Environmental Assessment for

Degraded Visual Environment Yuma Proving Ground

Prepared for

U.S. Army Yuma Proving Ground
Yuma, Arizona

Prepared by

U.S. Army Corps of Engineers

US Army Corps
of Engineers®
Mobile District

August 2015

Draft Finding of No Significant Impact

Degraded Visual Environment, Yuma Proving Ground, Arizona

The U.S. Army Garrison Yuma Proving Ground prepared an environmental assessment (EA) to identify and evaluate potential environmental impacts associated with the establishment and operation of a permanent test facility to support Aviation Systems and Electronics test programs conducted at YPG (Proposed Action). The proposed test facility would be primarily for degraded visual environments (DVEs) research and development (R&D). The EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA [Title 40, United States Code, Parts 1500 through 1508]; Department of Defense (DoD) Directive 4715.9 *Environmental Planning and Analysis*; and Environmental Analysis of Army Actions (Code of Federal Regulations, Title 32, Part 651).

In preparation of the EA, no alternatives, other than those presented in the EA, were determined to satisfy the purpose and need of the Proposed Action. No other alternatives were identified for the DVE site. Within the portions of YPG that contain Gilman-Harqua-Glenbar soils, the Proposed Action location is the only suitable site identified. All other areas with that soil type are too close to other test areas with potential conflicts (e.g., Persistent Ground Surveillance Systems site, north unmanned aerial vehicle test area, Robby DZ, and Joint Experimentation Range Complex test areas), are too close to mountains to allow appropriate helicopter approaches to the test area from all directions, or do not have suitable site topography (i.e., in an area flat enough and free of washes to allow the required testing). Locations farther to the east that contain suitable soils are outside of the surface boundary of YPG.

Description of the Proposed Action

The Proposed Action is to establish a new 43-acre test site that would primarily be used for DVE R&D in the northern part of the Cibola Range at YPG. It would be located adjacent to an existing aggregate base coat (ABC) road, which would provide site access. Approximately 22 acres of the identified 43-acre parcel would be used to establish the DVE test area (a 300-meter [m] x 300m area). This area would be tilled as part of test preparation and dust would be generated during testing activities using helicopters. Other obscurants, such as smoke, could be used as well. Targets and obstacles would be placed in the test area and added or relocated as dictated by test requirements. The remaining area would be used for placement of connex boxes for equipment storage and testing support, parking, and a helicopter landing/refueling pad. Up to 11 acres of the site would be covered with ABC and used for parking, equipment storage, and the placement of several elevated storage connex boxes specially modified to accommodate varied test sensors and scenario-specific equipment. An impervious helicopter landing/refueling pad up to 0.5 acre in size would be constructed in the southeast portion of the site. The site would also include one or more stormwater management/soil retention features capable of containing water from a 100-year 2-hour storm event.

No Action Alternative

Under the No Action Alternative, a separate DVE R&D test site would not be established. The project participants would remain at risk from conflicting testing and training activities at the other DZs or using a DZ without an appropriate soil type. DVE testing at YPG would continue to be performed at suboptimal locations.

Environmental Consequences

The EA evaluated potential impacts on land use planning and aesthetics, geology, soils, mineral resources, biological resources, water resources, air quality, noise, cultural resources, socioeconomics, environmental justice, transportation, utilities, hazardous and toxic substances, and recreation. It was determined that

there would be no impacts to land use, socioeconomics, Environmental Justice, Protection of Children, cultural resources, utilities, and recreation. Potential impacts are summarized in Table 1.

As discussed in the EA, implementing the Proposed Action would result in temporary and less than significant negative impacts on air quality, noise, soils, water resources, biological resources, transportation, hazardous and toxic substances, health and human safety, and aesthetics and visual resources from construction activities with use of mitigation. There would be long-term less than significant impacts to air quality, mainly from fugitive dust and obscurants, noise, soils, water resources, biological resources, transportation, hazardous and toxic substances, health and human safety, and aesthetics and visual resources from implementation of the Proposed Action. Long-term impacts would be intermittent and would mainly occur during testing operations. Measures would be implemented, as appropriate, to reduce impacts on these resources.

TABLE 1
Summary of Impacts
Environmental Assessment, Degraded Visual Environment, Yuma Proving Ground, Arizona

Resource	Proposed Action Impacts	No Action Alternative Impacts
Air Quality	Potential for fugitive dust emissions from soil disturbance during construction and operation. Dust control best management practices (BMPs) would be used during construction. Vehicle, aircraft, equipment, and generator exhaust emissions during construction and operation.	No Impact
Noise	Increase in local noise level from construction activities and operations during testing.	No Impact
Geology, Mineral, and Soil Resources	Soil erosion and compaction during construction. Intermittent long-term disturbances to 22 acres of highly erodible soils during operation. BMPs would be employed during construction and a stormwater pollution prevention plan would be implemented during construction and operation to reduce potential impacts.	No Impact
Water Resources	No impacts to jurisdictional streams or wetlands. Potential for loss of ephemeral drainages. Stormwater management structures would be constructed to limit the flow of stormwater offsite.	No Impact
Biological Resources	Loss of 43 acres of habitat for general wildlife and plant species. Periodic disturbances to adjacent wildlife from noise during construction and operation. If feasible, land and vegetation clearing would occur outside the breeding season for birds of concern. Surveys would be conducted prior to site preparation if site construction cannot occur outside of the breeding season.	No Impact
Cultural Resources	Potential impact to NRHP eligible isolate, IO-76, and there is a high probability for the presence of subsurface cultural deposits across the APE. Impacts would be less than significant with implementation of the conditions set forth in Section 4.6.	No Impact

TABLE 1
Summary of Impacts
Environmental Assessment, Degraded Visual Environment, Yuma Proving Ground, Arizona

Resource	Proposed Action Impacts	No Action Alternative Impacts
Transportation	Occasional nuisance dust clouds could reduce visibility on US 95.	No Impact
Hazardous and Toxic Substances	Use of small quantities of potentially hazardous materials (e.g. oils, grease) during construction. Long-term use of hazardous materials, (e.g. oils, grease, fuels). Waste contents would be characterized periodically and disposed of in accordance with applicable regulations.	No Impact
Utilities	No Impact	No Impact
Health and Human Safety	Short-term risks to workers during construction and operation from use of heavy equipment and aircraft and from generation of high noise levels. Personal protective equipment would be used and U.S. Army safety protocols would be followed.	No Impact
Aesthetics and Visual Resources	Temporary localized dust clouds would be created during testing and could obstruct views from US 95.	No Impact
Recreation	No Impact	No Impact

Public Participation

The U.S. Army Garrison Yuma Proving Ground published a public notice in the Yuma Sun on (DATE TO BE ADDED) announcing the availability of the EA and draft FNSI for review and comment. The public review period ended (DATE TO BE ADDED) and comments received were addressed and incorporated into the EA, as appropriate.

Conclusion

Based on the analysis presented in the EA for establishing and operating a DVE test facility, no significant environmental impacts are anticipated as a result of implementing the project under the Proposed Action. Therefore, preparation of an Environmental Impact Statement is not required and a FNSI is the appropriate decision document to conclude the NEPA process.

> *I have read and concur with the findings and analyses documented in the Environmental Assessment and hereby approve the Finding of No Significant Impact.*

RANDY MURRAY COL, AV Commanding	*Date*	Gordon K. Rogers Manager, Garrison	*Date*

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Appendix

A Natural Resources Report

Acronyms and Abbreviations

$\mu g/m^3$	microgram(s) per cubic meter
ABC	aggregate base coat
ADEQ	Arizona Department of Environmental Quality
APE	area of potential effects
AST	aboveground storage tank
AZGFD	Arizona Game and Fish Department
BMP	best management practice
CAA	Clean Air Act
CDC	Centers for Disease Control
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
dB	decibel
dBA	A-weighted decibel
DVE	degraded visual environment
DZ	Drop zone
EA	environmental assessment
FNSI	Finding of No Significant Impact
GHG	greenhouse gas
HAP	hazardous air pollutant
HWSF	Hazardous Waste Storage Facility
IO	isolated occurrence
IONMP	Installation Operational Noise Management Plan
LZ	landing zone
m	meter
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
mg/m^3	milligram(s) per cubic meter
mi^2	square mile
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_x	nitrogen oxide

NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
NZ	noise zone
O_3	ozone
Pb	lead
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter
ppb	parts per billion
Ppm	parts per million
R&D	research and development
SO_2	sulfur dioxide
SOP	standard operating procedure
SWPPP	stormwater pollution prevention plan
tpy	tons per year
U.S.	United States
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
UXO	unexploded ordnance
VOC	volatile organic compound
YPG	Yuma Proving Ground
YPG PA	*Programmatic Agreement Among the United States Army Garrison, Yuma Proving Ground, The Arizona State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Operations, Maintenance, and Development of Yuma Proving Ground, Arizona*

SECTION 1

Purpose and Need

1.1 Introduction

The United States (U.S.) Army Yuma Proving Ground (YPG) is located approximately 25 miles northeast of the City of Yuma in southwestern Arizona (Figure 1-1). YPG is a U-shaped facility encompassing approximately 1,310 square miles (mi^2) (838,174 acres). The land between the arms of the "U" is managed by the U.S. Fish and Wildlife Service (USFWS) as the Kofa National Wildlife Refuge (NWR). YPG is a Major Range and Test Facility Base. It serves as the Army's center for desert natural environment testing for artillery; equipment and armament; target acquisition; vehicles; a variety of munitions, personnel, and supply parachute systems; aviation weapons and sensors; and specialized equipment.

This environmental assessment (EA) analyzes and documents impacts on the human and natural environment that could result from implementation of the Army's Proposed Action.

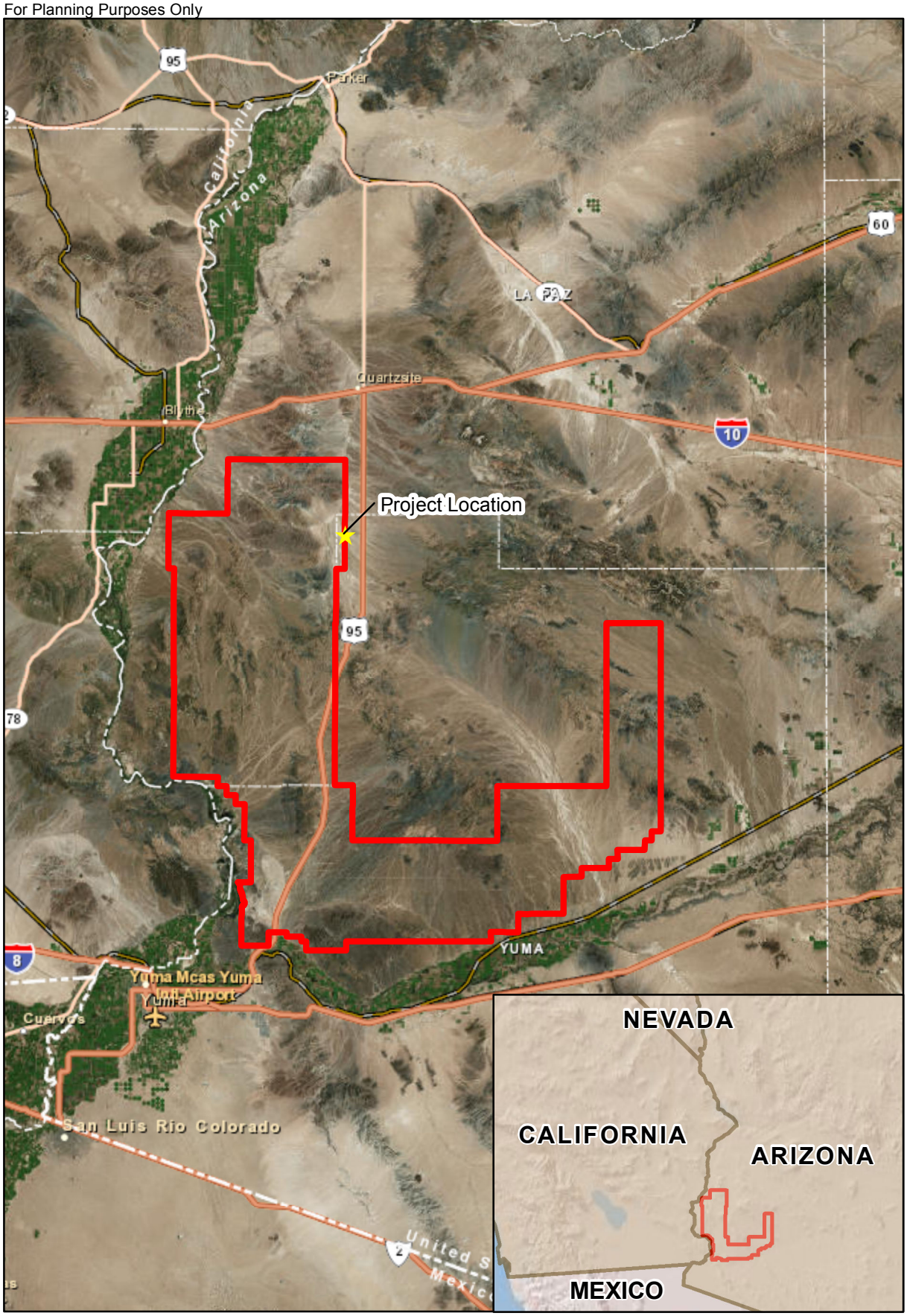
1.2 Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to establish a dedicated and permanent test facility to support Aviation Systems and Electronics test programs at YPG. The proposed test site would be primarily for degraded visual environments (DVEs) research and development (R&D). The Army defines a DVE as a circumstance wherein weather, obscurants, or obstacles thwart the ability of a crew to properly or accurately know where they are in relation to surrounding terrain (Osborn, 2013). DVEs are a significant cause of non-combat aircraft loss.

