

**FINAL ENVIRONMENTAL ASSESSMENT
FOR
THE INSTALLATION OF NEW JDAM AND
HIGH FIDELITY TARGETS FOR THE
NEVADA TEST AND TRAINING RANGE**



**U.S. Air Force Air Combat Command
November 2004**

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FINDING OF NO SIGNIFICANT IMPACT

1.0 NAME OF THE PROPOSED ACTION

The Installation of New JDAM and High Fidelity Targets for the Nevada Test and Training Range

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The United States Air Force (Air Force), Nellis Air Force Base (AFB) proposes to construct additional High Fidelity and Joint Direct Attack Munition (JDAM) target structures and ancillary facilities at the Nevada Test and Training Range (NTTR). The proposed target structures and facilities would be located in ranges 71, 76, and 74 of the NTTR. Existing targets, similar to the proposed target structures, are already present in ranges 71, 76, and 74. The target structures and facilities may include JDAM targets, high fidelity urban target complex, a chemical/industrial target complex, simulated tunnel complexes, convoy targets and Tactical Ordnance Scoring System towers.

The purpose of constructing and implementing High Fidelity targets at the NTTR is to fulfill the Air Force's need to train aircrews in a modern urban environment. The purpose of implementing JDAM is to use it as a Stand-off Weapon during urban warfare. One of the benefits of the JDAM weapon in an urban setting is to pinpoint "hotspots" while minimizing collateral damage. The High Fidelity and JDAM targets would provide multiple current world scenarios that depict the types of threats and terrorist facilities that the Air Force must operate against.

The need for the proposed action is to enhance the realism of the High Fidelity and JDAM target training scenarios, and train aircrews in the use of High Fidelity and JDAM weapons. The proposed action would consist of integrated, realistic targets and assets, which simulate an urban environment for aircrews at multiple locations on the North Range of the NTTR.

An environmental assessment (EA) was prepared for the installation of new JDAM targets and ancillary facilities proposal on NTTR. The EA considered potential impacts of the proposed action. The new JDAM targets proposal is currently awaiting U.S. Fish and Wildlife Service and State Historic Preservation Office concurrence and will have a separate finding presented once complete. The Finding of No Significant Impact (FONSI) is specific to the new JDAM targets action.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The EA provides an analysis of the potential environmental impacts resulting from implementing the proposed action and the no action alternative. Nine resource areas were evaluated in detail to identify potential environmental consequences of each alternative. Resource categories discussed in the EA are: safety, noise, air quality, land use and visual resources, water resources, hazardous materials, biological resources, cultural resources and earth resources. Based on the environmental analysis, implementation of the proposed action would not significantly impact environmental resources or significantly affect existing conditions at NTTR.

Safety: Personnel would use appropriate personal protective equipment during construction of the new JDAM targets and associated structures. The remoteness and restricted access of the NTTR would ensure the public's safety. Hence, no safety impacts would result from the proposed action.

Noise: Short-term localized noise increases from construction of the proposed action would occur. All construction activities would be compatible with ongoing activities on the NTTR and would not significantly increase noise levels.

Air Quality: Airborne emissions generated during construction would not affect public health and safety due to the remoteness of the target area, restricted access, and all construction activities must comply with the NTTR Facility Wide Fugitive Dust Control Plan.

Land Use and Visual Resources: There would be no change in existing land uses or impacts to visual resources. The public does not have access to and would not be within sight of the proposed action locations because the NTTR is remote and access is restricted.

Water Resources: There would be no effect on the groundwater because deep infiltration of water is not occurring during construction of the new JDAM targets or Air Force training missions. Most of the temporary ponding or flow of surface water runoff on the NTTR is lost through evaporation and construction of the targets and towers would not impact this.

Solid/Hazardous Waste: Monitoring and clean up of hazardous material would be accomplished at each target location in accordance with existing Air Force Hazardous Materials plans. No additional hazardous materials would be introduced during construction of the proposed action.

Biological Resources: Approximately 7,500 acres of vegetation may be affected if the proposed action is implemented. Many of the proposed action components are on previously disturbed land. Due to the small, scattered, and previously disturbed nature of the proposed JDAM target sites no significant impact to biological resources would be expected. There are no known wetlands or waters of the U.S. located within areas of the proposed action. Impacts to wildlife from the habitat loss due to construction of the proposed action would be negligible because the sites have been previously disturbed.

Cultural Resources: No National Register of Historic Places eligible as archaeological, architectural, or traditional resources have been identified at any of the proposed action locations. Therefore, associated construction would have no adverse effect on significant cultural resources.

Earth Resources: There are no projected significant impacts to geology and soils from the proposed action. Construction activities would involve the removal of a minimal amount of vegetation and soils. These activities would expose underlying soil to wind and water erosion and may result in sedimentation along roadways. The Air Force would follow the NTTR Facility Wide Fugitive Dust Control Plan as required by the NDEP Title V Permit (Permit # AP9711-1233) to reduce or minimize fugitive emissions.

4.0 CONCLUSION

On the basis of the EA findings, no significant impact to human health or the natural environment would be expected from implementation of the proposed action alternative. Therefore, issuance of a Finding of No Significant Impact 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.



MICHAEL R. SCOTT
Colonel, USAF
Vice Commander



Date

COVER SHEET
Joint Direct Attack Munition and
High Fidelity Targets for the
Nevada Test and Training Range
Environmental Assessment

Responsible Agency: United States Air Force, Nellis Air Force Base

Proposed Action: To construct additional High Fidelity and Joint Direct Attack Munition (JDAM) target structures and ancillary facilities in ranges 71, 76, and 74 of the Nevada Test and Training Range (NTTR). The target structures and facilities may include a high fidelity urban target complex, industrial complex, simulated tunnel complexes, and Tactical Ordnance Scoring System (TOSS) Towers.

Written comments and inquiries regarding this document should be directed to:

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Designation: Final Environmental Assessment

Abstract: The purpose of constructing and implementing High Fidelity targets at the NTTR is to fulfill the Air Force's need to train aircrews in a modern urban environment. The purpose of implementing JDAM is to use it as a stand-off weapon during urban warfare. One of the benefits of the JDAM weapon in an urban setting is to pinpoint "hotspots" while minimizing collateral damage. The High Fidelity and JDAM targets would provide multiple current-world scenarios that depict the types of threats and terrorist facilities that the Air Force must operate against.

The proposed target structures and TOSS towers would be located within ranges 71, 74, and 76 of the NTTR. The proposed targets would be similar to existing target structures and facilities. The various targets are clustered and positioned within specific range locations to simulate urban and current-world scenarios that may be encountered by the U.S. Armed Forces.

The need for the proposed action is to enhance the realism of the High Fidelity and JDAM target training scenarios, and train aircrews in the use of High Fidelity and JDAM weapons. The proposed action would consist of integrated, realistic targets and assets, which simulate an urban environment for aircrews at multiple locations on the North Range of the NTTR. These types of training capabilities would allow the Air Force to continue its practice of providing military personnel with the proper skills to combat current world scenarios.

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NTTR Facility Wide Fugitive Dust Control Plan

Appendix B – Agency Correspondence

U.S. Fish and Wildlife Service – Species List for the Proposed Joint Direct Attack Munition and High Fidelity Targets, NTTR

Nevada Division of Wildlife – Nevada Test and Training Range JDAM Targets

Nevada Natural Heritage Program – Data Request received 8 December 2003

Nevada State Historic Preservation Office – Concurrence letter 23 July 2004

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LIST OF ACRONYMS

AFB	Air Force Base	NAAQS	National Ambient Air Quality Standards
Air Force	United States Air Force	NEPA	National Environmental Policy Act
BLM	U.S. Bureau of Land Management	NO_x	Nitrogen dioxide
CAA	Clean Air Act	NTS	Nevada Test Site
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	NTTR	Nevada Test and Training Range
CEQ	Council on Environmental Quality	OSHA	Occupational Safety and Health Administration
CFR	Code of Federal Regulations	PL	Public Law
CO	Carbon Monoxide	PM₁₀	particulate matter less than 10 microns in diameter
DMPI	Designated Mean Point of Impact	RCRA	Resource Conservation and Recovery Act
DOE	United States Department of Energy	SO₂	Sulfur dioxide
EA	Environmental Assessment	SOW	Stand-off Weapons
EO	Executive Order	TOSS	Tactical Ordnance Scoring System
EPA	U.S. Environmental Protection Agency	U.S.	United States
ft	foot/feet	USC	United States Code
GPS	global positioning systems	USDA	United States Department of Agriculture
IAD	Integrated Air Defenses	USFWS	United States Fish and Wildlife Service
JDAM	Joint Direct Attack Munition	UXO	Unexploded ordnance
LAR	Launch Acceptable Region	VOC	Volatile Organic Compounds
MSL	Mean Sea Level	WMD	Weapons of Mass Destruction

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

The United States (U.S.) Air Force (Air Force), Nellis Air Force Base (AFB) proposes to construct additional High Fidelity and Joint Direct Attack Munition (JDAM) target structures and ancillary facilities at the Nevada Test and Training Range (NTTR). The proposed target structures and facilities would be located in ranges 71, 76, and 74 of the NTTR (Figure 1-1). Existing targets, similar to the proposed target structures, are present in ranges 71, 76, and 74. The target structures and facilities may include a high fidelity urban target complex, an industrial complex, simulated tunnel complexes, and Tactical Ordnance Scoring System (TOSS) towers. These target structures and facilities are described in Chapter 2, Description of Proposed Action and Alternatives.

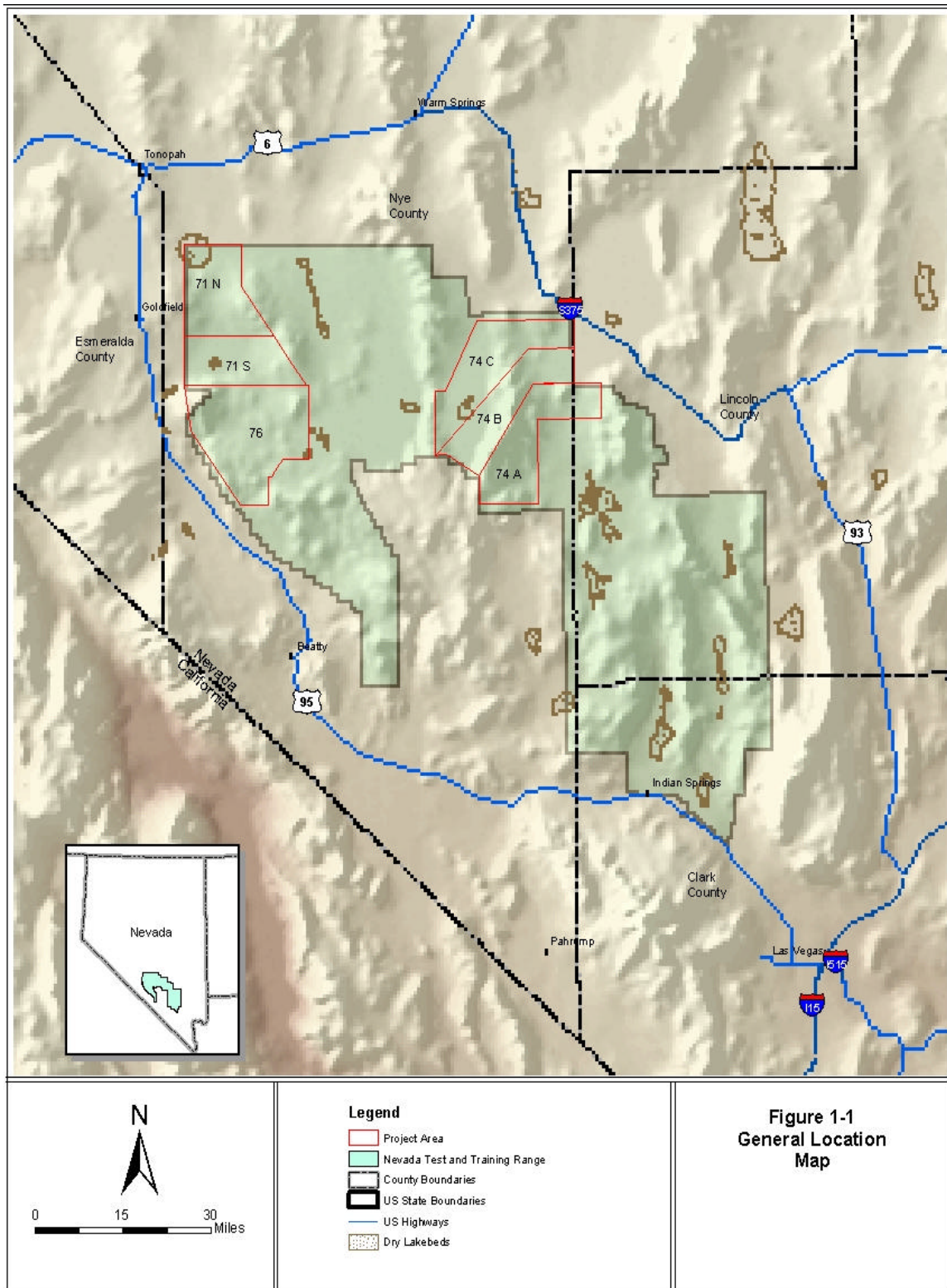
1.1 Background

The NTTR consists of approximately 2.9 million acres in southern Nevada withdrawn from public use as a military training area. A wide spectrum of training capabilities exists on the NTTR to provide a realistic combat training environment. These capabilities include but are not limited to scorable bombing and gunnery ranges, air-to-air gunnery ranges, and electronic combat threat emitters. Many different types of ordnance, both live and inert, are used on the NTTR to provide training, tactics testing, and evaluation needed to achieve and maintain full combat readiness.

