

**FINAL**

**Construction Of A Stormwater Detention System And Relocation Of 12 Previously Assessed Housing Units, Military Family Housing Revitalization Project, Nellis Air Force Base, Nevada**



**FEBRUARY 2007**

## Report Documentation Page

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**This SEA evaluates the potential environmental impacts of the relocation of construction of four General Officer's Quarters (GOQ) and eight Senior Officer's Quarters (SOQ) and the construction of two detention basins at Nellis AFB. The 12 GOQ/SOQ units were considered part of the original MFH Revitalization Project however, the proposed location of these units changed since the original February 2005 Final EA was released. The proposed action is driven by Office of the Secretary of Defense's (OSD) Defense Planning Guidance (DPG), that tasked the Department of Defense (DoD) services to revitalize, divest through privatization, or demolish inadequate housing by or before fiscal year 2011. This SEA has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the Proposed Action and the No-Action Alternative. Under the No-Action Alternative, no activities associated with the detention basins would occur; however, construction of the 12 MFH units would occur in the original location. The Air Force would not be able to protect or reduce the risk of the MFH areas currently under construction from future flooding. The environmental resources potentially affected by the Proposed Action are socioeconomics, land use, aesthetics, transportation, utilities, hazardous materials geology, water resources, air quality, noise, biological resources, and environmental justice. Based on the nature of activities associated with the revitalization of the MFH areas and the detention basin construction activities, the Air Force has determined that impacts associated with these resources would not be significant.**

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## **FINDING OF NO SIGNIFICANT IMPACT (FONSI)**

### **1. Name of Action.**

Construction Of A Stormwater Detention System And Relocation Of 12 Previously Assessed Housing Units, Military Family Housing Revitalization Project, Nellis Air Force Base, Nevada

### **2. Description of Proposed Action and Alternatives**


Nellis Air Force Base (AFB) proposes to relocate four General Officer's Quarters (GOQs) and eight Senior Officer's Quarters (SOQs) that were evaluated in the February 2005 Final Environmental Assessment (EA) for the Nellis AFB Military Family Housing (MFH) Revitalization Project. The area originally proposed for the GOQs/SOQs was deemed unacceptable due to adjacent land uses outside the boundaries of Nellis AFB. The GOQ/SOQ units would be relocated to the northeast of the original location. In addition, the stormwater detention system was redesigned and relocated to the north of the MFH area to protect property from potential damage due to 50-year and 100-year flooding events. The No Action Alternative is the only practicable alternative carried forward for analysis. Under this alternative, construction of the GOQs/SOQs would occur within the area assessed in the February 2005 Final EA. However, the stormwater detention system would not be constructed.

### **3. Summary of Environmental Resources and Impacts**

Activities associated with the Proposed Action would cause impacts similar to those previously assessed in the February 2005 Final EA that resulted in a Finding of No Significant Impacts (FONSI) to human health or the natural environment. However, additional habitat containing two Federal species of concern, the Las Vegas Bearpoppy (Nevada critically-endangered) and the Las Vegas buckwheat (Nevada recommended-for-full-protection), would be disturbed. This additional acreage comprises 0.1 percent of known bearpoppy habitat and 1.9 percent of known buckwheat habitat. The stormwater detention system would be designed to avoid impacting the sensitive species to the maximum extent possible. Salvaged topsoil would be used to revegetate the project area as studies indicate the species will recolonize in disturbed habitat areas. Nellis AFB would apply for and comply with the terms of a take permit issued by the Nevada Division of Forestry, as required under Nevada Revised Statute (NRS) 527.050. Thus, loss of additional habitat would be temporary and long-term impacts would not be significant.

### **4. Conclusions**

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, the Council of Environmental Quality regulations implementing the procedural provisions of NEPA (40 CFR Parts 1500-1580), and 32 CFR Part 989, Air Force Environmental Impact Analysis Process (EIAP), the US Air Force, Nellis AFB evaluated the potential impacts of the proposed action and documented this evaluation in the attached SEA. Based on the findings and conclusions in the SEA, an Environmental Impact Statement is not required for this action.



Maria J. Dowling  
Colonel, USAF,  
Vice Commander, 99th Air Base Wing



Date



**COVER SHEET**  
**DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT**  
**CONSTRUCTION OF DETENTION BASINS AND RELOCATION OF 12 PREVIOUSLY**  
**ASSESSED HOUSING UNITS, MILITARY FAMILY HOUSING REVITALIZATION PROJECT,**  
**NELLIS AIR FORCE BASE, NEVADA**

- a. Responsible Agency: U.S. Air Force
- b. Proposed Action: Relocation and construction of 12 military family housing (MFH) units and construction of two stormwater detention basins on Nellis Air Force Base (AFB), Nevada.
- c. Written comments and inquiries regarding this document should be directed to: Mr. Mike Estrada, 99 ABW/PA, 4430 Grissom Avenue, Suite 107, Nellis AFB NV 89191; telephone (702) 652-2753..
- d. Report Designation: Supplemental Environmental Assessment (SEA)
- e. Abstract: This SEA evaluates the potential environmental impacts of the relocation of construction of four General Officer's Quarters (GOQ) and eight Senior Officer's Quarters (SOQ) and the construction of two detention basins at Nellis AFB. The 12 GOQ/SOQ units were considered part of the original MFH Revitalization Project; however, the proposed location of these units changed since the original February 2005 Final EA was released. The proposed action is driven by Office of the Secretary of Defense's (OSD) Defense Planning Guidance (DPG), that tasked the Department of Defense (DoD) services to revitalize, divest through privatization, or demolish inadequate housing by or before fiscal year 2011.

This SEA has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the Proposed Action and the No-Action Alternative. Under the No-Action Alternative, no activities associated with the detention basins would occur; however, construction of the 12 MFH units would occur in the original location. The Air Force would not be able to protect or reduce the risk of the MFH areas currently under construction from future flooding.

The environmental resources potentially affected by the Proposed Action are socioeconomics, land use, aesthetics, transportation, utilities, hazardous materials geology, water resources, air quality, noise, biological resources, and environmental justice. Based on the nature of activities associated with the revitalization of the MFH areas and the detention basin construction activities, the Air Force has determined that impacts associated with these resources would not be significant.



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## ACRONYMS AND ABBREVIATIONS

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AFB	Air Force Base
AFF	Air Force Form
AFI	Air Force Instruction
AICUZ	Air Installation Compatible Use Zone
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
CCSD	Clark County Sanitation District
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
dB	decibel
°	degrees
dBA	A-weighted sound levels
DNL	day-night average sound level
DoD	Department of Defense
DPG	Defense Planning Guidance
EA	environmental assessment
EIAP	Environmental Impact Analysis Process
EO	Executive Order
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FY	fiscal year
GOQ	General Officers Quarters
HUD	U.S. Department of Housing and Urban Development
I	Interstate
INRMP	Integrated Natural Resources Management Plan
MFH	military family housing
mg/kg	milligrams per kilogram
mg/m <sup>3</sup>	milligrams per cubic meter
MGD	million gallons per day
MILCON	military construction
MSA	Metropolitan Statistical Area
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NHRP	National Register of Historic Places
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO <sub>2</sub>	Nitrogen dioxide
NO <sub>x</sub>	Nitrogen oxides
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
P.L.	Public Law
PM <sub>10</sub>	particulate matter equal or less than 10 microns in diameter
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SEA	Supplemental Environmental Assessment

SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SNWA	Southern Nevada Water Authority
SO <sub>2</sub>	sulfur dioxide
SOQ	Senior Officers Quarters
SWPPP	Storm Water Pollution Prevention Plan
ug/m <sup>3</sup>	micrograms per meter
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound
WUS	Waters of the U.S.

***SECTION 1.0***  
***PURPOSE OF AND NEED FOR ACTION***

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## 1.0 PURPOSE OF AND NEED FOR ACTION

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This Supplemental Environmental Assessment (SEA) has been prepared to comply with the *National Environmental Policy Act* (NEPA) of 1969 (PL 91-190; 42 USC 4321-4347), as amended. Preparation of this EA followed regulations and instructions established in 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)* for the US Air Force, and 40 CFR 1500 – 1508, *Council on Environmental Quality (CEQ)*. This SEA evaluates the potential environmental impacts of activities associated with the proposed US Air Force lease of approximately 30 acres of land in Area III on Nellis Air Force Base (AFB), Nevada, to a private entity for construction and maintenance of Military Family Housing (MFH). The need for construction of detention basins and officers' quarters in Area III was identified subsequent to completion of the 2005 *Final Environmental Assessment Military Family Housing Revitalization Project, Nellis Air Force Base, Nevada*. Thus, these actions are evaluated in this SEA.

### 1.1 PURPOSE AND NEED

In 2003, the Office of the Secretary of Defense (OSD) issued the Defense Planning Guide (DPG). The DPG directed the Department of Defense (DoD) services to evaluate all MFH units and to revitalize MFH by improving or constructing new units, divesting the units through privatization, or demolishing the units. Over 98 percent of the MFH units on Nellis Air Force Base (AFB), Nevada were assessed as requiring either renovation or demolition. To comply with the OSD DPG, Nellis AFB began several phases of upgrades that included construction of new MFH units.

In efforts to reduce costs associated with MFH revitalization and maintenance, Nellis AFB determined privatization would be a viable option in meeting OSD DPG mandates. Potential impacts for the proposed MFH Privatization actions were assessed in the February 2005 Final EA, *Military Family Housing Revitalization Project, Nellis Air Force Base, Nevada*. The Finding of No Significant Impact (FONSI) was signed on 8 March 2005.

Engineering and planning designs that have been completed since the release of the 2005 Final EA and FONSI identified the need for 20 additional acres in Area III for detention basins and easements to channel stormwater runoff. Currently, stormwater is poorly controlled and has caused damage to housing units and property in the Manch Manor housing area. Locations for the proposed detention basins in Area III were identified as the most suitable due to the natural drainage pattern of the surrounding landscape. Stormwater flows toward the south/southeast from the Las Vegas Range through numerous washes that converge at the proposed locations of the proposed detention basins just north of the MFH area (Figure 1-1).

About 10 acres to the south of the detention basins would also be needed for the placement of four General Officers' Quarters (GOQs), eight Senior Officers' Quarters (SOQs), and associated access roads and sidewalks. The SOQs and GOQs were originally to be placed at the western boundary of Area III (Figure 1-2), but proximity to the industrial area adjacent to the base boundary makes that area unsuitable for family housing. The acreage was subsequently excluded from the MFH Revitalization Project. A more suitable location along the north edge of the current Manch Manor housing area and south of the proposed detention basins was chosen for proposed construction of the GOQs and SOQs.

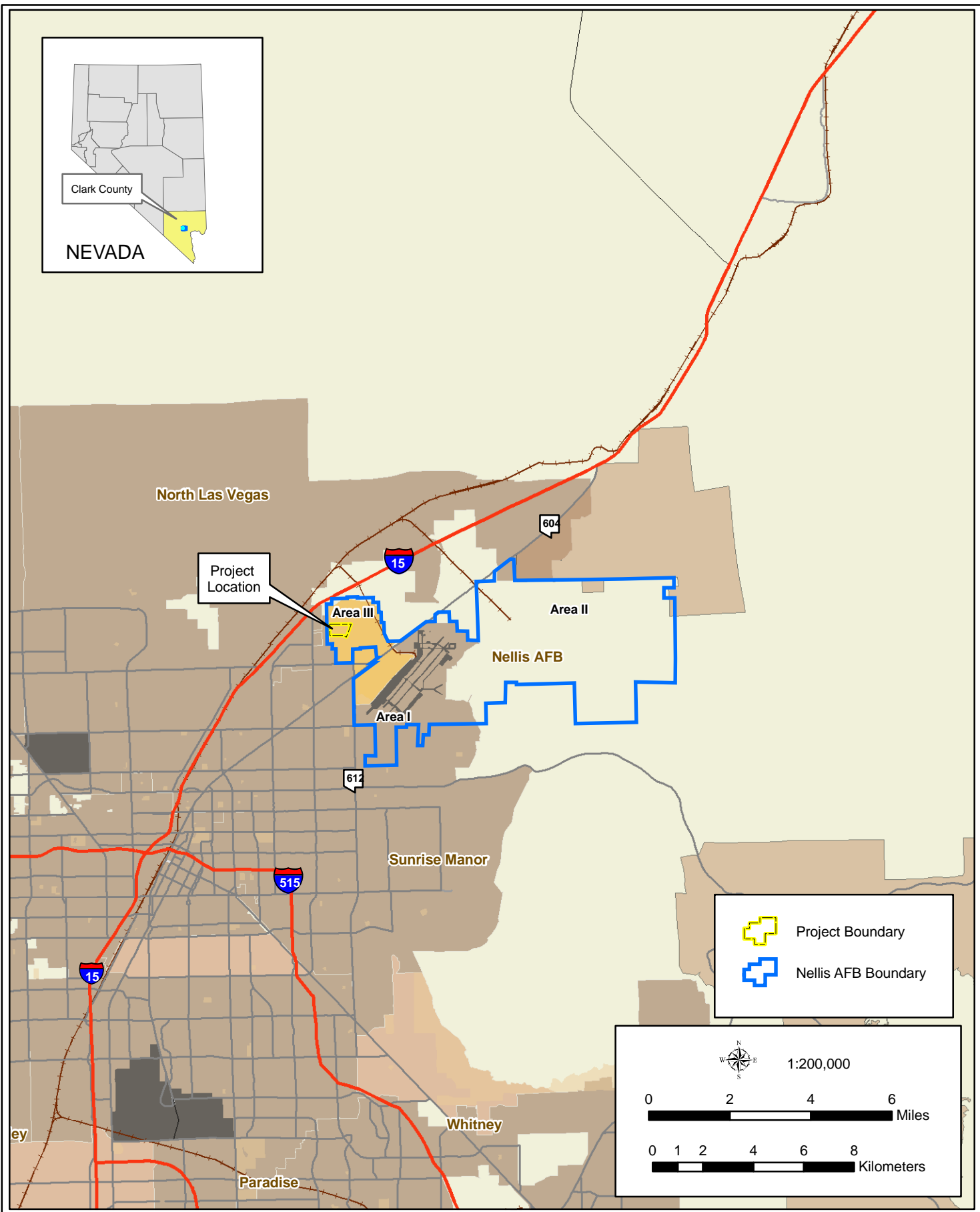


Figure 1-1: Vicinity Map



September 2006

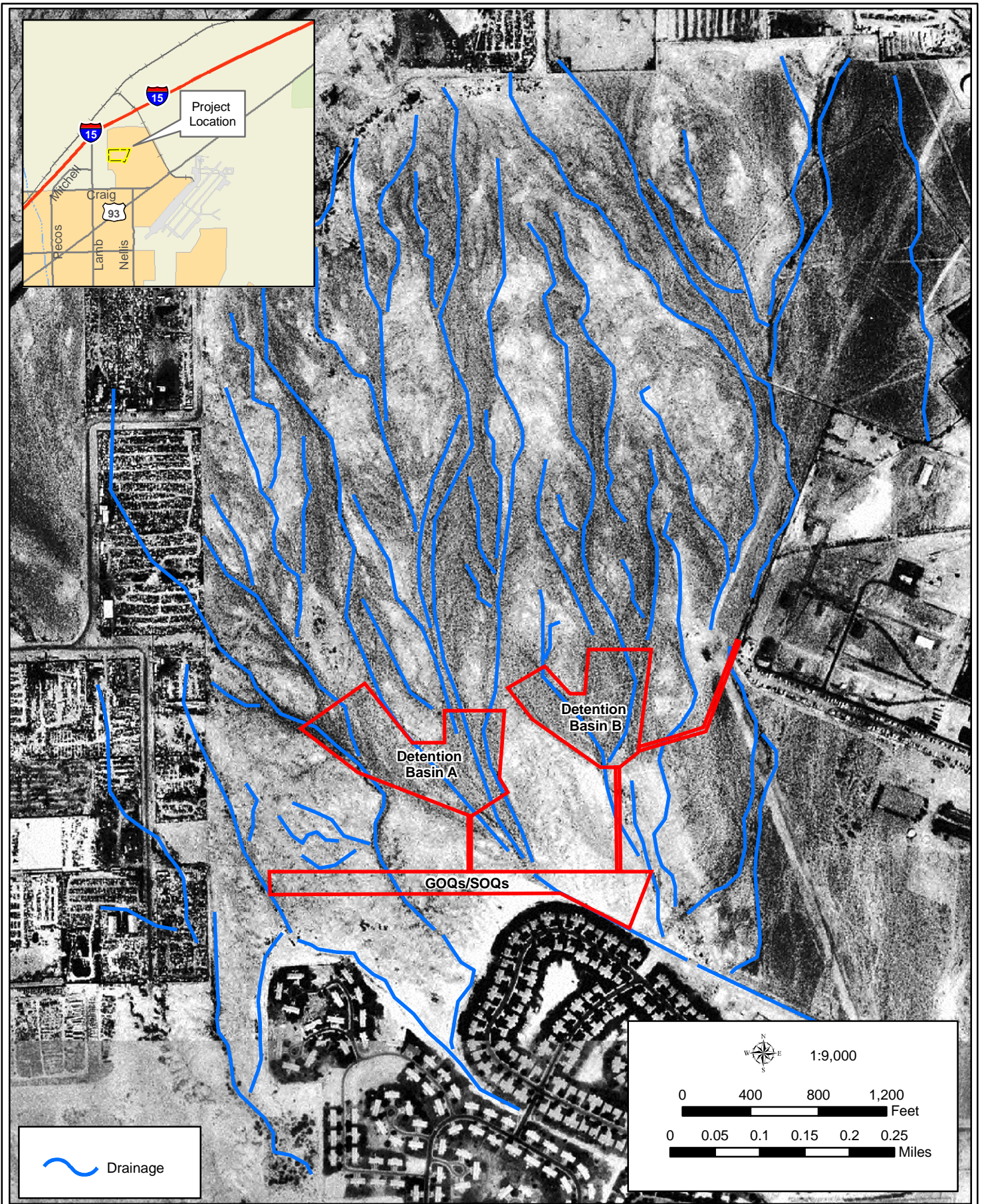


Figure 1-2: Drainages into Military Family Housing Area



October 2006

## 1.2 LOCATION OF THE PROPOSED ACTION

Nellis AFB is located at the northeast edge of the Las Vegas Valley in Clark County, Nevada (Figure 1-3). The base comprises four divisions: Area I, Area II, Area III, and the Small Arms Range. The acreage designated for the proposed detention basins, easements for stormwater outlets, and GOQs and SOQs is located in the southwest quarter of Area III. Area III is situated between Las Vegas Blvd North and Interstate 15 (I-15). The proposed project area is bordered by developed commercial properties to the west, military family housing to the south, Nellis AFB facilities to the east, and vacant land to the north.

## 1.3 SCOPE OF ENVIRONMENTAL REVIEW

The EA describes and analyzes the potential environmental impacts of the activities associated with the Proposed Action and viable alternatives that meet the stated purpose and need. Consistent with the CEQ regulations, the scope of analysis presented in this EA is defined by the potential range of environmental impacts that would result from implementation of these alternatives. Resources that would not be affected by implementation of any of the alternatives are not addressed.

Resources that have a potential for impact were considered in more detail in order to provide the Air Force decision maker with sufficient evidence and analysis to determine whether or not additional analysis is required pursuant to 40 CFR Part 1508.9. The resources analyzed in more detail are socioeconomics, land use, aesthetics, Environmental Restoration Program (ERP) sites, soils and geology, water resources, air quality, noise, biological resources, cultural resources, and environmental justice. The affected environment and the potential environmental consequences relative to these resources are described in Chapters 3.0 and 4.0, respectively.

## 1.4 FEDERAL, STATE, AND LOCAL PERMITS, LICENSES, AND FEES

The contractor responsible for constructing, operating, and maintaining the MFH units and detention basins system would obtain all required Federal, state, and local permits. The contractor would cooperate with Nellis AFB to ensure compliance with all applicable Federal, state, and local regulations, and Department of Defense (DoD) and Air Force policy directives, instructions, and memoranda. The contractor would ensure adherence to all applicable Nellis AFB environmental plans.

Permits related to environmental concerns that would be required include, but may not be limited to, the following: *Clark County Surface Disturbance Permit* (dust permit); *General Storm Water Permit*, and *Section 404 Permit* from the U.S. Army Corps of Engineers (USACE). Among the Nellis AFB environmental plans that may be applicable to the proposed actions are *Nellis AFB Municipal Solid Waste Management Plan* (Jan 2003), *Nellis AFB Hazardous Material Management Plan* (December 2000), *Nellis AFB Plan 19-1, Facility Response Plan*, Volumes I & II (May 2002), and *Nellis AFB Water Management Plan* (May 2004).