The Proposed Action would support multiple ongoing programs across the services for testing and evaluations of sensor systems. As a Major Range and Test Facility Base, YPG is required to be prepared to support the evolving requirements of the military and their operations. The desert environment at YPG emulates a current theater of operations. In order to maximize available resources to support the critical and ever-growing need for emerging technologies, YPG must utilize the proposed test site, consisting of a target/obstacle area and specially modified connex boxes, to accommodate varied test sensors and scenarios. This testing ensures safety and performance prior to use in the field. The proposed DVE test facility at YPG would be the only test site in the continental U.S. capable of supporting the DVE R&D community.

Currently, DVE testing at YPG occurs within a previously graded area of an existing drop zone (DZ) (La Posa/ Robby DZ) in the northern portion of the Cibola Range and southwest of the proposed project location. The current testing location was previously known as the Oasis Landing Zone (LZ) and has recently been renamed to the DVE LZ Test Site. The current test location has constraints that frequently conflict with DVE testing, such as other testing priorities using the DZ and less than ideal soil conditions. For example, La Posa/Robby DZ is used for mass personnel and equipment drops that require the removal of DVE obstacles that present safety hazards to personnel being dropped. The current DVE LZ site has soils that do not generate dust capable of maintaining optimal testing conditions because the soil particles are too large and settle too quickly. The establishment of the proposed test site would result in appropriate soil conditions for testing and would eliminate safety concerns and scheduling conflicts with tests conducted within the existing DZ.

For Planning Purposes Only



Yuma Proving Ground

Imagery Source
ESRI Online\AEX 2006

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FIGURE 1-1
Project Location
Yuma Proving Ground
Yuma, Arizona

1.2.1 Project Need

The new DVE test facility would meet the following project needs:

- The proposed site would minimize the potential for range conflicts, as it is outside of designated DZs and other testing areas.
- The selected site has an appropriate soil type (Gilman-Harqua-Glenbar) to sustain appropriate DVE dust levels during testing.
- The selected site would reduce the hazards to testing participants by avoiding a testing location shared with other types of testing. A stand-alone DVE site would eliminate existing safety concerns associated with removal and placement of DVE obstacles and would avoid risks to testing staff from errant drops or mistakes that could arise with non-DVE testing activities.

1.3 Scope of Analysis

This EA has been developed by the U.S. Army and was prepared in accordance with the National Environmental Policy Act (NEPA) and NEPA-implementing regulations found at 40 Code of Federal Regulations (CFR) Parts 1500 through 1508 (Government Printing Office Access, 2009), 32 CFR 651 (Department of the Army, 2002). Its purpose is to inform decision-makers and the public of the impacts on the human and natural environment that could result from the Proposed Action and alternatives.

The Proposed Action and alternatives, including the No Action Alternative, are described in Section 2. Conditions existing as of 2014, or “baseline” conditions, are described in Section 3. The expected impacts of the Proposed Action for each resource area are described in Section 4. The analysis focuses only on resource areas that could be affected by the Proposed Action. Resource areas eliminated from the analysis are discussed in Section 1.3.1. Section 4 also addresses the potential for cumulative impacts, with project design features to eliminate or reduce impacts are identified where appropriate. Section 5 presents the conclusions drawn from the analysis.

1.3.1 Resource Areas Eliminated from Analysis

The following resource areas have been eliminated from analysis in the EA because there are no potential for impacts from the Proposed Action. These resource areas will not be further discussed in the EA.

1.3.1.1 Land Use

The Proposed Action would occur in an area that is designated for military testing and training activities. No modifications to existing explosive and weapons systems safety arcs would occur as a result of the Proposed Action and no changes in use of adjacent land would occur. There would be no changes to land use as a result of the Proposed Action.

1.3.1.2 Socioeconomics

No building construction, demolition, or relocation of personnel to or from YPG would occur under the Proposed Action. Although the short-term frequency of individual tests could increase and occur over a wider geographic area, the total amount of testing and training would not be expected to change. No socioeconomic impacts would be anticipated.

1.3.1.3 Environmental Justice and Protection of Children

Executive Order 12898, “Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations,” requires that federal agencies analyze potential impacts to minority and low-income populations, including human health and environmental effects, resulting from their activities. The goal is to ensure that activities that affect human health and the environment do not discriminate against minority or low-income populations. Executive Order 13045, “Protection of Children from Environmental Health Risks and Safety Risks,” requires that federal agencies evaluate environmental health or safety risks that could disproportionately affect children. The Proposed Action would occur on land controlled by YPG, which is

restricted from the public. Only authorized personnel would be allowed in the area of the Proposed Action location. There would be no impacts to individuals living in poverty, minorities, or children.

1.4 Agency and Public Participation

The U.S. Army invites public participation in the proposed federal action through the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the Proposed Action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision making process. Letters were submitted to potentially interested tribal governments. Section 6.0 lists the tribal representatives who were contacted.

Public participation opportunities with respect to this EA and decision making on the Proposed Action are guided by 32 CFR Part 651. Upon completion of the EA, the Final EA, and Draft Finding of No Significant Impact (FNSI) will be made available to the public for comment for a period of 30 days. At the end of the public review, the U.S. Army will consider all comments submitted by individuals, agencies, and organizations. As appropriate, the U.S. Army may then execute the FNSI and proceed with implementation of the Proposed Action. If it is determined that implementation of the Proposed Action would result in significant impacts, the U.S. Army would publish in the Federal Register a Notice of Intent to prepare an environmental impact statement or would not take the action.

Throughout this process, the public may obtain information on the status and progress of the Proposed Action and the EA through the YPG NEPA Program Manager, Sergio Obregon, at 928-328-2015 or sergio.obregon.civ@mail.mil.

SECTION 2

Description of Proposed Action and Alternatives

This section describes the Proposed Action and alternatives for establishment of a dedicated and permanent test facility to support Aviation Systems and Electronics test programs at YPG. The project vicinity for the Proposed Action is depicted on Figure 2-1. Reasonable alternatives were evaluated, using an interdisciplinary approach, against the following requirements:

- Provide size and site access suitable to fully support DVE testing programs.
- Avoid YPG range conflicts, including unmanned aircraft system test areas, Joint Experimentation Range Complex testing areas, active DZs and LZs, Persistent Threat Detection Systems, and range safety fans.
- Contain Gilman-Harqua-Glenbar soils to generate suitable dust to adequately support testing.
- Avoid topographic constraints such as washes, uneven terrain at the test area, and mountainous terrain along helicopter approaches.

From this process, two alternatives (the Proposed Action and the No Action Alternative) were selected for detailed and equal analysis.

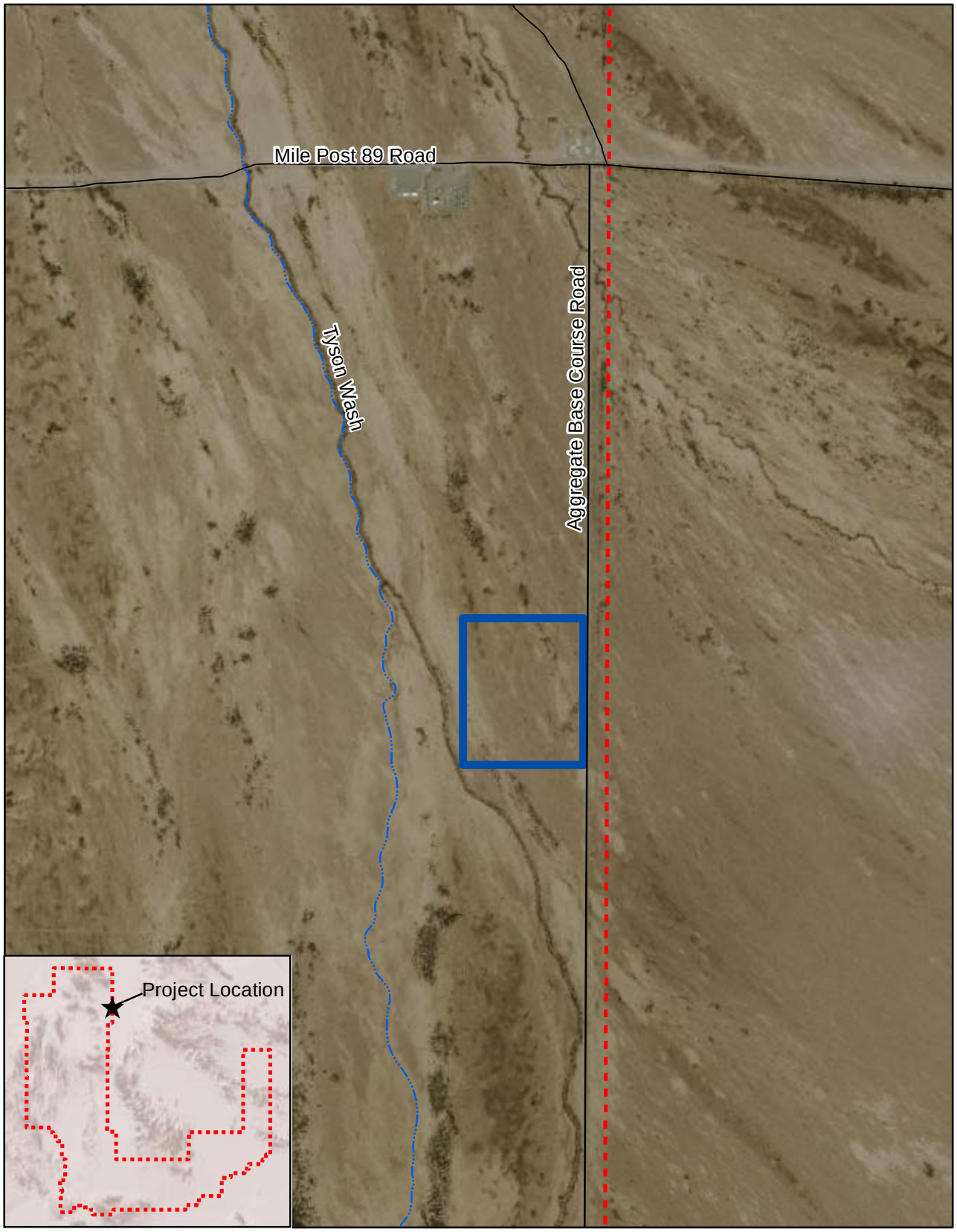
2.1 Proposed Action

The Proposed Action is to establish a new 43-acre test site that would primarily be used for DVE R&D in the northern part of the Cibola Range at YPG. It would be located adjacent to an existing aggregate base coat (ABC) road, which would provide site access.

Approximately 22 acres of the identified 43-acre parcel would be used to establish the DVE test area (a 300-meter [m] x 300m area). This area would be tilled as part of test preparation and dust would be generated during testing activities using helicopters. Artificial obscurants and smoke could also be used during testing activities. Smoke obscuration would typically be generated using a diesel engine exhaust smoke system connected to an M60 tank. Targets and obstacles would be placed in the test area and added or relocated as dictated by test requirements.

The remaining area would be used for placement of connex boxes for equipment storage and testing support, parking, and a helicopter landing/refueling pad. Up to 11 acres of the site would be covered with ABC and used for parking, equipment storage, and the placement of several elevated storage connex boxes specially modified to accommodate varied test sensors and scenario-specific equipment. An impervious helicopter landing/refueling pad up to 0.5 acre in size would be constructed in the southeast portion of the site.

The site would also include one or more stormwater management/soil retention features capable of containing water from a 100-year 2-hour storm event. This could include construction of an approximately 30m by 30m retention basin within the 43-acre parcel.



Legend

Project Boundary

Installation Boundary

N

0 500 1,000 Feet

FIGURE **2-1**
Project Vicinity
Degraded Visual Environment EA
Yuma, Arizona

2.2 No Action Alternative

Under the No Action Alternative, a separate DVE R&D test site would not be established. The project participants would remain at risk from conflicting testing and training activities at the other DZs or using a DZ without an appropriate soil type. DVE testing at YPG would continue to be performed at suboptimal locations.

2.3 Alternatives Considered but Not Carried Forward

No other alternatives were identified for the DVE site. Within the portions of YPG that contain Gilman-Harqua-Glenbar soils, the Proposed Action location is the only suitable site identified. All other areas with that soil type are too close to other test areas with potential conflicts (e.g., Persistent Ground Surveillance Systems site, north unmanned aerial vehicle test area, Robby DZ, and Joint Experimentation Range Complex test areas), are too close to mountains to allow appropriate helicopter approaches to the test area from all directions, or do not have suitable site topography (i.e., in an area flat enough and free of washes to allow the required testing). Locations farther to the east that contain suitable soils are outside of the surface boundary of YPG.