A variety of existing targets and structures are present throughout ranges 71, 74, and 76 of the NTTR. Existing targets are constructed of materials including wood and camouflage netting, sea-land containers, cement blocks, buses, tanks, and automobiles. Structures are arranged to simulate possible urban combat scenarios. Existing tunnel targets are cargo containers positioned adjacent to hills and covered with soil from the surrounding hillside. Additionally, simulated rail lines have been constructed with pipes and sea-land containers.

The JDAM is a family of guided air-to-surface weapons with high accuracy, all-weather, autonomous, conventional bombing capability. Mission plans are loaded to the host aircraft prior to take off and include release envelope, target coordinates, and weapon terminal parameters. Targeting data is automatically downloaded to the weapon from the host aircraft. When the host aircraft reaches the release point within the Launch Acceptable Region (LAR), the weapon is released. The LAR depicts the area from which JDAM may be released and reach its target with the planned impact parameters.

The JDAM can be launched approximately 15 miles from the target and allows launch from very low to very high altitude and can be launched in a dive, toss, and loft, or in straight and level flight. The JDAM also allows multiple target engagements on a single pass delivery and provides the user with a variety of targeting schemes, such as preplanned and in-flight captive carriage retargeting. In-flight captive carriage retargeting gives the pilot flexibility during a mission allowing the pilot to adjust coordinates.



High Fidelity targets would consist of simulated urban and village complexes constructed using concrete blocks, steel sea-land containers, steel pipes, pre-engineered metal buildings, and plastic panels. A High Fidelity Weapon is any precision-guided weapon employed to achieve desired effects on a 24-hour, 7-day per week basis. These weapons are generally classified as Stand-off Weapons (SOW), which integrate with Global Positioning Systems (GPS). Stand-off Weapons are those weapons that can be launched from a long distance, thus minimizing risk to the pilot from enemy return fire. These weapons are chosen because of their accuracy from a long distance, and their destruction capability. Most often these weapons are used against High Fidelity Targets, which are required to be destroyed at the onset of conflict. These targets usually house Weapons of Mass Destruction (WMD), political interests, or major lines of communication. A High Fidelity Weapon would also be used against targets that could cause a breakdown or destruction in the Integrated Air Defenses (IADs). These targets can range from an underground-hardened facility to a particular area of unrest.

Feedback regarding the accuracy of bombing activities is provided to aircrews via TOSS towers. The TOSS towers are located at strategic vantage points near targets and are operated remotely. Each TOSS tower site contains a small tower, associated electronics, solar array, and battery bank.

1.2 Purpose and Need for Action

The U.S. military forces face new and evolving combat scenarios. Aircrews are expected to fight battles in open terrain as found during the Gulf War, and they also must undertake military operations that are directed at specific towns and cities or even particular city blocks and individual buildings. Recent conflicts in Iraq and Afghanistan highlight these varying military operations. Often, air strikes are avoided if there is the potential to affect large portions of cities, entire towns, or numerous civilians. Damage to infrastructure and humans is expected to be kept at a minimum (or not at all) during missions, and aircrews are required to strike enemy targets with almost total accuracy. Realistic training that simulates these urban scenarios is necessary to obtain the level of accuracy needed in combat situations (Air Force 2003).

Additionally, in 2000 Congress expressed its concern that U.S. military services have not sufficiently emphasized urban warfare training. The Air Force can generate substantial advantages over enemies in an urban terrain while avoiding civilian loss of life, damage to humanitarian missions, and destruction of property by investing in better and more appropriate training facilities, scenarios, technologies, and education (Air Force 2003).

The purpose of constructing and implementing High Fidelity targets at the NTTR is to fulfill the Air Force's need to train aircrews in a modern urban environment. The purpose of implementing JDAM is to use it as a SOW during urban warfare. One of the benefits of the JDAM weapon in an urban setting is to pinpoint "hotspots" while minimizing collateral damage. The JDAM weapon can be used against heavily defended targets because of its stand-off capability. The High Fidelity and JDAM targets would provide multiple current world scenarios that depict the types of threats and terrorist facilities that the Air Force must operate against.

The need for the proposed action is to enhance the realism of the High Fidelity and JDAM target training scenarios, and train aircrews in the use of High Fidelity and JDAM weapons. The proposed action would consist of integrated, realistic targets and assets, which simulate an urban environment for aircrews at multiple locations on the North Range of the NTTR. These types of

training capabilities would allow the Air Force to continue its practice of providing military personnel with the proper skills to combat current world scenarios.

1.3 Environmental Regulatory and Permit Requirements

The potential environmental impacts resulting from the construction and implementation of the proposed target structures and ancillary facilities are analyzed in this Environmental Assessment (EA). This EA is prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (Public Law [PL] 91-190) and the implementing regulations of the President's Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), which require federal agencies to analyze the potential environmental impacts of their proposed actions. Additionally, the document was prepared in compliance with 32 CFR 989 and Air Force Instruction 32-7061, *The Environmental Impact Analysis Process*, which implements NEPA and CEQ regulations for Air Force actions. This EA was prepared in compliance with NEPA and other federal statutes such as the Clean Air Act, the Clean Water Act, Endangered Species Act, and the National Historic Preservation Act.

The Air Force has initiated informal consultation with the U.S. Fish and Wildlife Service and the Nevada State Historic Preservation Officer. The Air Force would need to update its National Pollution Discharge Elimination System permit and prepare or update the Stormwater Pollution Prevention Plans for the affected areas. In addition, a surface area disturbance permit, dust control permit, dust mitigation plan, and site-specific dust mitigation plan would be required for the proposed action.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This chapter contains the description of the proposed alternatives that are being evaluated for the North Range High Fidelity and JDAM targets and TOSS towers. The proposed target structures and TOSS towers would be located within ranges 71, 74, and 76 of the NTTR. The proposed targets would be similar to existing target structures and facilities as described in Section 1.2, Background. The various targets are clustered and positioned within specific range locations to simulate urban and current world scenarios that may be encountered by the U.S. Armed Forces.

This EA evaluates the potential environmental impacts associated with the various proposed High Fidelity and JDAM targets. The proposed alternatives and impacts analyses have been presented within the EA in a manner that allows the Air Force to quickly identify and compare the potential environmental effects of constructing all options. The target and TOSS tower locations that the Air Force ultimately selects may be a combination of the following options described in subsections 2.1 thru 2.6. The No Action alternative is described in subsection 2.7. The resources that warrant analysis and a comparison of impacts and alternatives are described in subsections 2.8 and 2.9, respectively.

2.1 JDAM Targets

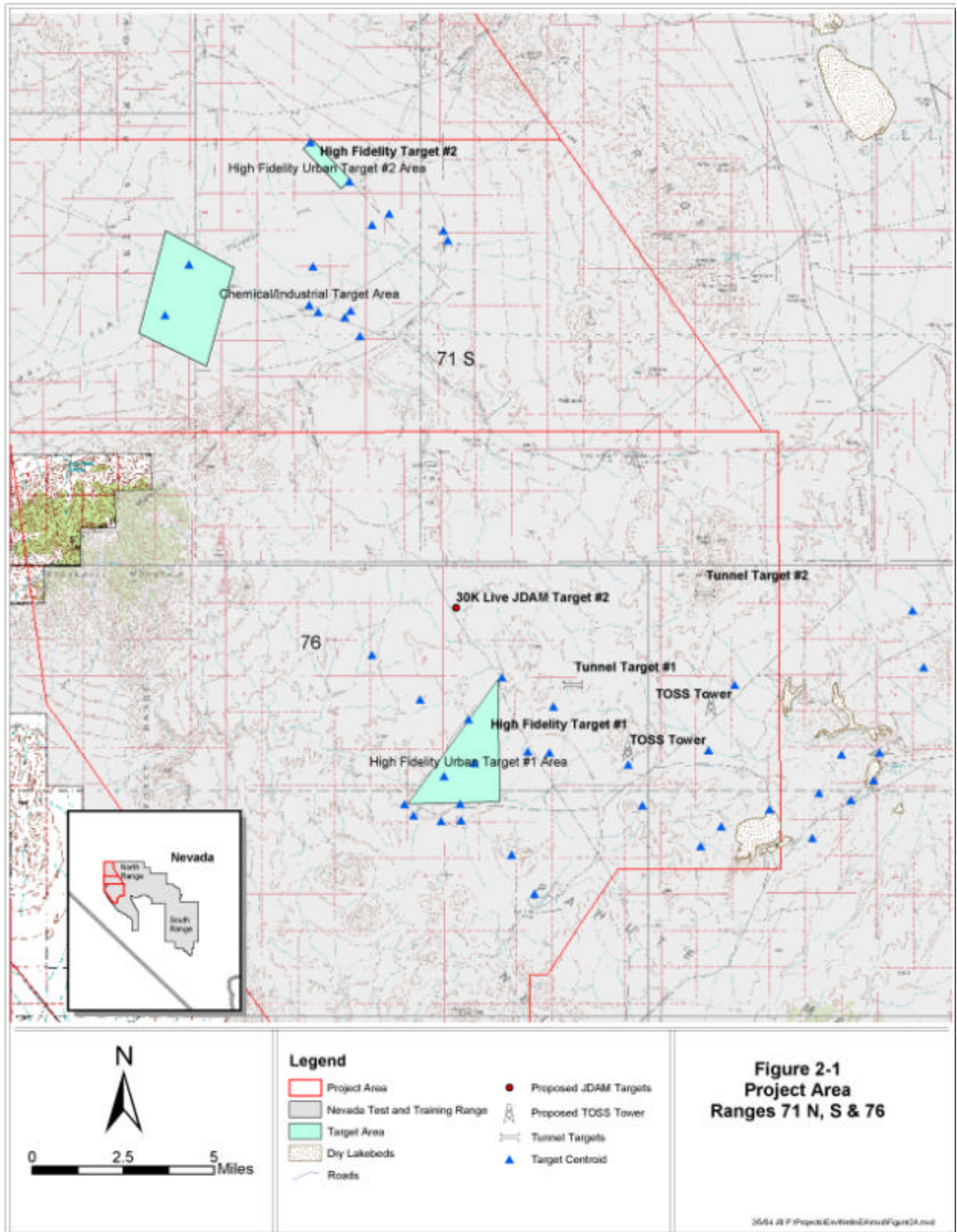
The Air Force proposes to construct a JDAM target on Range 74 in Kawich Valley, and on Range 76 (Figures 2-1 and 2-2). The proposed 30K Live JDAM targets would consist of simulated urban and village complexes that would be constructed using concrete blocks, steel sea-land containers, steel pipes, pre-engineered metal buildings, and plastic panels. The materials would be assembled and positioned to create the appearance of buildings, rail lines, communication lines, and other urban facilities.

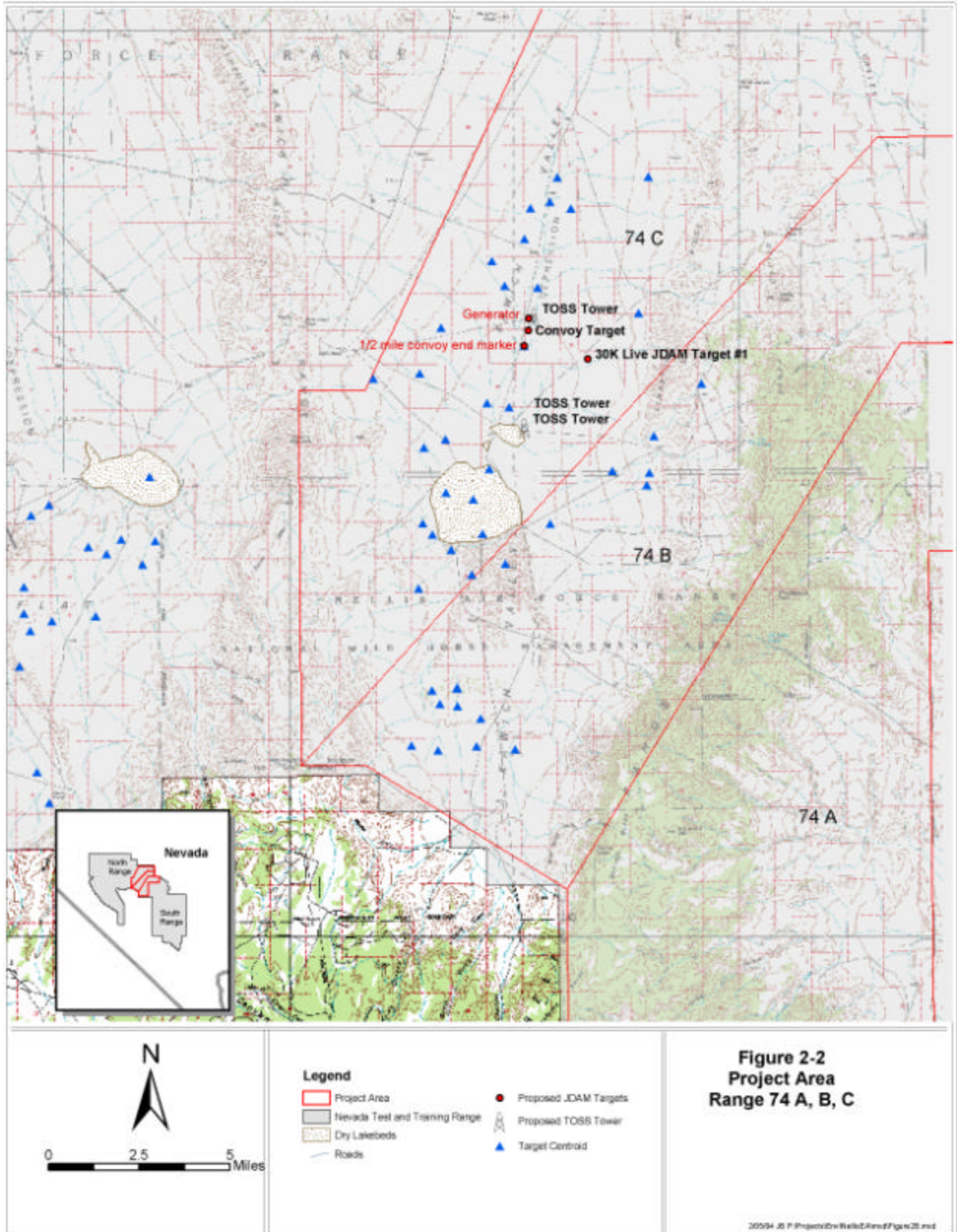
The proposed JDAM targets would be single low-fidelity targets. Minimal grading of the target site would be necessary for replacement of the Designated Mean Point of Impact (DMPI). The area of disturbance resulting from target construction, target use, and coronet clean activities would be approximately 1,000 feet (ft) around the target.