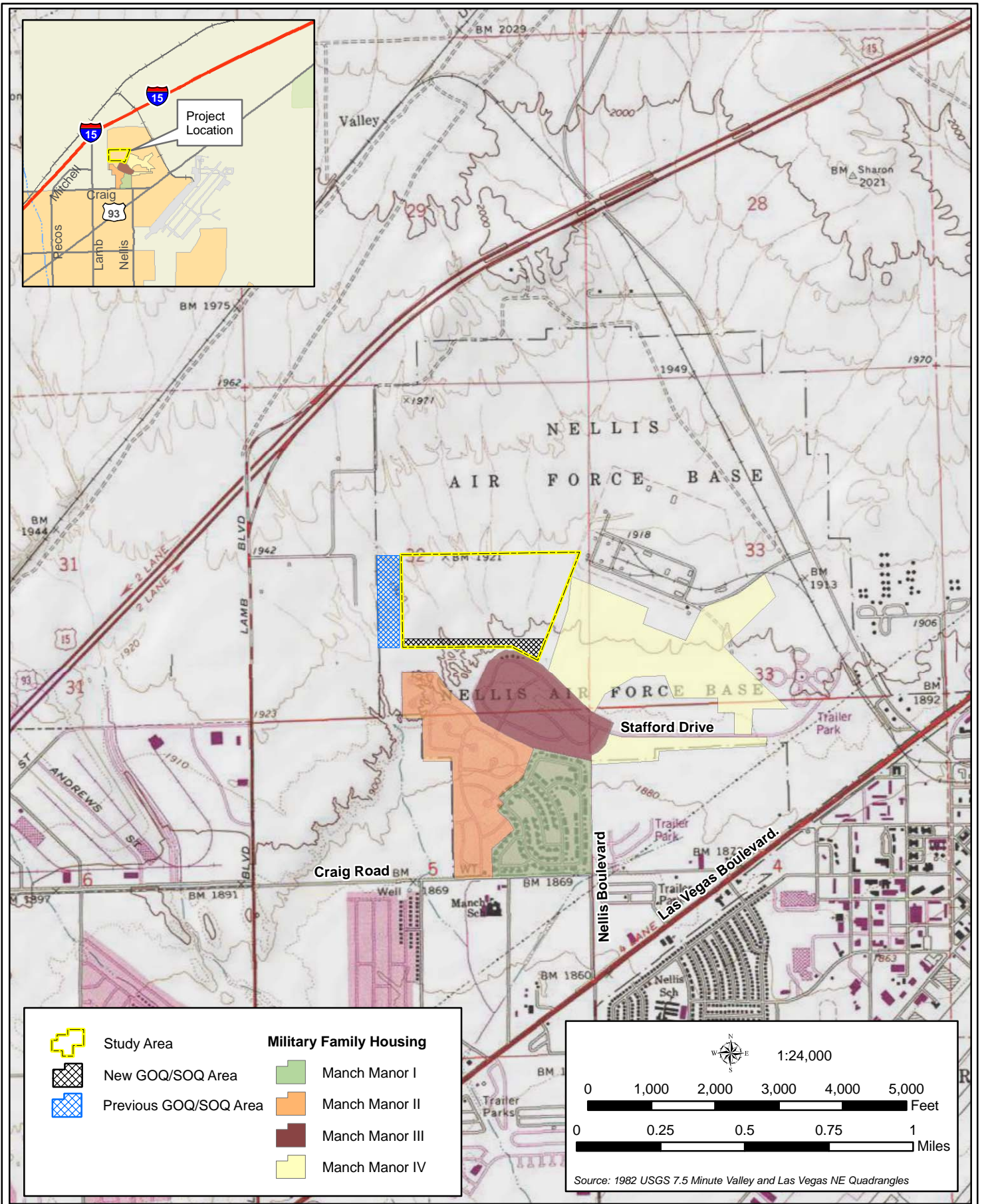


Figure 1-3: Project Location Map



September 2006

The contractor would contact the 99<sup>th</sup> Civil Engineer Squadron/Environmental Management Flight (CES/CEV) for assistance in obtaining the appropriate permits and electronic copies of environmental plans. The contractor would ensure that all materials purchased and used for construction and maintenance of the SPVS are approved through the HAZMART.

## **1.5 RELATED ENVIRONMENTAL DOCUMENTS**

The documents listed below have been prepared for Nellis AFB and the MFH unit areas. These documents provided supporting information for the environmental analysis contained within this EA.

The *Draft 2001 Nellis AFB Family Housing master Plan* describes the actions and associated costs to provide, operate, and maintain MFH at Nellis AFB (U.S. Air Force, 2001). The plan provides information on new construction, improvements, and operations and maintenance costs necessary to ensure that sufficient quality housing is provided and properly maintained to meet the needs of military families assigned to Nellis AFB. The plan summarizes the inventory and revitalization requirements at the installation upon the completion of the FY 2003 Military Family Housing Program, as submitted in the FY 2003-2007 Air Force Amended Program Objective Memorandum. The plan also provides an evaluation of the MFH privatization potential.

The February 2005 *Final EA Military Family Housing Revitalization Project, Nellis Air Base, Nevada* provides information regarding the demolition, upgrade, and new construction of MFH within Manch Manor, Dunning Circle, and Nellis Terrace areas on Nellis AFB. A total of 817 new MFH units would be constructed as part of this action. The MFH units that would be demolished in the Old Nellis Terrace would not be reconstructed at the same location; instead the area would be left vacant for future Nellis AFB development. This EA provides the purpose and need of the overall program. In addition much of the existing conditions described in the 2005 Final EA are still valid and, thus, are incorporated herein by reference.

**SECTION 2.0**  
***DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES***

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## 2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

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The Proposed Action include the construction of the 12 GOQ/SOQ units and detention basins. The MFH areas would be leased to the developer for up to 50 years for construction of the new MFH units and long-term maintenance and operation of the MFH areas. Infrastructure, including utilities, would also be conveyed to the developer. The developer would finance, plan, design, and construct improvements, as well as manage operations of the MFH areas and detention basins.

### 2.1 DESCRIPTION OF THE PROPOSED ACTION

Nellis AFB proposes to lease approximately 30 acres of land for construction of two detention basins and 12 GOQ/SOQ housing units with associated driveways and sidewalks. In addition, Nellis AFB would grant easements for construction of stormwater channels associated with the detention basins. For the purposes of analysis, it is assumed that project activities would begin in January 2007 and that all construction activities would be completed within 3 years. Nellis AFB would specify certain requirements for the MFH areas such as the minimum square footages for each type of unit and the minimum number and type of amenities. The schedule for project activities, configuration of neighborhoods, design of housing units, and the incorporation of supplemental amenities to enhance the quality of life would be determined by the privatization developer.

The storage capacity of the proposed detention basins would be sufficient to detain stormwaters projected for the 100-year flood event. The two detention basins (approximately 11 and 9 acres) would be constructed of compacted earth and excavated from ground level to reach a depth no greater than 10 feet in some areas. Sides would be sloped and sloped earthen berms no more than four feet high would be shaped at the south edges of the basins to impede floodwaters. Stormwater pipes would be placed below the berms and extend outside of the basins to allow stormwaters to slowly drain from the basins (Figure 2-1).

The proposed shapes of the detention basins are designed to avoid impacts to the maximum extent practicable, to Las Vegas bearpoppy (*Arctomecon californica*) populations, a Nevada endangered plant species, and Las Vegas buckwheat (*Erigonum corymbosum*) populations, a Nevada species of concern. In addition to avoidance, the contractor would surface-scrape soil in those areas where populations occur, move the soil aside until the area is fully excavated, and replace the surface soil. The soils would then be watered to mitigate dust as well as to encourage new plant growth. Irrigation would continue on an as needed basis until the first rainy season begins. The Nellis AFB Natural Resources Manager would supervise these activities to ensure that the proposed mitigation measures are conducted adequately.

Other appurtenant structures and facilities that are required as part of the MFH Revitalization Project were described in the February 2005 EA and are incorporated herein by reference (USAF 2005). These include, but are not limited to, sidewalks, greenspace, sewer systems, and utility lines.

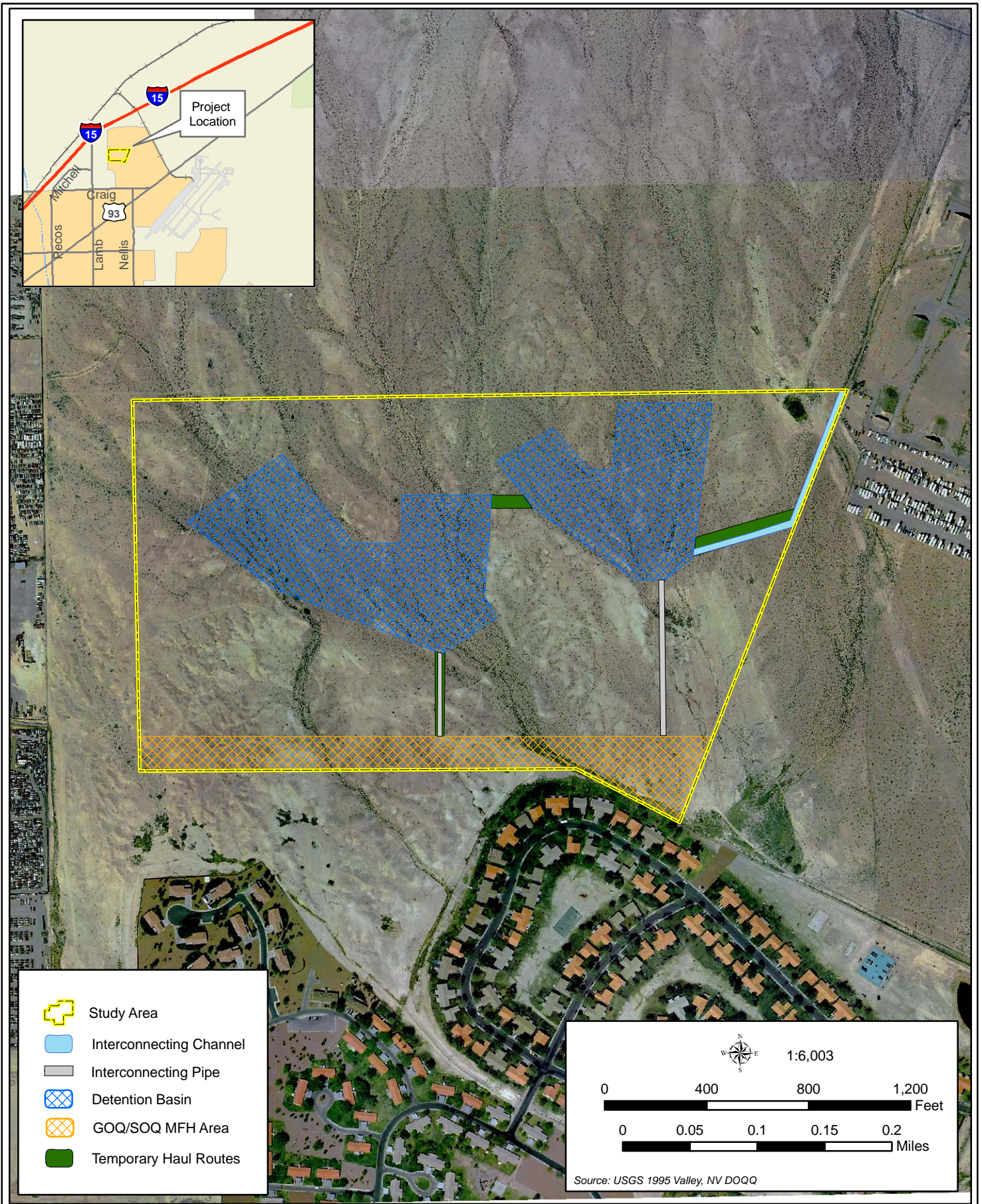


Figure 2-1: Proposed Project Layout

## **2.2 ALTERNATIVES TO THE PROPOSED ACTION**

### **2.2.1 Introduction**

Alternatives to the proposed action have been examined according to three variables: other means to physically capture and control stormwater from impacting the MFH units, siting of new MFH construction, and siting of the detention basins and drainage channels. These alternatives and the No Action Alternative are described below.

### **2.2.2 Siting Alternatives**

General selection criteria used to identify suitable sites for new MFH construction include consideration of compatibility between the functions to be performed and the installation land use designation for the site, adequacy of the site for the function required, proximity to related activities, distance from incompatible activities, availability and capacity of roads, efficient use of property, development density, potential future mission requirements, and special site characteristics, including environmental incompatibilities.

All of the sites proposed for MFH construction have undergone previous evaluations, as described in the February 2005 Final EA and FONSI, and the best locations relative to the selection criteria described above have been selected. Unfortunately, proximity to the industrial area, an automobile wrecking yard, was overlooked during the initial evaluations. This location is unsuitable for family housing due to both noise and safety factors. Therefore, no alternative location for the GOQs and SOQs could be considered.

The detention basin system must be in proximity to the MFH units to reduce or avoid additional costs associated with design, construction, and maintenance of the detention basins. The areas to the south and east of the Manch Manor MFH are all developed and would not provide flood protection from flows originating in areas of higher elevation located to the north of Manch Manor MFH. Consequently, the only location that is feasible for the detention basin is north and west of Manch Manor MFH.

## **2.3 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION**

### **2.3.1 Several Smaller Detention Basins**

The option to construct several smaller detention basins in open areas throughout the MFH areas was initially considered. These basins have been designed to capture stormwater from a 25-year event to reduce the size of the basins because of the limited open space. These basins have eliminated much of the open space currently planned for recreation areas. The primary reason that this alternative was considered but rejected is one of safety. This design was implemented within a housing development in Hawaii. Following a rainstorm during which the basins filled with stormwater, a small child slipped into a detention basin across the street from her house. In the few minutes before the parent's noticed the child missing from the yard, the child had drowned. Thus, detention basins located within family residential areas are considered lethal hazards to the welfare of children. For these reasons, this alternative was eliminated from further consideration.

## **2.4 NO ACTION ALTERNATIVE**

CEQ regulations require inclusion of the No Action Alternative. Under the No Action Alternative, the detention basins and associated drainage channels would not be constructed. However, since control of stormwater discharges are mandated under the Clean Water Act, the No Action alternative is not practicable. The construction of the SOQ/GOQ units would not be relocated to this proposed area. Instead, the SOQ/GOQ units would be constructed in the area originally planned (see Figure 1-2). The No Action Alternative will serve as a baseline against which the impacts of the proposed action and alternatives can be evaluated.

***SECTION 3.0***  
***AFFECTED ENVIRONMENT***

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## **3.0 AFFECTED ENVIRONMENT**

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### **3.1 INTRODUCTION**

This chapter describes the existing environmental conditions at and surrounding the proposed detention basins on Nellis AFB. It provides information to serve as a baseline from which to identify and evaluate environmental changes resulting from the proposed construction and operation of the detention basins, drainage channels, and GOQ/SOQ units. Most of the information contained herein will be incorporated by reference, in compliance with CEQ regulations, from the February 2005 Final EA (USAF 2005). Summaries of the information from that document will be provided where these data are incorporated by reference.

Only those resources that have a potential to be affected are discussed, as per CEQ guidance (40 CFR 1501.7[3]). Therefore, climate, cultural resources, and transportation will not be discussed for the following reasons:

- Climate – the project would not affect, or be affected by, climate
- Cultural Resources – the entire base has been surveyed and no historic properties, including prehistoric sites and historic structures, were located in the proposed project area. SHPO consultation was completed on April 12, 2001 and thus, requirements of Section 106 of the National Historic Preservation Act have been addressed. If, during construction, subsurface features or artifacts are uncovered the project would halt and the Nellis AFB Cultural Resources Manager would be immediately contacted.
- Transportation – the project would not require any long term public road closures or affect other modes of public transportation.

### **3.2 LAND USE**

The land use at and surrounding the MFH areas was described in the 2005 Final EA (USAF 2005) and is incorporated herein by reference. Briefly, the proposed detention basin locations are considered open space. The areas to the south and east are MFH housing areas. North and west of the proposed detention basins are off-base areas that are used for transportation routes (i.e., I-15) and light industrial and commercial areas, primarily auto salvage yards.

### **3.3 AESTHETICS**

The information regarding aesthetics and visual resources is incorporated by reference from the February 2005 Final EA. Briefly, the proposed project area is located within open desert cross-cut by dirt roads and scattered with trash piles resulting from decades of illegal household dumping activities as can be seen in photograph 3-1 and 3-2. Due to the development surrounding the site, on and off-base, there are no pristine views available at the site.



**Photograph 3-1: View of the Detention Basin areas looking Northwest**



**Photograph 3-2: View of Western boundary area looking South**

## **3.4 AIR QUALITY**

### **3.4.1 General**

The Nellis AFB is located in the Las Vegas valley in Clark County. The Clark County air shed is classified as serious non-attainment area for PM<sub>10</sub> and carbon monoxide (CO) and an 8-Hour non-attainment for ozone. A “non-attainment” area means that pollution levels for PM<sub>10</sub>, ozone and carbon monoxide (or other pollutant) exceeds federal and state criteria (Table 3-1).

The General Conformity Rule applies to areas that have been designated as a non-attainment zone for an air pollutant, such as PM<sub>10</sub>, ozone and CO in Clark County. Regulations set forth in 40 CFR 51 Subpart W, Determining Conformity of the General Federal Action to State or Federal Implementation Plans, determine if additional permits are needed. According to 40 CFR 51.853(b), Federal actions require a Conformity Determination for each pollutant where the total of direct and indirect emissions in a non-attainment or maintenance area caused by a Federal action would equal or exceed any of the rates in paragraphs 40 CFR 51.853(b)(1) or (2). If emissions from a Federal action do not exceed *de minimis* thresholds, and if the Federal action is not considered a regionally significant action, it is exempt from further conformity analysis.

*De minimis* thresholds are specified in the conformity rule for the criteria pollutants based on the degree of nonattainment of the area. *De minimis* refers to a level of risk which is too small to be concerned with -- some refer to this as a "virtually safe" level. The applicable *de minimis* thresholds for Clark County are 100 tons/year for CO and 70 tons/year for PM<sub>10</sub>. A regionally significant action is defined as one whose total emissions meet or exceed 10 percent of the air quality control area's emission inventory for any criteria pollutant (see Table 3-1). If a Federal action, such as building a stormwater detention basin exceeds *de minimis* standards or is greater than 10 percent of the of the total inventory of the air shed's for any criteria pollutant, then additional permits (Conformity Rule) would be required.

**Table 3-1. National and Nevada Ambient Air Quality Standards**

Pollutant	Nevada(a)(b)	National(a)(b)	Standard Type(c)(d)
<b>Carbon Monoxide(CO)</b>			
8-hour average	9 ppm (10 mg/m <sup>3</sup> ) 6 ppm (6.67 mg/m <sup>3</sup> )( <sup>e</sup> )	9 ppm (10 µg/m <sup>3</sup> )	Primary
1-hour average	35 ppm (40 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	Primary
<b>Nitrogen Dioxide(NO<sub>2</sub>)</b>			
Ann. Arithmetic Mean	0.053 ppm (100 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )	Primary & Secondary
<b>Ozone(O<sub>3</sub>)</b>			
8-hour Average(f)	- - -	0.08 ppm (157 µg/m <sup>3</sup> )	Primary & Secondary
1-hour Average	0.12 ppm (235 µg/m <sup>3</sup> )	0.12 ppm (235µg/m <sup>3</sup> )	Primary & Secondary
<b>Sulfur Dioxide(SO<sub>2</sub>)</b>			
Ann. Arithmetic Mean	0.03 ppm (80 µg/m <sup>3</sup> )	0.03 ppm (80 µg/m <sup>3</sup> )	Primary
24-hour Average	0.14 (365 µg/m <sup>3</sup> )	0.14 ppm (365 µg/m <sup>3</sup> )	Primary
3-hour Average	0.50 ppm (1,300 µg/m <sup>3</sup> )	0.50 ppm (1,300 µg/m <sup>3</sup> )	Secondary
<b>Lead (Pb)</b>			
Quarterly Average	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	Primary & Secondary
<b>PM<sub>10</sub></b>			
Ann. Arithmetic Mean(f)	50 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	Primary & Secondary
24-hour Average	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Primary & Secondary
<b>PM<sub>2.5</sub> (f)</b>			
Ann. Arithmetic Mean(f)	---	15 µg/m <sup>3</sup>	Primary & Secondary
24-hour Average(f)	---	65 µg/m <sup>3</sup>	Primary & Secondary
<b>Hydrogen sulfide(H<sub>2</sub>S)</b>			
1-hour	112 µg/m <sup>3</sup>	- - -	
<b>Visibility Observation</b>	In sufficient amount to reduce the prevailing visibility to less than 30 miles when the humidity is less than 70 percent	- - -	

Notes:

- a) Standards other than for ozone and those based upon annual averages are not to be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
- b) Concentrations are expressed first in units in which they are promulgated. Equivalent units are given in parentheses.
- c) Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by U.S.EPA
- d) Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the U.S. EPA approves the implementation plan.
- e) First standard applies at elevations less than 5,000 feet above MSL. The second standard applies at elevations equal to or greater than 5,000 feet above MSL.
- f) The ozone 8-hour standard and the PM<sub>2.5</sub> standard are included for information only. A 1999 federal court ruling blocked implementation of these standard has since been approved, but has yet to be implemented. A federal court ruling on the PM<sub>2.5</sub> standard is still pending.

µg/m<sup>3</sup> = micrograms per cubic meter  
 mg/m<sup>3</sup> = milligrams per cubic meter  
 PM<sub>2.5</sub> = particulate matter equal to or less than 2.5 microns in diameter  
 PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter  
 ppm= parts per million

PM<sub>10</sub> are small particles (between 2.5 and 10 micrometers) in the air that originate from internal combustion engines, unpaved roads, fires, and dry exposed soils that become air born. Exposure to PM<sub>10</sub> can lead to detrimental health effects such as:

- Coughing, wheezing, shortness of breath
- Aggravated asthma
- Lung damage (including decreased lung function and lifelong respiratory disease)
- Premature death in individuals with existing heart or lung diseases

CO is a colorless, odorless and poisonous gas produced by incomplete burning of carbon in fuels. When CO enters the bloodstream, it reduces the delivery of oxygen to the body's organs and tissues. Health threats are most serious for those who suffer from cardiovascular disease, particularly those with angina or peripheral vascular disease. Exposure to elevated CO levels can cause impairment of visual perception, manual dexterity, learning ability and performance of complex tasks (EPA 2006).

High concentrations of ozone can cause shortness of breath, coughing, wheezing, headaches, nausea, and throat and lung irritation. People who suffer from lung diseases like bronchitis, pneumonia, emphysema, asthma, and colds have even more trouble breathing when the air is polluted. These effects can be worse for anyone who spends significant periods of time exercising or working outdoors.

### 3.4.2 Ambient Air Quality Conditions

The State Implementation Plan (SIP) emission inventory for PM<sub>10</sub> and CO for Clark County is presented in Table 3-2. Nellis AFB holds a New Source Review (NSR) permit for stationary emission sources including generators, internal combustion engines, abrasive cleaning, jet engine testing, fuel dispensing, welding, and surface coating. Mobile emission sources such as aircraft and on-road vehicles are not regulated by Title V of the CAA or the Clark County Part 70 permitting program (U.S. Air Force, 1999). The baseline emission inventory for Nellis AFB is also in Table 3-2.

**Table 3-2. Baseline Emission Inventory, Nellis AFB (tons per year)**

Total	PM <sub>10</sub>	CO	NO <sub>x</sub>	SO <sub>x</sub>	VOC
Nellis AFB	36.0	17.7	32.7	4.5	59.7
Clark County	333,133	168,825	43,004	2,064	N/A

CO = Carbon monoxide  
 NO<sub>x</sub> = Nitrogen oxide  
 PM<sub>10</sub> = Particulate matter equal to or less than 10 microns in diameter  
 SO<sub>x</sub> = Sulfur oxides  
 VOC = Volatile organic compound

Sources: PM<sub>10</sub> SIP for Clark County (2001), Las Vegas Valley CO SIP (2000), TRW, Inc., 2002

### **3.5 NOISE**

Noise is generally described as unwanted sound, which is identified by either objective effects (hearing loss, damage to structures, etc.) or subjective judgments (community annoyance). Sound is represented on a logarithmic scale with a unit called the decibel (dB). Audible noise typically is measured in A-weighted sound pressure levels expressed in dB. The A-scale de-emphasizes the low and high frequency portions of the sound spectrum and provides a good approximation of the response of the average human ear. On the A-scale, 0 dB represents the average least perceptible sound, such as gentle breathing, and 120 dB represents the intensity at which the eardrum may rupture, such as a jet engine at open throttle (National Research Council 1977). Sound levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise measurement recommended by the EPA and has been adopted by most Federal agencies (EPA 1974).