SECTION 3

Affected Environment

This section explains current baseline conditions for existing environmental resources at YPG that could be affected by the Proposed Action if implemented. The potential consequences that could result from the Proposed Action are described in Section 4. Environmental resource areas discussed in detail in this section include air quality; noise; geology; soil, mineral, water, biological, cultural, transportation, hazardous and toxic substances, utilities, health and human safety, aesthetic and visual resources; and recreation.

3.1 Air Quality

3.1.1 Existing Conditions

3.1.1.1 Ambient Air Quality

Air quality is determined by the concentration of various pollutants in the atmosphere. The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. USEPA has established NAAQS for six criteria pollutants: sulfur dioxide (SO_2), nitrogen oxide (NO_x), particulate matter (which includes inhalable particulate matter less than or equal to 10 micrometers in diameter [PM_{10}] and inhalable particulate matter less than or equal to 2.5 micrometers in diameter [$PM_{2.5}$]), carbon monoxide (CO), ozone (O_3), and lead (Pb). Primary NAAQS are intended to protect public health, while secondary NAAQS are intended to protect the environment (crops, wildlife, and buildings). Individual states may establish more stringent standards. The State of Arizona has adopted the Federal NAAQS. The primary and secondary NAAQS for the six criteria pollutants are presented in Table 3-1.

TABLE 3-1
NAAQS for Criteria Pollutants
Environmental Assessment, Degraded Visual Environment, Yuma Proving Ground, Arizona

Pollutant	Primary Standards	Averaging Times	Secondary Standards
CO	9 ppm (10 mg/m^3)	8-hour[a]	None
	35 ppm (40 mg/m^3)	1-hour[a]	None
Pb	0.15 µg/m^3	Rolling 3-month Average	Same as Primary
Nitrogen Dioxide	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Average)	Same as Primary
	100 ppb	1-hour[b]	None
PM_{10}	150 µg/m^3	24-hour[c]	Same as Primary
$PM_{2.5}$	12.0 µg/m^3	Annual [d] (Arithmetic Average)	15.0 µg/m^3
	35 µg/m^3	24-hour[e]	Same as Primary
O_3	0.075 ppm	8-hour[f]	Same as Primary

TABLE 3-1
NAAQS for Criteria Pollutants
Environmental Assessment, Degraded Visual Environment, Yuma Proving Ground, Arizona

Pollutant	Primary Standards	Averaging Times	Secondary Standards
Sulfur Oxides	0.03 ppm	Annual (Arithmetic Mean)	
	0.14 ppm	24-hour[a]	
		3-hour[a]	0.5 ppm (1,300 µg/m^3)
	75 ppb	1-hour	None

[a] Not to be exceeded more than once per year.
[b] 3-year average of the 98th percentile of daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb.
[c] Not to be exceeded more than once per year over 3 years.
[d] 3-year average weighted annual mean $PM_{2.5}$ concentration from single or multiple community-oriented monitors must not exceed 15.0 µg/m^3.
[e] 3-year average of the 98th percentile of 24-hour concentration at each population-oriented monitor must not exceed 35 µg/m^3.
[f] 3-year average of the fourth highest daily maximum 8-hour average O_3 concentration measured at each monitor within an area over each year must not exceed 0.0075 ppm.

µg/m^3 = microgram(s) per cubic meter
mg/m^3 = milligram(s) per cubic meter
ppm = parts per million
ppb = parts per billion

Source: USEPA, 2012

Areas where ambient concentrations of a given pollutant are below the levels established in the NAAQS are designated as being in attainment for that pollutant. Areas that do not comply with the NAAQS for a given pollutant are classified as a nonattainment area for that pollutant. Nonattainment areas are regulated in an effort to lower pollutant ambient concentrations to regulatory standards.

A portion of Yuma County is designated as nonattainment (moderate) for the 24-hour NAAQS for PM_{10}. This nonattainment area includes the southwestern corner of YPG. Data from 2008 through 2010 show that no exceedances of the PM_{10} standard occurred that were not the result of exceptional natural events. These data indicate that the county has moved into attainment with the 24-hour PM_{10} standard (Arizona Department of Environmental Quality [ADEQ], 2011). At this time, the USEPA has not approved the ADEQ Yuma PM_{10} Maintenance Plan (ADEQ, 2006) and the area remains classified as nonattainment (ADEQ, 2015).

3.1.1.2 Affected Environment

The proposed DVE test site is in a portion of Yuma County classified as in attainment for all criteria pollutants.

YPG has a Title V permit (Permit # 43492) dated June 17, 2010. YPG is classified as a major source with potential emissions of NO_x, CO, and volatile organic compounds (VOCs), each exceeding 100 tons per year (tpy). PM_{10} emissions are less than 100 tpy. Additionally, YPG is an area source of hazardous air pollutants (HAPs) with emissions of a single HAP and facility-wide totaling less than 10 tpy and 25 tpy, respectively. PM_{10} emissions are generally derived from windborne dust particles typically during high winds. Activities such as off-road travel and construction can exacerbate windborne erosion leading to increased PM_{10} emissions. However, exceedances of the PM_{10} standard have only occurred as a result of exceptional natural events.

Air emissions tracked on the installation consist of criteria air pollutants, VOCs, HAPs, and ozone-depleting chemicals (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). YPG is required to submit an annual air emissions inventory to ADEQ. Data from the YPG 2012 air emissions inventory are provided in

Table 3-2 and are compared to Yuma County's total emissions for 2008 (the most recent year for which county data are available). YPG's point source emissions account for a very small fraction of Yuma County's total emissions.

TABLE 3-2
Comparison of Yuma Proving Ground Air Emissions to Yuma County Air Emissions [a]
Environmental Assessment, Degraded Visual Environment, Yuma Proving Ground, Arizona

	Yuma County [b]	Yuma Proving Ground	
Pollutant	**Total (tpy)**	**Point Source (tpy)[c]**	**% of Total**
PM_{10}	12,661	19.50	0.15
CO	34,765	5.73	0.02
VOC	8,203	17.57	0.21
NO_X	6,782	13.06	0.19
SO_2	184	0.03	0.02

[a] Data in this table are from the most recent available data (2008 and 2012).
[b] Source: USEPA, 2013. (The data are from 2008, which is the most recent data available).
[c] Source: Yuma Proving Ground 2012 Annual Air Emission Inventory. (Obregon, 2013a)

3.1.1.3 Climate Change and Greenhouse Gases

Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period of decades or longer. Climate change may result from any of the following conditions (USEPA, 2010):

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit
- Natural processes within the climate system (such as changes in ocean circulation)
- Human activities that change atmospheric composition (such as through burning fossil fuels [natural gas, oil products, and coal]) and that change the land surface (such as deforestation, reforestation, urbanization, and desertification)

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs). Some GHGs, such as carbon dioxide (CO_2) occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHGs (such as fluorinated gases) are derived exclusively from human activities. GHGs may contribute to accelerated climate change by altering the thermodynamic properties of the Earth's atmosphere (USEPA, 2011a).

GHGs with long lifespans are quantified for their climate change potential, expressed as CO_2 equivalents. These long-lived GHGs include CO_2, methane, nitrous oxide, and fluorinated gases (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) (USEPA, 2010 and 2011b).

The USEPA Mandatory Reporting Rule became effective on December 29, 2009. Suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of CO_2 equivalents must submit annual reports to USEPA. The Supreme Court decision in *Massachusetts et al. v. Environmental Protection Agency et al.* (Supreme Court Case 05-1120) found that USEPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the CAA. On April 17, 2009, USEPA found that CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride may contribute to air pollution and may endanger public health and welfare. YPG's GHG emissions are below the mandatory reporting threshold of 25,000 metric tpy (Obregon, 2013).

3.2 Noise

3.2.1 Existing Conditions

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although exposure to very high noise levels can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, the perceived importance of the noise, its appropriateness in the setting, the time of day, type of activity during which the noise occurs, and the sensitivity of the individual. Chapter 7 of AR 200-1 dictates guidelines and regulations to reduce noise impacts and establishes an Environmental Noise Management Program.

YPG has an Installation Operational Noise Management Plan (IONMP) to guide operations. The IONMP describes the current noise environment and predicts future noise conditions through computer modeling. The IONMP provides guidelines to attain land use compatibility between noise generated by military activities on YPG and the surrounding communities (U.S. Army Public Health Command, 2011).

Army environmental noise policies are based on land use compatibilities as indicated by objective noise levels. A number of noise measurements are used to assess compatibility. These include the decibel (dB) and peak sound level events. The dB is a measurement of the sound pressure level that is measured with A-weighted filters to emphasize frequencies within the sensitive range of the human ear and C-weighted filters to emphasize low frequency sounds. Peak sound level events are single measurements without weighting.

The dB scale is logarithmic rather than arithmetic. When sound pressure doubles, the sound pressure level, as expressed by dBA, increases by 3. Psychologically, most humans do not perceive a doubling of sound until there is an increase of 10 dBA (USEPA, 1974). Sound pressure decreases with distance from the source. Typically, the amount of noise from a continuous source is halved (reduced by 3 dBA) as the distance from the source doubles (USEPA, 1974).

Installation Compatible Use Zones have been established for YPG based on the level of noise exposure in three types of areas, designated as noise zones (NZs). NZ I has the least noise exposure with NZ III having the greatest noise exposure. The intent of Installation Compatible Use Zones is to prevent land use incompatibilities as a result of placing noise-sensitive activities in high-noise exposure areas. Generally, all types of land use are suitable in NZ I. NZ II is not recommended for noise-sensitive land uses and typically is limited to activities such as manufacturing, warehousing, transportation, and resource protection. No noise-sensitive land uses are recommended in NZ III. The Land Use Planning Zone, where noise-sensitive land uses are acceptable, is defined within the upper range of noise levels in NZ I (U.S. Army Public Health Command, 2011).

Ambient noise on YPG includes natural sources, such as wind, and manmade noises, such as aircraft noise, traffic on US 95 and other roads, munitions testing, military vehicle and equipment testing, and military training activities. Aircraft noise includes fixed- and rotary-wing military aircraft from YPG and Marine Corps Air Station (MCAS) Yuma, Arizona Game and Fish Department (AZGFD) wildlife surveys, and commercial air traffic. The main noise sources on YPG are related to transportation, aviation, and firing activities (YPG-Department of Public Works [DPW], 2010).

The only noise-sensitive land uses surrounding YPG are the Martinez Lake area on the Colorado River near the western boundary of the Cibola Range and the Dome Valley agricultural/rural residential area to the south of the Laguna Region (U.S. Army Public Health Command, 2011). In addition, the Kofa NWR, Trigo Mountain Wilderness Area, Imperial NWR, and the Muggins Mountain Wilderness Area are considered sensitive noise receptor areas around YPG due to their proximity to firing ranges and the use of airspace over these areas for military testing and training (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

The Arizona Desert Wilderness Act of 1990 (Public Law 101-628) established the Muggins Mountain Wilderness Area, Trigo Mountain Wilderness Area, Kofa Wilderness Area, and Imperial Refuge Wilderness Area, among other Arizona desert wilderness areas. This Act does not preclude or otherwise affect continued low-level over flights by military aircraft over NWR wilderness areas and does not preclude the designation of new units of special airspace, or the use or establishment of military flight training routes over wilderness areas. The Act also states that the ability to see or hear nonwilderness activities or uses from areas within a wilderness does not preclude such activities or uses up to the boundary of the wilderness area (YPG, 2012).

To reduce the risk of complaints from aviation sources YPG implements a noise abatement program that is specified in Annex T of the Laguna Army Airfield Standard Operating Procedure (SOP), dated November 1, 2010. The noise abatement program identifies the following areas where over flights should be conducted a minimum of 2,000 feet above ground level:

- Main Administrative Area, mainly the housing and school area
- Hidden Shores RV Park
- Martinez Lake area (includes Fisher's Landing Village and the MCAS Yuma Recreation Area)
- Imperial NWR
- Kofa NWR

3.2.1.1 Project Area

The proposed project area is located in an NZ I area. Ambient noise levels in this area are comparable to a rural environment, but could be noisier depending upon training and testing activities taking place in the area. Sources of noise that contribute to ambient noise levels in the project area would mainly be from testing and training activities on YPG, which would include overhead flights and noise from Highway 95, approximately 2 miles to the east.

The project area is located in a remote area of YPG. There are no sensitive receptors on or within the vicinity of the project area.

3.3 Geology, Mineral, and Soil Resources

This section will focus on soil resources. There would be no impacts to geology or mineral resources associated with minor grading activities associated with the Proposed Action, therefore these resources are not discussed in detail.