The JDAM targets would be located within 600 ft of an existing road to minimize the amount of total land disturbance resulting from vehicle access to the site. A 15-ft wide, 600-ft long, unpaved road to both target sites would be graded for easy access during construction and maintenance activities.

2.2 Tunnel Complexes

The Air Force is proposing to build two tunnel complexes on Range 76 (Figure 2-1). Tunnel targets are typically constructed on the side of a hill and consist of concrete blocks and/or steel sea-land containers. The blocks or containers are positioned at the base of the hill and covered with soil and materials from the surrounding landscape. The outer edge of the block or container is left uncovered to simulate a tunnel entrance. Minimal surface grading would be done to simulate ground activity typically found near tunnel complexes. Effort would be made to keep the vegetation and soil disturbance to a minimum. Each tunnel target site would have up to five southerly facing tunnel structures. The area of disturbance resulting from target construction, target use, and coronet clean activities would be approximately 2,000 ft around each tunnel complex.





Tunnel Target #1 would be located on Range 76 as shown in Figure 2-1. A 15-ft wide, 200-ft long unpaved access road would be graded from the existing road to the tunnels.

Tunnel Target #2 would be located on Range 76 as shown in Figure 2-1. A 15-ft wide, 6,300-ft long unpaved access road would be graded from the existing road to the tunnels.

2.3 Chemical/Industrial Target Complex

The proposed targets would consist of a simulated chemical/industrial complex constructed of concrete blocks, steel sea-land containers, steel pipes, pre-engineered metal buildings, and plastic panels. The materials would be assembled and positioned to create the appearance of buildings, rail lines, communication lines, and other chemical/industrial facilities. Vehicle targets would be dispersed throughout the complex to enhance the realism of the target area.

Surface disturbance would be minimal, but would include some grading to simulate ground activity typically found near and in industrial and chemical complexes. Existing unpaved roads would be used for access during construction and maintenance activities.

The proposed chemical/industrial target would be located on approximately 3,800 acres of land on Range 71 in the vicinity of an existing industrial target complex and would essentially be an expansion of that existing complex. The proposed expansion would be around existing targets 71-03 and 71-11 as shown on Figure 2-3. This chemical/industrial area would complement the existing Urban Targets 71-12 and 71-06.

2.4 Convoy Target

The proposed convoy target on Range 74 would be constructed to simulate an enemy convoy, which may be encountered during combat. The convoy target would be approximately one-half mile long, consisting of old military vehicles, tanks, cars, and trucks. The convoy target would be placed in a north-south orientation beginning approximately 1,500 ft from the existing generator (Figure 2-2). The convoy would be located just east of the existing road. No grading would be required and no new roads would be constructed.

2.5 High Fidelity Targets

The proposed high fidelity targets would be constructed in either Range 71 or 76. The proposed High Fidelity targets would consist of simulated urban and village complexes that would be constructed using concrete blocks, steel sea-land containers, steel pipes, pre-engineered metal buildings, and plastic panels. The materials would be assembled and positioned to create the appearance of urban sprawl.

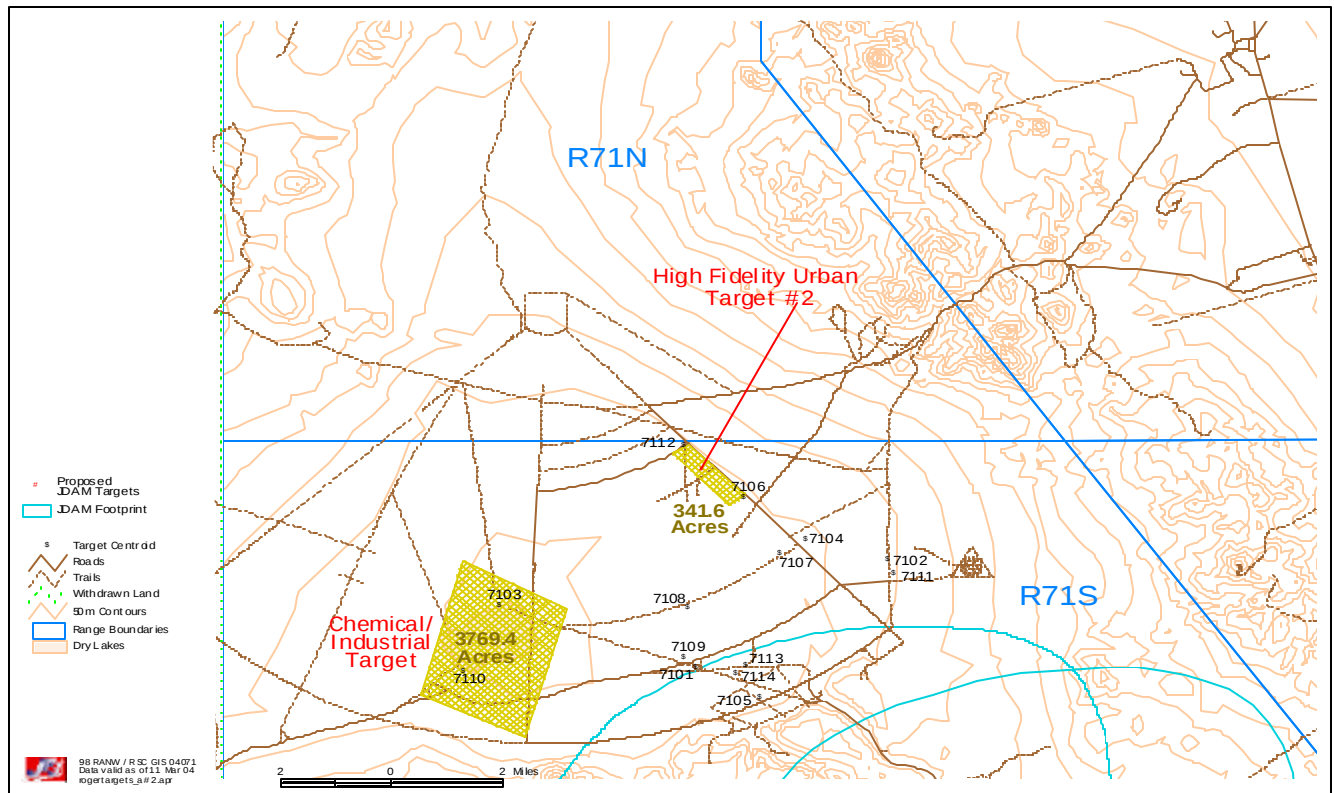


Figure 2-3. Chemical/Industrial and High Fidelity Urban Target #2 Locations Range 71

The proposed High Fidelity Target #1 would be constructed on land adjacent to existing targets on Range 76. The expanded area would connect targets 76-01 and 76-05 and extend to the east as shown on Figure 2-4. Vehicles would be dispersed throughout the vicinity to increase the realism of the target area. Surface land disturbance would be minimal, but would include some grading to simulate ground activity typically found near and in urban environments. High Fidelity Target #1 encompasses approximately 2,700 acres of land.

The proposed High Fidelity Urban Target #2 would add urban “sprawl” along the roadway in Range 71 (Figure 2-1). The expanded “urban sprawl” area would connect existing targets 71-12 and 71-06, and extend 1,800 ft west of the road as shown on Figure 2-3. Additional urban structures similar to the existing targets would be constructed and vehicles would be dispersed throughout the area. Surface disturbance would be minimal, but would include some grading to simulate ground activity typically found near small village complexes. Unpaved roads would be graded through the vicinity of the urban sprawl to increase the realism of the target area and to provide access for construction and maintenance. High Fidelity Target #2 encompasses approximately 340 acres of land.

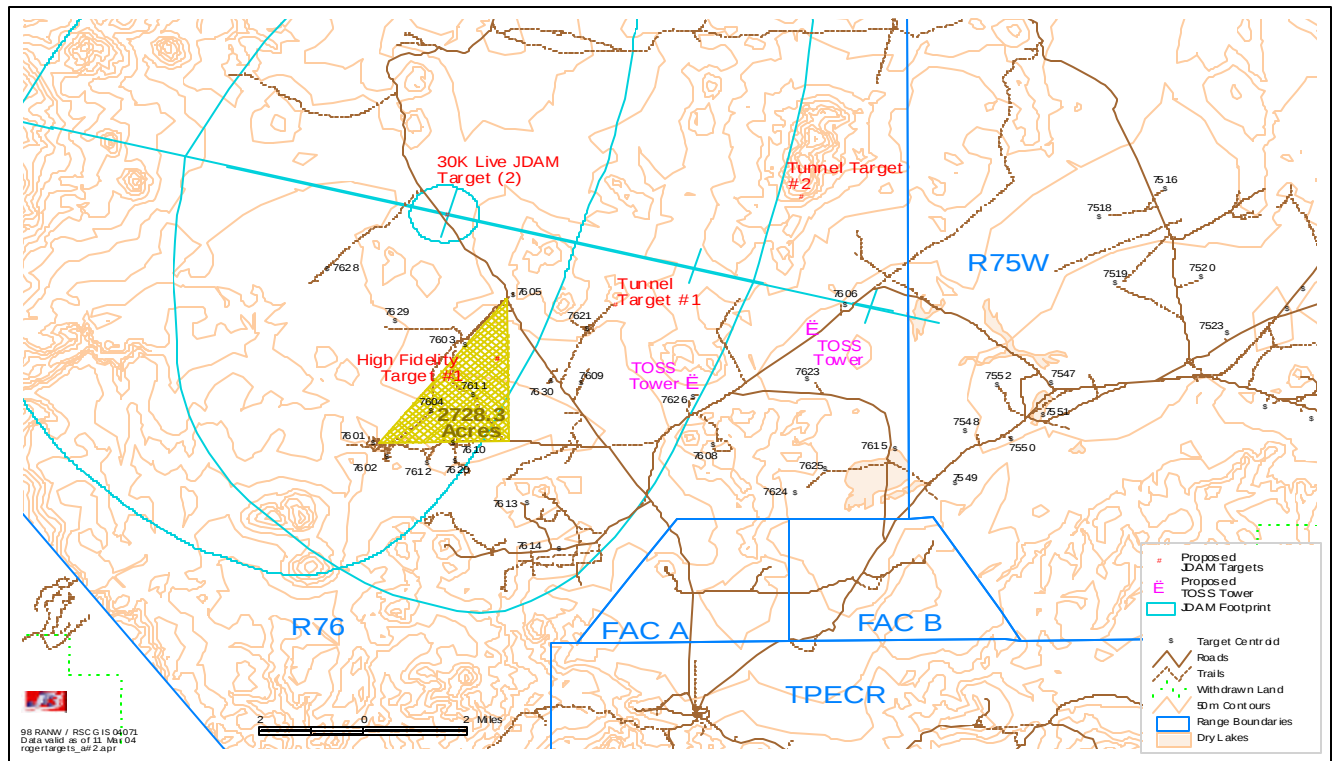


Figure 2-4. Target Locations on Range 76

2.6 Tactical Ordnance Scoring System Towers

The Air Force uses scoring systems, TOSS, to provide the necessary feedback to aircrews regarding their performance during training missions. Additional TOSS towers would be needed to score the accuracy of training activities at the proposed High Fidelity and JDAM target locations in ranges 74 and 76. The TOSS towers would be located at strategic vantage points near targets in order to provide bombing-accuracy feedback to aircrew. Each TOSS tower site would contain a small tower with associated electronics, solar array and battery bank. The TOSS towers would be remotely operated, however, field service crews would require access to the sites to perform routine maintenance.