The February 2005 Final EA analyzed existing environmental and urban noise conditions with in the MFH area, and these are incorporated herein by reference (USAF 2005). In summary, the February 2005 Final EA used the Air Installation Compatibility Use Zone (AICUZ) program and determined that in the Manch Manor III and Manch Manor IV MFH areas DNL contours were between 65 and 70 dB. Areas to the northwest of this zone, which encompass the proposed project site of this SEA, are situated in a DNL zone of 65 dB and below (Figure 3-1).

The February 2005 Final EA noted that HUD standards (24 CFR 51.104) generally consider a DNL of 65 dB and greater incompatible with residential development unless Noise Level Reduction Measures (NLR) are incorporated into the construction design that would compensate for the DNL increase. However, the proposed project site is located within the compatible DNL range (65 dB and lower) where no restrictions or NLRs would be required.

### **3.6 GEOLOGIC CONDITIONS**

The Las Vegas Valley is located in a large graben basin valley in the Basin and Range Province formed by the relative uplift of the adjacent mountains. The geologic formations found on the surface of the valley floor are Quaternary and Pleistocene alluvial deposits formed from the degradation and erosion of adjacent uplifted areas. Normal high angle faults formed scarps throughout the valley floor and these fault scarps are still evident in the developed urban landscape. These intra-valley faults are thought to control patterns of subsidence related to over-withdrawal of groundwater resources in the valley. Some areas of the valley have subsided as much as 6 feet (Price 2004).

Within the subject property, fine-grained alluvial deposits form the entire ground surface. These are Quaternary and late Pleistocene in age, and their mineral composition reflects the high lime and gypsum content of the parent rock materials from which they formed. The gypsum resulted from evaporation of glacial lakes in the valleys following the last glacial period about 10,000 years ago. There is a normal down to the southeast fault located south of the subject property, which may extend into the property and influence structures built on the property. This fault crosses East Craig Road and a portion of the Manch Manor Estates base housing project (Page et al. 2005).

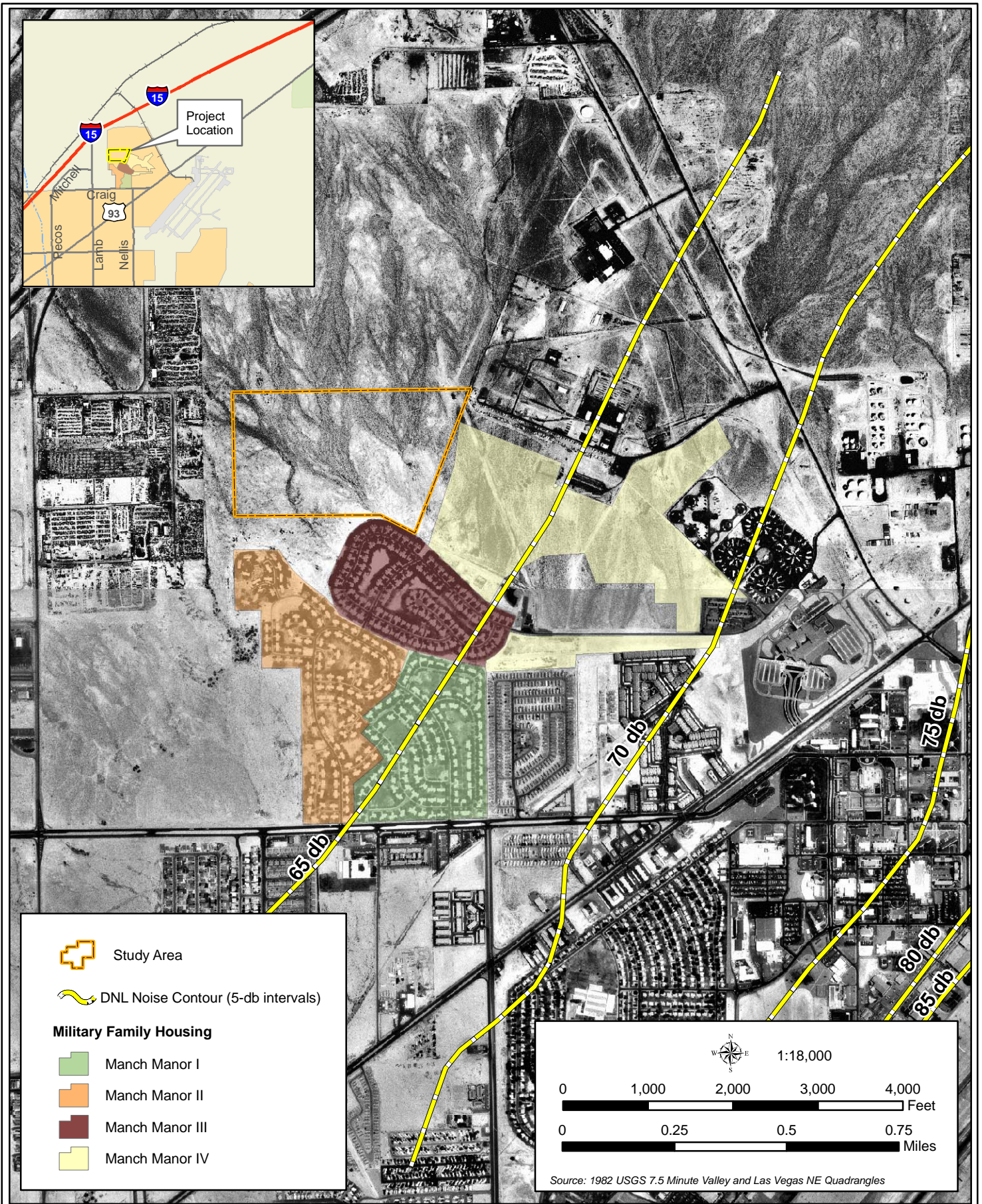


Figure 3-1: Nellis AFB Noise Contour Map



September 2006

The subject property is underlain by recent alluvial deposits consisting of loose soils with a high lime and gypsum content. Topographically, the subject property slopes from north and northwest to the south and southeast, and several dry washes are eroded into the surface soil by previous heavy rain events. The soils on the site tend to form hardpan deposits within the top 15 inches due to the high lime and gypsum content. Surface water percolation is moderate on the site and standing water would tend to percolate to the subsurface. Additional information regarding the project area's soils and natural geologic hazards (i.e., seismicity) was presented in the 2005 EA and is incorporated herein by reference (USAF 2005).

### **3.7 WATER RESOURCES**

The following subsections describe the existing environment as it relates to surface water and groundwater. The ROI for water resources encompasses the housing areas, as well as the surface and groundwater features that proposed activities within these areas have the potential to affect.

#### **3.7.1 Surface Water**

Surface water in the area of the proposed detention basins flows through a number of dry washes generally from north to south and eventually into a retention basin where stormwater gradually evaporates and percolates through the subsurface or flows unimpeded through the housing area, draining into Range Wash, then into Las Vegas Wash and ultimately flowing to Lake Mead and Colorado River. The various drainage channels in the area are depicted in Figure 3-2. The quality of surface water draining from the area is not affected beyond ambient natural conditions.

According to reports, a portion of the Manch Manor II area has experienced incidents of flooding in the past. Some episodes of heavy precipitation have produced a surface water flow beyond that which the existing surface water drainage controls can accommodate. As a result, some MFH units within Manch Manor II have flooded (USAF 2005).

#### **3.7.2 Hydrogeology/Groundwater**

As noted in the discussion of geology, Nellis AFB is situated on the eastern side of Las Vegas Valley. Although this is a structurally formed basin, the Las Vegas Valley is filled with a considerable volume of alluvial sediments. This sediment volume and thickness has allowed a substantial groundwater aquifer to accumulate, which has historically provided a significant portion of the water supply for the City of Las Vegas and the surrounding communities (Longwell et al. 1965). Groundwater currently accounts for about 29 percent of the water supply for Nellis AFB (Nellis Air Force Base 2001).

The primary water supply aquifers are from 300 to 1,500 feet below ground surface (bgs). The shallow aquifers located above these are unsuitable for drinking water purposes. The gradient of the upper surface of the primary aquifer (the water table) generally slopes downward toward the east; the groundwater flow within Las Vegas Valley is generally from west to east, although on Nellis AFB, groundwater flows to the south/southeast (Nellis AFB 2006). The nature of the current climate (arid) and the composition of the underlying sediments (from carbonate rock sources) combine to promote the formation of a shallow hardpan layer within depths of up to 20

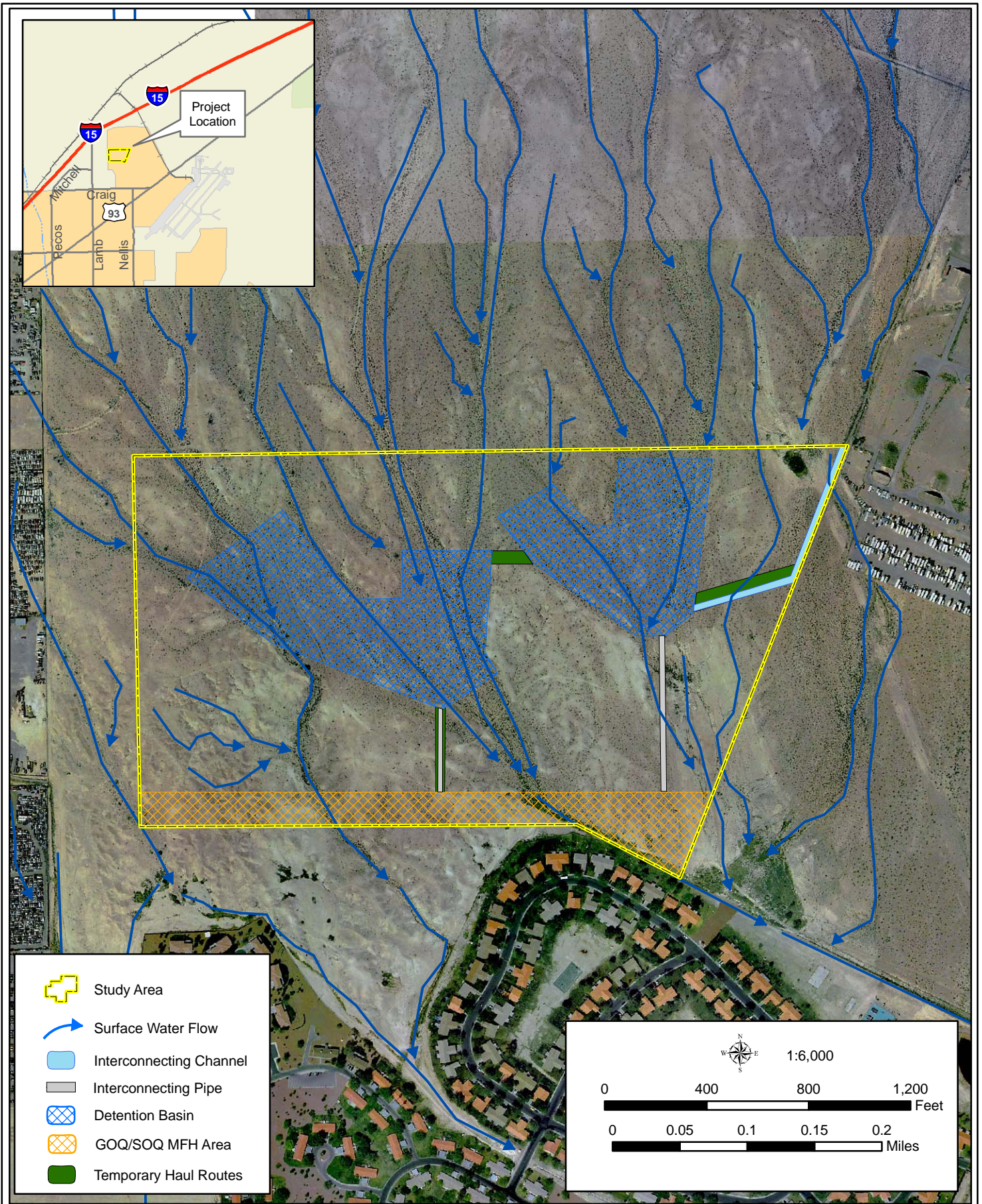


Figure 3-2: Water Resources Map



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feet bgs. This commonly results in the establishment of perched aquifers, especially where artificial sources of water are allowed to seep into the ground.

Groundwater quality in the area of the proposed detention basins is not currently affected beyond ambient natural conditions. A shallow (10-20 feet bgs) hardpan layer in the calcareous soils has developed that limits surface water percolation to the normal groundwater table of 100-120 feet bgs.

### **3.8 BIOLOGICAL RESOURCES**

#### **3.8.1 Vegetation and Wildlife**

The native vegetation found on Nellis AFB consists of creosote-white bursage (*Larrea tridentate-Ambrosia dumosa*) community (USAF 2005). The information regarding vegetation communities, wildlife population, and wetland is incorporated by reference from the February 2005 Final EA.

#### **3.8.2 Sensitive Species**

Three sensitive species, Las Vegas bear poppy, Las Vegas buckwheat, and burrowing owl (*Athene cunicularia*), were observed within the proposed project site. The Las Vegas bear poppy has been identified as a USFWS species of concern, a Nevada Natural Heritage “sensitive” species and is designated fully protected by the State of Nevada (USAF 2005). It is also considered a “covered” species under the Clark County’s Multiple Species Habitat Conservation Plan (MSHCP). It is only known to occur in Clark County, Nevada, Mohave County, Arizona and has been introduced in Utah (Nevada Natural Heritage Program [NNHP] 2001, USAF 2005). The NNHP (2001) estimates from population census data that 92 extant populations exist within Clark County, Nevada. The total area occupied by the Las Vegas bear poppy is approximately 20,614 acres and the total population in 2001 was estimated to be approximately 445,000 individuals (NNHP 2001). The Nellis AFB population represents less than 3 percent of the total estimated population. The majority of the population (87 percent) occurs on land managed by the National Park Service (NPS) and Bureau of Land Management (BLM) (Mistiotta 1996). Furthermore, the habitat mapped as suitable for the Las Vegas bear poppy in Clark County, 70 percent is managed by BLM and 16 percent is managed by the NPS (Clark County Department of Comprehensive Planning 2000).

The Las Vegas buckwheat has been recommended for full protection under State of Nevada preservation and protection laws (NRS 527) and is considered an “evaluation” species under the Clark County’s MSHCP. The Las Vegas buckwheat is only known to occur in Clark County Nevada (NNHP 2004). The NNHP (2004) estimates from population census data that 29 occurrences have been mapped in Clark County, Nevada. The total area occupied by the Las Vegas buckwheat is approximately 1,038 acres and the total population in 2004 was estimated to be approximately 5,188 individuals (NNHP 2004).

The burrowing owl is a Federal species of concern and is protected from “take” as defined in the Migratory Bird Treaty Act. It is also an “evaluation” species under the Clark County’s MSHCP.

The general distribution and abundance of bear poppy and buckwheat, as well as evidence or occurrence of burrowing owls, was assessed by traversing a 90-acre survey area using meandering pedestrian transects. The 90-acre parcel encompassed the detention basins, MFH areas, and the surrounding lands. Although the bear poppy was nearly ubiquitous throughout most of the survey area, the abundance of individuals was greatest at slightly higher elevations. Patches of bear poppy were relatively larger and more common to the north and east within the survey area. Buckwheat was also common throughout the survey area, but was less abundant. Buckwheat was generally associated with lower elevation areas and was observed in small clumps of two to eight individuals within relatively dense patches of grass and shrubs, as well as within sparsely vegetated areas.

Because both species were common and generally distributed throughout the survey area, it was determined that randomly selected belt transects covering three to five percent of the survey area would provide an adequate enumeration of these species within the survey area. Elevation appeared to impart a substantial influence on the distribution of both plants, thus transects were aligned east to west so that each transect traversed a greater range of elevations and were perpendicular to natural drainage features. A total of seven transects, each 10 feet wide, were positioned using a random number and the number of bear poppy and buckwheat were recorded (Figure 3-3).

The density of bear poppy averaged 1 individual per 178.6 square feet ( $n = 7$ ) with a standard deviation of 1 individual per 212.8 square feet. One of the larger and most dense patches of bear poppy was delineated and sub-sampled for density. The density of bear poppy in this patch was 1 individual per 3.1 square feet. This likely represents the highest density observed in the survey area. Overall, the population of bear poppy appeared healthy. Recruitment appeared to be high as smaller individuals (less than 3 inches diameter) were most numerous. Furthermore, smaller individuals were observed within recently disturbed areas such as the two-track trail parallel to the fence. Medium and larger individuals (greater than 6 inches diameter) were also common and held about three and up to eight inflorescences respectively. A typical inflorescence held between six and eight seed pods.

The density of buckwheat averaged 1 individual per 1,818.2 square feet ( $n=7$ ) with a standard deviation of 1 individual per 4,166.7 square feet. Overall the population of buckwheat appeared healthy. Larger individuals were 3 to 3.5 feet tall and roughly 2 feet in diameter. Larger individuals of buckwheat were most common. Smaller individuals (less than 1 foot in height) were uncommon, but were also relatively more difficult to spot and possibly underrepresented in the sample. Some larger individuals were beginning to flower and individuals typically held persistent inflorescences.

A single burrowing owl was observed during surveys. One active burrow and a satellite burrow were observed in the western portion of the proposed project area (see Figure 3-3). No other burrowing owls were observed.

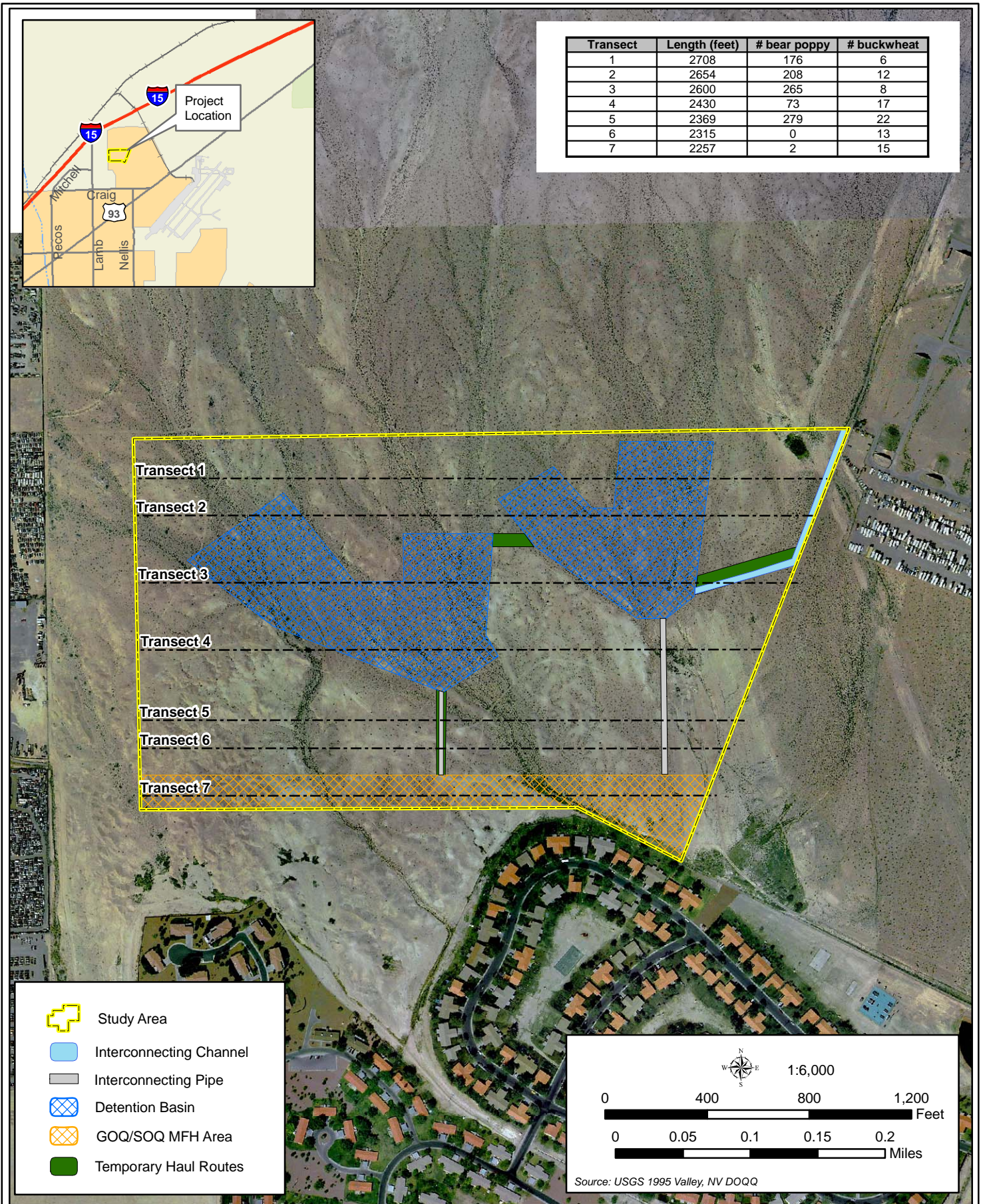


Figure 3-3: Vegetation Survey Transects



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## **3.9 SOCIOECONOMICS**

### **3.9.1 Population and employment**

The socioeconomic ROI for Nellis AFB is Clark County. The socioeconomic conditions for Clark County were described in the Final EA (USAF 2005) and are incorporated herein by reference. Briefly, the City of Las Vegas is the largest city in the State of Nevada, with a population of approximately 569,838 persons. Clark County is projected to experience a growth rate of approximately 19 percent from 2007 to 2014. The on-base population at Nellis AFB in 2006 was 5,647 military personnel and their dependents (Chiger 2006).

The primary employers within the ROI is in the tourist-related service and retail trade industries. Total employment within the Las Vegas Metropolitan Statistical Area (MSA) is approximately 878,700. In August 2006, the Las Vegas MSA unemployment rate was 4.1 percent. Nellis AFB employed approximately 11,668 military and civilian personnel in 2006 (Nevada Department of Employment, Training and Rehabilitation 2006; Chiger 2006).

### **3.9.2 Transportation**

The base transportation network was described in the 2005 EA (USAF 2005) and is incorporated herein by reference. The base transportation system has been determined to be adequate with the exception of the non-standard intersections near the flight line.

Primary access to the Manch Manor housing area is via guarded gates off Craig Road and Stafford Drive. Regional access to Nellis AFB is provided by two major highway systems, I-15 and U.S. Route 95.