3.3.1 Existing Conditions

Soils within the proposed project area consist of a Gilman-Harqua-Glenbar complex. These soils are typically found on alluvial fans, floodplains, and relic basins (Natural Resources Conservation Service [NRCS], 2015). This soil type is highly susceptible to erosion from water and moderately susceptible to wind erosion (NRCS, 1991). The soil consists of fine particles that are readily dispersed into the air when disturbed, producing dense clouds of dust that can remain suspended for an extended amount of time.

No biological soil crust or desert pavement was observed during a field survey of the proposed site in October 2014 (CH2M HILL, 2014).

3.4 Water Resources

There are no wetlands or perennial streams within the confines of YPG. Drainage from YPG flows into either the Colorado or Gila Rivers. The proposed project area drains to the Colorado River. The Lower Colorado River is listed on the Arizona 2006/2008 303(d) List of Impaired Waters (ADEQ, 2010 and USEPA, 2009a). Approximately 32 miles of the lower Colorado River above the Mexican border are listed as impaired due to low dissolved oxygen levels and elevated selenium levels (ADEQ, 2010).

Low rates of precipitation and high evapotranspiration rates cause ephemeral streams (desert washes) on YPG to remain dry most of the year. Desert washes are regulated as waters of the U.S. under Section 404 of the Clean Water Act. Desert washes on YPG typically only convey water offsite during major flood events. The runoff from YPG typically is of good quality, but the volume is minimal and the volume of water conveyed to the two rivers is barely perceptible (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

3.4.1 Existing Conditions

No jurisdictional drainages were observed within the project area during the field survey (Appendix A). Tyson Wash, an ephemeral stream, is located approximately 500 feet west of the project boundary. Tyson Wash flows to the north through quartzite and eventually into the Colorado River.

3.5 Biological Resources

3.5.1 Existing Conditions

Vegetation on YPG is adapted to the hot, arid environment, where summer daytime temperatures can exceed 120 degrees Fahrenheit (Spellenberg, 2003). Open plains are typically sparsely covered with drought-tolerant shrubs, grasses, and cacti. The most common plant species on YPG is creosote bush, which occurs over large areas or mixed with combinations of ocotillo, bursage (*Ambrosia deltoidea*), teddy bear cholla cactus (*Cylindropuntia bigelovii*), and foothills palo verde trees (*Parkinsonia microphylla*), depending on landscape position.

Wildlife on YPG is typical of the Colorado Desert. Common wildlife species usually have physical and behavioral adaptations, including light coloration, body armoring, and increased surface area of heat dissipating body parts, to survive the extreme hot and dry conditions. Many species also demonstrate nocturnal behavior to avoid the hot daytime temperatures. Mammal, reptile, and bird species are well-represented, while fish and amphibians are limited to perennial waterbodies, such as the Colorado and Gila Rivers.

Sensitive species known to occur at YPG are described in the installation's Integrated Natural Resources Management Plan (YPG, 2012). The proposed project area is within an area identified as potential Sonoran Desert tortoise (*Gopherus morafkai*) area in that document.

The Sonoran Desert tortoise is a candidate species under the Endangered Species Act and a Wildlife of Special Concern in Arizona. This species is known to occur on YPG in small distinct groups, typically on rocky bajadas and steep slopes. This diurnal, solitary species is strictly terrestrial and requires firm but not hard ground to construct burrows, adequate moisture for survival of eggs and young, and grass, cactus, or other low-growing vegetation for food. This species has been observed in the East Arm of the Kofa Region and in the Cibola Region of YPG (YPG, 2012). The AZGFD has identified certain areas as primary desert tortoise habitat on and near YPG. Approximately 375 mi^2 of the northern portion of the Cibola Region is designated as primary tortoise habitat, where a population occurs. The nearest habitat to the project area is approximately 5 miles away. YPG has incorporated portions of the *Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat* (Arizona Interagency Desert Tortoise Team, 2008) consistent with the military mission into managing this species and considers these guidelines to develop appropriate mitigation strategies when evaluating activities.

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The Migratory Bird Treaty Act (MBTA) of 1918 established federal responsibilities to protect birds migrating between the U.S. and Canada. Subsequent treaties with Mexico (1936), Japan (1972), and the Union of Soviet Socialist Republics (1976) expanded the scope of international protection of migratory birds. Each subsequent treaty was incorporated into the MBTA as an amendment. The provisions of the MBTA are implemented domestically within the signatory countries. Under the MBTA, nearly all species of birds occurring in the U.S., their eggs, and their nests are protected. There are 836 bird species protected by the

MBTA in the U.S., 58 of which are legally hunted as game birds. The MBTA makes it illegal to take (hunt, pursue, wound, kill, possess, or transport by any means) listed bird species, their eggs, feathers, or nests unless otherwise authorized, such as within legal hunting seasons (USFWS, 2011a). The *National Defense Authorization Act of 2003* authorizes the Armed Forces to take migratory birds incidental to military readiness activities, subject to certain limitations.

The Bald and Golden Eagle Protection Act of 1940, as amended, makes it illegal to take, transport, or possess bald and golden eagles or to engage in commerce in these species with limited allowed exceptions (USFWS, 2011b).

3.5.1.1 Project Area

The project area was surveyed to characterize the habitat and to identify the presence or absence of the Sonoran Desert tortoise. The characterization included identification of the dominant plant species present and wildlife observed, locations of washes, and locations of areas with the characteristics of mesquite bosques. The desert tortoise survey was conducted according to the *Desert Tortoise Pre-project Survey Protocol, 2010 Field Season* (USFWS, 2010a). The entire biological survey report is included as Appendix A.

The habitat within the project area consists of Sonoran Desert scrub. Much of the land within the study area was previously disturbed by military training activities. There was evidence of all-terrain vehicle use within the site. Construction of nearby roads appears to have deflected some surface flows of water away from the site. Very low cover and diversity of desert annuals exist within the project area. Small areas of mesquite bosque are scattered within the project site along shallow drainages or depressional areas (Appendix A). The bosques areas show as green blotches on Figure 2-1. All that were observed within the project area were less than 10 acres in size. These bosques could provide habitat for a variety of small mammal and bird species.

A list of plant and animal species observed during the biological survey of the project area is included in Table 3-3 below. No federally listed species were observed during the survey.

TABLE 3-3
Observed Flora and Fauna
Environmental Assessment, Degraded Visual Environment, Yuma Proving Ground, Arizona

Common Name	Scientific Name	Federal Status	State Status
Reptiles and Amphibians			
California whiptail	*Aspidoscelis tigris munda*	N	N
Desert horned lizard	*Phrynosoma platyrhinos*	N	N
Side-blotched lizard	*Uta stansburiana*	N	N
Zebra-tailed lizard	*Callisaurus draconoides*	N	N
Mammals			
Blacktail jackrabbit	*Lepus californicus*	N	N
Birds			
American Robin	*Turdus migratorius*	N	N
Western burrowing owl	*Athene cunicularia hypugaea*	N	SGNC Tier 1b
Common Raven	*Corvus corax*	N	N
Horned Lark	*Eremophila alpestris*	N	N
Red-tailed Hawk	*Buteo jamaicensis*	N	N
Plants			
Big galleta	*Pleuraphis rigida*	N	N

TABLE 3-3
Observed Flora and Fauna
Environmental Assessment, Degraded Visual Environment, Yuma Proving Ground, Arizona

Common Name	Scientific Name	Federal Status	State Status
Brown plume wire lettuce	*Stephanomeria pauciflora*	N	N
Catclaw acacia	*Acacia greggii*	N	N
Cheeseweed mallow	*Malva parviflora*	N	N
Cooper's goldenbush	*Ericameria cooperi*	N	N
Cottontop cactus	*Echinocactus polycephalus*	N	N
Creosote bush	*Larrea tridentata*	N	N
Crucifixion thorn	*Castela emoryi*	N	N
Desert Milkweed	*Asclepias erosa*	N	N
Desert needle grass	*Achnatherum speciosum*	N	N
Desert trumpet	*Eriogonum inflatum*	N	N
Desert mistletoe	*Phoradendron californicum*	N	N
Devil's spineflower	*Chorizanthe rigida*	N	N
Globemallow	*Sphaeralcea sp.*	N	N
Honey mesquite	*Prosopis glandulosa*	N	N
Mexican panic grass	*Panicum hirticaule*	N	N
Night-blooming cereus	*Peniocereus greggii*	N	N
Range ratany	*Krameria erecta*	N	N
Red-stemmed stork's bill	*Erodium cicutarium*	N	N
Silver Cholla	*Cylindropuntia echinocarpa*	N	N
Turpentine Broom	*Thamnosma montana*	N	N
White bursage	*Ambrosia dumosa*	N	N

Status:
SGCN = Species of Greatest Conservation Need
N = Not Listed

Source: Appendix A

The degraded habitat within the project area could provide suitable habitat for the burrowing owl, which was observed during the biological survey of the project area. This species is not listed under the Endangered Species Act, but is considered a SGCN tier 1b by the State of Arizona (AZGFD, 2010). The burrowing owl was observed near a burrow (Appendix A). An additional survey was conducted to determine potential use of the burrow. There was no additional use of the burrow and no owls were present. The burrow was collapsed by YPG natural resources staff (Steward, 2015). No other protected species would be expected to occur within the project area. No Sonoran Desert tortoise or sign of this species were observed.

3.6 Cultural Resources

3.6.1 Existing Conditions

This section describes cultural resources in the area of potential effects (APE) for the Proposed Action. The APE is 43 acres in size and consists of the 22-acre test site and a buffer of 21 acres to provide an area for equipment storage, parking, stormwater management, and a helicopter refueling pad. Cultural resources include prehistoric, Native American, and historic resources. Prehistoric resources are physical properties

resulting from human activities that predate written records and generally are identified as isolated occurrences or sites. Prehistoric resources can include village sites, temporary camps, lithic (stone tool) scatters, roasting pits or hearths, milling features, petroglyphs (rock art), rock features, and burial sites.

Cultural resources are defined as any prehistoric or historic site, building, structure, historic district, landscape, or object that is a valued part of a culture or community for scientific, traditional, religious, or other purposes. Archaeological resources, historic architectural resources, and traditional resources are all considered cultural resources. Archaeological resources include remnants of prehistoric or historic human life and activity that exist as either tangible objects or measurable markings on the earth. Architectural resources include standing buildings and structures that exhibit historic or aesthetic significance.

Traditional cultural resources are evident in the cultural practices, beliefs, and history of a living community and help to maintain cultural identity. Native American resources are sites, areas, and materials important to Native Americans for religious, spiritual, or traditional reasons. These resources may include villages, burial sites, petroglyphs, rock features, springs, and other types of sites or areas. The belief in the sacred character of physical places, such as mountain peaks, springs, or burial sites, is fundamental to Native American religions. Traditional rituals often prescribe the use of particular native plants, animals, or minerals. Thus, activities that might affect sacred areas, their accessibility, or the availability of materials used in traditional practices are of primary concern.

The National Historic Preservation Act (NHPA) of 1966 (54 United States Code (USC) 306108) is one of the primary federal regulations designed to protect cultural resources, as implemented by 36 CFR 800. Historic properties are defined in 36 CFR 800.16 as any prehistoric or historic district, site, building, structure, or object included in or eligible for the National Register of Historic Places (NRHP). Under the NHPA, a property possesses significance if it meets the NRHP criteria listed in 36 CFR 60.4 and retains sufficient integrity to convey that significance. The NRHP recognizes seven aspects of integrity: setting, feeling, association, location, materials, design, and workmanship. Generally, properties should be 50 years old to be eligible for the NRHP, but those that have achieved significance within the past 50 years may be eligible if they are of exceptional importance. Cultural resources must also be given consideration under NEPA, which establishes national policies and goals for the protection of the environment, including historic properties.

Harris Environmental Group, Inc. conducted an intensive 622-acre Class III survey of the APE and surrounding environment for cultural resources in 2015. The survey identified three archaeological sites and 111 historic and prehistoric isolated occurrences (IOs) across the survey area. The three newly recorded sites (AZ R:11:273[ASM], AZ R:11:274[ASM], and AZ R:11:275[ASM]) were determined to be eligible for listing on the NRHP. The sites contain ceramic scatter with fire-affected rock cluster, artifact scatter with fire-affected rock, and lithic scatter with fire-affected rock. All three of these sites are located a minimum of 192 meters away from the Proposed Action and would not be affected by the undertaking. Of the 111 IOs, only 40 are located within the proposed project area, 38 of which are historic, while two are prehistoric. One isolated occurrence within the APE, IO-76, was determined to be eligible for listing on the NRHP. The isolate is a Pinto point, a unique projectile point for this region, made from milky quartz (Harris Environmental Group, Inc., 2015).

3.7 Transportation

3.7.1 Existing Conditions

YPG contains approximately 180 miles of paved roads, 820 miles of improved roads (gravel/graded), and numerous unimproved roads (dirt only). There are six airfields and the installation has approximately 2,000 mi^2 of designated restricted airspace.

The project area is adjacent to an ABC road that is connected to a paved road that connects to US 95. The project area is approximately 2 miles west of US 95. US 95 is a two-lane paved road designated as a rural principal arterial (YMPO, 2010). US 95 is the main access route to YPG and runs generally north/south between I-8 and I-10, which are south and north of YPG, respectively.

