portion of its range

Bureau of Land Management (Blm) Species Classification:

- S — Nevada Special Status Species - USFWS listed, proposed or candidate for listing, or protected by Nevada state law
- N — Nevada Special Status Species - designated Sensitive by State Office

United States Forest Service (Usfs) Species Classification:

- S — Region 4 (Humboldt-Toiyabe NF) sensitive species
- E — Region 4 and/or Region 5 Endangered species

Nevada State Protected (State) Species Classification:

Fauna:

- YES — Species protected under NRS 501.

Precision (Prec) of Mapped Occurrence:

Precision, or radius of uncertainty around latitude/longitude coordinates:

- S — Seconds: within a three-second radius
- M — Minutes: within a one-minute radius, approximately 2 km or 1.5 miles
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Nevada Natural Heritage Program Global (**Grank**) and State (**Srank**) Ranks for Threats and/or Vulnerability:

- G — Global rank indicator, based on worldwide distribution at the species level
- T — Global trinomial rank indicator, based on worldwide distribution at the infraspecific level
- S — State rank indicator, based on distribution within Nevada at the lowest taxonomic level
  - 1 — Critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors
  - 2 — Imperiled due to rarity or other demonstrable factors
  - 3 — Vulnerable to decline because rare and local throughout its range, or with very restricted range
  - 4 — Long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery
  - 5 — Demonstrably secure, widespread, and abundant
    - A — Accidental within Nevada
    - B — Breeding status within Nevada (excludes resident taxa)
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    - Z — Enduring occurrences cannot be defined (usually given to migrant or accidental birds)
    - ? — Assigned rank uncertain