### **3.9.3 Utilities**

The status of utility systems on Nellis AFB was described in the 2005 EA and is incorporated herein by reference. Briefly Nellis AFB obtains its potable water supply from three main sources: nine base wells, the Southern Nevada Water Authority (SNWA), and small amount of water is also purchased from the City of North Las Vegas. Approximately 2 miles of transmission line from the Nellis AFB water well annex were upgraded from 10-inch to 14-inch when Craig Road was widened. The remaining 3.5 miles of line are deteriorated and experiencing approximately four breaks annually (USAF 2005). Approximately 1.5 million gallons per day (MGD) of Wastewater are discharged from Nellis AFB to the Clark County Sanitation District (CCSD) for treatment at the wastewater treatment plant.

The electrical distribution system in the MFH housing areas is both overhead and underground. The electrical distribution system on base is owned by the Air Force with the exception of the overhead portion of the system within Old Nellis Terrace, which is owned by the Nevada Power Company. Natural gas is provided to Nellis AFB by Southwest Gas Company via a high pressure transmission line at five locations along North Las Vegas Boulevard (State Highway 604). There are three metering stations near the housing areas, including one station at the entrance near the Manch Manor housing area.

Solid waste collection and disposal services at Nellis AFB are handled by a private contractor. Municipal solid waste is disposed of at the Apex Regional Landfill, situated 18 miles northeast of Las Vegas, in the Garnet Valley. The facility is a Class I landfill permitted by the Nevada Division of Environmental Protection and is operated by Republic Services.

### **3.9.4 Environmental Justice**

Executive Order (EO) 12898, Environmental Justice, was issued by the President on February 11, 1994. Objectives of the EO, as it pertains to this EA, include development of federal agency implementation strategies, identification of low-income and minority populations potentially affected because of proposed Federal actions. Accompanying EO 12898 was a Presidential Transmittal Memorandum referencing existing Federal statutes and regulations to be used in conjunction with EO 12898. One of the items in this memorandum was the use of the policies and procedures of NEPA. Specifically, the memorandum indicates that:

*“each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of federal actions, including effects on minority communities and low-income communities,”*

when such analysis is required by the NEPA 42 U.S.C. section 4321 et. seq. Although an environmental justice analysis is not mandated by NEPA, DoD has directed that NEPA will be used as the primary mechanism to implement the provision of the EO.

## **3.10 HAZARDOUS AND TOXIC SUBSTANCES**

The subject property is currently undeveloped and consists of open land with a vegetative cover of desert scrub plants. There are currently no structures on the property and no evidence of present or past exposure of the property to hazardous or toxic substances. West of the site, there are several vehicle and metal recycling facilities which could introduce petroleum products into storm water entering the subject property through the natural drainage system.

### **3.10.1 Uses of Hazardous Materials**

No use or storage of hazardous materials is proposed for the subject property.

### **3.10.2 Site Contamination and Cleanup**

There is no evidence of contamination of the site by hazardous materials. There is scattered solid waste on the property which should be removed and disposed of according to applicable regulations.

### **3.10.3 Special Hazards**

There are no special hazards associated with the subject property that would have to be addressed.

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*SECTION 4.0*  
*ENVIRONMENTAL CONSEQUENCES*

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## **4.0 ENVIRONMENTAL CONSEQUENCES**

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### **4.1 INTRODUCTION**

This section of the EA addresses potential impacts to the environmental resources within the project site for the Proposed Action and No Action Alternatives. An impact (consequence or effect) is defined as a modification to the human or natural environment that would result from the implementation of an action. The impacts can be either beneficial or adverse, and can be either directly related to the action or indirectly caused by the action. Direct impacts are those effects that are caused by the action and occur at the same time and place (40 CFR 1508.8[a]). Indirect impacts are those effects that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR 1508.8[b]). The effects can be temporary, short in duration (short term), long lasting (long term), or permanent. For purposes of this EA, temporary effects are defined as those that would last for the duration of the construction period; short-term impacts would last from the completion of construction to 3 years. Long term impacts are defined as those impacts that would occur from 3 to 10 years after construction, while permanent impacts indicate an irretrievable loss or alteration.

Impacts can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. Significant impacts are those effects that would result in substantial changes to the environment (40 CFR 1508.27) and should receive the greatest attention in the decision-making process. Insignificant impacts are those that would result in minimal changes to the environment. The significance of the impacts presented in this EA is based upon existing regulatory standards, scientific and environmental knowledge, and best professional opinions. For the purpose of this evaluation, significance thresholds have been established for each of the resource categories. Each threshold of significance will be presented at the beginning of the analysis of the resource.

### **4.2 LAND USE**

#### **4.2.1 Proposed Action**

Relocation of the 12 GOQ/SOQ units would convert 10 acres from open, disturbed desert to residential areas. This development is consistent with the current uses adjacent to this area (USAF 2005).

The detention basins (20 acres) would ultimately still be considered open rangeland since the basins would be comprised of earth berm, side slope, and bottom and no hardened structures (e.g., buildings, pump houses, etc.) would be associated with the feature. Due to the relatively small area (totally 30 acres) and the consistency with the Nellis AFB land use plans, these actions would not be considered a significant impact.

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

Under the No Action Alternative, the GOQ/SOQ units would be constructed in the originally planned location. Consequently, about 10 acres of open desert would be converted to residential areas.

## **4.3 AESTHETICS**

### **4.3.1 Proposed Action**

With the implementation of the Proposed Action, temporary adverse aesthetic impacts would occur during construction. Construction equipment and earth moving activities would detract from the current open space aesthetics. However, large piles of automotive, wood and household debris (see Photographs 3-1 and 3-2) would be removed prior to construction activities and would enhance the overall aesthetic quality of the area.

Landscaping surrounding the GOQ/SOQ units would add to the visual qualities of the MFH area. The earthen detention basins and drainage channels would be somewhat similar in appearance to the surrounding badlands-type topography. Subsequent revegetation would return the current aesthetic quality to the area.

### **4.3.2 No Action Alternative**

Under the No Action Alternative, the existing aesthetic conditions would remain unaltered in the proposed detention basins sites. However, the GOQ/SOQ units would still be constructed along the western boundary of the base, as originally proposed. Temporary and permanent effects of construction of the MFH units would be similar to that described for the Proposed Action Alternative.

## **4.4 AIR QUALITY**

### **4.4.1 Proposed Action**

For the storm water detention basin, temporary increases in air pollution would occur from the use of construction equipment in the clearing and excavation of land. Combustion emissions from construction equipment and PM<sub>10</sub> fugitive dust emissions from soil surface disturbances are expected to temporarily increase during the construction months of the project. There would also be a slight increase in combustion emissions as a result of construction employees commuting to and from construction site. Combustion emissions do not produce ozone directly; however, many combustion sources emit volatile organic compounds and nitrogen oxides. When these two gases are released into the air, under certain conditions they can react to form ozone. Thus, in order to calculate amounts of ozone pollution, the sources of volatile organic compounds (VOC) and nitrogen oxides were identified.

For the MFH units, temporary increases in combustion pollution would result from the use of construction equipment to build the houses and excavation equipment to clear the land. Fugitive dust emissions (PM<sub>10</sub>) would also be generated by disturbing the soils when excavating for houses, roads, utilities, vehicle parking, common areas, driveways, sidewalks, and recreational areas. There is a potential for VOCs to be emitted from paints and other house building materials once the MFH units are completed.

For the stormwater detention basins and MFH units, calculations were performed to estimate the total combustible air emissions from the construction activities using emission factors AP-42 Chapter 3 Vol. 1, Table 3.3-1 (EPA 1996). Combustion emissions calculations were made for standard construction equipment such as bulldozers, excavators, front end loaders, backhoes,

and dump trucks. Fugitive dust emissions were calculated using emission factors from the South Coast Air Quality Management District (SCAQMD), California Environmental Quality Act (CEQA) Air Quality Handbook. The air quality emissions were analyzed for four sources:

- Combustion emissions from constructing stormwater basins
- Fugitive dust PM<sub>10</sub> emissions from excavating stormwater basins
- Combustion emissions from construction equipment to build MFH units
- Fugitive dust PM<sub>10</sub> emissions from excavating the MFH neighborhood and roads

Due to the brief duration of the construction projects, any increases or impacts on ambient air quality are expected to be short-term and minor. A summary of the total emissions are presented in Table 4-1. As can be seen from this table, the proposed construction activities do not exceed thresholds and, thus, do not require a Conformity Determination. Appendix A contains the detailed calculations that were used to generate Table 4-1.

**Table 4-1. Estimated emissions from Proposed Action**

<b>Proposed Action Construction Emissions for Criteria Pollutants (tons per year)</b>					
<b>Emission source</b>	<b>PM<sub>10</sub></b>	<b>CO</b>	<b>NOx</b>	<b>VOC</b>	<b>SO<sub>2</sub></b>
Stormwater basin-combustion emissions	1.95	16.61	27.85	2.76	1.84
Stormwater basin-fugitive PM <sub>10</sub>	1.09	NA	NA	NA	NA
MFH units-combustion emissions	0.47	27.63	6.65	1.78	0.43
MFH units-fugitive PM <sub>10</sub>	3.12	NA	NA	NA	NA
Total emissions	6.65	44.24	34.49	4.54	2.27
<i>De minimis</i> threshold	70.00	100.00	100.00	50.00	100.00
10-percent of Clark County Inventory	17,178	13,108	4,356	NA	205

Sources: PM<sub>10</sub> State Implementation Plan, for Clark County (2001)

Las Vegas Valley Carbon Monoxide State Implementation Plan (2000)

In conclusion, the proposed stormwater retention basins, drainage channels, and 12 MFH unit construction activities would not create air emissions greater than the EPA *de minimis* levels for PM<sub>10</sub>, CO, NOx, and VOCs. In addition, these emissions also would not exceed 10 percent of the Clark County air emission inventory for these pollutants and, therefore, would not be regionally significant. The projects would increase air pollutants in the short term; however, once construction activities were finished, PM<sub>10</sub>, CO, NOx, and VOCs emissions would be reduced to pre-construction conditions. The contractor would be required to obtain a Clark County Surface Disturbance Permit prior to construction and would follow all required BMPs to minimize impacts.

#### **4.4.2 No Action Alternative**

Under the No-Action Alternative, the proposed MFH construction activities would occur and, thus, temporary impacts to air quality as described above, would occur. The magnitude and duration of the increased air emissions would be less, however, since the detention basins would not be constructed. No significant impact would occur.

### **4.5 NOISE**

#### **4.5.1 Proposed Action**

The proposed location of the storm water detention basins exists entirely within the DNL contour of 65 dB and lower and is therefore, compatible with local HUD standards.

Temporary impacts from construction noise would be similar to those identified in the February 2005 Final EA. Construction equipment could result in noise events of 100 dBA or higher at the construction site. However, noise levels are attenuated as the distance from the source increases. Temporary construction noises are not averaged as part of the DNL, as they would only affect areas close to the construction site.

In order to ensure adherence to OSHA guidelines and HUD standards, noise attenuation measures identified in the February 2005 Final EA and signed FONSI would be implemented in the Proposed Action Alternative (USAF 2005). These measures would include, but are not limited to, adherence to OSHA guidelines for hearing protection for workers at construction sites and posting of signs warning residents of high noise levels at the construction site.

Noise generated by construction of the storm water detention basins would be intermittent and short term. Once construction is completed, operation of these basins would not result in an increase in the DNL average; therefore, no significant impacts would occur.

#### **4.5.2 No Action Alternative**

Under the No Action Alternative, no construction of storm water detention basins would occur. No additional changes from the Proposed Action identified in the February 2005 Final EA would occur.

### **4.6 GEOLOGY**

#### **4.6.1 Proposed Action**

The construction of storm water detention basins on the site would have little impact on the subsurface geology of the area. The soils at depth would rapidly absorb any accumulated storm water in the detention basins and the basins should remain dry except during periods of heavy rain. Water percolating to the subsurface would recharge the local perched shallow water aquifers at a depth of about 20 feet bgs. Because of the high gypsum content of subsurface soils in the area, percolation of detained stormwater through the permeable bottom of the detention basins may cause local subsidence due to dissolution of gypsum. Monitoring of basin subsidence would occur to avoid structural damage to the berms. The topography of the site is

ideal for placement of the basins as proposed, and the basins would take advantage of the natural topography and drainage patterns.

Construction of the GOQ/SOQ area would result in approximately 10 acres of soils and local geology being altered. The area would be graded and leveled to accommodate the MFH units, roads, storm drains, sidewalks, and other associated facilities. Because of the relatively small area and lack of unique or hazardous geological features, these effects would be considered insignificant.

#### **4.6.2 No Action Alternative**

The No Action Alternative would allow storm water to follow the existing natural drainage pathways on the property, and large rain events would cause flooding and damage to the Manch Manor housing project. Erosion of the area would continue at its current rate. Impacts relative to the construction of the GOQ/SOQ units were addressed in the 2005 Final EA and are incorporated herein by reference.

### **4.7 WATER RESOURCES**

#### **4.7.1 Proposed Action**

##### **4.7.1.1 Surface Water**

Construction of the new stormwater detention basins within north of Manch Manor MFH would result in a diversion of storm water runoff into the retention basin that currently exists to the east of the proposed project area. These waters, currently retained from the entering the Clark County Flood Control District system, would once again be allowed to flow to Range Wash and ultimately, the Colorado River. The quality of surface water that would flow from the outfall structures of the basins would benefit from the detention and settling of suspended contaminants, as well as the filtration through percolation of detained water that might carry minor contaminants from adjacent properties not located on the base. The basins would not detain surface water contacting the Manch Manor MFH, but no decrease in water quality would be expected since the housing units are already in place.

Issuance of a General Stormwater Permit for the proposed action is contingent on the development of an SWPPP by the permittee, which would then be subject to approval by the regional water authority. SWPPP requirements under the General Stormwater Permit include an outline of the storm water drainage system for each discharge point, actual and potential pollutant contact, and surface water locations. The SWPPP would also incorporate storm water management controls. Compliance with the General Stormwater Permit and the SWPPP would minimize potential impacts to surface water quantity and quality.

Because incidents of flooding are known to occur within Manch Manor II, the current surface water drainage is considered inadequate. Under the Proposed Action, these incidents of flooding would no longer occur because proper storm water management practices would be implemented, and larger rain events would be detained in the basins.

The contractor would be required to consult with the USACE under Section 404 of the Clean Water Act to obtain any necessary permits due to any potential impacts to jurisdictional waters

of the U.S. that the proposed construction activities could generate. Only unvegetated ephemeral streams were observed in the proposed construction site. In addition, Clark County Regional Flood Control District and the City of North Las Vegas would be involved in design review of the detention basins.

Some temporary water quality impairments may occur if there is a major rain event during construction of the detention basins. Disturbed soils from access roads and construction site will migrate during rain events. The SWPPP will address this issue and require BMPs to mitigate the migration of soils into the local stream network. No long-term significant impacts to surface water are anticipated.

The construction of the additional MFH housing units would have the potential to temporarily decrease water quality during rain events. Disturbed soils from excavation and access roads could migrate to the basin stream network during rain events. The SWPPP plan will offer BMPs to mitigate the migration of soils during construction.

The installation of the MFH housing units would increase the amount of impervious surfaces in the area. Impervious surfaces reduce the amount of rainwater infiltration and percolation. Impervious surfaces increase the flow of migrating rainwater and sheet and rill erosion of exposed soils occurs. Stream bed and bank scouring and erosion are often associated with impervious surfaces. Adequate vegetation around the housing units would mitigate these effects of impervious surfaces. With the proper vegetative cover and other SWPPP measures, significant impacts to water quality should not occur.

#### **4.7.1.2 Groundwater**

Under the Proposed Action, there is no potential for direct contamination of groundwater. There are no major sources of potential contamination within the proposed basins areas and MFH units. Activities associated with the construction would not introduce any contaminants with the potential to affect groundwater. The filtering effect of natural soils in the bottom of the basins would remove any minor contaminants entering the drainage area from adjacent properties. The concentration of percolation in the area of the basins would tend to raise the shallow water table level, and might result in increased gypsum dissolution in those areas. No significant impacts to groundwater are anticipated.

### **4.7.2 No Action Alternative**

#### **4.7.2.1 Surface Water**

The No Action Alternative would allow surface stormwater to flow unimpeded as it currently does, and occasional flooding of the Manch Manor MFH units would continue. Existing surface water quality would not be impacted. Impacts associated with construction of the MFH housing units were addressed in the 2005 Final EA and are incorporated herein by reference. No significant impacts to water quality would occur under the No Action Alternative.

#### **4.7.2.2 Groundwater**

The No Action Alternative would not impact groundwater levels, percolation rates or groundwater quality. Beneficial filtration of surface water from adjacent properties would not occur, and surface waters downstream might be negatively impacted in the future.

## 4.8 BIOLOGICAL RESOURCES

### 4.8.1 Proposed Action

Under the Proposed Action, approximately 20 acres of creosote bush-white bursage community would be removed from biological production due to the construction of the detention basin. An additional 10 acres would be altered due to construction of the MFH units while 10 acres of creosote bush-white bursage community previously proposed for MFH units would be preserved. Although a total of 20 acres of creosote bush-white bursage community would be impacted, this vegetation community is abundant locally and regionally, and this vegetation loss would not be a significant impact. In addition, due to the re-vegetation efforts that would be implemented (described below), this loss would be temporary.

Wildlife species currently using this habitat would migrate to adjacent undisturbed habitat on the Nellis AFB and in outlying areas. There is the potential for individuals to be impacted during construction. However, the wildlife species found within the project area are abundant locally and the loss of a few individuals would not reduce the overall viability of the population. The removal of 20 acres of wildlife habitat would not be a significant impact.

Under the Proposed Action, the Las Vegas bear poppy, a State of Nevada fully-protected species, and Las Vegas buckwheat, a State of Nevada rare plant, would be impacted. These two species have very restricted ranges and primarily occur within Clark County, Nevada. However, the loss of an additional 20 acres of suitable habitat represents a small portion of the entire known occupied area of these species. Approximately 0.1 percent of the known Las Vegas bear poppy population area and 1.9 percent of the known Las Vegas buckwheat population area would be impacted from the construction of the detention basins. However, it is likely that the impacts to the total known population of these two plant species is actually less than stated because the entire range for these two species has not been surveyed and additional unrecorded populations located in the Las Vegas Valley are probable.

Based upon surveys for the bear poppy and buckwheat at the project site, as many as 4,878 bear poppy individuals and 479 buckwheat individuals would be impacted from the construction of the detention basins. However, this is an overestimation of the total number of individuals that would actually be impacted because the detention basin locations and associated channels were chosen, in part, to minimize impacts to areas with high densities of the Las Vegas bear poppy and Las Vegas buckwheat.

Although the detention basins have been designed to incorporate areas where populations of the bear poppy and buckwheat are sparse to non-existent, the Proposed Action would include the salvage and revegetation efforts for these two species. Prior to the start of construction of the detention basins and the MFH units, Nellis AFB would make the project area available to the Nevada Native Plant Society, Nevada Natural Heritage Program, university researchers, and appropriate state and Federal agency personnel to collect existing bear poppy and buckwheat individuals for attempts at transplantation and propagation. The Las Vegas bear poppy will often revegetate disturbed areas if a soil seedbank remains (NNHP 2001), and the Las Vegas buckwheat habitat is located in drainages and other areas of low relief on and near gypsiferous soils (NNHP 2004). Therefore, as a mitigation measure, the construction contractor (with oversight by a qualified restoration ecologist) would be required to remove the gypsiferous topsoil containing the seedbank for these two species, cover and store the topsoil at a

temporary staging area during detention basin construction, rip and disk the detention basin soils following their excavation to relieve soil compaction, and spread the topsoil across the detention basin area following the completion of construction. Topsoil would be spread in such a manner as to ensure that no heavy equipment compacts the newly placed topsoil. Light watering (*i.e.*, truck irrigation) of the replaced gypsiferous topsoils as a dust control measure would also serve to encourage revegetation. The preservation and replacement of the topsoil would increase the potential for the Las Vegas bear poppy to successfully re-establish in disturbed areas along the perimeter of the detention basins. The sloped sides and low relief of the detention basins covered with gypsiferous topsoil would provide habitat for the Las Vegas buckwheat.

Nellis AFB, in cooperation with the USFWS and Nevada Division of Forestry, have committed to establishing a conservation area within Area III. The Area III conservation area will be set aside from future development, in an effort to protect these species' habitat. The conservation measures to be implemented will be coordinated with the USFWS and the Nevada Department of Forestry (NDF) and may include items such as long-term monitoring, restriction of future development and other ground-disturbing activities, educational opportunities, and genotypic studies. Furthermore, Nellis AFB will provide a biological monitor during the initial grubbing and clearing activities, who will instruct the contractor on delineating the boundaries of the project area with orange construction fencing. The intent of the monitor and fencing will be to further minimize potential effects to individual specimens or groups of bearpoppy and buckwheat.

The combination of the relatively small portion of the overall population of the Las Vegas bear poppy and Las Vegas buckwheat to be disturbed, design measures to minimize impacts to areas with high densities of these two sensitive plant species, allowing salvage of individuals prior to construction, and revegetation efforts within the project area would reduce the impacts to the Las Vegas bear poppy and Las Vegas buckwheat to a less than significant level. Additionally, application for a take permit would be submitted to the State of Nevada prior to removal of the protected species as required under NRS 527.250.

There is potential that individual burrowing owls would be displaced by the proposed construction activities. All Federal protocols for relocating any burrowing owls found in the proposed project area would be followed. Relocation activities would be conducted under supervision of the Nellis AFB Natural Resources Program Manager. Potential burrowing owl habitat is available locally, the detention basins would provide suitable habitat for burrowing owls in the future and therefore, the installation of water retention basins would not be a significant impact to burrowing owl nesting areas.

No impacts to jurisdictional wetlands would occur since none are located in the project site. However, potential impacts to unvegetated ephemeral tributary waters would occur. As indicated previously (see Section 4.7), the contractor would be responsible for applying for Section 404 permits and any potential mitigation that would be required. Temporarily disturbed areas would be revegetated with native species, including the buckwheat and bear poppy described above, as soon as practicable to control or reduce erosion and the potential for invasive species to become

#### **4.8.2 No Action Alternative**

Under the No Action Alternative, construction of the water detention basins and MFH units would not occur. Impacts (10 acres) to the vegetation community, wildlife, or sensitive species would occur in the area originally planned for the GOQ/SOQ units. These impacts were addressed in the 2005 Final EA and are incorporated herein by reference.