There are two proposed TOSS towers on Range 74 in the vicinity of the proposed Convoy Target and JDAM Target #1 as shown on Figure 2-2. Each tower and its associated support equipment would be contained in a 50-ft by 50-ft area. Concrete blocks would be stacked around the tower and equipment at each site to prevent damage from shrapnel. A 15-ft wide, 150-ft long unpaved access road would be graded from the existing road to the tower location.

There are two proposed TOSS towers on Range 76 in the vicinity of the proposed High Fidelity Target #1 and Tunnel Targets as shown on Figure 2-1. Each tower and its associated support equipment would be contained in a 50-ft by 50-ft area. Concrete blocks would be stacked around the tower and equipment at each site to prevent damage from shrapnel. A 15-ft wide, 150-ft long unpaved access road would be graded from the existing road to the tower location.

2.7 No Action Alternative

The No Action Alternative would maintain the status quo of targets and facilities on ranges 71, 74, and 76 of the NTTR. The proposed additional targets and TOSS towers would not be constructed and expansion of existing target areas would not occur. This alternative would limit the Air Force's ability to conduct credible training in a modern urban environment with multiple scenarios that depict the types of threats and terrorist facilities that the Air Force must operate against. The No Action Alternative would require pilots to train on existing static targets with limited variability in their exercises.

2.8 Resources Not Requiring Further Analysis and Resources Analyzed in this EA

The Air Force guidance lists resources to be considered for potential impacts, however the geographic area and/or relevance to the proposed alternatives deemed a few resources unrelated or further analysis not warranted. These resources include airspace management, socioeconomic, and environmental justice. Airspace management was not analyzed because the proposed alternatives are consistent with existing activities and would be managed accordingly. The remoteness of the Ranges on which the proposed alternatives would be located ensures that socioeconomic and environmental justice resources are not affected by training activities.

The following resources warrant analysis and are described in this EA: safety, noise, land use and visual resources, water resources, air quality, hazardous materials and waste, cultural resources, biological resources, and earth resources.

2.9 Comparison of the Proposed Action and Alternatives

Table 2-1 summarizes the potential effects of each resource area that may result from implementation of the Proposed Action and the No Action. The Proposed Action includes implementing construction of all targets and TOSS towers described in this chapter.

Table 2-1 Comparison of Environmental Impacts of the Alternatives

Resource	Proposed Action	No Action
Safety	Personnel would use appropriate personal protective equipment during construction of the targets. The remoteness and restricted access of the NTTR would ensure the public's safety. Hence, no safety impacts would result from the proposed action.	No additional safety impacts are expected if construction of the proposed action is not implemented.
Noise	Existing targets in the area of the proposed targets are currently used by Air Force personnel for training. Use of additional targets in the same areas would not significantly increase noise levels, which are consistent with the ongoing mission at the NTTR.	Existing noise levels would be unchanged.
Land Use and Visual Resources	There would be no change to existing land uses or impacts to visual resources. The public does not have access to and would not be within sight of the proposed action locations because the Ranges are remote and access is restricted.	Land use would remain as a military training range, restricted from public access and viewing.
Water Resources	There would be no effect on the groundwater because deep infiltration of water is not occurring during construction of the targets or Air Force practice missions. Impacts to surface water are not expected, and construction activities would be subject to required construction permits that would eliminate or mitigate impacts to surface water.	The impacts would be the same as discussed for the proposed action.
Air Quality	Airborne emissions generated during construction would not affect public health and safety due to the remoteness of the target area, restricted access, and all construction activities must comply with the NTTR Facility Wide Fugitive Dust Control Plan.	Air quality conditions would not differ from the current conditions.
Solid/Hazardous Waste	There would be no effect on current procedures and practices for constructing or implementing new JDAM targets on the NTTR. Monitoring and clean up would be accomplished at each target location in accordance with existing Air Force Hazardous Materials plans.	The use of hazardous materials would not change from the baseline conditions.
Cultural Resources	No sites eligible for the National Register of Historic Places were identified in the proposed project areas. Additionally, ongoing military training and testing activities have previously disturbed much of the proposed project area. Thus, no significant impacts to cultural resources would occur.	There would be no impact to cultural resources.
Biological Resources	Some native vegetation would be disturbed during construction and implementation of the proposed action, however much of the area is already disturbed. Sensitive species are not known to occur in the area. Migratory species mostly occur in the higher elevations and would not be impacted.	There would be no impact to biological resources.
Earth Resources	No additional impacts to geology and soils would result from the Proposed Action. Potential soil erosion would be controlled through the use of best management practices.	There would be no additional impact to geology or soils.

3.0 AFFECTED ENVIRONMENT

This section describes the existing environmental conditions on the North Range of the NTTR. The proposed project would be located within ranges 71, 74, and 76 of the North Range (Figure 1-1). The environmental resources discussed in this chapter include safety, noise, land use/visual resources, water resources, air quality, hazardous materials and waste, cultural resources, biological resources, and earth resources.

The NTTR environment allows for realistic, secure simulation of a battle area, complete with surface and air defense systems, command and control systems, realistic targets, and defensive threats, as well as training systems and instructional aids that provide almost instantaneous test and training feedback. The testing and training supported by the NTTR enhances national security by preparing aircrews for increasingly complex military operations. These test and training activities need to be performed in an exclusive-use area to ensure national security and public safety.

The climate in the area of the NTTR is affected by two main sources of air movement. The area is influenced by Pacific air movements that come across the Sierra Nevada Mountains from fall through spring. Winds from Mexico are predominate in the area during the summer and early fall.

Annual precipitation depends mainly on elevation and varies from 4 inches on the desert floor to about 16 inches in the higher mesa areas. The proposed target locations in ranges 71, 74, and 76 are considered to be located on the desert floor. Winter precipitation often falls as snow (at higher elevations), whereas summer rains are often associated with thunderstorms, which are intense enough at times to produce local flash flooding.

3.1 Safety

Construction and maintenance activities as well as ground operations are on-going at the NTTR. Day-to-day NTTR operations and activities are performed by qualified personnel and are conducted in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational Safety and Health requirements.

Safety footprints based on specific aircraft and ordnance type have been developed for proposed and existing targets on the NTTR to ensure safe ordnance delivery. The safety footprints are geographic areas surrounding the targets where inert or training ordnance or the effects of high explosive ordnance could cause injury or damage property. Personnel are not permitted within these safety footprints when the targets/ranges are in use.

3.2 Noise

The primary source of noise on ranges 71, 74, and 76 is from low altitude aircraft operations and air-to-ground bombing and gunnery activities. Aircraft operations on the various ranges are often sporadic with periods of heavy activity interspersed with slow times. Sources of noise during non-training periods may include construction and maintenance activities, and vehicle traffic on unpaved roads.

3.3 Land Use and Visual Resources

The proposed action is entirely within the NTTR boundary, which has been designated for military operations since the withdrawal of the lands in the 1940's (Air Force 1999). Access restrictions are enforced throughout the NTTR. Therefore, land development and livestock grazing do not occur.

The lands on ranges 71, 74, and 76 are used for military purposes. A variety of existing targets and structures are present throughout these ranges. Existing targets are constructed of materials including wood and camouflage netting, sea-land containers, cement blocks, buses, tanks, and automobiles. Structures are arranged to simulate possible urban combat scenarios.

The proposed target sites are located in remote areas of the NTTR. The topography generally limits the view shed to the closest range. Hence, these locations would be classified as being in the Seldom Seen Zone, which is defined by the U.S. Bureau of Land Management (BLM) Visual Resources Handbook as "areas that are not visible within the foreground-middleground and background zones or areas beyond the background zones" (BLM 2004). There are no unique natural or manmade visual resources located in the proposed project areas.

3.4 Water Resources

The following section discusses the water resources at the NTTR. The discussion is divided into two subsections, groundwater and surface water.

3.4.1 Groundwater

The primary groundwater flow system on the NTTR is a regional flow system. The general direction of regional flow within the boundaries of the NTTR is from the northeast toward the southwest. Depth to groundwater varies from a few ft to over 1,000 ft below the surface, but on the average exceeds 200 ft (Air Force 1996). Groundwater is used as the primary water supply in support of range personnel and operations at the NTTR.

Three types of aquifers underlie portions of southern Nevada and the NTTR: valley-fill or alluvial aquifers, volcanic aquifers, and carbonate aquifers (Dettinger 1992). The primary source of groundwater recharge on the NTTR is precipitation in the form of rain or snow falling in the mountains and infiltrating into alluvial and bedrock aquifers. Mountain precipitation infiltrates directly into aquifer outcroppings providing recharge to the bedrock aquifers.

3.4.2 Surface Water

Surface water resources on NTTR are scarce because of the dry regional climate characterized by low precipitation, high evaporation, low humidity, and wide extremes in daily temperatures. The availability of moisture in excess of evaporation and transpiration is so limited that few perennial surface water features are present within the NTTR. With the exception of man-made ponds and catchments, the only perennial surface water comes from springs that form where groundwater intersects the surface. The springs flow for short distances on the ground surface, which is underlain by bedrock. Most surface water is temporarily present as a result of ponding in low permeability playas and as ephemeral channel flow from infrequent precipitation and snowmelt runoff. Playas are not major recharge zones due to the low infiltration potential (Air Force 1999).

Temporary ponding of surface water runoff occurs in Stonewall Flats on Range 71 and in the Kawich Valley on Range 74. Most of the surface water that reaches these playas is lost through evaporation and transpiration within a very short period. Regional storms, which generally occur in the winter months, are typically of low intensity with low flooding potential. However, locally intense summer thunderstorms within the mountainous portions of the NTTR can produce flooding in the low-lying valleys such as Stonewall Flats and Kawich Valley.

3.5 Air Quality

The U.S. Environmental Protection Agency (EPA) has established nationwide standards, under the authority of the Clean Air Act (CAA), and National Ambient Air Quality Standards (NAAQS), to protect public health and welfare. Under the CAA, state and local agencies may establish air quality standards and regulations of their own, provided these are at least as stringent as the federal NAAQS (General Conformity Rule). The North Range lies within Nye County, Nevada, which is an attainment area for all of the NAAQS (EPA 2004). The NAAQS include standards for six “criteria” pollutants: ozone (O₃), nitrogen dioxide (NO_x), carbon monoxide (CO), “respirable” particulates (particulate matter less than 10 microns in diameter [PM₁₀]), sulfur dioxide (SO₂), and volatile organic compounds (VOCs).

Air emissions on the NTTR and in the vicinity of the proposed target locations result primarily from aircraft operations, weapons/ordnance delivery impact and detonation, and vehicle and generator operations. Air pollutants generated by these sources include aircraft engine emissions, fugitive dust and gaseous emissions from weapons/ordnance delivery, and fugitive dust and engine emissions from range vehicle travel over unpaved roads.

The General conformity Rule only applies to nonattainment areas, therefore the North Range of the NTTR is not subject to conformity requirements.

3.6 Solid/Hazardous Waste

The terms hazardous waste or hazardous material means those substances defined as hazardous by the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), Title 42 of United States Code (USC) §§ 9601-9675, as amended, and the *Solid Waste Disposal Act*, as amended by the *Resource Conservation and Recovery Act* (RCRA), 42 USC §§ 6901-6992, as amended. In general, this includes substances that – because of their quantity; concentration; or physical, chemical, or infectious characteristics – may present substantial danger when released into the environment.

The most commonly used hazardous materials include aviation and motor fuels, various grades of petroleum products, paints, solvents, thinners, adhesives, cleaners, batteries, acids, bases, refrigerants, compressed gases, and pesticides. It is not anticipated that any such items would be used during the construction of the proposed high fidelity and JDAM targets, and TOSS tower structures. There were no visible hazardous materials present at any of the proposed target locations. However, there was target debris and munitions residue noted in the vicinity.

Additionally, various quantities of munitions are routinely handled on the NTTR in support of its operational and training missions. However, no munitions are actually stored at any of the proposed action locations. There is the potential for unexploded ordnance (UXO) to be present at the proposed action locations. Furthermore, the live ordnance types, such as air-to-ground missiles, rockets, general purpose bombs and guided bomb units, have resulted in some localized

areas of metals and explosives concentrations above background levels but the target areas seldom exceed the risk-based EPA Preliminary Remediation Goals (Air Force 2003).

During construction, use of hazardous substances (e.g., gasoline) for fueling and equipment maintenance would be handled using existing Air Force instructions, policies, and procedures. Adherence to policies relating to hazardous substances storage and use during operations would be monitored under the Air Force's Environmental Compliance Assessment Management Program.

3.7 Cultural Resources

There are archaeological sites in areas on the North Range where people conducted activities up to 10,000 years ago, but most use is concentrated within the past 5,000 years. Present-day Native Americans of the Southern Paiute, Western Shoshone, and Lower Colorado Tribes trace their ancestral hunter-gatherer uses to the NTTR. Their activities consisted of the trapping and hunting of primarily small animals, and procuring plant foods on a seasonal basis. Knowledge of water-source locations in the desert was crucial. Camping sites were concentrated along the margins of dry lakes that sometimes held water for periods of time, in the high altitudes of the mountains where pinyon collection was held in the fall, and along the bases of hills and mountains where food sources such as Yucca and Agave plants were available (DOE 1998).