3.8 Hazardous and Toxic Substances

3.8.1 Existing Conditions

This section focuses on hazardous and toxic substances related to aircraft, vehicle, and testing equipment use. Other types of hazardous areas or materials, such as, Installation Restoration Program areas, ordnance, open burn/open detonation for waste munitions, pesticides and herbicides, asbestos, Pb, and polychlorinated biphenyls are not discussed in detail as there would be no impacts to these resources as a result of the Proposed Action.

3.8.1.1 Background

Hazardous substances are defined as any of the following: any substance designated pursuant to Section 311 (b)(2)(A) of the Clean Water Act; any element, compound, mixture, solution, or substance designated pursuant to Section 102 of the Comprehensive Environmental Response, Compensation, and Liability Act; any hazardous waste having the characteristics identified under the Resource Conservation and Recovery Act of 1976; any toxic pollutant listed under the Toxic Substances Control Act; any HAP listed under Section 112 of the CAA; or any imminently hazardous chemical substance or mixture on which the USEPA Administrator has taken action pursuant to Subsection 7 of the Toxic Substances Control Act. A list of hazardous substances is found in 40 CFR 302.4.

Environmental programs at YPG use management actions to minimize use of hazardous substances and reduce resulting waste streams. Chapter 3 of YPGR 385-1 addresses environmental health risks and applies to all activities on YPG. Strict spill prevention requirements add additional protection for human health and the environment. Industrial processes, routine maintenance activities, testing, and support activities are the primary operations on YPG that use hazardous substances or generate wastes (YPG-DPW, 2010b).

Transport of hazardous substances is in accordance with legal requirements. Periodic audits are conducted at YPG facilities where hazardous substances are used and all hazardous substance use is tracked through the Hazardous Material Control Center using the Enterprise Environmental Safety and Occupational Health System. These audits serve as a tracking system for hazardous substance use. In addition to obtaining material usage amounts, storage and containment are investigated. Emphasis is placed on the prevention and control of spills.

3.8.1.2 Hazardous Waste Management

YPG uses a Hazardous Waste Tracking System for all hazardous wastes generated through industrial activities. Hazardous wastes at YPG are managed successfully through the Hazardous Waste Storage Facility (HWSF) located in the Yuma Test Center area. Hazardous wastes and expired hazardous substances accumulate at this location until disposal. No wastes from outside YPG are accepted at the HWSF and no treatment or permanent disposal of wastes occurs at the HWSF. Hazardous substances are stored according to Army regulations and all applicable federal, state, and local ordinances and then disposed of properly in appropriate facilities (YPG, 2012).

3.8.1.3 Fuels and Petroleum Products

Fuels at YPG are stored in aboveground storage tanks (ASTs) and underground storage tanks (USTs) for use on the installation. There are 22 ASTs at YPG with a total capacity of 139,298 gallons (Brandon, 2011b). These ASTs primarily are used for storage of fuel oil, used oil, aviation fuel, gasoline, or diesel fuel. All of the ASTs have secondary containment structures or are double-walled to prevent release to the environment in the event of a spill. USTs on the installation primarily contain Jet Propellant 8 (JP-8), heating oil, or gasoline. YPG maintains 20 active USTs with a total storage capacity of 27,569 gallons for this purpose (Brandon, 2011b and Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001). Most petroleum, oil, and lubricants, including fuels, are stored either in USTs or ASTs

YPG recycles used oils, which are collected in ASTs and stored in labeled 55-gallon drums. The used oil is picked up by a private contractor for recycling. Control practices such as oil-water separators attached to vehicle wash racks minimize the potential for discharge from normal operations.

3.8.1.4 Spill Containment

The installation fire department can provide emergency response in the event of a large spill. The Resource Conservation and Recovery Act of 1976 Contingency Plan and the Spill Prevention, Control, and Countermeasure Plan provide information on the storage and handling of petroleum-based products, hazardous substances, and appropriate response actions in the event of fire, explosion, or release of hazardous substances and wastes.

3.8.1.5 Disposal

The Universal Waste Rule issued by USEPA (40 CFR 273) is designed to reduce the amount of hazardous waste items in the municipal solid waste stream, encourage recycling and proper disposal of certain common hazardous wastes, and reduce the regulatory burden on businesses that generate these wastes. The rule is intended to promote recycling of batteries, fluorescent bulbs, mercury-containing switches/thermostats and thermometers, and recalled pesticides by relaxing collection, handling, and transportation requirements, and to make it easier to properly treat and recycle these wastes. YPG coordinates with MCAS Yuma and other government agencies to consolidate wastes that are subject to the Universal Waste Rule to increase the cost-effectiveness of recycling and disposal of the waste.

3.8.1.6 Project Area

There are no known hazardous or toxic substances within the project area.

3.9 Utilities

3.9.1 Existing Conditions

Utility infrastructure on YPG is generally concentrated in the cantonments. Water, electricity, telecommunications, and wastewater services are generally limited to cantonments and the immediate vicinity, although some down-range components are equipped with water wells, electricity, and telecommunications. The majority of YPG has no utility services; water is typically truck to remote testing and training sites, and power is provided by portable generators.

There is a fiber optic communications line adjacent to the project area. The nearest power source (power lines) is approximately 1 mile north of the project area. No other utilities are located nearby.

3.10 Health and Human Safety

3.10.1 Existing Conditions

The main safety concerns on YPG are related to contamination related to potential spills of petroleum products (fuel, oil, grease) from vehicles and equipment, unexploded ordnance (UXO), fires, and traffic and safety, which are present in military and non-military activities. Safety also is the basis for establishment of anti-terrorism/force protection setbacks and use of controlled access points on the installation.

Safety for military personnel and contractors involved with mission-related activities is a priority and personnel are trained individually for the various testing and training activities through specific programs. AR 385-1 (*Safety and Occupational Health Program*) and YPGR 385-1 (*Yuma Proving Ground Safety and Occupational Health Program*) define the safety program on YPG. Aviation Safety is specifically addressed in Department of the Army Pamphlet 385-90 (*Army Aviation Accident Prevention Program*) (Department of the Army, 2010). Contractor personnel are required to comply with the Occupational Safety and Health Act in addition to all YPG safety requirements. Range safety during testing and training events is governed by YPG SOP YP-MTRO-P-1000 (*Airspace and Range Operations*). Each individual operation or test is required to have

a specific SOP, which must meet the requirements of SOP YP-MTRO-P-1000 at a minimum and may include greater safety controls. Medical evacuation pads for helicopter access are located throughout much of YPG.

Civilians are not permitted on YPG, except as military contractors, dependents, and hunters. Appropriate speed limits and traffic controls are placed throughout the installation and provide for traffic safety for all persons on YPG. Hunters are allowed in designated areas during official hunting seasons. An annual YPG range safety briefing is required before anyone can obtain a hunting permit.

Trespassers could enter restricted areas on YPG and be at risk from UXO. In the past, campers have been found on YPG who indicated that they were unaware they were trespassing. Warning signs are posted along the boundary and roads through YPG to deter trespass.

The YPG safety program educates and protects people from injury and exposure to injurious effects. The safety program applies to all persons on YPG, including military, civilian, dependent, and contractor personnel.

Valley fever (Coccidioidomycosis) has been identified as a health issue in Arizona. This disease results from a fungal infection after susceptible persons inhale airborne dust from desert soils that contain fungal spores of the genus Coccidioides (Centers for Disease Control [CDC], 2013). In Arizona, most cases occur in the Phoenix and Tucson areas, and the YPG area (Yuma and La Paz Counties) has had relatively few cases (Arizona Department of Health Services, 2012 and Arizona Department of Health Services, 2013). Yuma and La Paz Counties have each averaged between 0.1 percent and 0.3 percent of total reported cases for Arizona for the period 2007-2012. While the disease can strike anyone, it is much more prevalent among older persons (60 years of age and older) and those with suppressed or compromised immune systems (CDC, 2013).

There are no known safety hazards in the project area. The project area is not known to and would not be expected to contain any UXO. The project area is located in an area on YPG that is restricted from the public.

3.11 Aesthetics and Visual Resources

Visual resources include natural and manmade components of the environment perceived by human receptors. Aesthetics refers to beauty in both form and appearance. Perceptions and aesthetic values may vary among individuals depending upon personal preferences.

3.11.1 Existing Conditions

Areas of aesthetic and visual value on YPG and the surrounding area include the Muggins Mountain Wilderness Area; Kofa NWR; Imperial NWR; Trigo Mountains Wilderness Area, including the Needles Eye pinnacle on the Trigo Mountains; Red Bluff Mountain; La Posa Dunes; Mohave Peak; the White Tanks Management Area in East Arm; and Camp Laguna. Some washes that flow into the Colorado River, including Mohave, Gould, Yuma, McAllister, and Indian washes, are also considered areas of special interest, and may provide aesthetic and visual resources to some viewers (Gutierrez-Palmenberg, Inc. and Jason Associates Corporation, 2001).

Due to the rugged mountains and varying topography, the public viewshed on YPG is primarily limited to the views available from US 95, Imperial Dam Road, Cibola Lake Road, and Martinez Lake Road. Development on YPG is mainly concentrated in the cantonments, while testing and training areas typically remain open and undeveloped. Most facilities and training and testing areas on YPG are not visible from public roads.

There are no visual resources within the project area and the aesthetics of the project area consist of degraded scrub habitat. Due to the proximity to US 95, it is likely that testing activities at the proposed project area would be visible to the public on US 95.

3.12 Recreation

3.12.1 Existing Conditions

YPG is closed to the public and contains restricted airspace over much of its area.

Hunting is the primary recreational activity on YPG. In coordination with AZGFD, designated recreational hunting areas have been established in portions of YPG where safety constraints were not an issue and where hunting would not interfere with the military mission of the installation. Hunting is not allowed in the proposed project area (YPG, 2015). Overnight camping in conjunction with hunting is permitted, but hunters are required to obtain proper advance authorization. Since 1979, YPG has gradually increased the number of public hunting days and the available hunting acreage. While the potential for hunting on YPG is limited due to mission constraints and security concerns, YPG typically allows up to the maximum number of hunting days in accordance with state law in the designated areas (YPG, 2012).

Three USFWS NWRs are located in the vicinity of YPG, including the Kofa NWR, which is located to the east of the proposed project area. The Kofa NWR, located between the arms of YPG, encompasses approximately 665,400 acres of desert habitat. Kofa NWR offers a variety of recreational activities, including hiking, camping, sightseeing, photography, and nature observation. Regulated hunting for quail, desert bighorn sheep, deer, desert cottontail (*Sylvilagus auduboni*), coyote (*Canis latrans*), and gray fox (*Urocyon cinereoargenteus*) is permitted (USFWS, 2008).

SECTION 4

Environmental Consequences

This section assesses the environmental consequences associated with the Proposed Action and the No Action Alternative. Direct and indirect environmental impacts are described for each resources identified in the previous section as potentially affected by implementation of the Proposed Action. These resource areas include air quality, noise, biological resources, air transportation, hazardous and toxic substances, health and human safety, aesthetics and visual resources, and recreation. No impacts would be anticipated for other resource areas not included in Sections 3 or 4.

4.1 Air Quality

4.1.1 Proposed Action

Construction activities within the project area would result in long-term less than significant impacts to air quality, mainly from fugitive dust. Soils in the project area are susceptible to erosion from wind and water. Impacts from emissions produced by construction equipment would be negligible.

Construction best management practices (BMPs) would be utilized during construction to reduce or eliminate fugitive dust emissions. BMPs that could be implemented include:

- *Application of Dust Suppressants*. Where appropriate, dust suppressants or liquid surfactants would be applied to areas where dust could be disturbed by construction or traffic.
- *Sprinkling/Irrigation*. Sprinkling the ground surface with water until it is moist can be used to control dust on haul roads and other traffic routes. When suppression methods involving water are used, care would be exercised to minimize over-watering that could cause the transport of mud onto adjoining roadways. Mechanical removal of mud from ties would be implemented if necessary.
- *Vegetative Cover*. In areas not expected to accommodate vehicle traffic, vegetative stabilization of disturbed soils is often desirable. Vegetation provides coverage to surface soils and decreases wind velocity at the ground surface, thus reducing the potential for dust to become airborne.
- *Mulch*. Mulching can be a quick and effective means of dust control for recently disturbed areas.
- *Gravel.* Gravel can be placed on roadways or areas that may experience long-term use to reduce the potential for fugitive dust.

During the long-term use of the project area for training activities, intermittent air quality impacts would occur. The project area was chosen because of the soil type which is known to create suspended dust for an extended period of time that would simulate battlefield conditions in a dusty, vision impaired environment. The test area portion of the proposed project area (approximately 22 acres in size) would be tilled prior to tests and helicopters would be used to generate dust prior to and during testing activities. Smoke generated by M60 tanks or from use of other artificial obscurants could also create low visibility conditions during testing. Temporary exceedances of the PM10 and PM2.5 standards would also occur from the generation of these dust clouds or smoke/obscurant clouds. The duration of the dust clouds or smoke/obscurant clouds intentionally created would depend upon the amount of wind. There are no sensitive receptors in the vicinity of the project area that could be affected by training activities conducted at the proposed site.