### **4.9 SOCIOECONOMICS**

#### **4.9.1 Proposed Action**

The overall MFH Revitalization Project would result in a net decrease of 100 housing units on Nellis AFB, which, in turn, would result in a decrease of on-base population. No permanent changes in employment on the base or the region would be expected as a result of the proposed action. The employment associated with the construction activities for both the detention basins and the GOQ/SOQ units would represent a temporary increase in the workforce on the base; however, the construction workers are expected to come from the local area, and no permanent increase in the workforce is expected. Regional population and military payrolls within the region are not expected to change significantly. No significant impacts are anticipated.

#### **4.9.2 No Action Alternative**

Under the No Action Alternative, construction of the MFH units would still occur. The short-term regional benefits relative to employment, sales taxes, etc. were described in the Final 2005 EA and are incorporated herein by reference.

### **4.10 HAZARDOUS AND TOXIC SUBSTANCES**

#### **4.10.1 Proposed Action**

The construction of storm water detention basins would have a positive effect on local surface water quality by providing detention and subsurface percolation of any contaminants entering the site drainage areas from adjacent properties to the west.

#### **4.10.2 No Action Alternative**

The No Action Alternative would have no effect on the current drainage system, but would allow possible contamination from adjacent properties to continue to flow untreated through the property to adjacent properties downstream.

### **4.11 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

Any construction associated with the Proposed Action, including the construction of infrastructure associated with the MFH units (e.g., roads, sidewalks, utilities) would be commitment of various resources, including labor, capital, energy, building material, and land resources. The short-term commitment of resources would be from construction and all services necessary to support construction activities. Maintenance of infrastructure, buildings and facilities would be a long-term commitment of resources. All resources, except for land resources on Nellis AFB, would be committed by the contractor/developer. Other than land

resources for the relocation of the MFH units and construction of the detention basin system, no other irreversible or irretrievable commitment of resources would occur by the U.S. Air Force.

#### **4.12 CUMULATIVE IMPACTS**

Cumulative impacts associated with the proposed action were addressed in the 2005 Final EA and are incorporated herein by reference. Briefly, the EA identifies potential cumulative adverse impacts to two resources: (1) air quality and (2) vegetation communities, particularly Las Vegas bear poppy and Las Vegas buckwheat populations. The construction of the detention basins and relocated 12 MFH units described herein would further contribute to these cumulative impacts.

Air emissions associated with the construction activities would be temporary and short-term (i.e., less than 5 years). Thus, no long term cumulative impacts would occur. Operation and maintenance of the MFH units would contribute to regional air emissions; however, upon completion of the overall MFH Revitalization Project there will be fewer units on base and these units will be equipped with more efficient heating and air conditioning units, which should result in less cumulative impacts to the region's air shed.

The loss of an additional 2 acres of vegetation that supports bearpoppy and buckwheat would be mitigated through the revegetation efforts described in Section 4.8.1. It is anticipated that the slopes of the detention basins and other disturbed areas would become repopulated with bearpoppy, as this species appears to rapidly recolonize within disturbed areas. The relocation of the MFH units would allow the original 10 acres planned for development to remain as habitat for these species. In addition, the NPS and BLM, as indicated previously, provide protection and management of over 87 percent of the known bear poppy and buckwheat population.

#### **4.13 SUMMARY**

Table 4-2 presents a summary of the impacts anticipated under the Proposed Action and No Action Alternatives.

**Table 4-2. Summary Matrix of Potential Impacts**

Affected Environment	No Action	Proposed Alternative
Land Use	Approximately 10 acres would be permanently converted from undeveloped desert scrub to MFH areas along the western boundary.	Approximately 10 acres would be permanently converted from undeveloped desert scrub to MFH areas; approximately 20 acres of undeveloped desert scrub would be temporarily impacted for the detention basins but would return to open space after completion of the basins
Aesthetics	Temporary impacts would occur during construction. Permanent, insignificant impacts would occur due to construction of MFH units; however, landscaping would ameliorate these effects.	Similar effects as the no action would occur.
Air Quality	Short-term and minor impacts to air quality would occur during construction. Emissions would be less than 1% of the Clark County air emission inventory and far below <i>de minimis</i> thresholds.	Similar effects as the no action would occur.
Noise	Minor temporary increases in noise would occur during construction. Ambient noise levels would return soon after completion of construction. The MFH areas are compatible with AICUZ noise contours.	Similar effects as the no action would occur.
Geology	Minor impacts would occur to local geology due to the construction activities.	Minor impacts would occur to local geology due to the construction activities. Percolation of detained stormwater in the basins could cause local subsidence of gypsum soils and would require monitoring to ensure integrity of the basin berms.
Water Resources	A SWPPP and NOI shall be prepared prior to construction. Minor, temporary impacts to water quality would occur due to construction activities. Stormwater into MFH areas would not be controlled.	A SWPPP and NOI shall be prepared prior to construction. Minor, temporary impacts to water quality would occur due to construction activities. Stormwater flows into the planned and existing MFH areas would be controlled by the proposed detention basins.
Biological Resources	Approximately 10 acres of vegetation and wildlife habitat would be removed. No Federally protected species would be impacted. Impacts to bear poppy and buckwheat would occur due to construction of the MFH units also, the western boundary of Nellis AFB.	Approximately 30 acres of vegetation and wildlife habitat would be removed. About 20 acres within the detention basin would return in the short term after completion of construction. No Federally protected species would be impacted. Approximately 0.1 percent and 1.9 percent of Las Vegas bear poppy and Las Vegas buckwheat (state protected species) known population areas, respectively, would be removed. Bear poppy and buckwheat would be expected to recolonize portions of the detention basin. The relocation of GOQ/SOQ units would preserve 10 acres of habitat containing bear poppy and buckwheat populations.
Socioeconomics	Minor, temporary increases to local employment rates, local incomes, and sales taxes would occur as a result of this project. No long term adverse or beneficial impact would occur. No environmental justice issues are expected.	Similar effects as the no action would occur.
Hazardous Material	No known hazardous materials are located on the parcel. Potential for minor adverse impacts during construction would be minimized with Best Management Practices (BMPs).	Similar effects as the no action would occur.

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***SECTION 5.0***  
***REFERENCES***





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## 5.0 REFERENCES

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***SECTION 6.0***  
***LIST OF PREPARERS***

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**6.0 LIST OF PREPARERS**

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*The following people were primarily responsible for preparing this Supplemental Environmental Assessment.*

<b>Name</b>	<b>Agency/Organization</b>	<b>Discipline/Expertise</b>	<b>Experience</b>	<b>Role In Preparing EA</b>
Chris Ingram	Gulf South Research Corporation	Biology/Ecology	30 years NEPA and related studies	Project Manager
Eric Webb, Ph.D.	Gulf South Research Corporation	Ecology/Wetlands	15 years experience in Natural Resources and NEPA Studies	EA review and field surveys
Howard Nass	Gulf South Research Corporation	Endangered Species and Wildlife	15 years of environmental, natural resource, and NEPA studies	Field surveys
Michael Hodson	Gulf South Research Corporation	Ecology/Botany	5 years botanical surveys and natural resources	Protected species and field surveys
Steve Oivanki	Gulf South Research Corporation	Geology	31 years environmental planning studies	Geology and hazardous waste
David Alford	Gulf South Research Corporation	GIS/Graphics	3 years GIS analysis	GIS and Graphics
Steve Kolian	Gulf South Research Corporation	Water quality	10 years environmental planning studies	Water and air quality
Joanna Cezniak	Gulf South Research Corporation	Wildlife Biology	8 years of natural resources and NEPA studies	Biology, aesthetics and field surveys

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*APPENDIX A*  
*AIR QUALITY CALCULATIONS*

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**Appendix A**  
**Stormwater Retention Basins PM<sub>10</sub> Calculations:**

**FUGITIVE DUST**

**Assumptions:**

Construction projections estimate that it will take 44 days to build 2 stormwater retention basins. It is assumed that entire surface area will be disturbed (20 acres).

Time to build 2 stormwater basins = 44 days  
Total acreage = 20 acres

Fugitive dust emissions were calculated using emission factors from the South Coast Air Quality Management District (SCAQMD), California Environmental Quality Act (CEQA) Air Quality Handbook:

$$\text{Equation: } (220 \text{ lbs PM}_{10}/\text{acre-month}) * (\text{month}/22\text{days}) * (\text{acres graded per day})$$

**Control Measures:**

According to the CEQA Handbook, regular watering exposed surfaces twice a day or frequently enough to maintain 20% soil moisture, decreases emissions by 75 percent.

**Uncontrolled PM<sub>10</sub> Calculation:**

$$(220 \text{ lbs/acre-month}) * (\text{month}/22 \text{ days}) * (20 \text{ acres}) * (44 \text{ days/yr}) * (1 \text{ ton}/2000 \text{ lbs})$$
$$= 4.39 \text{ tons PM}_{10} \text{ per year}$$

**Controlled PM<sub>10</sub> Calculation:**

$$(4.39 \text{ tons}) * (0.25) = 1.09 \text{ tons PM}_{10} \text{ per year}$$

## Stormwater Retention Basin: Combustible Fuel Emissions

### Assumptions:

It is assumed that it will take 44 days to excavate the stormwater retention basin to specifications. Combustion emissions calculations were made for standard construction equipment such as bulldozers, water truck, excavator, front end loaders, backhoe, and dump trucks.

**Emissions from Combustion Engines: Preferred Alternative Storm Water Basin**

Construction Emissions:		Calculation Assumptions				
Construction Equipment	Units	Working Days/yr	Hrs/ day	Horse power	Type of Fuel	Total hp-hr
Dump truck	3	44	12	340	Diesel	538,560
Excavator	1	44	12	463	Diesel	244,464
Bull dozer	3	44	12	324	Diesel	513,216
Highlift front end loader	3	44	12	215	Diesel	340,560
Water truck-fugitive dust	1	44	12	270	Diesel	142,560
Back hoe	1	44	12	92	Gasoline	48,576

Construction Emissions:		Calculation Results for NOx			
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emmissions	Total in tns/yr
Dump truck	0.031	lb/hp-hr	538,560	16,695	8.35
Excavator	0.031	lb/hp-hr	244,464	7,578	3.79
Bull dozer	0.031	lb/hp-hr	513,216	15,910	7.95
Highlift front end loader	0.031	lb/hp-hr	340,560	10,557	5.28
Water truck-fugitive dust	0.031	lb/hp-hr	142,560	4,419	2.21
Back hoe	0.011	lb/hp-hr	48,576	534	0.27
<b>Total Emissions</b>					<b>27.85</b>

Construction Emissions:		Calculation Results for CO			
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emmissions	Total in tns/yr
Dump truck	0.00668	lb/hp-hr	538,560	3,598	1.80
Excavator	0.00668	lb/hp-hr	244,464	1,633	0.82
Bull dozer	0.00668	lb/hp-hr	513,216	3,428	1.71
Highlift front end loader	0.00668	lb/hp-hr	340,560	2,275	1.14
Water truck-fugitive dust	0.00668	lb/hp-hr	142,560	952	0.48
Back hoe	0.439	lb/hp-hr	48,576	21,325	10.66
<b>Total Emissions</b>					<b>16.61</b>

Construction Emissions:		Calculation Results for SOx			
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emmissions	Total in tns/yr
Dump truck	0.00205	lb/hp-hr	538,560	1,104	0.55
Excavator	0.00205	lb/hp-hr	244,464	501	0.25
Bull dozer	0.00205	lb/hp-hr	513,216	1,052	0.53
Highlift front end loader	0.00205	lb/hp-hr	340,560	698	0.35
Water truck-fugitive dust	0.00205	lb/hp-hr	142,560	292	0.15
Back hoe	0.000591	lb/hp-hr	48,576	29	0.01
<b>Total Emissions</b>					<b>1.84</b>

Construction Emissions:		Calculation Results for PM-10			
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emmissions	Total in tns/yr
Dump truck	0.0022	lb/hp-hr	538,560	1,185	0.59
Excavator	0.0022	lb/hp-hr	244,464	538	0.27
Bull dozer	0.0022	lb/hp-hr	513,216	1,129	0.56
Highlift front end loader	0.0022	lb/hp-hr	340,560	749	0.37
Water truck-fugitive dust	0.0022	lb/hp-hr	142,560	314	0.16
Back hoe	0.000721	lb/hp-hr	48,576	35	0.02
<b>Total Emissions</b>					<b>1.97</b>

Construction Emissions:		Calculation Results for VOCs			
Construction Equipment	Emission Factor (1)	Unit	Total hp-hr	Total Emmissions	Total in tns/yr
Dump truck	0.0025141	lb/hp-hr	538,560	1,354	0.68
Excavator	0.0025141	lb/hp-hr	244,464	615	0.31
Bull dozer	0.0025141	lb/hp-hr	513,216	1,290	0.65
Highlift front end loader	0.0025141	lb/hp-hr	340,560	856	0.43
Water truck-fugitive dust	0.0025141	lb/hp-hr	142,560	358	0.18
Back hoe	0.021591	lb/hp-hr	48,576	1,049	0.52
<b>Total Emissions</b>					<b>2.76</b>

1. Source: AP 42, Fifth Edition, Volume 1 Chapter 3: Table 3.3-1

## **MFH Units PM<sub>10</sub> Calculations:**

### **FUGITIVE DUST**

#### **Assumptions:**

Construction projections estimate that it will take 12 months to build 12 MFH units. It is assumed that the entire planning site will be excavated before building starts and excavation will take 30 days. The entire housing project will collectively create a 10.0 acre footprint.

Time to build 12 MFH units = 1 year  
Total acreage = 10.0

Fugitive dust emissions were calculated using emission factors South Coast Air Quality Management District (SCAQMD), California Environmental Quality Act (CEQA) Air Quality Handbook:

$$\text{Equation: } (220 \text{ lbs PM}_{10}/\text{acre-month}) * (\text{month}/22\text{days}) * (\text{acres graded per day})$$

#### **Control Measures:**

According to the CEQA Handbook, regular watering exposed surfaces twice a day or frequently enough to maintain 20% moisture content in soils, decreases PM<sub>10</sub> emissions by 75 percent.

#### **Uncontrolled PM<sub>10</sub> Calculation:**

$$\begin{aligned} & (220 \text{ lbs/acre-month}) * (\text{month}/22 \text{ days}) * (10.0 \text{ acres}) * (250 \text{ days/yr}) * (1 \text{ ton}/2000 \text{ lbs}) \\ & = 12.49 \text{ tons PM}_{10} \text{ per year} \end{aligned}$$

#### **Controlled PM<sub>10</sub> Calculation:**

$$(12.49 \text{ tons}) * (0.25) = 3.12 \text{ tons PM}_{10} \text{ per year}$$

## MFH Units Combustible Fuel Emissions

### Assumptions:

It is assumed that it will take 30 days to level and grade the MFH housing site to specifications. The excavator, dump truck, and water truck will only be required during these 30 days. Construction workers will require the use of a fork lift to assist in construction over the entire year (250 days).

### Calculations:

#### Emissions from Combustion Engines: 12 MFH Units

Construction Emissions:			Calculation Assumptions		
Construction Equipment	Days/yr	Hrs/ day	Horse power	Type of Fuel	Total hp-hr
Dump truck	30	12	340	Diesel	122,400
Excavator	30	12	463	Diesel	166,680
Water truck-fugitive dust	30	12	270	Diesel	97,200
Fork Lift	250	12	40	Gasoline	120,000

Construction Emissions:			Calculation Results for NOx		
Construction Equipment	Emission Factor (1) Unit	Total hp-hr	Total Emmissions	Total in tns/yr	
Dump truck	0.031 lb/hp-hr	122,400	3,794	1.90	
Excavator	0.031 lb/hp-hr	166,680	5,167	2.58	
Water truck-fugitive dust	0.031 lb/hp-hr	97,200	3,013	1.51	
Fork Lift	0.011 lb/hp-hr	120,000	1,320	0.66	
<b>Total Emissions</b>				<b>6.65</b>	

Construction Emissions:			Calculation Results for CO		
Construction Equipment	Emission Factor (1) Unit	Total hp-hr	Total Emmissions	Total in tns/yr	
Dump truck	0.00668 lb/hp-hr	122,400	818	0.41	
Excavator	0.00668 lb/hp-hr	166,680	1,113	0.56	
Water truck-fugitive dust	0.00668 lb/hp-hr	97,200	649	0.32	
Fork Lift	0.439 lb/hp-hr	120,000	52,680	26.34	
<b>Total Emissions</b>				<b>27.63</b>	

Construction Emissions:			Calculation Results for SOx		
Construction Equipment	Emission Factor (1) Unit	Total hp-hr	Total Emmissions	Total in tns/yr	
Dump truck	0.00205 lb/hp-hr	122,400	251	0.13	
Excavator	0.00205 lb/hp-hr	166,680	342	0.17	
Water truck-fugitive dust	0.00205 lb/hp-hr	97,200	199	0.10	
Fork Lift	0.000591 lb/hp-hr	120,000	71	0.04	
<b>Total Emissions</b>				<b>0.43</b>	

Construction Emissions:			Calculation Results for PM <sub>10</sub>		
Construction Equipment	Emission Factor (1) Unit	Total hp-hr	Total Emmissions	Total in tns/yr	
Dump truck	0.0022 lb/hp-hr	122,400	269	0.13	
Excavator	0.0022 lb/hp-hr	166,680	367	0.18	
Water truck-fugitive dust	0.0022 lb/hp-hr	97,200	214	0.11	
Fork Lift	0.000721 lb/hp-hr	120,000	87	0.04	
<b>Total Emissions</b>				<b>0.47</b>	

Construction Emissions:			Calculation Results for VOCs		
Construction Equipment	Emission Factor (1) Unit	Total hp-hr	Total Emmissions	Total in tns/yr	
Dump truck	0.0025141 lb/hp-hr	122,400	308	0.15	
Excavator	0.0025141 lb/hp-hr	166,680	419	0.21	
Water truck-fugitive dust	0.0025141 lb/hp-hr	97,200	244	0.12	
Fork Lift	0.021591 lb/hp-hr	120,000	2,591	1.30	
<b>Total Emissions</b>				<b>1.78</b>	

1. Source: AP 42, Fifth Edition, Volume 1 Chapter 3: Table 3.3-1

*APPENDIX B*  
*DISTRIBUTION LIST*

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APPENDIX B. DISTRIBUTION LIST

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

Ms. Cynthia Martinez Supervisor,  
Southern Nevada Field Office  
US Fish and Wildlife Service  
1340 Financial Boulevard, Suite 234  
Reno, NV 89502

Mayor Michael L. Montandon  
City of North Las Vegas  
2200 Civic Center Drive  
North Las Vegas, NV 89030

Commissioner Rory Reid, Chairperson  
Clark County Commission  
500 Grand Central Parkway  
Las Vegas, NV 89106

Mr. John Mendoza, S. Planner  
Clark County Department of Air Quality  
& Environmental Management  
500 S Grand Central Pkwy  
PO Box 555210  
Las Vegas, NV 89155

Mr. Rob Mrowka,  
Environmental Division Manager  
Clark County Dept of Air Quality &  
Environmental Management  
500 Grand Central Parkway  
PO Box 555210  
Las Vegas, NV 89155-5210

Brad Hardenbrook, Supervisor  
Bureau of Habitat  
Southern Region  
Nevada Department of Wildlife  
4747 Vegas Drive  
Las Vegas, NV 89108

Mr. Rick Washburn MS 29  
Nevada Power Company  
6226 West Sahara Avenue  
Las Vegas, NV 89146  
Peter Trust LP MKB Company  
2300 West Sahara Avenue, Suite 530  
Las Vegas, NV 89102-4368

Mr. David Frear  
Colliers International  
3960 Howard Hughes Parkway,  
Suite 150  
Las Vegas, NV 89109

Mr. Edward A. Rhodes, Sr.  
Union Pacific Railroad  
13181 Crossroads Parkway North,  
Room 500  
City of Industry, CA 91746

Kinder Morgan Energy Partners, LP  
1100 Town & Country Road  
Orange, CA 92868

Clark County Library  
1401 East Flamingo Road  
Las Vegas, NV 89119

Sunrise Library  
5400 Harris Avenue  
Las Vegas, NV, 89110



***APPENDIX C***  
***COMMENTS and RESPONSES***

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KENNY C. GUINN  
Governor

STATE OF NEVADA

ANDREW K. CLINGER  
Director



**DEPARTMENT OF ADMINISTRATION**

209 E. Musser Street, Room 200  
Carson City, Nevada 89701-4298  
(775) 684-0222  
Fax (775) 684-0260  
<http://www.budget.state.nv.us/>

December 5, 2006

Ms Lynn Haarklau  
US Department of Defense  
US Air Force  
Nellis Air force Base  
4430 Grissom Avenue  
Suite 107  
Nellis AFB, NV 89191-7007

Re: SAI NV # E2007-133

Reference:

Project: **Construction of Detention and Family Housing Facilities**

Dear Ms Lynn Haarklau:

Enclosed are comments from the agencies listed below regarding the above referenced document. Please address these comments or concerns in your final decision.


***Division of State Lands***

The following agencies support the above referenced document as written:

***State Historic Preservation Office***

This constitutes the State Clearinghouse review of this proposal as per Executive Order 12372. If you have questions, please contact me at (775) 684-0209.

Sincerely,

  
for Gosia Sylwestrzak  
Nevada State Clearinghouse

Enclosure

**Rebecca Palmer**

11/27

**From:** Clearinghouse [clearinghouse@budget.state.nv.us]  
**Sent:** Wednesday, November 08, 2006 4:27 PM  
**To:** Rebecca Palmer  
**Subject:** E2007-133 Construction of Detention and Family Housing Facilities - Nellis Air force Base

NEVADA STATE CLEARINGHOUSE  
Department of Administration, Budget and Planning Division  
209 East Musser Street, Room 200, Carson City, Nevada 89701-4298  
(775) 684-0209 Fax (775) 684-0260  
DATE: November 8, 2006

State Historic Preservation Office

Nevada SAI # E2007-133  
Project: Construction of Detention and Family Housing Facilities

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.

<http://budget.state.nv.us/clearinghouse/Notice/2007/E2007-133.pdf>

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Monday, December 4, 2006.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference. Questions? Gosia Sylwestrzak, (775) 684-0209 or <mailto:clearinghouse@budget.state.nv.us>.