Approximately 68,000 acres, or 2.5 percent of the NTTR, were inventoried for cultural resources before 1993. Most of these surveys covered small, isolated areas and results provide minimal information on cross-sections of sensitivity on the NTTR. Supporting cultural resource surveys conducted by HRA for the Proposed Action provided additional information. However, some areas were not surveyed because they were previously determined to have a low probability for cultural resources, were previously disturbed, or contained potential or observable safety hazards (i.e. unexploded ordnance) (HRA 2004).

A site reconnaissance survey was conducted within select locations on Range 71S. Intensive pedestrian surveys were conducted for project areas within Range 76. A single small prehistoric archaeological site was located and recorded during the course of the investigation. The site consists of a small scatter of obsidian flakes, which indicates a single mid-stage reduction episode with no evidence of late stage tool manufacture or expedient flake utilization (Parry and Kelly 1987). The site is not considered to be eligible for nomination to the National Register of Historic Places. The site contained limited artifacts observed in surface context. Artifact analysis revealed no unique technological patterning, temporally diagnostic artifacts, or the presence or the potential for surface or subsurface features necessary to provide information relevant to research questions (HRA 2004).

A total of 37 isolated occurrences of potential cultural resources were located and recorded for the areas surveyed in Ranges 71 and 76.

3.8 Biological Resources

This section is subdivided into Vegetation and Wildlife. A detailed biological survey was not conducted as part of this EA. However, general conditions were identified to confirm community types and presence for special status species. No aquatic or wetland habitats exist within or adjacent to the proposed project location.

3.8.1 Vegetation

The existing vegetation within the proposed project areas reflects substantial disturbance by military operations and the presence of wild horses. The proposed target locations are adjacent to existing targets. The targets require periodic maintenance, replacement, and ordnance removal. These operations disturb the vegetation communities currently present and degrade the existing habitat. Furthermore, the continually disturbed habitat creates excellent seedbeds for highly invasive species, such as Russian thistle.

The vegetation communities existing in the project area reflect typical Great Basin vegetation communities of Great Basin Sagebrush and Salt-Desert Shrub. Vegetation associated with the Great Basin Sagebrush complex is big sagebrush (*Artemisia tridentata*), shadscale (*Atriplex confertifolia*), black sagebrush (*Artemisia nova*) scrub, four-wing saltbush (*Atriplex canescens*), rubber rabbitbrush (*Chrysothamnus nauseosus*), blackbrush (*Coleogyne ramosissima*), and mormon-tea (*Ephedra trifurca*). Indian rice grass (*Oryzopsis hymenoides*), is the dominant grass species with patches of big galleta grass (*Pleuraphis rigida*) present throughout all proposed target and TOSS tower locations.

Vegetation in the Salt-Desert Shrub community occurs at lower elevations on valley floors, around playas and bajadas, and is typically surrounded by shrub-steppe habitat. Co-dominant species occurring in the salt-desert complex are greasewood (*Sarcobatus vermiculatus*) and shadscale. Other vegetation associated with this complex is four-wing saltbush, Indian rice grass, and Saltgrass (*Distichlis spicata*)

Appendix B, Special Status Species Recorded near the Proposed Action, provides the list of special status plant species that are known or likely to occur on the NTTR near the proposed project. The Nevada Natural Heritage Program compiled the list on December 9, 2003. There are no federally listed threatened or endangered plants known or likely to occur within or adjacent to the proposed project areas.

3.8.2 Wildlife

Information regarding wildlife species presence in different habitats or specific regions of NTTR is principally based on data provided in the Renewal of the Nellis Air Force Range Land Withdrawal Legislative Environmental Impact Statement (Air Force 1999). Common mammals known to occur within or adjacent to the proposed project area are white-tailed antelope squirrels (*Ammospermophilus leucurus*), round-tailed ground squirrel (*Spermophilus tereticaudus*), pallid kangaroo mouse (*Microdipodops pallidus*), dark kangaroo mouse (*M. megacephalus*), sagebrush vole (*Lagurus curtatus*) and chisel-toothed kangaroo rat (*Dipodomys microps*), Townsend's ground squirrel (*Spermophilus townsendii*), desert cottontail (*Sylvilagus audubonii*), Nuttall's cottontail (*Sylvilagus nuttallii*), sagebrush vole (*Lemmys curtatus*), Great Basin pocket mouse (*Perognathus parvus*), and American badger (*Taxidea taxus*). Other common mammals such as the Antelope (*Antilocapra americana*), common coyote (*Canis latrans*), and kit fox (*Vulpes macrotis*) migrate through or forage in the proposed project area.

Mule deer (*Odocoileus hemionus*) have been observed in the mountain ranges of the North Range and at lower elevations near the proposed target locations in Range 74 (Air Force 1981). Bighorn sheep (*Ovis canadensis*) are widely dispersed throughout many of the mountain ranges of the NTTR and Desert National Wildlife Range (Air Force 1981, USFWS 1998). Pronghorn antelope (*Antilocapra americana*) winter range and/or breeding grounds are located along the foothills and

adjacent valley of the Kawich Range on Range 74 (Air Force 1981). Pronghorn antelope are found in both ranges 71 and 76 on a permanent basis.

Bat species potentially occurring in the proposed project area include the long-legged myotis (*M. volans*), fringe-tailed myotis (*M. thysanodes*), California myotis (*Myotis californicus*), pipistrelle (*Pipistrellus hesperus*), Townsend's big-eared bat (*Plecotus townsendii*), and pallid bat (*Antrozous pallidus*).

Aves (birds) species known to occur within or adjacent to the proposed project areas are sage sparrow (*Amphispizabelli belli*), sage thrasher (*Oreoscoptes montanus*), horned lark (*Eremophia alpestris*), red-tailed hawk (*Buteo jamaicensis*), prairie falcon (*Falco mexicanus*), Golden Eagle (*Aquila chrysaetos*) and vesper sparrow (*Pooecetes gramineus*). American Kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*), common ravens (*Corvus corax*), and turkey vulture (*Cathartes aura*) were observed in the proposed project areas. Other species known to occur with less frequency include the green-tailed towhee (*Pipilo chlorurus*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), common nighthawk (*Chordeiles minor*), and western meadowlark (*Sturnella neglecta*) (Air Force 1997).

Executive Order (EO) 13186 defines the responsibility of federal agencies to protect migratory birds. Under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703 *et. Seq.*), it is unlawful to take, kill, harm, or possess migratory birds. Migratory birds such as raptors, ravens, and waterfowl may use the NTTR for seasonal residency, migration corridors, and forage. Seasonal temporary surface waters on the NTTR may provide habitat for migrating species through this arid environment.

Appendix B, Special Status Species Recorded near the Proposed Action, provides the list of special status wildlife species that are known or likely to occur on the NTTR near the proposed project. There are no federally listed threatened or endangered wildlife species known or likely to occur within or immediately adjacent to the proposed project areas. Habitat for the species listed in Appendix A includes caves, mines, and cliffs that are not present in the proposed project areas.

3.9 Earth Resources

This section describes the geology and soils of the NTTR, and more specifically the geology and soils on Ranges 71, 74 and 76. The NTTR is in the southern part of the Great Basin, the northern-most subprovince of the Basin and Range physiographic province. The Basin and Range province is generally characterized by a series of north-south trending mountain ranges separated by alluvial basins that were formed by faulting. The Great Basin subprovince is an internally draining basin, which means precipitation that falls over the basin has no outlet to the Pacific Ocean. All proposed target locations generally fall within the valley floors and dry lakebeds.

3.9.1 Geology

The bedrock geology of the NTTR can be divided into a southeastern area of largely Paleozoic sedimentary rocks, and a northwestern area of mainly volcanic rocks of late Cenozoic age (TRC 1996). Tertiary volcanic rocks dominate the geology of the North Ranges. Two general groups of volcanic rocks are recognized: (1) an older, late Oligocene-early Miocene sequence of ash-flow tuffs and related lavas erupted from volcanic centers within and to the north of NAFR; and

(2) middle- and late-Miocene ash-flow tuffs and lavas erupted from volcanic centers of the southwestern Nevada volcanic field (Air Force 1999).

3.9.2 Soils

The soils on NTTR have not been mapped in detail; however, general descriptions of soil series are available from the U.S. Department of Agriculture (USDA). The basin floors generally consist of the Mazuma and Ragtown soil series. The Mazuma series are very deep, well-drained soils that formed in alluvium and lacustrine materials from mixed rock sources. Mazuma soils occur on fan skirts and alluvial flats, with slopes of 0 to 15 percent. The Ragtown series are very deep, moderately well-drained soils that formed in moderately fine and fine-textured lacustrine materials from mixed rock sources. This series occurs on lake plain terraces with slopes of 0 to 4 percent (USDA 1993).

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4.0 ENVIRONMENTAL CONSEQUENCES

This chapter presents the environmental consequences that may result from the implementation of the Proposed Action or No Action Alternative. The nine resources addressed include safety, noise, land use and visual resources, water resources, air quality, hazardous materials and waste, cultural resources, biological resources, and earth resources.

4.1 Proposed Action

The proposed action would include construction of the High Fidelity and JDAM targets and TOSS towers described in Section 2.1, Proposed Action. The targets and TOSS towers would be constructed on ranges 71, 74, and 76, and would not alter existing military operations on those ranges. The potential environmental impacts resulting from the Proposed Action are presented in the following sections.

4.1.1 Safety

The exclusive use of NTTR for military purposes protects the public from armament releases. Due to safeguards built into weapon systems guarding against the inadvertent arming, launching, or releasing of ordnance, the probabilities of such a release outside of designated target areas and proposed new target areas remains minuscule. While the possibilities of other objects separating from an aircraft in flight cannot be totally discounted, that risk, too, is extremely low. Safety requirements would preclude any human presence in the areas during training; therefore, health or safety risks are not expected.

Impacts to human safety related to construction and maintenance activities as well as ground operations would be minimal and no different from standard, on-going activities occurring at ranges 71, 74, and 76. Construction, operations and maintenance activities would be performed in accordance with applicable Office of Safety and Health Administration directives. There are no specific aspects of construction operations or maintenance activities that would create any unique or extraordinary safety issues.

4.1.2 Noise

Aircraft would enter and transit in the airspace unit similarly to current mission events. Therefore, noise levels would not be above those already occurring during aircraft operations and firing of conventional munitions in the proposed target areas. Safety requirements would preclude any human presence in the areas during training; therefore, there are no health or safety risks associated with noise from aircraft. The general public would not be affected by noise generated within the restricted areas of the range because access is prohibited.

Short-term localized noise increases due to construction of the proposed targets would occur. Construction of the targets and TOSS towers would involve large trucks, forklifts, bulldozers, and other heavy construction equipment. Heavy equipment operators and workers would wear standard ear protection. Construction activities would create temporary localized noise. However, impacts related to construction noise would not be significant because there are no sensitive noise receptors within the vicinity of the construction sites.

4.1.3 Land Use and Visual Resources

There would be no adverse impacts to land use or visual resources from the proposed action. Land use within ranges 71, 74, and 76 would not change from existing military-related activities, and would not be impacted by construction and implementation of the proposed targets and TOSS towers. Recreation resources would not be affected by the proposed action since the lands are withdrawn for military purposes.

Construction and use of the proposed targets and TOSS towers are consistent with existing structures and activities in the areas. Additionally, there are no views from key observation points that would be obstructed by the proposed structures. Therefore, visual resources would not be affected.

4.1.4 Water Resources

Depth to groundwater on the NTTR averages approximately 200 ft below the ground surface. Construction of the targets and TOSS towers would not require subsurface disturbance of more than 2 to 3 ft. Therefore, impacts to groundwater would not occur.

There is no perennial surface water in the vicinity of the proposed targets and TOSS towers. Temporary ponding of surface water runoff occurs in Stonewall Flat and in the Kawich Valley. Most of the surface water that reaches these playas is lost through evaporation.

The proposed Chemical/Industrial Target Area and High Fidelity Target #2 Area would be constructed within the Stonewall Flat area on Range 71. The proposed Range 74 TOSS towers, Convoy target, and JDAM Target #1 would be constructed in Kawich Valley. Construction of the targets and towers would not impact the temporary ponding or flow of surface water runoff.

4.1.5 Air Quality

Air quality impacts from the proposed action would be significant if they: (1) increase ambient air pollution concentrations above an NAAQS; (2) contribute to an existing violation of any NAAQS; (3) interfere with or delay timely attainment of NAAQS; or (4) impair visibility.

Construction of the Proposed Action would result in slight localized increases in mobile source emissions and fugitive dust (suspended particulate matter) associated with vehicles, heavy equipment, and minor earth-moving activity. Potential air pollutants resulting from construction activities include CO, NO_x, SO₂, VOCs, and PM₁₀. Air pollutant emissions arise from combustion of fuels in construction equipment, dust (PM₁₀) emissions from vehicular traffic on unpaved areas and roads, and dust emissions from soil and rock disturbances. These emissions are temporary and would cease when the construction activities are completed. Minor impacts to visibility would occur only in the immediate vicinity.

Air emissions from construction and maintenance activities would not adversely affect public health and safety in this restricted area. Emissions would not be large enough in the localized area to cause exceedance of ambient air quality standards (i.e., NAAQS). The Air Force would follow the NTTR Facility Wide Fugitive Dust Control Plan as required by the NDEP Title V Permit (Permit # AP9711-1233) to reduce or minimize fugitive emissions (Appendix A).