The proposed DVE site is located at the boundary of YPG and within 3 miles of the Highway 95 corridor. Dust or smoke/obscurants from the project area could reach US 95 and would reach adjacent Bureau of Land Management property during testing activities and during periods of high winds. However, because of the small area of soils that would be disturbed by testing and the small amounts of smoke or obscurants that would be generated, it is expected that the dust or smoke/obscurants would dissipate to a negligible nuisance to drivers by the time the dust or smoke/obscurants travelled from the project area. Routes to and

from the project area consist of improved gravel roads, which would reduce the amount of dust created from vehicular travel. Long-term use of the project area would result in intermittent less than significant air quality impacts.

Erosion and dust generation from high winds would likely occur outside of testing activities. The use of dust suppressants at the test portion of the site following test completion would not be feasible. Water could be sprayed following testing use, but application would be logistically difficult and expensive to apply. Its use would also be constrained by the test schedule and the need to maintain dry conditions. Chemical dust suppressants could not be used since they would alter the soil chemistry and could affect test conditions.

During operation, air emissions would be generated from portable generators that would be used to provide power for testing activities. This could result in localized intermittent short-term impacts to air quality. However, there would be no increase in overall air emissions, including GHG emissions, installation-wide. The generators used would be relocated from areas where DVE testing is currently occurring at YPG.

4.1.2 No Action Alternative

No changes to air quality would occur under the No Action Alternative.

4.2 Noise

4.2.1 Proposed Action

Short-term impacts from noise would occur during construction; however, the increase in noise would be negligible for personnel not associated with construction activities. There are no sensitive receptors within the vicinity of the project area that would perceive an increase in noise. The increase in noise could affect and potentially displace wildlife in the area. However, wildlife in the vicinity of the project area have likely become accustomed to intermittent increases in noise from training activities.

Heavy equipment used for construction would generate noise levels ranging from 70 to 89 dBA at a range of 50 to 100 feet depending on the type of equipment (USEPA, 1971). Construction personnel would wear appropriate hearing protection and follow U.S. Army noise regulations (AR 200-1). Noise impacts during construction would be less than significant and would be short-term.

Noise levels at the project area would increase during training activities. Helicopters would be used to create the suspended dust, which would be the main contributor to increased noise levels associated with training activities. Noise impacts during operation of the project area would be intermittent and would be similar to ongoing training and testing activities currently occurring in the area. Noise impacts during operation would be less than significant and intermittent.

4.2.2 No Action Alternative

Under the No Action Alternative, no changes to the noise environment would occur.

4.3 Geology, Minerals, and Soil Resources

4.3.1 Proposed Action

Construction and operation of the DVE site would result in permanent, long-term, and short-term less than significant impacts to soil resources. Permanent less than significant impacts to soils would occur on up to 11 acres of the site that would be covered with ABC and used for parking, equipment storage, and the placement of several elevated storage connex. Up to 0.5 additional acres of soils would be covered by an impervious helicopter landing/refueling pad that would be constructed in the southeast portion of the site. Soil resources would also be permanently impacted in areas used for stormwater management features which could include approximately 0.25 acres for a stormwater retention basin and additional area for diversion features.

Construction activities could result in a short-term less than significant increase in soil erosion, especially wind erosion. Fine particulate matter found on the desert surface could become airborne and create adverse dust conditions. Heavy equipment would be used to grade the site, move and compact soils, and remove debris during construction and paving activities. The erosion impacts to construction areas would be temporary and could be reduced by using standard BMPs, such as dust suppression techniques such as those described in Section 4.1.

Operation activities would result in intermittent long-term less than significant impacts to soils in the approximately 22-acre test area. As noted in Section 4.1, the project area was chosen because of the soil type, which is known to create suspended dust for an extended period of time. Soils in the test area portion of the proposed project area would be tilled prior to tests and helicopters would be used to generate dust prior to and during testing activities. Soils would be lost from both natural and test-created sources of wind and the use of dust suppressants in the testing portion of the site would not be possible to reduce these impacts.

A stormwater pollution prevention plan (SWPPP) would be prepared for the project. Stormwater control features would be constructed on the site and would reduce the possibility of offsite impacts from water-based erosion during construction and operation. These stormwater management/soil retention features would be capable of containing water from a 100-year 2-hour storm event.

4.3.2 No Action Alternative

Under the No Action Alternative, no changes to site soils would occur and there would be no impacts to soil resources.

4.4 Water Resources

4.4.1 Proposed Action

No jurisdictional waters or wetlands occur on the site of the Proposed Action and no impacts to jurisdictional waters would occur. Ephemeral drainages within the proposed project area would be avoided during construction when feasible. However, some ephemeral drainages could be filled during site preparation.

Minor impacts to site hydrology would occur from the placement of approximately 11 acres of ABC and construction of the approximately 0.5-acre helicopter landing/refueling pad.

Offsite surface water impacts would be minimized during construction and operation by implementing an SWPPP with appropriate BMPs for stormwater. Stormwater would be managed by a series of BMPs during construction and by construction of stormwater management/soil retention features capable of containing water from a 100-year 2-hour storm event. Because of the size of the site and implementation of stormwater controls, no significant impacts to water resources would be expected to occur.

4.4.2 No Action Alternative

Under the No Action Alternative, no changes to drainage features or permeability would occur and there would be no impacts to water resources.

4.5 Biological Resources

4.5.1 Proposed Action

Construction of the Proposed Action would clear approximately 43 acres of degraded Sonoran desert scrub habitat. This habitat mainly provides habitat for common wildlife and plant species known to occur on YPG, and the western burrowing owl. Larger wildlife within the project area such as mule deer, coyote, and birds would be displaced during construction. Smaller less mobile species would likely be lost. All wildlife habitat within the project area would be permanently lost. There is similar habitat surrounding the project area that could be used by wildlife displaced during construction. Small areas with some characteristics of mesquite

bosque would be lost. The loss of these areas would not be expected to significantly impact wildlife. Remote camera surveys have determined that larger bosques (10 acres or more in size) are used more by wildlife compared to smaller bosques (AZGFD, 2011a).

Based on an October 2014 survey of the site, the project area does not provide suitable habitat for any threatened or endangered species, including the Sonoran desert tortoise, though a transient could occur. No tortoise or sign were identified during the 2014 survey (CH2M HILL, 2014).

A pre-construction survey would be conducted just prior to construction to verify that no burrowing owl burrows have been established and to identify any nesting birds. If any active nests or burrows are identified, the nest would be avoided and a buffer would be established to allow for sheltering in place; or construction activities would be delayed until after the eggs have hatched and the young could be relocated into other suitable habitat or until the fledglings have left the nest. The nest could be sheltered in place using appropriate protocols through coordination with the AZGFD.

Impacts to biological resources during construction would be less than significant and short-term to permanent.

Once cleared, the project area would not provide suitable habitat for wildlife species. Long-term intermittent training and testing activities within the project area could impact nearby wildlife through periodic temporary generation of noise and dust/smoke/obscurants. However, wildlife in the area have likely become accustomed to these type of activities, as training activities occur in the vicinity of the project area. Long-term impacts associated with operation of the DVE would be less than significant and intermittent.

4.5.2 No Action Alternative

No changes would occur under the No Action Alternative.

4.6 Cultural Resources

4.6.1 Proposed Action

Based on the field survey, four NRHP-eligible cultural resources were located– three archaeological sites and one isolated occurrence. The sites are located outside of the 43-acre project area by a minimum of 192 meters, while the IO, IO-76, is located within the proposed 43-acre APE. The project area would be accessed via an existing road and no new roads would be constructed.

As the project is currently designed, the eligible IO, a unique projectile point for this region, is located in the northwestern portion of the proposed APE, would be directly affected by the undertaking. In addition, based on the depositional regime in the area, there is a high probability for the presence of subsurface cultural deposits across the APE. U.S. Army Garrison YPG will propose a finding of no adverse effect per 36 CFR 800.5(b) based on implementation of the following conditions:

a. IO-76 would be collected and curated with existing U.S. Army Garrison YPG archaeological collections in a repository meeting federal curation standards (36 CFR 79).

b. Project boundary and road markers would be installed to avoid adverse effects to historic properties outside the APE.

c. Archaeological monitoring would be provided for the following construction activities to document, evaluate, and consult regarding any post-review discoveries:

    - Stormwater retention basin excavation activities;
    - Monitor soil disking in the DVE test area for the first three test events;

- Monitor soil disking in the DVE test area prior to subsequent test events if the test area is enlarged or the disking is deepened;
- Project boundary and road marker installation.

d. If unanticipated archaeological remains are encountered below the surface, work would cease in that area, the Cultural Resources Manager would be notified, and the remains would be handled pursuant to Attachment F of the *Programmatic Agreement Among the United States Army Garrison, Yuma Proving Ground, The Arizona State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Operations, Maintenance, and Development of Yuma Proving Ground, Arizona* (YPG PA).

e. If human remains are encountered, work would cease in that area, the Cultural Resources Manager and Garrison Manager would be notified, and Stipulation VI of the YPG PA would be followed.

f. Annual cultural resources training would be required for all DVE site personnel.

The operation of the DVE test facilities would not have an adverse visual impact on these sites in terms of their location, setting, or feeling. The physical setting of these sites is in an area that currently experiences testing activities. Construction of the DVE test site would not require the construction of tall features, such as towers, that would significantly interfere with the visual environment. The ability of the three NRHP-eligible sites to yield additional data on the prehistory of the region would not be affected.

The Arizona State Historic Preservation Office was notified of a finding of “No Adverse Effect” to known cultural resources for the Proposed Action and concurrence on the finding has been requested. Consultations with affiliated federally recognized Native American tribes occurred via letters sent on July 8, 2015. The tribal representatives who were contacted are listed in Section 6.0.

4.6.2 No Action Alternative

No disturbances to the sites or isolated object would occur under the No Action Alternative. There would be no impacts to cultural resources.

4.7 Transportation

4.7.1 Proposed Action

There would be a short-term increase in traffic on nearby public and YPG roads during construction of the Proposed Action. However, the additional vehicles on the roadway associated with construction would be negligible. Impacts to transportation resources during construction would be negligible and short-term.

Long-term use of the Proposed Action could result in intermittent negligible increases in traffic at the turn-off from US 95. The increases in traffic would mainly occur during testing or training activities, which are ongoing in the northern Cibola Region. Traffic associated with use of the Proposed Action would not be expected to affect traffic movement on US 95. A helipad would be included within the Proposed Action. The site would be accessed by helicopter as part of the DVE testing process. The airspace above the Cibola Region is restricted and no conflicts with air transportation would be expected. Testing activities would disturb soils and create dust. This dust could cause temporary and localized reductions in visibility on US 95. Long-term impacts to transportation resources during operations would be negligible and intermittent.

4.7.2 No Action Alternative

No changes to transportation would occur under the No Action Alternative.

4.8 Hazardous and Toxic Substances

4.8.1 Proposed Action

The project area is not known to be contaminated with UXO or other hazardous or toxic substances. Small amounts of potentially hazardous materials, namely fuels and engine fluids (e.g. oil, hydraulic), would be used on a short-term basis during construction of the Proposed Action. Spill prevention and containment measures and good housekeeping practices would be required during construction, which would reduce or eliminate the potential for or impact of a spill. Impacts to hazardous and toxic substances during construction would be negligible and short-term.

Operation of the DVE is not expected to generate hazardous waste. Fuel for generator and helicopter use would be hauled to the site for each test. Engine fluids, such as oils and lubricants, would also be brought to the site during tests. These substances would be stored at the project area for short periods of time. Protocols developed by YPG to handle and store hazardous and toxic materials would be adhered to if any of these type of materials are stored on the project area. These include the preparation of a spill prevention control and countermeasure plan, maintenance of a spill kit, and use of secondary containment under any liquid petroleum products stored on the proposed project site. Impacts from hazardous and toxic substances would be minor and cleaned up immediately to prevent negative impacts to surrounding soils or worker safety.

4.8.2 No Action Alternative

No changes to hazardous and toxic substances would occur under the No Action Alternative.

4.9 Utilities

4.9.1 Proposed Action

There would be no impacts to utilities under the Proposed Action. The establishment of the Proposed Action would relocate existing DVE testing activities to a dedicated location. There would be no increase in the use of utilities and no construction of new utility lines. During testing, water would be hauled to the site in trucks or bottles. Sanitary waste service would be provided via portable toilets and the wastewater would be hauled to the installation’s wastewater treatment facilities. Energy would be provided by portable generators. Fuels for generator, vehicle, and aircraft use would be hauled to the site in trucks. Communications would be connected to an existing fiber optic line adjacent to the site.

4.9.2 No Action Alternative

No changes to utilities or impacts would occur under the No Action Alternative.

4.10 Health and Human Safety

4.10.1 Proposed Action

Construction activities would create short-term increased safety risks to workers. During construction, workers would have the potential for accidents as a result of routine job exposure to heavy equipment and construction debris. Construction workers would also be exposed to elevated noise levels from construction equipment and construction activities. Workers would use appropriate protection and comply with appropriate safety standards. Safety impacts from construction activities would be short-term and less than significant.