No comment on this project       Proposal supported as written

AGENCY COMMENTS:

Signature:  Date: 11/28/06

Distribution:  
Sandy Quilici, Department of Conservation & Natural Resources Stephanie Martensen,  
Division of Emergency Management Alan Di Stefano, Economic Development Kathy Dow, Economic  
Development Chad Hastings, Fire Marshal Stan Marshall, State Health Division Skip  
Canfield, AICP, Division of State Lands Michael J. Stewart, Legislative Counsel Bureau  
John Walker, Division of Environmental Protection Anthony Grossman, Department of  
Wildlife, Director's Office Steve Foree, Department of Wildlife, Elko D. Bradford  
Hardenbrook, Department of Wildlife, Las Vegas Robert Martinez, Division of Water  
Resources Nellis Air Force Base Nellis Air Force Base Nellis Air Force Base James D.  
Morefield, Natural Heritage Program Joseph C. Strolin, Agency for Nuclear Projects Steve  
Weaver, Division of State Parks Mark Harris, PE, Public Utilities Commission Pete Konesky,  
State Energy Office Rebecca Palmer, State Historic Preservation Office Alisa Huckle, UNR  
Library Gosia Sylwestrzak, zzClearinghouse Reese Tietje, zzClearinghouse -Reese Maud  
Naroll, zzClearinghouse-Maud Gosia Sylwestrzak, zzClearinghouse -Gosia

The Nevada Division of State Lands supports this proposal.

Skip Canfield, AICP

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

From: Clearinghouse [mailto:clearinghouse@budget.state.nv.us]

Sent: Wednesday, November 08, 2006 4:26 PM

To: Skip Canfield

Subject: E2007-133 Construction of Detention and Family Housing Facilities - Nellis Air force Base

NEVADA STATE CLEARINGHOUSE

Department of Administration, Budget and Planning Division

209 East Musser Street, Room 200, Carson City, Nevada 89701-4298

(775) 684-0209 Fax (775) 684-0260

DATE: November 8, 2006

Division of State Lands

Nevada SAI # E2007-133

Project: Construction of Detention and Family Housing Facilities

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.

<http://budget.state.nv.us/clearinghouse/Notice/2007/E2007-133.pdf>

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Monday, December 4, 2006.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference. Questions? Gosia Sylwestrzak, (775) 684-0209 or <mailto:clearinghouse@budget.state.nv.us>.

No comment on this project  Proposal supported as written

AGENCY COMMENTS:

Signature:

Date:

Distribution:

Sandy Quilici, Department of Conservation & Natural Resources

Stephanie Martensen, Division of Emergency Management

Alan Di Stefano, Economic Development

Kathy Dow, Economic Development

Chad Hastings, Fire Marshal  
Stan Marshall, State Health Division  
Skip Canfield, AICP, Division of State Lands  
Michael J. Stewart, Legislative Counsel Bureau  
John Walker, Division of Environmental Protection  
Anthony Grossman, Department of Wildlife, Director's Office  
Steve Foree, Department of Wildlife, Elko  
D. Bradford Hardenbrook, Department of Wildlife, Las Vegas  
Robert Martinez, Division of Water Resources  
Nellis Air Force Base  
Nellis Air Force Base  
Nellis Air Force Base  
James D. Morefield, Natural Heritage Program  
Joseph C. Strolin, Agency for Nuclear Projects  
Steve Weaver, Division of State Parks  
Mark Harris, PE, Public Utilities Commission  
Pete Konesky, State Energy Office  
Rebecca Palmer, State Historic Preservation Office  
Alisa Huckle, UNR Library  
Gosia Sylwestrzak, zzClearinghouse  
Reese Tietje, zzClearinghouse -Reese  
Maud Naroll, zzClearinghouse-Maud  
Gosia Sylwestrzak, zzClearinghouse -Gosia



# Department of Air Quality & Environmental Management

500 S Grand Central Parkway 1st Fl • Box 555210 • Las Vegas NV 89155-5210  
(702) 455-5942 • Fax (702) 383-9994

Alan Pinkerton, Deputy Director • Lewis Wallenmeyer, Acting Director

December 4, 2006

Ms. Lynn Haarklau  
99 CES/CEV  
4349 Duffer Dr., Suite 1601  
Nellis ADB, NV 89191-7007

RE: Draft Supplemental EA--Construction of Detention Basins and Housing in Area III

Dear Ms. Haarklau:

Thank you for the opportunity to review the draft Supplemental Environmental Assessment – *Construction of Detention Basins and Additional Military Family Housing Units in Area III Nellis Air Force Base, Nevada*.

I provide the following comments in my capacity as the manager of the environmental division for Clark County. I will reference my comments to page numbers in your document.

#### Comments:

- Page 2-1: I appreciate the efforts you state you will make to avoid impacts to the Las Vegas bearpoppy and Las Vegas buckwheat found on the site.
- Page 3-13-14: Your document should acknowledge that the bearpoppy is a 'Covered' species under the Clark County Multiple Species Habitat Conservation Plan; buckwheat is an "Evaluation" species; and the burrowing owl is an "Evaluation" species.
- Page 3-14: We request that you note in the buckwheat section that the populations in Area III constitute about 37% of the total known buckwheat population. You did correctly disclose that the Nellis population of bearpoppy constitutes less than 3% of the total known population.
- Page 4-7: Is it correct to state that, "Only unvegetated ephemeral streams were observed in the proposed construction site" (line 213-14)? The native desert vegetation associated with the ecosystems involved are sparse, widely spaced, and include bearpoppy and buckwheat plants. While the ephemeral streams may appear unvegetated, they are not.

- Page 4-9: In your description of bearpoppy and buckwheat, we request that you note their status under the Clark County Multiple Species Habitat Conservation Plan—see 2<sup>nd</sup> bullet.
- Page 4-10: In your description of mitigation methods for the two plant species (lines 298-319) we request that you specifically state that salvaged buckwheat plants would be used to assist in revegetating the disturbed areas.  
Another mitigation measure I would like to see included would be flagging to avoid plant populations to the maximum extent practicable (page 2-1, line 30) during construction and the presence of a full time on-site monitor to help ensure that impacts to the plant species are minimized.
- Page 4-10, lines 321-327: You note that given the small scale of the project and with the mitigation measures that will be put in place, the impacts to the two plant species would be, “to a less than significant level”.  
We request that you include the analysis and thresholds that lead to your conclusions about its significance.  
A disclosure and analysis of the reasonably foreseeable impacts and cumulative effects from the planned solar farm in Area III that would essentially destroy the remained of the bearpoppy and buckwheat habitat seems relevant and necessary.
- Page 4-11, lines 329-335: You state that, “All federal protocols for relocating any burrowing owls found nesting in the proposed project area would be followed”.  
Protocols on the Fish & Wildlife Service website call for either a burrow check and collapsing of burrows prior to construction before breeding season, or if an owl is nesting, avoiding the entire site until chicks fledge. I know of no successful way to relocate a nesting owl.

I hope these comments are useful to you. If you have any questions on my comments, please call me at 455-3119.

Sincerely,



Rob Mrowka  
Manager, Environmental Division

CC: Lewis Wallenmeyer  
Marci Henson  
Cynthia Martinez, U.S. Fish & Wildlife Service  
John Jones, Nevada Division of Forestry

## **Response to Clark County Department of Air Quality and Environmental Management Comments:**

The U.S. Air Force (USAF) appreciates the Clark County Department of Air Quality and Environmental Management's efforts in reviewing the Supplemental Environmental Assessment (SEA) and providing comments to Nellis Air Force Base (AFB). We understand and appreciate the Department's concerns regarding the Las Vegas bearpoppy (*Arctomecon californica*) and Las Vegas buckwheat (*Eriogonoum corymbosum* var. *nilesii*). The following paragraphs address your specific comments.

Comment on Page 2-1:

Comment noted.

Comment on Pages 3-13 and 3-14:

The SEA has been revised to acknowledge these species' listing under the Multiple Species Habitat Conservation Plan.

Comment on Page 3-14:

We are unaware of how the 37% was calculated and no citations were provided. Furthermore, the Bureau of Land Management (BLM) indicated in their 26 October 2006 Wilderness Management Plan and Environmental Assessment for the Muddy Mountain Wilderness that the Muddy Mountain Wilderness area contained "the largest population of Las Vegas buckwheat..." (page 50). Therefore, we did not revise the SEA to reflect this statement.

Comment on Page 4-7:

Although the drainage basins do contain vegetation, the area that could be considered jurisdictional under the Clean Water Act is the bed and bank of these ephemeral streams to the ordinary high water mark. This is the "unvegetated" portion that is discussed in this section.

Comment on Page 4-9:

The SEA was revised in Section 3.8 to reflect these designations.

Comment on Page 4-10 (lines 298-319):

As indicated in the SEA, Nellis AFB would allow the salvaged plants to be relocated to revegetated areas, or to the conservation area that will be established in Area III, but we do not believe we should stipulate where the relocation will occur. The SEA has been

revised to include the use of a monitor during clearing and grubbing activities and orange construction fencing to minimize impacts to individual specimens.

Comment on Page 4-10 (lines 321-327):

Nellis AFB believes the statements and conclusions presented in the SEA are accurate and justifiable. The justification for these conclusions was based on numerous issues regarding the human and natural environment, including the current conditions of the Las Vegas buckwheat and Las Vegas bearpoppy populations. However, specific to these two species, the determination of a less than significant impact was based on the calculations that less than 0.1 and 1.9 percent of the bearpoppy and buckwheat habitat, respectively, would be impacted and not primarily on studies or current observations that bearpoppy appear to recolonize following disturbance.

Comment on Page 4-11:

The SEA has been revised by deleting the word “nesting.”



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Nevada Fish and Wildlife Office

1340 Financial Blvd., Suite 234

Reno, Nevada 89502

Ph: (775) 861-6300 ~ Fax: (775) 861-6301



December 5, 2006

File No. AF-6

Ms. Lynn Haarklau  
99<sup>th</sup> Civil Engineer Squadron  
Nellis Air Force Base  
4349 Duffer Drive, Suite 1601  
Nellis Air Force Base, Nevada 89191-7007

Dear Ms. Haarklau:

**Subject:** Comments on Supplemental Environmental Assessment for Construction of Detention Basins and Additional Military Family Housing Units in Area III, Clark County, Nevada

The U.S. Fish and Wildlife Service (Service) has reviewed the November 2006 Supplemental Environmental Assessment (SEA) for Construction of Detention Basins and Additional Military Family Housing Units in Area III and re-reviewed the February 2005 Environmental Assessment (EA) for the Military Family Housing Revitalization Project. The Service is responsible for the protection and conservation of Federal trust resources, including threatened and endangered species, migratory birds, and National Wildlife Refuge lands. Our comments are intended to minimize potential adverse impacts that the proposed project may have on trust resources as described in the EA and SEA, and to enhance protection of wildlife habitat. The Service is authorized to comment under the authority, and in accordance with the provisions, of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 et seq.).

The Service is very concerned with impacts to the Las Vegas bearpoppy (*Arctomecon californica*) and Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii*) on Nellis Air Force Base (AFB) Area III. The Service is currently reviewing the Las Vegas buckwheat for potential candidate status. The loss of rare plant habitat within the 450 acre "protected bearpoppy habitat" as Area III is described in the February 2005 EA, is a threat to conservation efforts for both species. The loss of Area III could impair population genetics of the Las Vegas bearpoppy and precipitate the need to pursue Federal protection the Las Vegas buckwheat. The Service position has been made clear to Nellis AFB staff in meetings on July 27, 2006, August 31, 2006, and October 18, 2006, and in correspondence dated June 15, 2006, and October 25, 2006.

### General Comment 1

The analyses for biological resources and cumulative effects presented in the November 2006 draft SEA are flawed and do not reflect discussions and correspondence between the Service and Nellis staff made over the past five months. To remedy this oversight, we recommend you include detailed discussions regarding the reasoning used to reach a finding of no significant effect for sections 4.8, 4.11 and 4.12 in the final SEA. This detailed discussion should include both information presented by the Service and analysis presented by Nellis AFB staff at meetings and in correspondence. In particular, this information should include information describing the known extent and distribution of Las Vegas buckwheat and information presented by Nellis staff regarding future planned uses of Area III, including Phases I and II of the Solar Photovoltaic System and Military Housing.

### General Comment 2

Taken together, the February 2005 EA and the November 2006 draft SEA could affect up to one third of the "450 acre protected bearpoppy habitat" described in the original project. Since March 24, 2004, when the Service provided comments on the original project, our understanding of the status of the Las Vegas buckwheat and Las Vegas bear poppy has changed, as has the importance of Area III for rare plant conservation. The mitigation provided in the February 2005 EA and the mitigation proposed in the November 2006 draft SEA focus on seed collection, topsoil salvage, and relocation. This mitigation is used in both the February 2005 EA and November 2006 draft SEA to arrive at a finding of no significant effect. It is our conclusion these forms of mitigation are no longer adequate to offset impacts resulting from the project. As the November 2006 draft SEA currently stands, the Service does not concur with your finding of no significant effect. We suggest the placement of a permanent conservation easement of the remaining portion of Area III as a more appropriate strategy for conserving the Las Vegas bearpoppy and Las Vegas buckwheat and mitigating impacts to habitat resulting from both the February 2005 EA and the November 2006 draft SEA. We recommend you develop and include a detailed mitigation strategy along this line for offsetting impacts to Las Vegas Bearpoppy and Las Vegas buckwheat habitat in the Final SEA.

### General Comment 3

Given the volume of soil that will need to be moved to create the proposed detention basins and the sensitivity of the adjacent rare plant habitat, we question whether or not the basins can be constructed within the foot print described in Figure 2-1. In the final SEA we recommend you include a discussion and provide supporting documentation provided by the grading contractor detailing that the project can be constructed within the footprint described. We also recommend in the final EA that you include provisions for a biological monitor to be present during construction activity to prevent additional impacts to rare plant habitat.

General Comment 4

The November 2006 draft SEA states “Regional population and military payrolls within the region are not expected to change significantly.” This statement suggests there will be little staff growth at Nellis AFB in the near future. There is currently a surplus of housing in the Las Vegas market that is not likely to be reflected in the original Housing Market Analysis. We recommend the final SEA include a detailed discussion justifying why the housing privatization should proceed under the current market conditions and why this is a prudent investment of Federal resources.

General Comment 5

It is unclear why the General Officers’ Quarters/Senior Officers’ Quarters and detention basins were not included and cannot be accommodated within the footprint described in the February 2005 EA. We recommend in the final SEA purpose and need section you include a detailed discussion relating why an important component like the detention basins was not previously included and your rationale to justify the SEA.

Specific Comments

Finding of No Significant Impact, Section 3. We believe your conclusion that the loss of Las Vegas bearpoppy and buckwheat habitat resulting from the project would be temporary and long-term impacts would not be significant is unsubstantiated by the scientific literature, and based on the uncertain assertion topsoil salvage and translocation will be a successful way to restore Las Vegas bearpoppy and Las Vegas buckwheat habitat. A recent study of bearpoppy and buckwheat habitat by the University of Nevada - Las Vegas in the upper Las Vegas wash suggests it may be difficult to recreate the unique soils environment that supports both species (Drohan *et al.* 2006). The Las Vegas Springs Preserve has only had limited, short-term success with soils translocation from Nellis AFB. It is not clear to us that this strategy will be successful. We believe more appropriate mitigation would be the long-term conservation of the remaining portion of Area III. See General Comment 2 above. In addition, Section 3 misrepresents the ability of Las Vegas bearpoppy and Las Vegas buckwheat to recover from the disturbance proposed in the November 2006 draft SEA. While it is true both species can recover from minor disturbances, we know of no cases in the literature which would support your statement. Please provide citations that support your assertions.

Section 3.8 Lines 333 -359. Nellis AFB possesses detailed rare plant mapping of Area III completed in August 2004. In correspondence dated June 15, 2006, the Service requested this mapping be updated to better reflect the bearpoppy and buckwheat populations following the very favorable 2005 growing season. The November 2006 draft SEA presents the transect data collected in Area III in 2006. Unfortunately a different method was used to collect coverage data; therefore, the 2004 data cannot be compared to the 2006 data presented in the November

2006 draft SEA. Based on your justification that this method was chosen because both species were common and generally distributed throughout the survey area, we conclude the entire Area is occupied by Las Vegas bearpoppy and Las Vegas Buckwheat habitat. This conclusion is consistent with previous analyses of Area III and correspondence between the Service and Nellis AFB. We recommend this conclusion be made clear in the final SEA.

Section 4.0. Your characterization of Area III as “disturbed desert” (line 32), “creosote bush-white bursage community” (line 265) are inaccurate. Area III is better characterized as unique gypsophile plant community which supports rare endemic plant species. The final SEA should be updated to reflect this more accurate description.

Section 4.8 Lines 280-286. The November 2006 draft SEA describes 20 acres of impacts to Las Vegas bearpoppy and Las Vegas buckwheat habitat as a result of the proposed action. This estimate fails to include a discussion of indirect impacts to the remaining surrounding rare plant habitat. Because of the configuration of the detention basins, up to an additional 30 acres of Las Vegas bearpoppy and Las Vegas buckwheat habitat could be adversely affected by the proposed action. In the final SEA we recommend you include a detailed discussion of indirect effects to Las Vegas buckwheat and Las Vegas bearpoppy habitat including but not limited to, habitat fragmentation, loss of Las Vegas bearpoppy pollinators, increased edge effects, increased vulnerability to invasive species and alteration to surface hydrology that would result from the proposed action.

Section 4.8 Lines 280-286. The November 2006 draft SEA describes direct impacts to Las Vegas bearpoppy habitat as 0.1 percent of the known population distribution. Based on the research of Dr. Susan Meyer, the Las Vegas bearpoppy has two distinct phenotypes that display different survival strategies. We believe it is imperative to preserve the underlying genetic diversity of both phenotypes. Most of the western portion of the Las Vegas bearpoppy range has been developed; Area III represents one of the few remaining large populations of the western population. In the final EA we recommend you include a detailed discussion of how the 112 acres of impacts associated with the February 2005 EA and the 20 acres of impacts associated with the November 2006 draft SEA affect the western population of the Las Vegas bearpoppy.

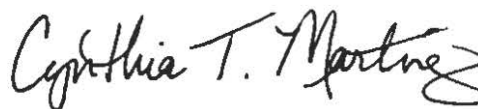
Section 4.8 Lines 280-286. The November 2006 draft SEA describes the loss of 20 acres of Las Vegas buckwheat resulting from the proposed action and characterizes the impacts as 1.9 percent of the known population. This statistic misrepresents the importance of Area III for Las Vegas buckwheat conservation. If both direct and indirect impacts of the SEA are added to 112 acres impacts included in the February 2005 EA, then potentially one third of the 450 acre parcel containing Las Vegas buckwheat described in the February 2005 EA could be adversely affected by the action. Based on information in our files, Area III contains the largest remaining single population of the species anywhere and is one of two populations large enough in the Las Vegas Valley to maintain ecosystem function. We recommend in the final SEA that a detailed


discussion of effects to Las Vegas buckwheat and its habitat be included and the reasoning for the determination of no significant effect. The discussion included in our June 15, 2006, correspondence to Nellis AFB regarding the importance of Area III for the Las Vegas buckwheat may be useful.

Section 4.8 Lines 286-289. The November 2006 draft SEA indicates that impacts to Las Vegas buckwheat would likely be less than stated because the entire range of the Las Vegas buckwheat has not been surveyed and unrecorded populations likely exist in the Las Vegas Valley. This conclusion is not supported by information in our files. The Las Vegas buckwheat and Las Vegas bearpoppy share similar habitat requirements. A 1998 assessment of Las Vegas bearpoppy in the Las Vegas Valley states that most of the populations in the Las Vegas Valley have been developed. In addition at least five significant rare plant surveys funded by the Bureau of Land Management have been conducted on public lands in Southern Nevada since 1995. While not completely exhaustive, these surveys would have identified and mapped both rare species. For this reason, it is our conclusion that there is only a small unlikely possibility additional Las Vegas buckwheat populations may be discovered. It is also our conclusion if new populations are discovered they are not likely to approach the importance of Area III. We recommend that you remove these statements from the final SEA.

Please contact Cynthia Martinez or Fred Edwards in our Southern Nevada Field Office at 702-515-5230, if you have any questions regarding this correspondence, and to coordinate Service involvement with the project.

Sincerely,



 Robert D. Williams  
Field Supervisor

cc:

Administrator, Desert Conservation Program, Air Quality & Environmental Management, Clark County, Las Vegas, Nevada

Regional Forester, Southern Region, Nevada Division of Forestry, Las Vegas, Nevada

State Forester, Nevada Division of Forestry, Carson City, Nevada

Program Manager, Nevada Natural Heritage Program, Carson City, Nevada



## **Response to USFWS Comments:**

The U.S. Air Force (USAF) and Nellis Air Force Base (AFB) have thoroughly considered the USFWS' comments and feel that the conclusions made in the Supplemental Environmental Analysis (SEA) and Finding of No Significant Impact (FONSI) are justified and warrant no additional revisions to the SEA or the preparation of an Environmental Impact Statement. The following paragraphs address your general and specific comments:

General Comment 1: As indicated above, Nellis AFB believes the statements and conclusions presented in the SEA are accurate and justifiable. The justification for the FONSI was based on numerous issues regarding the human and natural environment, including the current conditions of the Las Vegas buckwheat and Las Vegas bearpoppy populations. However, specific to these two species, the determination of a less than significant impact was based on the calculations that less than 0.1 and 1.9 percent of the bearpoppy and buckwheat populations, respectively, would be impacted. Furthermore, the majority of these species' populations occur on other Federal agencies' lands, which have the specific mandate to manage for these species and other natural resources. The Final EA for the Solar Photovoltaic System (August 2006) indicated that neither of these species was observed in the action area proposed for that project as soil type throughout the project area is not gypsiferous, which is necessary for both species. There is currently no plan to expand the solar photo-voltaic system in the immediate future.

General Comment 2: As indicated above, the FONSI was based on several issues. The mitigation measures were identified as means to further minimize impacts. In addition, the action proposed in this SEA would have a net loss of 20 acres compared to the original EA (February 2005), since the military family housing (MFH) units are being relocated. Nonetheless, the commitment to establish a conservation area, as described previously, will provide additional measures to ensure the long-term viability of these species. It is our understanding from the 18 December 2006 and 16 January 2007 meetings that the USFWS agrees with this approach.

General Comment 3: The construction contractor will comply with all restrictive disturbance requirements, as presented in the SEA. Nellis AFB will provide a biological monitor during the initial grubbing and clearing activities, who will instruct the contractor on delineating the boundaries of the project area with orange construction fencing.

General Comment 4: The referenced statement was made as part of an assessment of the proposed action. The proposed action (i.e., construction of two detention basins and relocation of MFH units that were previously proposed but not constructed) will not significantly increase the regional population or military payroll. The purpose and need for the MFH units was presented on page 1-1 of the Draft SEA.