Overall, the potential for any increase in regional or localized concentrations of air pollutants resulting from construction of the proposed targets and TOSS towers is considered negligible. A

conformity determination would not be required for the proposed action because the action would be undertaken in an area that is unclassified or in attainment with respect to NAAQS.

4.1.6 Solid/Hazardous Waste

Use of hazardous substances (e.g., gasoline) for fueling and equipment maintenance during construction would be handled using existing Air Force instructions, policy, and procedures. Given the enforced requirement to ensure safe handling of materials, and the minimal amounts of materials likely to be used, the probability of an effect on the environment would be negligible. If spill and pollution prevention plans exist for the area, they would be updated to address activities related to the proposed action in accordance with Air Force regulations. The Proposed Action would have no effect on hazardous materials and waste within the project areas.

Any UXO encountered during construction of the proposed action would be handled according to Air Force procedures. However, a thorough survey for UXO would be performed prior to construction activities to ensure the safety of construction workers. Additionally, the amount of ordnance expended from the use of additional targets on the NTTR may increase with operation of the proposed action.

4.1.7 Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 requires that Federal agencies take into account the effects of their undertakings on historic properties. Efforts to identify and evaluate cultural resource properties for this proposal were initiated, in accordance with 36 CFR 800.4, by the Nellis Archaeologist and HRA in December 2003.

A single, small prehistoric archaeological site was located and recorded in the vicinity of the High Fidelity Urban Target #1 area in Range 76. However, the Nevada SHPO reviewed the proposal and concurs with the Air Force that the site is not eligible for the National Register of Historic Places (Appendix B). The site contained limited artifacts observed in a surface context. Artifact analysis revealed no unique technological patterning, temporally diagnostic artifacts, or the presence or the potential for surface or subsurface features necessary to provide relevant information.

The Proposed Action is considered by the Nellis AFB Cultural Resource Program as an activity similar to ongoing operations in the area. Thus, this proposal would not result in any effects to cultural resources.

4.1.8 Biological Resources

Overall, the proposed action would have minimal impacts on the biological resources in the area. The affected area for biological resources includes the locations for assets associated with the proposed action within the North Range of NTTR. Only those areas directly affected by ground-disturbing activities such as construction of the targets and road building were assessed.

Impacts to vegetation would include disturbance or removal of plant materials through establishment of the proposed targets, TOSS tower locations, and construction or upgrading of roads. Approximately 7,565 acres of land would be disturbed during construction and use of the target areas (Table 4-1). However, as noted previously, a majority of these acres have been previously disturbed by ongoing off-road and/or military activities.

Construction activities would result in some additional disturbance. Construction of the High Fidelity and JDAM targets would disturb a minimal amount of vegetation on ranges 71, 74, and 76. The proposed TOSS towers would be located in areas with minimal existing disturbance. Some native vegetation would be removed or crushed during construction activities. However, the plant species or communities located in the areas are not unique. No sites contain Joshua trees or cacti that would require coordination through the BLM for proper disposal as depicted under Nevada state protection laws.

Table 4-1 Estimated Acres Disturbed from the Proposed Action

JDAM Targets	Proposed Action (acres)
Range 74 Location*	72.0
Range 76 Location*	72.0
Tunnel Complexes	
Location 1**	288.0
Location 2**	290.0
Chemical/Industrial Complex	
Range 71	3,800.0
Convoy Target	
Range 74***	3.0
High Fidelity Targets	
Target #1	2,700.0
Target #2	340.0
TOSS Towers	
Range 74****	0.1
Range 76****	0.1
Total Acres Disturbed	7,565.2

* = Includes targets with 1,000 ft radius and road construction of 600 ft long x 15 ft wide

** = Includes target with 2,000 ft radius and road construction of 200 ft long and 6,300 ft long each 15 ft wide.

*** = Includes one-half mile convoy approximately 50 ft wide.

**** = Includes targets at 50 ft x 50 ft and road construction 150 ft long x 15 ft wide.

There are no known occurrences of sensitive species within the proposed High Fidelity targets, JDAM targets, or TOSS tower locations. However, the range of wildlife supported by the NTTR includes a variety of reptiles, mammals, and birds. New road construction may result in limited impacts to reptiles. The roads may attract reptiles seeking warmth, and increase mortality. However, these impacts would be limited to individuals in areas of construction and would not be expected to impact the overall population of the ecosystem. Loss of forage would not impact any species, since there would be plenty of vegetation remaining and available on the approximately 2.9 million acres of NTTR.

Migratory birds may occur in the open areas around the proposed action, but would not experience any additional adverse conditions.

Bighorn sheep and pronghorn antelope probably cross the valleys near the proposed target locations, but this most likely occurs infrequently since they spend most of their time at higher elevations where they would not be directly affected by training scenarios. Although there is bighorn sheep habitat on Mt. Helen near Tunnel Complex #2, there are no anticipated impacts to

the sheep during construction and use of this target, beyond a startle-factor when activity occurs at this site. Furthermore, flight patterns at low-altitude would continue to be oriented north-south between the mountain ridges that comprise bighorn sheep habitat.

4.1.9 Earth Resources

Implementation of the Proposed Action would not impact the geology of the region. However, potential effects to soils would occur during construction and would be of short duration and localized geographic extent. The impacts relate to erosion and sedimentation associated with grading activities.

The land disturbance may result in a temporary increase in erosion and windblown dust until construction is completed; however, impacts would be insignificant with implementation of proper mitigation measures. No known geologic or soil conditions would adversely impact construction of the targets and TOSS towers.

The Air Force would follow the NTTR Facility Wide Fugitive Dust Control Plan as required by the NDEP Title V Permit (Permit # AP9711-1233) to reduce or minimize fugitive emissions (Appendix A).

4.2 No-action Alternative

Construction of the proposed High Fidelity and JDAM targets and TOSS towers on the North Range would not occur under the No Action Alternative. The Air Force would continue to train with existing targets that may not provide multiple current world scenarios that depict the types of threats and terrorist facilities that the Air Force must operate against.

4.2.1 Safety

Under the No Action Alternative, the existing target locations would continue to be managed in accordance with current NTTR safety procedures. Safety conditions on ranges 71, 74, and 76 would be unchanged.

4.2.2 Noise

The proposed targets would not be constructed and used under the No Action Alternative. Training would continue at its current frequency using existing targets, therefore, noise levels would remain at their current levels.

4.2.3 Land Use and Visual Resources

Land use and visual resources would not change under the No Action Alternative. There would be no change from baseline conditions.

4.2.4 Water Resources

There would be no change from baseline water resource conditions under the No Action Alternative.

4.2.5 Air Quality

The No Action Alternative would result in the same conditions that currently exist with continued use of existing targets. As indicated in Section 3.5, fugitive dust resulting from these training scenarios and other activities in the targets locations would have no effect on attainment of air quality standards for the area.

4.2.6 Solid/Hazardous Waste

Construction of the targets and TOSS towers would not occur under the No Action Alternative. Therefore, the use of hazardous materials would not change from the baseline conditions.

4.2.7 Cultural Resources

The No Action Alternative would not affect cultural resources due to the ongoing conduct of similar training activities.

4.2.8 Biological Resources

Under the No Action Alternative, there would be no change from baseline biological conditions.

4.2.9 Earth Resources

Under the No Action Alternative, there would be no change from baseline earth resource conditions.

5.0 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The NEPA requires the consideration of cumulative impacts, which are the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions (40 CFR § 1508.7). Where there are few existing projects, and where the environment has not been degraded, the impacts of past and present actions combine to form existing conditions. Existing conditions were considered in Chapter 3 of this document.

Cumulative impacts result “from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal), individual, or industry undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time” (40 CFR § 1508.7).

The NEPA requires that environmental analysis include identification of “...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.” Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects this use could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g. energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g. extinction of a threatened or endangered species or the disturbance of a cultural resource).

5.1 Cumulative Impacts

The reasonably foreseeable future actions that have been identified for the project areas include the continued use of the NTTR for military training. Additional target structures and TOSS towers would create similar impacts as those resulting from existing military training activities. The Air Force continues to modify training scenarios on the NTTR to meet changing combat situations. Expansion of the target footprints and additional TOSS tower locations would have cumulative impacts on earth resources and biological resources through increased ground disturbance, erosion potential, and habitat degradation. However, the impacts would not be significant.

Short-term localized impacts to air quality would occur during construction. However, this would not create significant adverse health conditions to workers on the NTTR when combined with other activities. In addition, emissions would not be large enough in the localized area to cause exceedance of ambient air quality standards (i.e., NAAQS).

Actions potentially relating to the cumulative effects for the proposed targets and TOSS towers could include those of the Department of Defense, Department of Energy, Department of Interior, and local counties. These actions have been analyzed previously in the Nellis Renewal Legislative EIS (Air Force 1999). The activities, when evaluated with the proposed action, would not generate additive cumulative effects to the region since these actions would take place on withdrawn land, be located within impact areas designated for NTTR, be isolated from urban centers, and are consistent with current NTTR activities.

5.2 Irreversible & Irretrievable Commitment of Resources

Construction would occur on previously disturbed areas and on locations with native habitat. However, the native habitat lost in relation to the near 2.9-million acres of land on NTTR would be negligible and the habitat would, over time, return to its original state should test and training activities halt. Therefore, the impacts to habitat would not be irreversible and irretrievable.

6.0 REFERENCES CITED

- American Indian Writers Subgroup (AIWS). 1997. American Indian Perspectives to the Legislative Environmental Impact Statement for the Nellis Air Force Range Renewal, Nevada (Draft). Native American Resource Document. Prepared by AIWS Consolidated Group of Tribes and Organizations.
- Billings, W. D., 1951. Vegetational zonation in the Great Basin of western North America. Les bases écologiques de la régénération de la végétation des zones arides. Pages 101122 in International Union of Biological Sciences, Series B, No. 9.
- Burt, W.H. and R.P. Grossenheider. 1980. A Field Guide to the Mammals of North America; Peterson Guide. New York: Houghton Mifflin Company.
- Cronquist, A., A.H. Holmgren, N.H. Holmgren, and J.L. Reveal. 1972. Intermountain Flora, Volume I. New York Botanical Garden.
- Dettinger, M.D. 1992. "Geohydrology of areas being considered for exploratory drilling and development of the carbonate-rock aquifers in southern Nevada—Preliminary Assessment". U.S. Geological Survey Water Resources Investigations Report 90-4077.
- Hall, E. R. 1981. Mammals of North America. New York: John Wiley and Sons.
- _____. 1946. Mammals of Nevada. Berkeley: University of California Press.
- HRA, Inc. 2004. A Class III Inventory of 1528 Acres for Target Installation on Range 76 and Reconnaissance Survey for Target Reconfigurations on Range 71S, Nevada Test and Training Range, Nye County, Nevada. March. Contract No. GSA GS-10F-0005M.
- Hubbs, C.L., R.R. Miller, and L.C. Hubbs. 1974. Hydrographic History and Relict Fishes of the North-Central Great Basin. Memoirs of the California Academy of Sciences (Vol. VII), San Francisco, CA.
- Hunt, C. B., 1967. Physiography of the United States. W. H. Freeman, San Francisco, CA. 480 pp.
- Parry, W.J., and R.L. Kelly. 1987. Expedient Core Technology and Sedentism. In The Organization of Core Technology, edited by J.K. Johnson and C.A. Morrow, pp. 285-304. Westview Press, Boulder.
- TRC Mariah Associates Inc. 1996. Final Water Requirements Study of the Nellis Air Force Range.
- Turner, R. M. 1982. Cold-temperate desertlands. Pages 145155 in D. E. Brown, editor. Biotic communities of the American Southwest--United States and Mexico. Volume 4: Desert plants.
- U.S. Bureau of Land Management (BLM). 2004. Visual Resources Manual (VRM) Manual H-8410-1, <http://www.blm.gov/nstc/VRM/8410.html> (visited January 2004).

- U.S. Department of Agriculture (USDA). 1993. Letter describing soil series within NAFR from Leon Lato, Project Leader, Soil Conservation Service.
- U.S. Department of the Air Force (Air Force). 2003. Final Nevada Training Initiative Environmental Assessment, United States Air Force Air Combat Command, July.
- _____. 1999. Renewal of the Nellis Air Force Range Land Withdrawal Legislative Environmental Impact Statement. Air Combat Command, Langley AFB, VA. March.
- _____. 1997. Mineral and Energy Resource Assessment of the Nellis Air Force Range, U.S. Air Force Air Combat Command.
- _____. 1996. Surface Soil Sampling Report for Ten Representative Nellis Air Force Range Bombing Targets, Nellis Air Force Base, Nevada. December.
- _____. 1994. Environmental Assessment for Supersonic Flight over the Nellis Range Complex, Nellis Air Force Base, Nevada.
- _____. 1981. M-X/MPS Preliminary FEIS: Deployment Area Selection and Land Withdrawal /Acquisition FEIS (incl. Appendices). Prepared by Henningson, Durham & Richardson, Santa Barbara, California.
- U.S. Environmental Protection Agency (EPA). 2004. Regional 9 Air Programs – Air Quality Maps http://www.epa.gov/region9/air/maps/maps_top.html (Visited March 2004)
- U.S. Department of Energy (DOE). 1998. Final Environmental Assessment for Resumption of Use of Depleted Uranium Rounds at Nellis Air Force Range Target 63-10. September.
- _____. 1996. Environmental Impact Statement for the Nevada Test and Off-Site Locations in the State of Nevada, Nevada Operations Office. Volume 1, Chapters 1-9.