The incidence of valley fever in the YPG area is low. Construction within and use of the project area would not be expected to increase the incidence of the disease. Construction workers and soldiers and testing personnel exposed to dust within the project area could be at risk, but the disease does not typically affect young, physically fit persons with strong immune systems (CDC, 2013).

YPG protocols related to safety during testing and training activities would be implemented to protect testing staff. Testing and training activities within the project area would be controlled and monitored. Less than significant intermittent impacts to health and human safety would be expected during operations of the DVE.

4.10.2 No Action Alternative

There would be no changes to health and human safety under the No Action Alternative.

4.11 Aesthetics and Visual Resources

4.11.1 Proposed Action

Negligible impacts to aesthetics or visual resources would be expected as a result of the Proposed Action. The construction of connex boxes and other site features and the generation of dust would not be expected to significantly affect the view of any nearby mountains. Due to the lack of population or development, it would be unlikely for the public to perceive a change in testing at the site of the Proposed Action. However, temporary localized dust clouds would be created during testing and could obstruct views from US 95. Negligible long-term and intermittent impacts of views from US 95 would occur.

4.11.2 No Action Alternative

There would be no changes to aesthetics and visual resources as a result of the No Action Alternative.

4.12 Recreation

4.12.1 Proposed Action

The site of the Proposed Action is in a location where recreation activities are prohibited and airspace use is restricted. There would be no impacts to recreational activities at YPG as a result of the Proposed Action.

4.12.2 No Action Alternative

There would be no change to recreation as a result of the No Action Alternative.

4.13 Cumulative Impacts

Cumulative impacts result from incremental impacts of an action when combined with other past, present, and reasonably foreseeable actions (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions over a period of time (President's Council on Environmental Quality, 1997). Cumulative impacts would occur if incremental impacts of the Proposed Action, added to the environmental impacts of past, present, and reasonably foreseeable similar actions, would result in an adverse effect to resources in the region.

Few cumulative impacts would be expected from implementation of the Proposed Action. The proposed activity would relocate existing DVE testing to a dedicated area already identified by YPG for testing uses. Construction and testing activities associated with other planned projects at YPG would contribute to minor cumulative impacts to soils and biological resources from the disturbance of up to 43 acres of land with highly erodible soils. A Programmatic Environmental Impact Statement was recently completed for YPG (CH2M HILL, 2015). That document identifies 296 proposed activities at YPG including new construction and associated demolition, testing and training activities occurring on YPG, and new testing and training proposed to meet anticipated needs. These projects would impact 360 acres for new construction, 149,425 acres for maneuver areas and vehicle test courses, 1,325 acres for DZs, and 1,035 acres for unmanned aircraft system launch/recovery areas and transient gun positions. It would also include 43,123 acres of land converted to munitions impact areas, which could include localized areas with increased erosion potential from explosion cratering. Coupled with these proposed projects, a minor cumulative loss of soils and biological habitat would occur. The potential for increased erosion and habitat loss would be long-term because of the very slow regrowth of desert vegetation.

SECTION 5

Conclusions

This EA has analyzed the potential for environmental impacts to each applicable resource area and has determined that no significant adverse impacts would be expected as a result of implementation of the Proposed Action. Table 5-1 summarizes the potential impacts of the Proposed Action and No Action Alternatives.

TABLE 5-1
Summary of Impacts
Environmental Assessment, Degraded Visual Environment, Yuma Proving Ground, Arizona

Resource	Proposed Action Impacts	No Action Alternative Impacts
Air Quality	Potential for fugitive dust emissions from soil disturbance during construction and operation. Dust control BMPs would be used during construction. Vehicle, aircraft, equipment, and generator exhaust emissions during construction and operation.	No Impact
Noise	Increase in local noise level from construction activities and operations during testing.	No Impact
Geology, Mineral, and Soil Resources	Soil erosion and compaction during construction. Intermittent long-term disturbances to 22 acres of highly erodible soils during operation. BMPs would be employed during construction and a SWPPP would be implemented during construction and operation to reduce potential impacts.	No Impact
Water Resources	No impacts to jurisdictional streams or wetlands. Potential for loss of ephemeral drainages. Stormwater management structures would be constructed to limit the flow of stormwater offsite.	No Impact
Biological Resources	Loss of 43 acres of habitat for general wildlife and plant species. Periodic disturbances to adjacent wildlife from noise during construction and operation. If feasible, land and vegetation clearing would occur outside the breeding season for birds of concern. Surveys would be conducted prior to site preparation if site construction cannot occur outside of the breeding season.	No Impact
Cultural Resources	Potential impact to NRHP eligible isolate, IO-76, and there is a high probability for the presence of subsurface cultural deposits across the APE. Impacts would be less than significant with implementation of the conditions set forth in Section 4.6.	No Impact
Transportation	Occasional nuisance dust clouds could reduce visibility on US 95.	No Impact
Hazardous and Toxic Substances	Use of small quantities of potentially hazardous materials (e.g. oils, grease) during construction.	No Impact

TABLE 5-1
Summary of Impacts
Environmental Assessment, Degraded Visual Environment, Yuma Proving Ground, Arizona

Resource	Proposed Action Impacts	No Action Alternative Impacts
	Long-term use of hazardous materials, (e.g. oils, grease, fuels). Waste contents would be characterized periodically and disposed of in accordance with applicable regulations.	
Utilities	No Impact	No Impact
Health and Human Safety	Short-term risks to workers during construction and operation from use of heavy equipment and aircraft and from generation of high noise levels. Personal protective equipment would be used and U.S. Army safety protocols would be followed.	No Impact
Aesthetics and Visual Resources	Temporary localized dust clouds would be created during testing and could obstruct views from US 95.	No Impact
Recreation	No Impact	No Impact

SECTION 6

Listing of Preparers, Agencies, and Persons Consulted

List of Preparers

Name	Degree(s)	Years of Experience	Role
Christine Mengel	BA, English	2	Editor
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Tribal Governments Contacted

Name	Tribe
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Timothy Williams	Fort Mojave Indian Tribe
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SECTION 7

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Appendix A
Natural Resources Report

Natural Resources Survey for Testing Area at Yuma Proving Ground

PREPARED FOR:	Daniel Steward/Wildlife Biologist, U.S. Army Garrison Yuma
PREPARED BY:	Jessica Birnbaum/Biologist, CH2M HILL
DATE:	November 6, 2014
ATTACHMENTS:	**Attachment 1. Figures; Attachment 2 Photos; Attachment 3 GIS Files for Burrowing Owl Location.**

This field investigation technical memorandum summarizes the results of a natural resources survey conducted for the proposed degraded visual environment (DVE) testing area at Yuma Proving Ground in Southwestern Arizona, about 30 miles northeast of the city of Yuma . The proposed project site is approximately 43 acres in size and is located in the northern portion of the Cibola region of the Yuma Proving Ground near the JERC 1 bypass road (Figure 1; all figures are located in Attachment 1). The survey included a protocol-level survey for the Sonoran desert tortoise (*Gopherus morafkai*) throughout the entire site. The survey results will support analysis in an environmental assessment being prepared for the project.

Field Investigation

CH2M HILL biologists, Jessica Birnbaum and Elizabeth Jorgenson, conducted a natural resources survey to characterize the proposed 43-acre DVE site (Figure 2) and to identify the presence or absence of the Sonoran desert tortoise. The characterization included identification of the dominant plant species present and wildlife observed, locations of washes, and locations of areas with the characteristics of mesquite bosques. The desert tortoise survey was conducted according to the *Desert Tortoise Pre-project Survey Protocol, 2010 Field Season* (U.S. Fish and Wildlife Service [USFWS], 2010). On October 21 and 22, 2014, the surveyors walked along transects at 10-meter spacing throughout the proposed site, which included zones of influence (ZOIs) encircling transects at 200-, 400-, and 600-meter intervals around the proposed site. A Trimble global positioning system (GPS) unit was used to orient and guide the survey. Transect routes were generated prior to conducting the fieldwork and uploaded into the Trimble unit. The locations of observed special-status species sign were recorded using the GPS unit.

Sonoran Desert Tortoise Habitat and Life History

Sonoran desert tortoise was classified by the USFWS as a candidate for federal listing on December 14, 2010 (FR Vol.75 No.239 P.78094). The sonoran desert tortoise in southwest Arizona is thought to be threatened by roads, invasive plant species, drought, grazing by nonnative mammals (including burros), fire, and other factors. The presence of roads, particularly maintained gravel roads, has been shown to affect tortoise populations because of illegal collecting (U.S. Army, 2012).

Sonoran desert tortoise occur along the western border of the Colorado River and across most of southwestern and south-central Arizona, at elevations ranging from near sea level along the Colorado River to just over 5,000 feet. The Sonoran desert tortoise occurs in Sonoran Desert scrub and semi-desert grassland. This species specifically occurs in rugged terrain such as mountains and bajadas, often with boulders or deep arroyos with caliche caves that provide shelter where tortoises spend the night and escape climatic extremes and predators. Desert tortoises primarily depend

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upon annual plants for forage. The habitat within the Yuma Proving Ground proposed DVE testing area consists of Sonoran Desert scrub.

Survey Results

Much of the land within the study area was disturbed historically by military training activities. There was evidence of previous all-terrain vehicle use within the site. Very low cover and diversity of desert annuals exist within the project area (Photographs 1 and 2; photographs are located in Attachment 2). Moderate rainfall during the week before the survey (and during the summer monsoon season, which typically occurs from late June through September) should have enabled annual plants that bloom during the fall to sprout, but very few annual plants were observed. The lack of annuals is evidence that the annual plant seed bank is not present. Small areas of mesquite bosque are scattered within the project site along shallow drainages or depressional areas, shown as darker green patches on Figure 3. Photograph 3 shows a typical mesquite bosque for the area.

No jurisdictional drainages were found within the project area. Tyson Wash is located approximately 500 feet west of the project boundary, and portions of Tyson Wash were surveyed during the desert tortoise ZOI transects (Photograph 4).

No Sonoran desert tortoises or their sign was observed. One burrowing owl was observed within the proposed project site (Figure 2). The burrowing owl was flushed from near a burrow (Photographs 5 and 6 that it may have been using as a shelter; however, the burrow did not appear to be actively used (e.g., no whitewash). No other special-status species were observed.

Photographs 1 through 6 depict the proposed DVE testing area.

Threatened and Endangered Species

No Sonoran desert tortoise (*Gopherus morafkai*) or sign of the species (burrows, pallets, or scat) was observed during the field assessment. One special-status wildlife species was observed during the survey, burrowing owl (*Athene cunicularia*), which is a state species of special concern. The location of the observed burrowing owl is shown on Figure 3, and GIS files on the burrowing owl are located in Attachment 3 to this memo.

Wildlife and plants observed during survey are included in Table 1.

TABLE 1
Observed Flora and Fauna
Yuma Proving Ground, DVE Testing Area

Common name	Scientific Name	Federal Status	State Status
Reptiles and Amphibians			
California whiptail	*Aspidoscelis tigris munda*	N	N
Desert horned lizard	*Phrynosoma platyrhinos*	N	N
Side-blotched lizard	*Uta stansburiana*	N	N
Zebra-tailed lizard	*Callisaurus draconoides*	N	N
Mammals			
Blacktail jackrabbit	*Lepus californicus*	N	N
Birds			
American Robin	*Turdus migratorius*	N	N
Burrowing owl	*Athene cunicularia*	N	LS

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TABLE 1
Observed Flora and Fauna
Yuma Proving Ground, DVE Testing Area

Common name	Scientific Name	Federal Status	State Status
Common Raven	*Corvus corax*	N	N
Horned Lark	*Eremophila alpestris*	N	N
Red-tailed Hawk	*Buteo jamaicensis*	N	N
Plants			
Big galleta	*Pleuraphis rigida*	N	N
Brown plume wire lettuce	*Stephanomeria pauciflora*	N	N
Catclaw acacia	*Acacia greggii*	N	N
Cheeseweed mallow	*Malva parviflora*	N	N
Cooper's goldenbush	*Ericameria cooperi*	N	N
Cottontop cactus	*Echinocactus polycephalus*	N	N
Creosote bush	*Larrea tridentata*	N	N
Crucifixion thorn	*Castela emoryi*	N	N
Desert Milkweed	*Asclepias erosa*	N	N
Desert needle grass	*Achnatherum speciosum*	N	N
Desert trumpet	*Eriogonum inflatum*	N	N
Desert mistletoe	*Phoradendron californicum*	N	N
Devil's spineflower	*Chorizanthe rigida*	N	N
Globemallow	*Sphaeralcea sp.*	N	N
Honey mesquite	*Prosopis glandulosa*	N	N
Mexican panic grass	*Panicum hirticaule*	N	N
Night-blooming cereus	*Peniocereus greggii*	N	N
Range ratany	*Krameria erecta*	N	N
Red-stemmed stork's bill	*Erodium cicutarium*	N	N
Silver Cholla	*Cylindropuntia echinocarpa*	N	N
Turpentine Broom	*Thamnosma montana*	N	N
White bursage	*Ambrosia dumosa*	N	N

Status:

LS = Listed State Species of Special Concern
LT = Listed Threatened
N = Not Listed

References

U.S. Army. 2012. *Integrated Natural Resource Management Plan and Environmental Assessment, Garrison Yuma Proving Ground*. June.