General Comment 5: The reason that the General Officer's Quarters (GOQ) and Senior Officer's Quarters (SOQ) had to be relocated was provided on page 1-2; specifically, the adjacent salvage yards make the original location unsuitable for family housing relative to family safety, noise, and aesthetics. As indicated on page 4-17 of the original EA (February

2005), stormwater retention basins would be necessary to reduce or eliminate flooding in the Manch Manor area. However, as indicated on page 1-1 of the SEA, subsequent engineering and planning designs identified that the best location for detention basins, of sufficient size to protect property damage from 50- and 100-year flooding events, would be north of the Manch Manor area. Hence, a SEA was needed to address the potential effects.

Specific Comments, 1<sup>st</sup> paragraph: Please refer to our responses to General Comments 1 and 2 above regarding the justification for the FONSI and additional conservation measures. The statements made in Section 3 were based on observations of the proposed action area. Citations regarding revegetation of disturbed areas were provided in Section 4 (page 4-10), where the potential impacts of the proposed action were addressed.

Specific Comments, 2<sup>nd</sup> paragraph: The entire 90-acre parcel that was surveyed contained bearpoppy and buckwheat habitat, as discussed in the SEA.

Specific Comments, 3<sup>rd</sup> paragraph: As illustrated in photographs 3-1 and 3-2 in the SEA (page 3-2), the characterization of disturbed desert is indeed accurate. Nellis AFB agrees with your description of a gypsophile plant community; however, it has been disturbed by past dumping, horseback riding, and off-road vehicles.

Specific Comments, 4<sup>th</sup> paragraph: We are not aware of how the USFWS determined that an additional 30 acres would be impacted.

Specific Comments, 5<sup>th</sup> paragraph: We feel the quantification provided is accurate and sufficient. However, the conservation area that Nellis AFB intends to establish would provide additional measures to further reduce impacts on the “western population” of the bearpoppy.

Specific Comments, 6<sup>th</sup> paragraph: Please refer to General Comment No. 2, above. In addition, the Bureau of Land Management (BLM) indicated in their 26 October 2006 Wilderness Management Plan and Environmental Assessment for the Muddy Mountain Wilderness that the Muddy Mountain Wilderness area contained “the largest population of Las Vegas buckwheat...” (page 50).

Specific Comments, 7<sup>th</sup> paragraph: Nellis AFB respectfully disagrees and stands behind the statement that all potential habitat has not been surveyed and that there is a probability that additional unrecorded populations exist. The remainder of the USFWS’s comment supports this statement, although we agree that any new populations might not be as extensive as that found in Area III or on BLM lands.

In addition to the comments above, Nellis AFB understands and appreciates the USFWS concerns regarding the Las Vegas bearpoppy (*Arctomecon californica*) and Las Vegas buckwheat (*Eriogonoum corymbosum* var. *nilesii*). As indicated in our past communications with the USFWS; most recently on 18 December 2006, 3 January and 16 January 2007; Nellis AFB leadership committed to amending its application to the Nevada Department of Forestry (NDF) for a take permit, under which Nellis AFB will enter into a Memorandum of

Agreement to establish a conservation area in Area III to mitigate project impacts (See Attachment, *Take Permit Amendment*). The mitigation measures identified in the NDF take permit will be coordinated with the NDF and the USFWS.





STATE OF NEVADA  
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
**NEVADA DIVISION OF FORESTRY**

2478 Fairview Drive  
Carson City, Nevada 89701-5502  
Phone (775) 684-2500 Fax (775) 687-1159

December 5, 2006

Ms. Lynn Haarklau  
99CES/CEV  
4349 Duffer Drive, Suite 1601  
Nellis AFB, NV 89191-7007

Dear Ms. Haarklau:

Please find the following comments from the Nevada Division of Forestry regarding the "draft Supplemental Environmental Assessment Construction of Detention Basins and Additional Military Family Housing Units in Area III, Nellis Air Force Base, Nevada".

## **GENERAL COMMENTS**

The United States Air Force Supplemental Environmental Assessment (SEA) for the proposed relocation of the construction of 12 housing units and two stormwater detention basins at Nellis Air Force Base concludes that the proposed actions would cause impacts similar to the those previously assessed in the February 2005 Final Environmental Assessment that resulted in a Finding of No Significant Impacts.

The SEA notes that construction of the housing and stormwater detention basins at the new location would disturb additional habitat containing Las Vegas bearpoppy, (a critically endangered state listed species NRS 527; NAC 527.010), and Las Vegas buckwheat, but concludes that because "studies have indicated that the two species will rapidly recolonize in habitat areas that have been disturbed" the "loss of additional habitat would be temporary and long-term impacts would not be significant".

A thorough review of the reference documents specifically related to the Las Vegas buckwheat and Las Vegas bearpoppy cited in the SEA does not support the conclusion that "long-term

impacts would not be significant”. The SEA cites only two Rare Plant Fact Sheets produced by the Nevada Natural Heritage Program and a “Current Knowledge and Conservation Status of *Arctomecon californica* Torrey & Fremont (Papaveraceae), the Las Vegas bearpoppy” by Mistretta, et. al., as references. There are no other studies or publications related to the Las Vegas bearpoppy or Las Vegas buckwheat referenced in the SEA.

Much of the information contained in the “Current Knowledge and Conservation Status of *Arctomecon californica* Torrey & Fremont (Papaveraceae), the Las Vegas bearpoppy” appears to be in direct conflict with the conclusion of the SEA and the Finding of No Significant Impacts.

The document by Mistretta et. al. cites “recent genetic studies that have shown that many populations of *Arctomecon californica* throughout its range contain rare or unique genotypes of unknown but potentially critical importance to the long term survival of the species”. The SEA, while acknowledging that additional Las Vegas bearpoppy plants and habitat would be disturbed, does not address any potential impact to rare or unique genotypes potentially critical to its long-term survival. The SEA cites 2001 Nevada Natural Heritage Program (NNHP) Las Vegas bearpoppy population census data, noting that a relatively low percentage of the known populations would be affected by the proposed project. The SEA does not consider the “declining rapidly” population trend also identified in the NNHP data, nor the potential for other projects in the same vicinity that would push the potential population loss significantly higher. Mistretta et. al., document that where Las Vegas bearpoppy occurs “soils tend to have very low bulk density due to the presence of sponge gypsum, and often have a heavy cover of cryptogams”. The SEA does not address the potential negative impact of the loss of soil bulk density and cryptogams during construction of the stormwater detention basins or the housing units. The loss of cryptogamic soil crusts in particular, represents a potentially significant impact on the Las Vegas bearpoppy that should be addressed in the SEA. Mistretta et. al. noted the species ( Las Vegas bearpoppy) “appears to rely on a large, long lived seed bank in order to achieve local persistence” and that discovery of “a large quantity of seed entrapped within cryptogamic soil crusts... emphasizes the importance of protecting these soils surfaces in order to maintain seed banks”.

The apparent foundation of the Finding of No Significant Impact by the SEA is in the observed response of Las Vegas bearpoppy to disturbance. Mistretta et. al. note that at several sites “*Arctomecon californica* has been observed to colonize and reproduce on recent disturbances such as roadsides and cleared lots”. This observation plays a major role in the SEA conclusion that because “studies have indicated that the two species will rapidly recolonize in habitat areas that have been disturbed” the “loss of additional habitat would be temporary and long-term impacts would not be significant”. While Mistretta et. al. did observe recolonization of disturbed sites by Las Vegas bearpoppy (they did not document “rapid” recolonization), they cautioned that the ability to recolonize on disturbed sites is a trait “of many, if not most, rare plants species in the arid west, and this is often interpreted by some to suggest that the species in question is not threatened by habitat disturbance”; they further stated that this conclusion “usually results from a misunderstanding of plant ecologic responses based on short term observations”. Mistretta et. al. conclude that “while *Arctomecon californica* may be seen thriving for a few generations on disturbed sites, all our observations indicate that its long term survival depends on undisturbed ...soils” and that “permanent losses of populations have been documented where

disturbance has been continuous and severe”. Clearly there is ample scientific evidence in conflict with the Summary of Environmental Resources and Impacts contained in the SEA, enough questions exist that the SEA conclusion that no Environmental Impact Statement is required should be called into question.

Mistretta et. al. in their conservation and recovery strategies for the Las Vegas bearpoppy recommend three sites (populations) that should be protected as “refugia” for the species, including site 52 on Nellis Airforce Base lands. They also recommend the Nevada Division of Forestry should “deny permit requests that do not contain measures to maintain at least a viable portion of the subject population”.

## **SPECIFIC COMMENTS**

### **DRAFT FINDINGS OF NO SIGNIFICANT IMPACT (FONSI)**

3. “Studies have indicated that the two species will rapidly re-colonize in habitat areas that have been disturbed. Thus loss of additional habitat would be temporary and long-term impacts would not be significant.”

Bearpoppy populations from disturbed salvaged soil have not been studied (no fully published document). Previous salvaged soil from Nellis to LVVWD Springs Preserve is a collection of salvaged poppies and salvaged soil (seedbed). After above average precipitation events in 2005, recruitment was documented, but could not be determined whether the new bearpoppy plants were from the flowering salvaged poppies, or the salvaged soil (seedbed). Propagation areas are protected, maintained (irrigated and monitored) areas. No salvaged plants have been successfully transplanted despite a variety of relocation efforts (Federal agency attempts).

There are no studies that indicate that bearpoppy “rapidly re-colonize”, and the use of these terms is misleading, and contrary to scientific data.

Excavation of basins will not just be a disturbance, but the loss of the habitat will be permanent.

### **Section 1.0 PURPOSE AND NEED FOR ACTION**

#### **1.4 Federal, State, and Local Permits, Licenses, and Fees**

This section states the “contractor” is responsible for obtaining all permits. Nellis AFB is responsible for obtaining state permits (NAC 527.250-527.300).

### **SECTION 2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

2.1 Assumes project will begin in JANUARY 2007. The schedule of project activities is understood to be determined by the privatization developer. No disturbance of Las Vegas bearpoppy plants and or habitat may occur until appropriate permits are obtained.

## SECTION 3.0 AFFECTED ENVIRONMENT

### 3.8.2 Sensitive species

The bearpoppy is not just a “sensitive species”, but a State-listed Critically Endangered species. “Although the bearpoppy was ubiquitous throughout most of the survey area...” This statement infers that current mapping of the plant data is inaccurate, while in fact significantly more individuals exist since that GIS map was created.

## 4.2 LAND USE

The excavated detention basins would result in a significantly altered environment that negatively impacts the Las Vegas bearpoppy and its habitat, and not “open rangeland” as natural resource managers use the term.

## 4.8 BIOLOGICAL RESOURCES

The SEA states that as many as **4,878** bear poppy individuals may be impacted by the project. This is a **significant** impact to the Las Vegas bearpoppy, not an “insignificant impact” as stated in the document.

The SEA also states that only 0.1% of the known population of bearpoppy is affected by the project. However, out of 35 sites recently surveyed in the LV Valley, 17 were extirpated. Many sites that are still recorded as habitat have no live plants, thus making the 3,000 plus plants at Nellis a more significant population than would be previously documented. Recruitment is high on the Nellis site, as per the report, and is a strong indication of a healthy, viable population. No bearpoppy population sites on private land are healthy, viable populations, making Nellis site significant for the longevity of the plant, already in a designated endangered status. Because of recent surveys, it is highly possible that the Nellis population is much higher than 0.1%.

## 4.12 CUMULATIVE IMPACTS

The EA does not address indirect and cumulative impacts to vegetation from housing and other identified development projects. There is a high probability that damage from foot traffic, mechanized and non-mechanized vehicles, or equestrian use may occur.

It is overly optimistic to “anticipate” that the detention basins would repopulate with bearpoppy. The statement that BLM and NPS manage 87 percent of known habitat may apply to bearpoppy, but not to Las Vegas buckwheat, 37 percent of which occurs in Area III of the Nellis Air Force Base property.

Also, this is only one of several projects Nellis staff has stated will ultimately be planned in the future that will disturb the entire 370 acre site, such as the photovoltaic energy facility to be expanded later.

The United States Air Force Supplemental Environmental Assessment (SEA) for the proposed relocation of the construction of 12 housing units and two stormwater detention basins at Nellis Airforce Base does not adequately address potential and likely impacts to the Las Vegas bearpoppy, a species on the State of Nevada list of Critically Endangered Species, or the Las Vegas buckwheat, a species proposed for listing.

Sincerely,



Pete Anderson,  
State Forester Firewarden

cc: Allen Biaggi  
Kay Scherer  
Bob Ashworth  
John Jones  
Glenn Clemmer  
James Morefield  
Bob Williams  
Cynthia Martinez  
file

## **Response to Nevada Division of Forestry Comments:**

The U.S. Air Force (USAF) appreciates the Nevada Division of Forestry's (NDF) efforts in reviewing the Supplemental Environmental Assessment (SEA) and providing comments to Nellis Air Force Base (AFB). The USAF and Nellis AFB have thoroughly considered NDF's comments and feel that the conclusions made in the SEA and Finding of No Significant Impact (FONSI) are justified and warrant no additional revisions to the SEA or preparation of an Environmental Impact Statement. The following paragraphs address your general and specific comments.

General Comments (pages 1-3): As indicated above, Nellis AFB believes the statements and conclusions presented in the SEA are accurate and justifiable. The justification for the FONSI was based on numerous issues regarding the human and natural environment, including the current conditions of the Las Vegas buckwheat and Las Vegas bearpoppy populations. However, specific to these two species, the determination of a less than significant impact was based on the calculations that less than 0.1 and 1.9 percent of the bearpoppy and buckwheat habitat, respectively, would be impacted and not primarily on studies or current observations that bearpoppy appear to recolonize following disturbance. Furthermore, the majority of these species' populations occur on other Federal agencies' lands, which agencies have the specific mandate to manage for these species and other natural resources.

In addition, as you note, Mistretta et al. (1996) did report several observations of recolonization of recently disturbed sites. In order to recolonize "*recently disturbed sites*" the recolonization has to be fairly "*rapid.*" Furthermore, the quote that "permanent losses of populations have been documented where disturbance has been continuous and severe" is not applicable to the proposed action. Once the detention basins are constructed, the banks and channels will be allowed to revegetate and continual disturbance would be restricted.

### Specific Comments on Draft FONSI

Please refer to the response to your General Comments, above, regarding rapid recolonization. In addition, the FONSI will be changed to reflect the exact verbiage contained in the EA (i.e., "...as this species appears to rapidly recolonize within disturbed areas.") The salvaged soil efforts at the LVVWD Springs Preserve, which is the same that is proposed in the SEA, also appear to have been successful thus far, regardless of whether the new plants were from salvaged plants or the seedbed.

### Specific Comments on Section 1.4

Comment noted.

### Specific Comments on Section 2.1

Comment noted.

### Specific Comments on Section 3.8.2

Comment noted that the bearpoppy is a State-listed Critically Endangered species. The statement that bearpoppy was ubiquitous infers that it occurred throughout the 90-acre study area.

### Specific Comments on Section 4.2

Under the category of “land use,” this area is considered open rangeland, since that is how it is “used.” It can still be used as open rangeland after the construction of the detention basins.

### Specific Comments on Section 4.8

The quantifications presented in the SEA are based on the most recent literature. The loss of 0.1 percent of the bearpoppy population is considered insignificant. In addition, this loss would be even further minimized by salvaging topsoil and utilizing the topsoil to promote recolonization of the disturbed banks.

### Specific Comments on Section 4.12

As discussed above, Nellis AFB has committed to setting aside a conservation area in Area III for bearpoppy and buckwheat. This measure will substantially reduce or eliminate the foot, horse, and vehicle traffic that currently occurs within Area III.

The SEA does not purport that the detention basins would repopulate; rather, the SEA states that bear poppy would be expected to recolonize the slopes and the perimeter of the detention basins. The SEA also notes that this action would result in a 1.9-percent loss of the known buckwheat habitat. In addition, the Bureau of Land Management (BLM) indicated in their 26 October 2006 Wilderness Management Plan and Environmental Assessment for the Muddy Mountain Wilderness that the Muddy Mountain Wilderness area contained “the largest population of Las Vegas buckwheat...” (page 50).

In addition to the comments above, Nellis AFB understands and appreciates the NDF’s concerns regarding the Las Vegas bearpoppy (*Arctomecon californica*) and Las Vegas buckwheat (*Eriogonoum corymbosum* var. *nilesii*). As indicated in our past communications with your office, most recently on 18 December 2006, 3 January and 16 January 2007, Nellis AFB leadership committed to amending its application to the NDF for a take permit, under which Nellis AFB will enter into a Memorandum of Agreement to establish a conservation area in Area III to mitigate project impacts (See Attachment, *Take Permit Amendment*). The mitigation measures identified in the NDF take permit will be coordinated with the NDF and the United States Fish & Wildlife Service (USFWS).

In sum, Nellis AFB is looking forward to working with both the NDF and the USFWS in mitigating impacts to the remaining Area III Las Vegas Bearpoppy and Las Vegas Buckwheat habitat. It is our hope that the measures identified in the amended take permit will serve as an opportunity to educate Nellis AFB families on the significance of conserving

threatened natural resources, as well as benefit Las Vegas Valley residents by safeguarding a part of the region's natural heritage.

## Take Permit Amendments





DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 99TH AIR BASE WING (ACC)  
NELLIS AIR FORCE BASE, NEVADA

6 FEB 2007

Colonel Michael L. Bartley  
Commander  
4430 Grissom Ave, Ste 101  
Nellis AFB NV 89191-6520

Mr. John Jones  
Regional Forester  
Nevada Division of Forestry  
Southern Region Headquarters  
4747 West Vegas Drive  
Las Vegas, Nevada 89108

Dear Mr. Jones

As per your correspondence dated 15 December 2006 (Attachment 1), Nellis Air Force Base (AFB) is providing the additional information requested by the Nevada Division of Forestry (NDF) for the application for a take permit, as required by NRS § 527.050 and NAC §§ 527.010-527.560, for the disturbance or destruction of a critically endangered species, the Las Vegas Bear Poppy (*Arctomecon californica*). The proposed project area encompasses approximately 30 acres of Department of Defense land in Area III, which was leased to Hunt Construction Group on 1 May 2006 as part of the Military Family Housing (MFH) revitalization project. The remaining rangeland acreage within Area III is solely administered by Nellis AFB, as described in the initial Nellis AFB request for take permit dated 28 November 2006.

Nellis AFB met formally with the NDF and the U.S. Fish & Wildlife Service (USFWS) on 18 Dec 06, and informally on 3 Jan 07 and 16 Jan 07, to further discuss conditions of the take permit. As a result of these meetings, the following 10 agreed upon items will be initiated and implemented by Nellis AFB as conditions of the requested permit:

(1) Formal establishment of a conservation area for the remaining undeveloped areas of Area III (+300 acres), through a Memorandum of Agreement approved by appropriate administrators of Nellis AFB (U.S. Air Force), NDF and the USFWS, within 12 months from the date of the issuance of the take permit. The Memorandum of Agreement will delineate all of the terms, as agreed upon by all three agencies, which will be performed by Nellis AFB in protecting and maintaining the Las Vegas bear poppy in a natural and undeveloped state for as long as it is a state protected species. Additionally, a map delineating the conservation area and its specific acreage will be finalized, agreed upon and attached to the issued take permit.

(2) Reduce the width of construction access routes from 350 feet wide to 60 feet, and to 30 feet if within 100 feet of concentrations of bear poppy plants, as identified by the NDF, to limit the disturbance and impacts from construction activities.

(3) Install temporary fencing (i.e. orange mesh snow fence) around construction footprints and access routes to define and limit construction equipment and personnel to only those areas necessary and avoid unnecessary trampling of habitat.

(4) Provide to all contractors a pre-construction briefing, conducted by a qualified biologist, to educate contractors on the identification of and ecological significance of bear poppy plants, laws protecting them, permit and mitigation requirements and all on-site activity limitations and restrictions during construction.

(5) Provide a qualified biologist, on site daily, during construction activities to monitor work and ensure compliance with restrictions and requirements.

(6) Ensure dust control measures are implemented (i.e. watering access roads and excavation sites) to reduce the impact of dust drifting onto remaining plants, which may interfere with plants' biological functions.

(7) Salvage the upper 2" of topsoil, which may contain important seedbank, from sites to be disturbed. Salvaged topsoil will be replaced later, on construction-disturbed areas within the conservation area, including access routes and around the detention basins, following construction. Replaced topsoil will be spread to a maximum depth of 2".

(8) Salvage Las Vegas bear poppy and buckwheat plants in the path of construction; provide at least two mounted herbarium specimens of both species to the UNLV Herbarium; and transplant buckwheat plants onto construction-disturbed sites within the conservation area, including access routes and around the detention basins; following construction.

(9) Repair the damaged perimeter boundary fence of Area III, ensure the fence is maintained in a secure condition, and provide for the clean up of dumped and windblown debris and trash on the northern and western boundaries.

(10) Limit, define and clearly mark all equestrian and/or hiking trails located in Area III. NDF will participate in the design/location of such trails to avoid damage to plants and habitat. If horses are permitted in the area, NAFB shall require education of riders, require that horses stay on designated trails, and require that only weed-free hay or other feed be fed/used for two days prior to and during the time a horse enters the area, to prevent introduction of invasive weeds. The use of these trails will be reviewed annually to ensure compliance, assess impacts and determine if such use may be terminated, if warranted by adverse impacts.

In addition to the items discussed above, your 15 Dec 06 letter requested specific information concerning contractor education, mitigation, site protection and research and monitoring activities associated with the MFH project. Nellis AFB responses to those specific requests are as follows:

NDF Request 1: *1(d) A statement describing the best management practices and measures that will be used to minimize soil erosion and negative impacts to the surface and air during implementation of the proposed project plan and mitigation activities.*

Nellis AFB Response 1: All on-site supervisory personnel will attend the Clark County Department of Air Quality and Environmental Management Dust Class. All surface soils will

be pre-watered and a stabilized condition maintained where equipment and vehicles will operate; a water and tackifier mixture will be applied during clearing and grubbing; soils will be watered sufficient to form crust immediately following clearing and grubbing; and live perennial vegetation and desert pavement will be maintained wherever possible. A water truck will be used for all watering applications. For more details, see Attachment 2, *Clark County Dust Control Permit for Construction Activities* for the Landings at Nellis AFB, which includes the proposed project area stormwater detention system. A synthetic filter fabric silt fence will be installed around the project area to intercept sediments in disturbed areas during sheet flow events. For more details regarding erosion controls, see Attachment 3, *Privatization of Military Family Housing at Nellis Air Force Base Stormwater Pollution Prevention Plan*.

NDF Request 2: *1(e)(3) Assessment of the effectiveness of the proposed mitigation activities.*

Nellis AFB Response 2: Establishment of a conservation area will preserve and protect the remaining Area III habitat area. The remaining habitat area to the north of the proposed project area contains the most robust specimens and densest population concentrations in the entire habitat area. Reducing the width of construction access routes will lessen impacts to the habitat area. Installation of temporary construction fencing will clearly delineate the boundaries of the project area, which will assist in ensuring that construction activities remain within the project area and minimize impacts to surrounding habitat.