7.0 PERSONS AND AGENCIES CONTACTED

The Proposed Action was presented to Michael Burroughs (USFWS), D. Bradford Hardenbrook (NDOW) and Eric Miskow (Nevada Natural Heritage Program [NNHP]). Project area maps and brief descriptions were submitted to each party. Letters of comment were received from the USFWS, NNHP and NDOW in December 2003.

The cultural resources survey report was prepared by HRA and copied to the Nevada State Historic Preservation Office (SHPO). Correspondence with the Nevada (SHPO) and all other agencies is presented in Appendix B.

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8.0 LIST OF PREPARERS AND CONTRIBUTORS

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Appendix A

NTTR Facility Wide Fugitive Dust Control Plan

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NTTR Facility Wide Fugitive Dust Control Plan

July 2, 2003

Name of Facility (source): Nevada Test and Training Range (NTTR)

Address of site:

Tonopah, NTTR
Nellis Air Force Base, 89191
Nye and Lincoln Counties

Activity Duration: Indefinite

Process description: Testing and training activities are performed on the Nevada Test and Training Range. Support of those activities includes a maintenance and fire protection program throughout the military range complex including the range boundaries, test areas, firebreaks, interior roads, and military cantonment areas.

The range maintenance and support program includes the removal of combustible materials around the boundaries of the range, along firebreaks and internal roads, and internally where military resources are maintained. In addition, target areas require maintenance to remove plant growth and terrain obstacles that impact the activities at the targets. Plant growth removal and terrain leveling on target areas facilitates identification and removal of unexploded ordnance and prevents the spread of fires.

Ground surface materials; silty soil (clay and sand) and plant materials are disturbed in the process. Approximately 11,834 acres of surface area are maintained annually. The materials remain on site at the NTTR. The UTM coordinates (NAD 27) of a stationary emission point is:

4,182,846 meters Northing
520,230 meters Easting

Description of Facility Wide Fugitive Dust Emission Activities: Road maintenance, target and threat site maintenance, and weed abatement. Throughout the NTTR military range complex including the range boundaries, test areas, firebreaks, interior roads, and military cantonment areas.

The range maintenance and support program includes the removal of combustible materials (plant growth) and terrain surfacing around the boundaries of the range, along fire breaks and internal roads, and internally where military resources are maintained. In addition, target areas require maintenance to remove plant growth and terrain obstacles that impact the activities at the targets. Plant growth removal and terrain leveling on target areas facilitates identification and removal of unexploded ordnance, prevents the spread of wildfires, and facilitates control of natural or man induced wildfires.

Silty soil (clay and sand) and plant material particulate are generated as emissions. The estimated size of the release area for road maintenance would be approximately 222 acres per year. Approximately 11,612 acres would be disturbed during threat site and target maintenance activities. Bulldozers, front-end loaders, and graders used in the maintenance activities generate the fugitive dust.

Individual who oversees the implementation and maintenance of fugitive dust control measures is:

Roger Christensen
Environmental Management
(702) 652-2548

Description of Facility Wide Fugitive Dust Emission Controls:

1) 'On' and 'off' property emission controls:

- a) Activities will not be initiated when the sustained wind speed is greater than 20 knots and dry soil conditions exist based on extended weather forecasts.
- b) Equipment speed in transit will be maintained at, or below, posted speed limits (45 mph maximum on the facility) based on employee education programs.
- c) Herbicide sprays are used when appropriate around targets and roads for removal of growth in lieu of ground disturbing activities.

2) Additional emission controls:

- a) Land disturbing activities during dry soil conditions will be suspended when sustained wind speeds are forecast above 20 knots for extended period of time.
- b) At the facility's option, to continue target maintenance operations with forecasted wind speeds in excess of 20 knots, water may be applied as a dust suppressant to prevent 20% opacity over a 6 minute period. Should the facility elect this option, sufficient quantities of water would be applied to reduce dust emission associated with construction equipment to less than 20 percent opacity using modified EPA Method 9 opacity screening.

3) Method of application of dust suppressant:

Water will be placed on the road using a spray water truck.

4) Frequency of application of dust suppressant:

As required to maintain an opacity less than 20% during high wind events (i.e, in excess of 20 knots).

5) Location of water source for dust suppressant:

Water trucks will be filled at either TPECR, TECR, or TTR.

6) Provisions for additional water trucks:

If water trucks are unavailable or can not maintain an opacity less than 20% during wind events in excess of 20 knots then the activity will cease until the area can be sufficiently wetted with available water trucks to maintain an opacity less than 20%.

7) Frequency of application of dust suppressant:

As required to maintain an opacity less than 20% during wind events in excess of 20 knots.

8) Training of project supervisors, equipment operators and contractors:

Project supervisors, equipment operators and contractors will be given a copy of the Dust Control Plan and instructed on the proper Best Management Practices to undertake while performing surface disturbing activities. The instruction will be an informal class conducted by the Nellis AFB Air Quality Manager or representative. An annual refresher course will be conducted for the affected parties.

9) Persons authorized to cease operations when wind or meteorological conditions prevent the maintaining an opacity less than 20%:

The senior person in charge of the work detail is authorized to cease activities when there is a failure to maintain an opacity less than 20%.

10) Update of the Dust Control Plan:

If current surface area disturbing activities change in a manner that is not consistent with the process or project description then the Dust Control Plan will be updated and resubmitted to NDEP.

NTTR Activity Specific Fugitive Dust Emission Controls

Aggregate processing activities on NTTR are required to conduct dust control and mitigation. Since it is a unique activity covered under the operating permit, a separate dust control plan has been developed for the activity.

Fugitive Dust Control Plan, Aggregate Processing, NTTR

Aggregate Processes and Activities:

Aggregate Processing activities occur through the majority of the year

Description of Aggregate Processing Activities: Activities associated with aggregate processing on NTTR occur through the majority of the year. approximately seven million tons can be processed annually. The aggregate processing activities can only occur at authorized burrow pits. The UTM coordinates (NAD 27) and approximate acres for the authorized burrow pits are as follows:

Borrow Pit Identification	Easting (meters)	Northing (meters)	Approximate Acres
BP TPECR 03	516112.5	4126054.5	3.2
BP R4809A 01	518748.1	4191423.5	13.4
BP R64 01	609069.9	4059737.0	3.0
BP R4809A 02	522056.8	4191476.3	11.0
BP R64 02	611125.6	4059131.5	3.3
BP R4909A 04	519193.5	4181335.5	144.3
BP R64 03	622769.1	4084328.3	3.2
BP R4809A 05	522360.3	4179114.8	6.0
BP R64 04	622855.1	4083835.0	1.6
BP ECW 01	524554.3	4167106.8	5.0
BP R64 05	622506.7	4083749.0	3.1
BP ECW 02	527004.1	4161357.3	11.7
BP R65 01	622392.3	4056560.8	13.2
BP ECW 06	533751.4	4159560.5	3.6
BP R65 02	621660.8	4056626.8	6.8
BP ECW 07	536007.6	4158155.5	4.6
BP R63 02	626119.8	4050291.0	10.1
BP ECW 08	537630.4	4157759.5	6.4
BP R63 07	633110.6	4056023.3	3.9
BP ECW 09	541331.4	4158036.8	6.3
BP R63 05	637127.6	4052804.3	5.5
BP ECW 10	549357.8	4159245.0	9.3
BP R63 03	638013.0	4049614.3	3.6
BP ECW 21	544342.1	4175820.8	8.0
BP R63 01	637102.8	4047370.8	15.7
BP BLOCKHOUSE 01	556567.8	4163486.3	21.5
BP ECE 10	628754.5	4044232.8	5.2
BP ECE 09	558900.4	4163189.3	3.5
BP ECE 08	559960.8	4163019.8	2.7
BP ECE 07	564510.2	4162308.8	2.8
BP ECE 06	565031.1	4164276.3	4.3
BP ECE 04	567135.4	4171088.5	5.1
BP 4809A 06/07	526142.4	4180546.3	11.3
BP R4809A 08	526835.6	4180742.3	2.6
BP R4809A 09	528082.9	4181970.3	2.9
BP ECW 12	530932.2	4180462.8	2.8
BP ECW 13	532508.9	4179688.3	5.7
BP ECW 14	536337.7	4180502.0	4.6
BP ECW 15	537514.6	4181606.5	3.0
BP ECW 18	542567.5	4188690.8	5.9
BP R4807A 01	551165.8	4173914.8	13.3
BP ECE 01	555234.2	4176951.8	4.2
BP ECW 16	541529.9	4176198.8	7.6
BP ECW 17	546421.6	4178987.3	3.3
BP ECW 19	538444.6	4179412.3	2.6
BP ECW 20	543136.9	4181539.5	4.8
BP ECE 02	561787.0	4176770.0	1.9
BP ECE 03	566525.1	4176857.3	6.1
BP ECE 05	566494.1	4168119.5	11.6
BP R63 04	637975.0	4049840.5	3.2

Borrow Pit Identification	Easting (meters)	Northing (meters)	Approximate Acres
BP ECS 01	525047.9	4111865.5	7.8
BP FAC A 01	519395.0	4133605.0	5.1
BP ECS 02	515875.4	4116318.3	24.0
BP R4809A 03	520218.1	4192319.5	9.4
BP TPECR 02	522294.8	4127680.5	20.4
BP R62 01	636637.4	4080830.8	33.5
BP R63 06	631994.6	4054412.5	24.2
BP R65 05	619891.0	4067779.0	34.7
BP R65 03 A/B	613154.3	4058342.0	24.9
BP R65 04	622940.6	4058879.3	20.5
BP R71 01	509737.4	4171594.5	5.2
BP R71 02	510221.7	4161757.8	53.0
BP TPECR 01	531326.9	4129526.5	9.2
BP RAGGED RIDGE	577759.9	4174449.8	10.9
BP ECW 05	532003.6	4160007.3	51.4
BP ECW 03/04	529353.8	4156957.5	5.8
BP ECW 11	549103.3	4161026.3	28.5
BP R4809A 04	528940.4	4182786.5	10.0
BP R4809B 01	545169.2	4177120.5	51.8
BP TPECR 04	522394.8	4131505.3	14.0

Description of Landfill Fugitive Dust Emission Activities: Aggregate processing activities consist of surface disturbing activities such as scraping and digging. The fugitive emissions are caused from the operation of heavy equipment such as bulldozers and front end loaders. The supervisor for this activity is:
Mr Roger Christensen
Air Quality Program Manager
(702) 652-2548

Description of Aggregate Processing Fugitive Dust Emission Controls:

1) In place emission controls:

- a) All equipment will be used on moist days when soil produces no visible emission; or.
- b) For days when soil is dry enough to produce visible emission greater than 20%, moisture will be applied to the working area soil when the fugitive dust emissions continue to meet or exceed opacity of 20% using modified method 9.
- c) Activities will not be conducted when the forecasted wind speed is greater than 20 knots.
- d) If fugitive dust continues to be generated, in spite of mitigation, activities will be ceased.

2) 'On' and 'off' property emission controls:

- a) Equipment speed at burrow sites is limited to 20 mph or less.
- b) Forecasted wind speeds are monitored
- c) Water spray is used to suppress dust (see items 4-5).

3) Additional emission controls:

- a) Empty bucket slowly into crusher.
- b) Keep the bucket as close to the hopper as possible.
- c) Pre-wet storage piles and maintaining approximately 1.5% moisture content in stockpiles before transferring material.
- d) Ensure that stockpiles do not have steep sides

4) Method of application of dust suppressant:

Water spray truck, garden hose, natural precipitation or equivalent.

5) Frequency of application of dust suppressant:

As required by the appearance of fugitive dust during aggregate processing operations:

- a) Increased dust opacity meeting or exceeding 20% with a modified method 9.
- b) High winds forecasted in excess of 20 knots average over an extended period of time.

6) Location of water source for dust suppressant:

Water trucks will be filled at either TPECR, TECR, or TTR.

7) Provisions for additional water trucks:

If water trucks are unavailable or can not maintain an opacity less than 20% during operations then the activity will cease until the area can be sufficiently wetted with available water trucks to maintain an opacity less than 20%.

8) Training of project supervisors, equipment operators and contractors:

Project supervisors, equipment operators and contractors will be given a copy of the Dust Control Plan and instructed on the proper Best Management Practices to undertake while performing surface disturbing activities. The instruction will be an informal class conducted by the Nellis AFB Air Quality Manager or representative. An annual refresher course will be conducted for the affected parties.

9) Persons authorized to cease operations when wind or meteorological conditions prevent the maintaining an opacity less than 20%:

The senior person in charge of the work detail is authorized to cease activities when there is a failure to maintain an opacity less than 20%.

10) Update of the Dust Control Plan:

If additional burrow pits not authorized are needed then the Dust Control Plan will be updated and resubmitted to NDEP.