U.S. Fish and Wildlife Service (USFWS). 2010. *Desert Tortoise Pre-project Survey Protocol, 2010 Field Season: Preparing for Any Action That May Occur within the Range of The Mojave Desert Tortoise* (Gopherus agassizii). 2010.

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Photographs

Photo 1. Very low cover and diversity of desert annuals within the project site.

Photo 2. Photograph of southern end of project site; Aggregate Base Course Road in background.

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Photo 3. Mesquite bosque area, approximately 200 feet south of the project boundary.

Photo 4. Tyson Wash, approximately 500 feet west of the project boundary.

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Photo 5. Potential burrowing owl burrow (burrowing owl flushed from this location).

Photo 6. Potential burrowing owl burrow (burrowing owl flushed from this location).

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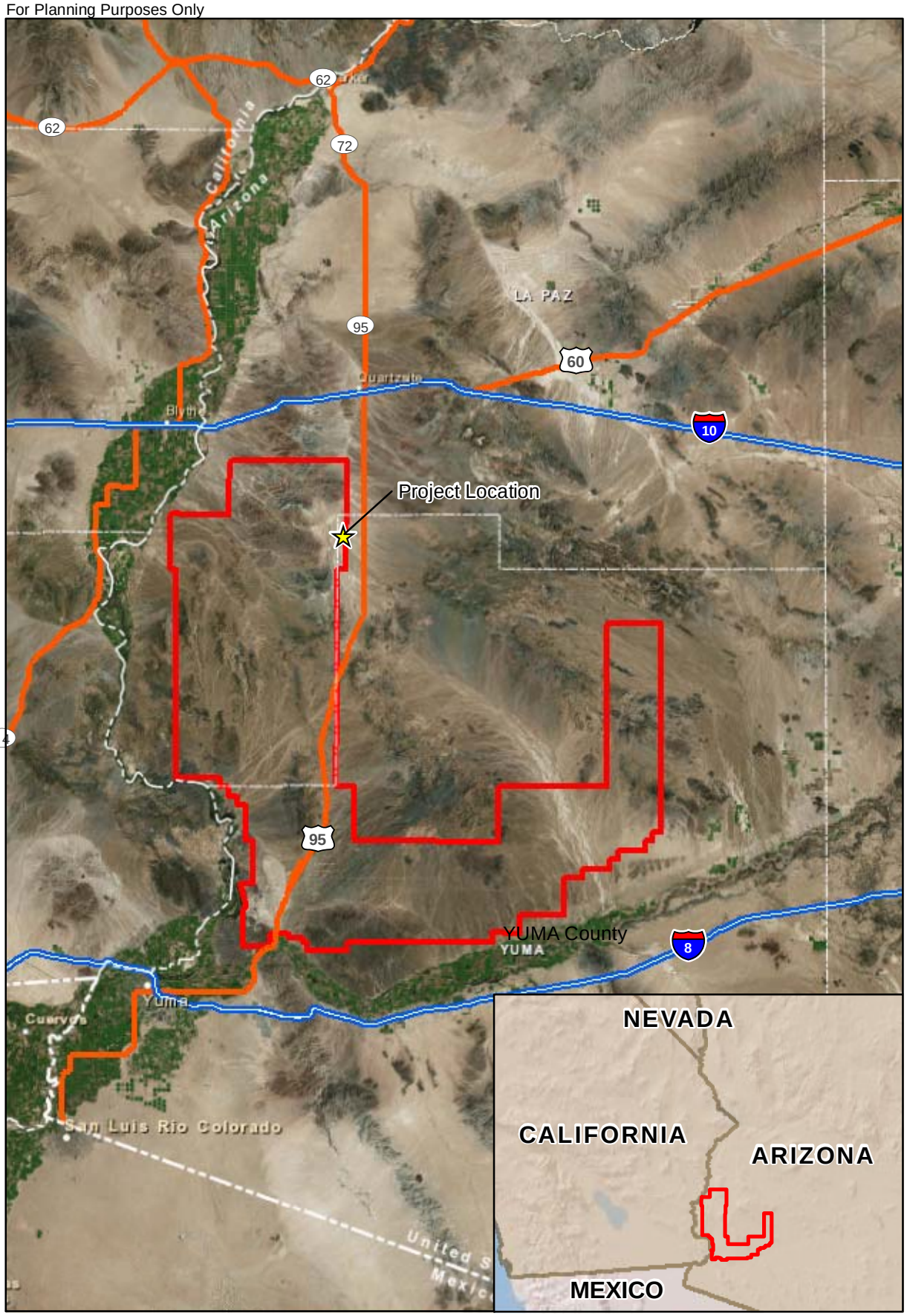
For Planning Purposes Only



Yuma Proving Ground

Imagery Source
ESRI Online\AEX 2006

N

0 5 10 Miles

FIGURE 1
Project Vicinity
Natural Resources Survey
Technical Memorandum
Yuma, Arizona

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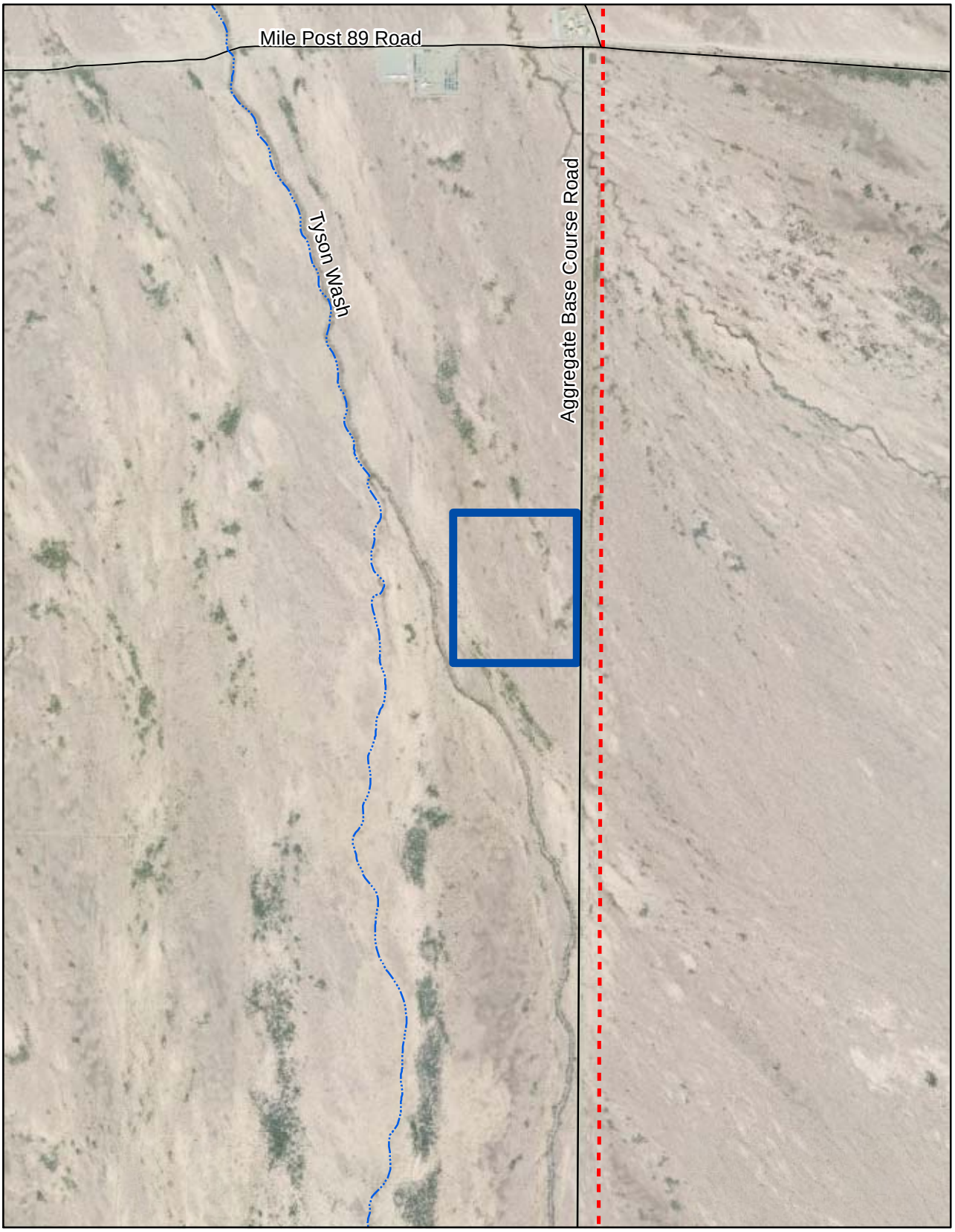

Legend

Project Boundary

Installation Boundary

N

0 500 1,000 Feet

FIGURE 2
Project Location
Natural Resources Survey
Technical Memorandum
Yuma, Arizona

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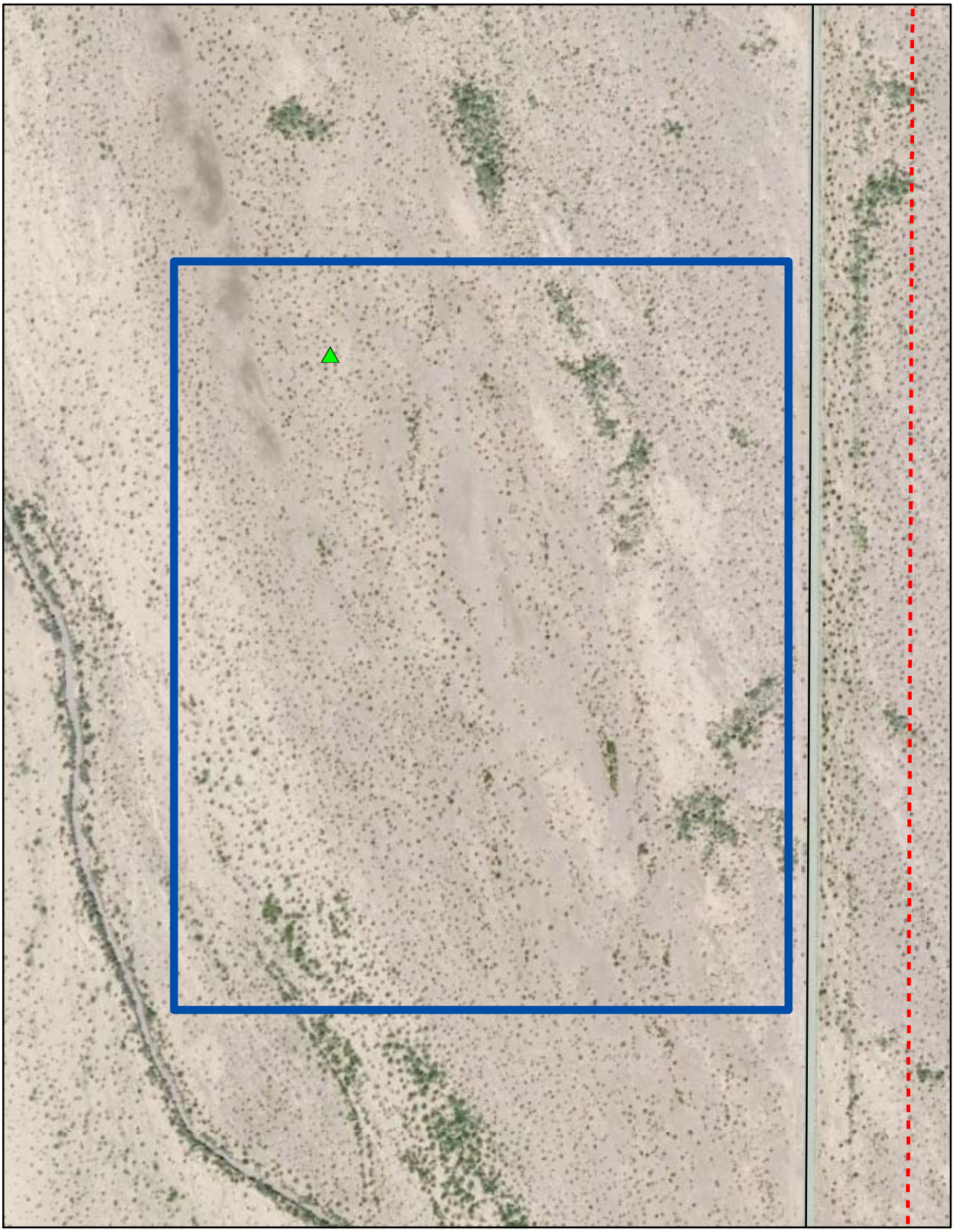

Legend

- Burrowing Owl Observation
- Project Boundary
- Installation Boundary

N

0 100 200 Feet

FIGURE 3
Special-status Species Sign
Natural Resources Survey
Technical Memorandum
Yuma, Arizona

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