As the Projects Responsible Official, I have read the provisions of Nevada Administrative Code (NAC) Section 445B.22037 "Emissions of Particulate Matter; Fugitive Dust". I am also aware that the project is responsible for preventing controllable fugitive dust from disturbed areas from becoming airborne on a 7-day/week, 24-hour/day basis.

Colonel Michael P. Norris, 99th ABW/CV

Signature of the Responsible Official

Appendix B

**U.S. Fish and Wildlife
Nevada Division of Wildlife
Nevada Natural Heritage Program
Nevada State Historic Preservation Office**

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Nevada Fish and Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502
(775) 861-6300 ~ Fax: (775) 861-6301



December 22, 2003
File No. 1-5-04-SP-425

Ms. Carrie Stewart
PBS&J.
2270 Corporate Circle, Suite 100
Henderson, Nevada 89074-6382

Dear Ms. Stewart:

Subject: Species List for the Proposed Joint Direct Attack Munition and High Fidelity Targets, Nellis Test and Training Range, Nye County, Nevada

This is in response to your letter received on December 9, 2003, regarding the Proposed Joint Direct Attack Munition and High Fidelity Targets at Ranges 71N, 71S, 74A, 74B, 74C, and 76 of the Nellis Test and Training Range, Nye County, Nevada. To the best of our knowledge, no listed, proposed, or candidate species occur in the subject project area. This response fulfills the requirement of the Fish and Wildlife Service to provide a list of species pursuant to section 7(c) of the Endangered Species Act of 1973, as amended, for projects that are authorized, funded, or carried out by a Federal agency.

The Nevada Fish and Wildlife Office no longer provides species of concern lists. Most of these species for which we have concern, are also on the sensitive species list for Nevada maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we are adopting Heritage's sensitive species list and partnering with them to provide distribution data and information on the conservation needs for sensitive species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or are in serious decline. Consideration of these sensitive species and exploring management alternatives early in the planning process can provide long-term conservation benefits and avoid future conflicts.

For a list of sensitive species by county, visit Heritage's website at www.heritage.nv.gov. For a specific list of sensitive species that may occur in the project area, you can obtain a data request form from the website or by contacting Heritage at 1550 East College Parkway, Suite 137, Carson City, NV 89706, 775-687-4245. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the Endangered Species Act.

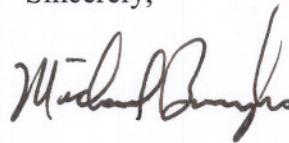
During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Also, we are concerned that the proposed project may impact plant species listed as sensitive under the Heritage Program. These species may also be listed as critically endangered by the State of Nevada under Nevada Revised Statutes (NRS) 527.260-300. For these species, no member of its kind may be removed or destroyed at any time by any means except under special permit issued by the State Forester (NRS 527.270). It should be noted that many of the plant species on the State's critically endangered list are not federally listed by the Service because of the protection afforded to them under the State law. Consideration of these species during project impact evaluation and planning, as well as early coordination with the State is important to assist with species conservation efforts and to prevent the need for Federal listing actions in the future.

Finally, based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 et seq.), we are concerned about potential impacts the proposed project may have on migratory birds in the project area. Direct impacts to migratory birds on project lands and indirect impacts to migratory birds on adjacent areas should be considered during project evaluation.

Please reference File No. 1-5-04-SP-425 in future correspondence concerning this species list. If you have any questions regarding this correspondence or require additional information, please contact Shawn Goodchild in our Southern Nevada Field Office at (702) 515-5230.

Sincerely,



 Robert D. Williams
Field Supervisor

cc:

NEPA Program Manager, Environmental Management Office, Nellis Air Force Base, Nevada
Regional Forester, Southern Region, Nevada Division of Forestry, Las Vegas, Nevada



KENNY C. GUINN
Governor

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WILDLIFE

1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

R. MICHAEL TURNIPSEED, P.E.
Director

Department of Conservation
and Natural Resources

TERRY R. CRAWFORTH
Administrator

SOUTHERN REGION
4747 WEST VEGAS DRIVE
LAS VEGAS, NEVADA 89108
(702) 486-5127; 486-5133 FAX

December 17, 2003

NDOW-SR: 04-098

Ms. Carrie Stewart
PBS&J
2270 Corporate Circle
Suite 100
Henderson, NV 89074-6382

Re: Nevada Test and Training Range – JDAM Targets

Dear Ms. Stewart:

Thank you for notifying the Department about the proposed Environmental Assessment for the Joint Direct Attack Munition and High Fidelity Targets on the Nellis Test and Training Range. Based upon the maps supplied with your letter, topical considerations would be for target area use by pronghorn antelope and burrowing owl. The *Proposed Nellis Test and Training Range RMP and EIS* (2003) includes information on the distribution of pronghorn antelope, as well as identifying burrowing owls and other species of concern.

Please let us know how we might further assist your effort. Our contact for the project will be Craig Stevenson in our Las Vegas office at 702-486-5127 ext. 3614.

Sincerely,

D. Bradford Hardenbrook
Supervisory Biologist - Habitat

CS/DBH:cs

Cc: NDOW, Files
USFWS, Las Vegas
BLM – LVFO

Nevada Natural Heritage Program RECEIVED
Department of Conservation and Natural Resources
1550 East College Parkway, Suite 137 * Carson City, Nevada 89706-7921
voice: (775) 687-4245 fax: (775) 687-1288 web: www.heritage/nv.gov/ DECE 2 2003
PB88&J

9 December 2003

Jeffrey A. Geller
PBS & J
2270 Corporate Circle, Suite 100
Henderson, NV 89074-6382

RE: Data request received 8 December 2003

Dear Mr. Geller:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or sensitive plant and animal taxa recorded within or near the New JDAM and High Fidelity Targets-Nevada Test and Training Range project area. We searched our database and maps for the following:

The areas (polygons) provided from submitted map (Figure 1) within the Nevada Test and Training Boundary

The enclosed printout lists the taxa recorded within the given area. In the eastern parcel please be aware that habitat may also be available for: the Beatley milkvetch, *Astragalus beatleyae*, a Nevada Bureau of Land Management (BLM) Special Status Species; the Townsend's big-eared bat, *Corynorhinus townsendii*, a Nevada BLM Sensitive Species; and the spotted bat, *Euderma maculatum*, a Nevada BLM Special Status Species. In the western parcel please be aware that habitat may also be available for: the Beatley milkvetch, *Astragalus beatleyae*; the Tonopah milkvetch, *Astragalus pseudiodanthus*, a California BLM Special Status Species; and the Nevada dune beardtongue, *Penstemon arenarius*, a Nevada BLM Sensitive Species. We do not have complete data on various raptors that may also occur in the area; for more information contact Ralph Phenix, 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.

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 III/Data Manager

Sensitive Taxa Recorded Near the New JDM and High Fidelity Targets Project Area

Compiled by the Nevada Natural Heritage Program for PBS & J

9 December 2003

Scientific name	Common name	Usfws	Blm	Usfs	State	Srank	Townrange	Section	Lat	Long
Plants										
<i>Astragalus gilmanii</i>	Gilman milkvetch	xC2	N			S1	006S055E	18	37.419167	115.788056
<i>Astragalus gilmanii</i>	Gilman milkvetch	xC2	N			S1	006S055E	02	37.440556	115.823333
<i>Astragalus oophorus vaoknus</i>	Clokey eggvetch	RA	S	S		S2	007S052E	29	37.295556	116.204722
<i>Astragalus oophorus vaoknus</i>	Clokey eggvetch	RA	S	S		S2	005S053E	04;05	37.531389	116.076389
<i>Astragalus oophorus vaoknus</i>	Clokey eggvetch	RA	S	S		S2	005S053E	08;17	37.510556	116.086667
<i>Astragalus oophorus vaoknus</i>	Clokey eggvetch	RA	S	S		S2	007S052E	29	37.300833	116.197778
<i>Astragalus oophorus vaoknus</i>	Clokey eggvetch	RA	S	S		S2	006S053E	06	37.449722	116.107500
<i>Castilleja martinii</i> var. <i>ey</i>	Clokey paintbrush					S3	006S053E	08	37.434444	116.086111
<i>Cymopterus ripleyi</i> var. <i>icides</i>	sanicle biscuitroot	xC2	N,C			S3	005S052E	08	37.513056	116.186389
<i>Erigeron ovinus</i>	sheep fleabane	xC2	N			S2	006S055E	14	37.428611	115.756667
<i>Erigeron ovinus</i>	sheep fleabane	xC2	N			S2	006S056E	19	37.418889	115.726944
<i>Galium hilendiae</i> ssp. <i>ktoise</i>	Kingston Mountains bedstraw	xC2	N,C			S1	008S053E	14;15	37.243056	116.042778
<i>Galium hilendiae</i> ssp. <i>ktoise</i>	Kingston Mountains bedstraw	xC2	N,C			S1	008S053E	09	37.250833	116.081389
<i>Gilia heterostyla</i>	Cochrane gilia					S3S4	004S051E	29	37.556944	116.201111
<i>Gilia nyensis</i>	Nye gilia					S3	007S052E	31	37.289722	116.217500
<i>Gilia nyensis</i>	Nye gilia					S3	007S052E	19	37.319444	116.208889
<i>Gilia nyensis</i>	Nye gilia					S3	008S052E	23	37.231111	116.159167
<i>Hulsea vestita</i> ssp. <i>inyas</i>	Inyo hulsea			W		S2	008S053E	16	37.246667	116.072222
<i>Hulsea vestita</i> ssp. <i>inyas</i>	Inyo hulsea			W		S2	007S052E	31	37.289722	116.217500
<i>Penstemon pahutensis</i>	Pahute Mesa beardtongue	xC2	N			S3	008S052E	15	37.239444	116.159167
<i>Penstemon pahutensis</i>	Pahute Mesa beardtongue	xC2	N			S3	008S052E	23	37.226389	116.148611
<i>Penstemon pahutensis</i>	Pahute Mesa beardtongue	xC2	N			S3	007S052E	32	37.286667	116.212222
<i>Polygala heterorhynch</i>	notch-beak milkwort					S3	006S055E	13	37.419444	115.790000
<i>Polygala heterorhynch</i>	notch-beak milkwort					S3	006S055E	02	37.448611	115.815278
<i>Stipa shoshoneana</i>	cliff needlegrass					S1	005S053E	08	37.512500	116.087500
Mammals										
<i>Myotis volans</i>	long-legged myotis	xC2	N			S4B	006S055E	08	37.431667	115.754167

Western Parcel of Project Area												
Scientific name	Common name	Usfws	Blm	Usfs	State	Srank	Townrange	Section	Lat	Long	Prec	Last
												<u>observed</u>
Plants												
<i>Asclepias eastwoodiana</i>	Eastwood milkweed	xC2	N	S		S2	001S043E	04	37.876944	117.164722	M	1937-05-27
<i>Camissonia boothii</i> ssp. <i>alyssoides</i>	bottlebrush suncup					S3	007S047E	04	37.353611	116.725833	M	1978-06-26
<i>Castilleja martinii</i> var. <i>clokeyi</i>	Clokey paintbrush					S3	005S044E	16	37.500833	117.050556	M	1994-06-15
<i>Penstemon pahutensis</i>	Pahute Mesa beardtongue	xC2	N			S3	005S044E	09	37.523611	117.043056	M	1971-07-26
<i>Penstemon pahutensis</i>	Pahute Mesa beardtongue	xC2	N			S3	005S044E	16	37.505000	117.050833	S	1994-06-28

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

- x C2 Former Category 2 Candidate, now species of concern
RA Former Candidate or Proposed species, still a species of concern

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
C California Special Status Species (see definition S and N)

United States Forest Service (Usfs) Species Classification:

- S Region 4 (Humboldt-Toiyabe NF) sensitive species
W Region 5 (Inyo NF) watch species

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



KENNY C. GUINN
Governor

SCOTT K. SISCO
Interim Director

STATE OF NEVADA
DEPARTMENT OF CULTURAL AFFAIRS

Nevada State Historic Preservation Office

100 N. Stewart Street

Carson City, Nevada 89701

(775) 684-3448 • Fax (775) 684-3442

www.nvshpo.org

RONALD M. JAMES
State Historic Preservation Officer

July 23, 2004

Eloisa V. Hopper
Chief Environmental Flight
99 CES/CEV
4349 Duffer Drive Suite 1601
Nellis Air Force Base NV 89191-7007

RE: Construction of Targets on the North Test and training Range, Stonewall Flat and Pahute Mesa, Lincoln County (NAFB 04-02).

Dear Ms. Hopper:

The Nevada State Historic Preservation Office (SHPO) reviewed the proposed undertaking. The SHPO concurs with U.S. Department of the Air Force's determination that the following site is not eligible for the National Register of Historic Places under any of the Secretary's criteria:

26Ny11807.

This cultural resource inventory report was completed following an intensive archaeological and historic inventory of the project area. No historic properties were found within the area of potential effects (APE) for the subject undertaking. As a result, the SHPO concurs with the U.S. Department of the Air Force's determination that historic properties will not be affected by the proposed undertaking.

If you have any questions concerning this correspondence, please feel free to call Rebecca Lynn Palmer at (775) 684-3443 or by E-mail at rlpalmer@clan.lib.nv.us.

Sincerely,

A handwritten signature in cursive script that reads "Alice M. Baldrice".

Alice M. Baldrice, Deputy
State Historic Preservation Officer