A pre-construction briefing provided by the Nellis AFB Biologist will educate construction personnel regarding the laws and regulations protecting the species, as well as teach personnel to identify the species within the project area. Biological monitoring will further ensure that a minimal number of individual plants are impacted and that all conditions of the permit are met. These measures will allow for maximum salvage of plants within the project area and maximum protection of the remaining habitat.

Implementation of dust and erosion control measures will ensure minimal impacts to the surrounding habitat. The preservation and replacement of topsoil in construction areas would increase the potential for Las Vegas bear poppy re-establishment, while also creating a more favorable buffer area to the core habitat. While efforts to salvage the bear poppy have been largely unsuccessful, continued attempts could add to the understanding of the cultivation of the species, which could ultimately lead to regeneration of the species throughout their historic range.

Repairs to the Area III boundary fence would protect the proposed conservation area from impacts resulting from unauthorized entry onto Nellis AFB property. Trash removal from the area would minimize potential threats to the population from the decomposition of potentially harmful substances and their introduction into micro-habitats, as well as enhance the aesthetic quality of the area. Limiting and monitoring horse trails in the conservation area would have similar effects.

NDF Request 3: *1(e)(4) Assessment of the...potential for erosion and other natural factors affecting proposed mitigation activities.*

Nellis AFB Response 3: The potential for erosion and other natural factors affecting the proposed conservation area north of the project area will remain at current levels. The design and function of the stormwater detention system will considerably reduce erosion in the habitat areas to the west/southwest and east/southeast of the detention ponds.

*NDF Request 4: 1(e)(5) Assessment of the potential for degradation, fragmentation and extirpation of any plant on the list of fully protected species of native flora resulting from implementation of the project.*

Nellis AFB Response 4: While some specimens will be taken due to the proposed action, the project has no potential to degrade, fragment or extirpate any fully protected native flora species. The stormwater detention ponds have been designed to avoid impacts to the Las Vegas bear poppy population to the maximum extent practicable. The function of the proposed stormwater detention system will reduce erosion in the habitat area to the southeast/southwest, which may actually protect tender young seedlings that could be washed away during sheet flow events, thus increasing the current Area III populations.

*NDF Request 5: 1(e)(6)(III) A plan for site protection, including, without limitation, signs and fencing.*

Nellis AFB Response 5: Temporary construction fencing will be installed to completely enclose the construction footprints and access routes. The fencing will prevent unnecessary trampling and disturbance of the surrounding habitat.

*NDF Request 6: 1(e)(6)(IV) A plan for educating employees, contractors, and subcontractors.*

Nellis AFB Response 6: All contractors, sub-contractors, and Nellis AFB personnel involved in the project will attend a pre-construction briefing given by the Nellis AFB Biologist regarding the Las Vegas bear poppy. Species photographs, as well as text handouts, briefly explaining the Nevada Administrative Code regarding fully protected species of native flora, permit and mitigation requirements, and all on-site activity limitations and restrictions, will be distributed. The Biologist will take all project personnel into the project area to show them examples of both immature and adult specimens. The Nellis AFB Biologist will also explain the ecological significance of Las Vegas bear poppy plants in the region, as well as State of Nevada's efforts to protect and preserve the species.

*NDF Request 7: 1(e)(6)(V) The research and monitoring activities that will be conducted.*

Nellis AFB Response 7: A qualified biologist representing Nellis AFB will be on site daily during construction activity to monitor work and ensure compliance with permit restrictions and requirements. After the detention ponds are completed, the Nellis AFB Biologist will visually evaluate, on a semi-annual basis, the success of habitat re-establishment through redistribution of topsoil, and salvaged and transplanted bear poppy on the construction-disturbed site. Site visits will occur twice a year for 5 years. Photographs will be taken of the site from permanent photo points, which will pictorially document the development of the habitat over the 5-year period. The Nellis AFB Biologist will provide

NDF, USFWS and the Nevada Natural Heritage Program copies of the field reports generated after each evaluation.

Since this proposed project is driven by the 2003 Defense Planning Guide issued by the Office of the Secretary of Defense, which mandated revitalization of military family housing, Nellis AFB requests that the State Forester waive the application processing fee required by NAC 527.270 §6(c), "in the public interest."

Sincerely



MICHAEL L. BARTLEY  
Colonel, USAF

3 Attachments:

1. Nevada Division of Forestry Correspondence, 15 Dec 06
2. Clark County Dust Control Permit for Construction Activities for the Landings at Nellis AFB
3. Privatization of Military Family Housing at Nellis AFB Stormwater Pollution Prevention Plan

cc:

State Forester, Nevada Division of Forestry, Carson City, Nevada  
Regional Forester, Southern Region, Nevada Division of Forestry, Las Vegas, Nevada  
Administrator, Desert Conservation Program, Air Quality & Environmental Management, Clark County, Las Vegas, Nevada  
US Fish and Wildlife Service, Nevada Fish and Wildlife Office, Reno, Nevada



ATTACHMENT 1: Nevada Division Of Forestry Correspondence dated 15  
December 2006



PETE ANDERSON  
State Forester Firewarden

KENNY C. GUINN  
Governor

JOHN JONES  
Regional Forester



19 Dec / 13

CV  
CC

CEV

STATE OF NEVADA  
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
**NEVADA DIVISION OF FORESTRY**  
4747 W. Vegas Drive  
Las Vegas, Nevada 89108-2135  
Phone (702) 486-5123 • Fax (702) 486-5186

Pass to  
MSG/CC

MN Hopper  
MUS

December 15, 2006

Colonel Michael L. Bartley  
Commander  
4430 Grissom Ave, Ste 101  
Nellis AFB, NV 89191-6520

Dear Colonel Bartley:

We have received your request for a conditional permit for disturbance or destruction of Las Vegas bearpoppy (*Arctomecon californica*) in Area III. You submitted as your required project plan a copy of the draft Supplemental Environmental Assessment for the proposed project. After reviewing the document, however, we find that certain required information is not adequately addressed. Additional information is needed before we can make a determination on your request.

State Forester Pete Anderson recently sent comments to Ms. Lynn Haarklau at Nellis regarding concerns with the project and mitigation plan in the draft Supplemental EA. Accordingly, more information is needed for the following specific requirements:

NAC 527.280 Application

2(f) A complete plan for the proposed mitigation activities, including, without limitation, proposed off-site mitigation activities of the project

NAC 527.290 Project plan

1(d) A statement describing the best management practices and measures that will be used to minimize soil erosion and negative impacts to the surface and air during implementation of the proposed project plan and mitigation activities

1(e)(3) Assessment of the effectiveness of the proposed mitigation activities

1(e)(4) Assessment of the .....potential for erosion and other natural factors affecting proposed mitigation activities

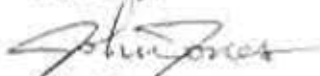
1(e)(5) Assessment of the potential for degradation, fragmentation and extirpation of any plant on the list of fully protected species of native flora resulting from implementation of the project

- 1(e)(6)(III) A plan for site protection, including, without limitation, signs and fencing
- 1(e)(6)(IV) A plan for educating employees, contractors and subcontractors
- 1(e)(6)(V) The research and monitoring activities that will be conducted

A copy of the entire NAC chapter 527 is attached for your reference.

We would be glad to discuss these items further with you and your staff, perhaps at the scheduled December 18 meeting.

Sincerely,



John Jones  
Southern Regional Forester

cc: Pete Anderson  
Bob Ashworth  
Rich Harvey  
Lisa Ortega

ATTACHMENT 2: *Clark County Dust Control Permit for Construction Activities*  
for the Landings at Nellis AFB





4. Point of Contact for dust control matters and to whom a NOTICE OF VIOLATION should be sent if necessary:

Name: John Leidolf Company: Hunt Building Company, Ltd.  
Address: 84 Stafford Drive  
City: Las Vegas State: NV Zip: 89115  
Telephone: (702) 643-7102 Ext: 102 Fax: (702) 643-7809  
Cellular/Pager: (915) 227-5911 After Hours Phone: (702) 649-2009

5. On-site Superintendent/Supervisor/Foreman contact:

Name: Bill Reynolds Company: Hunt Building Company, Ltd.  
On-site phone: (702) 643-7102 Cellular/Pager: (702) 513-7470  
DAQEM Dust Class Certification/Card #: DC 1006071 Expiration date: 10/9/06

Have all other on-site supervisory personnel attended the DAQEM Dust Class?  Yes  No  
If no, all on-site supervisory personnel must attend a DAQEM Dust Class within 30 days.

6. Storm Water Advisory: Be advised that all land disturbances that exceed one (1) acre or which are adjacent to a waterway must submit a "Notice of Intent" to the Nevada Division of Environmental Protection (NDEP) that certifies a Storm Water Pollution Prevention Plan has been developed and is maintained for the site. For information contact NDEP at (775) 687-9429. Applications and instructions are available at [www.ndep.nv.gov/bwpc/storm01.htm](http://www.ndep.nv.gov/bwpc/storm01.htm)

7. By signing this permit application I certify that:

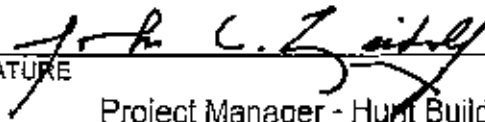
- A. I am authorized, on behalf of the individual or company listed in Section 1, as Applicant/Permittee, to apply for their Dust Control Permit and to commit to all of the terms and conditions of the requested permit.
- B. Construction activities will be limited to lands that the applicant/permittee either owns or is authorized to use for construction activities. The permit issued subsequent to this application is not a substitute for obtaining the property owners permission to use his land. Issuance of a Dust Control Permit is intended only for the purpose of controlling emissions of air pollutants and assuring compliance with Air Quality Regulations. The applicant/permittee agrees to hold harmless, indemnify, and defend Clark County, its employees and assigns from any claims that may arise due to any unauthorized use of land for construction activities.
- C. The permittee accepts responsibility for assuring that all contractors, subcontractors, and all other persons on the construction site covered by this permit, comply with the terms and conditions of the permit, the dust mitigation plan and all applicable Air Quality Regulations.
- D. The applicant/permittee understands that it is a condition of the permit that the permittee agrees to allow the inspection of the site for compliance with the terms and conditions of the permit and Air Quality Regulations at any time during the permittee's hours of operation by a DAQEM officer without prior notice or at any time pursuant to the investigation of a complaint or upon direct observation of emission and/or failure to maintain Best Management Practices.
- E. I understand that any material misrepresentation made in this application may invalidate the permit and that Clark County may pursue enforcement action against me. In addition, I understand any willful misrepresentation may result in criminal penalties. I declare under penalty of perjury that the foregoing is true and correct.

Executed on:

October 26, 2006  
DATE

John C. Leidolf  
PRINTED NAME

SIGNATURE



Project Manager - Hunt Building Co., Ltd.  
TITLE AND COMPANY NAME

Protecting the air we share

# Air Quality

## DUST MITIGATION PLAN FOR ALL PROJECTS

Project Name: The Landings At Nellis AFB - 517 Privatized Housing Units

Permittee Name: Hunt Building Company, Ltd.

Identify the Project Soil "Particulate Emission Potential" (check all that apply):

Using silt and optimum moisture content to determine the particulate emission potential (PEP) is the preferred method.

PEP determined using generalized PEP determination maps included in the Dust Control Handbook.

PEP determined using silt vs. optimum moisture table in Figure 2 of the Dust Control Handbook.

Percentage of silt through a #200 sieve: 58.1% Optimum moisture content: 11.9%

PEP for this project is determined to be:

High  Moderate High  Moderate Low  Low

Water source:  Hydrant with Jones Valve  Fire hose  Water trucks/pulls  Well  
 Stand tanks  Ponds  Other: \_\_\_\_\_

### PROJECT ACTIVITIES CHECKLIST

Instructions:

Place a check mark in the box to the right of each Project Activity that will occur on your project. If additional soil disturbing activities that are not on the checklist are to be included in the project, list them on a separate page and provide a description. For a more complete description of the listed activities, see the Control Measures Selection Pages (Form DCP03) that follow or refer to the Best Management Practices for dust control in the Dust Control Handbook.

**BMP 10 Disturbed Soil and BMP 20 Trackout Prevention and Cleanup must be marked for every Dust Mitigation Plan.**

### CONTROL MEASURES SELECTION PAGES

Instructions:

For each project activity that you have selected on the Project Activities Checklist you must include the corresponding Control Measures Selection Page. Read and understand each item listed as a "Requirement" on these included pages. Where control measure options are listed, place a check in the box in front of the control measure you will use to meet that requirement. You must select at least one control measure where a choice is listed. In addition you must select the control measure that corresponds to your PEP as listed above, if applicable.

**NOTE: PROJECTS 10 ACRES AND LARGER MUST COMPLETE A SUPPLEMENT TO THE DUST MITIGATION PLAN (APPENDIX B-1 AND B-2).**

## PROJECT ACTIVITIES CHECKLIST

Project Name: The Landings At Nellis AFB - 817 Privatized Housing Units

Permittee Name: Hunt Building Company, Ltd.

PLACE A CHECK MARK NEXT TO EVERY ACTIVITY THAT WILL BE CONDUCTED ON THIS SITE, FOR EACH CHECKED ACTIVITY COMPLETE THE CORRESPONDING CONTROL MEASURES SELECTION PAGE AND INCLUDE WITH APPLICATION.

SMP	Project Activity	Check All That Apply
01	Backfilling Filling area previously excavated or trenched.	<input checked="" type="checkbox"/>
02	Blasting - Abrasive Sandblasting and/or abrasive blasting.	<input type="checkbox"/>
03	Blasting Soil & Rock Explosive blasting of soil and rock.	<input type="checkbox"/>
04	Clearing & Grubbing Clearing and grubbing for site preparation and weight load cleanup.	<input checked="" type="checkbox"/>
05	Clearing Forms, Foundations and Slabs Cleaning and cleaning of forms, foundations and slabs prior to pouring concrete.	<input checked="" type="checkbox"/>
06	Crushing Crushing of construction and demolition debris, rock and soil.	<input checked="" type="checkbox"/>
07	Cut and/or Fill Cut and/or fill soils for site grade preparation.	<input checked="" type="checkbox"/>
08	Demolition - Implosion Implosive demolition of a structure, using explosives.	<input type="checkbox"/>
09	Demolition - Mechanical/Manual Mechanical and manual demolition of walls, slabs, concrete, freestanding structures, buildings, load-bearing walls and/or removal of transit pipe.	<input checked="" type="checkbox"/>
10	Disturbed Soil <b>THIS ACTIVITY MUST BE SELECTED FOR ALL PROJECTS</b> Disturbed soil throughout project including between structures.	<input checked="" type="checkbox"/>
11	Disturbed Land - Long Term Stabilization Large tracts of disturbed land that will not have continuing activity for more than 30 days.	<input checked="" type="checkbox"/>
12	Dust Suppressants - Selection and Use Selection and use of chemical and organic dust suppressing agents and other dust palliatives.	<input checked="" type="checkbox"/>
13	Importing/Exporting Materials Importing or exporting of soil, aggregate, decorative rock, debris, Type II and other bulk material.	<input checked="" type="checkbox"/>
14	Landscaping Installation of sod, decorative rock, desert or other landscape material.	<input checked="" type="checkbox"/>
15	Paving/Subgrade Preparation Subgrade preparation for paving streets, parking lots, etc.	<input checked="" type="checkbox"/>
16	Sawing/Cutting Material Sawing or cutting materials such as concrete, asphalt, block or pipe.	<input checked="" type="checkbox"/>
17	Screening Screening of rock, soil or construction debris.	<input checked="" type="checkbox"/>
18	Staging Areas Staging areas, equipment storage, vehicle parking lots, and material storage areas.	<input checked="" type="checkbox"/>
19	Stockpiles Stockpiling of materials, such as Type II, other soils, rock or debris, for future use or export.	<input checked="" type="checkbox"/>
20	Trackout Prevention and Cleanup <b>THIS ACTIVITY MUST BE SELECTED FOR ALL PROJECTS</b> Prevention and cleanup of mud, silt and soil tracked out onto paved roads.	<input checked="" type="checkbox"/>
21	Traffic - Unpaved Routes and Parking Construction related traffic on unpaved interior and/or access roads and unpaved employee/worker parking areas.	<input checked="" type="checkbox"/>
22	Trenching Trenching with track or wheel mounted excavator, shovel, backhoe or trencher.	<input checked="" type="checkbox"/>
23	Truck Loading Loading trucks with materials including construction and demolition debris, rock and soil.	<input checked="" type="checkbox"/>

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**BACKFILLING**

**BMP 01**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Stabilize backfill material when not actively handling.**

- 01-1 Water backfill material to maintain moisture or to form crust when not actively handling.
- 01-2 Apply and maintain a dust palliative to backfill material to form crust when not actively handling.
- 01-3 Cover or enclose backfill material when not actively handling.

**Requirement: Stabilize backfill material during handling.**

- 01-4 Empty loader bucket slowly and minimize drop height from loader bucket.
- 01-5 Dedicate water truck or large hose to backfilling equipment and apply water as needed.

**Note: Select at least one of the above; in addition the appropriate control measure for your soil type must be selected from the following.**

- 01-6 **L:** Mix moist soil with dry soil until the optimum moisture is reached.
- 01-7 **ML:** Apply and mix water into the backfill material until optimum moisture is reached.
- 01-8 **MH:** Apply and mix water and tackifier solution into the backfill material until optimum moisture is reached.
- 01-9 **H:** Apply and mix water and surfactant solution into the backfill material until optimum moisture is reached.

**Requirement: Stabilize soil at completion of backfilling activity.**

- 01-10 Apply water and maintain disturbed soils in a stable condition until permanent stabilization is complete.
- 01-11 Apply and maintain a dust palliative on disturbed soils to form a crust following backfilling activity.

**Requirement: Stabilize material while using pipe padder equipment.**

- 01-12 Mix moist soil with dry soil until the optimum moisture is reached.
- 01-13 Dedicate water truck or large hose to equipment and apply water as needed.

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**CLEARING AND GRUBBING**

**BMP 04**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Stabilize surface soils where support equipment and vehicles will operate.**

- 04-1 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
- 04-2 Apply and maintain a dust palliative on surface soils where support equipment and vehicles will operate.

**Requirement: Stabilize soil during clearing and grubbing activities.**

- 04-3 L & ML: Apply water during clearing and grubbing activities.
- 04-4 MH: Apply water and tackifier mixture during clearing and grubbing activities.
- 04-5 H: Apply water and surfactant mixture during clearing and grubbing activities.

**Requirement: Stabilize disturbed soil immediately after clearing and grubbing activities.**

- 04-6 Water disturbed soils to form crust immediately following clearing and grubbing activities.
- 04-7 Apply and maintain a dust palliative on disturbed soils to form crust immediately following clearing and grubbing activities.

**Recommendations: Maintain live perennial vegetation and desert pavement where possible.**

See also: BMP 11: DISTURBED LAND -- Long-Term Stabilization, if no continuing activity will occur within 30 days.

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**CLEARING FORMS, FOUNDATIONS AND SLABS**

BMP 05

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Limit visible emissions to no more than an average of 20% opacity for any period aggregating 3 minutes in any 60-minute period pursuant to Air Quality Regulations.**

- 05-1 Use single stage pours, unless prohibited by engineering design or building code, to minimize clearing.

**Note: At least one of the following must be selected.**

- 05-2 Use water spray to clear forms, foundations and slabs.
- 05-3 Use sweeping and water spray to clear forms, foundations and slabs.
- 05-4 Use industrial vacuum to clear forms, foundations and slabs prior to the use of high pressure air to blow soil and debris.
- 05-5 Use industrial vacuum to clear forms, foundations and slabs.

**Recommendations: Verify Building Code Restrictions for use of water on slabs.**

**Avoid use of high pressure air to blow soil and debris from forms, foundations and slabs.**

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 617 Privatized Housing Units

**CRUSHING**

**BMP 06**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Obtain the appropriate Operating Permit for powered crushers prior to engaging in crushing activity. Comply with permit conditions.**

**Requirement: Stabilize surface soils where support equipment and vehicles will operate.**

- 06-1 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
- 06-2 Apply and maintain a dust palliative to surface soils where support equipment and vehicles will operate.

**Requirement: Stabilize material before crushing.**

- 06-3 Pre-water material prior to loading into crusher.
- 06-4 Test material to determine moisture content and silt loading, crush only material that is at optimum moisture content.

**Requirement: Stabilize material during crushing.**

- 06-5 Apply water to stabilize material so as to remain in compliance with opacity standards and permit conditions, during crushing.
- 06-6 Monitor emissions opacity. Make adjustments to remain in compliance with opacity standards and permit conditions.

**Requirement: Stabilize material after crushing.**

- 06-7 Water crushed material to form crust immediately following crushing.
- 06-8 Apply and maintain a dust palliative to crushed material.

See also: BMP 19, STOCKPILING

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**CUT AND FILL**

**BMP 07**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Stabilize surface soils where support equipment and vehicles will operate.**

- 07-1 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
- 07-2 Apply and maintain a dust palliative to surface soils where support equipment and vehicles will operate.

**Requirement: Pre-water soils.**

- 07-3 Dig a test hole to depth of cut or equipment penetration to determine if soils are moist at depth. Continue to pre-water if not moist to depth of cut.
- 07-4 L & ML: Pre-water with sprinklers or wobblers to allow time for penetration.
- 07-5 L & ML: Pre-water with water trucks or water pulls to allow time for penetration.
- 07-6 MH: Pre-water with a water and tackifier mixture using sprinklers or wobblers to allow time for penetration.
- 07-7 MH: Pre-water with a water and tackifier mixture using water trucks or water pulls to allow time for penetration.
- 07-8 H: Pre-water with a water and surfactant mixture using sprinklers or wobblers to allow time for penetration.
- 07-9 H: Pre-water with a water and surfactant mixture using water trucks or water pulls to allow time for penetration.

**Requirement: Stabilize soil during cut activities.**

- 07-10 Apply water, using water truck or water pull, to depth of cut prior to subsequent cuts.
- 07-11 No cut activities fill only.

**Requirement: Stabilize soil after cut and fill activities.**

- 07-12 Water disturbed soils to form crust following fill and compaction.
- 07-13 Apply and maintain a dust palliative on disturbed soils to form crust following fill and compaction.

**See also:** BMP 11: DISTURBED LAND – Long-Term Stabilization if no continuing activity will occur within 30 days.

**DEMOLITION - Mechanical/Manual**

BMP 09

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement:** For renovation or demolition of a structure, a Demolition Supplemental form (see Appendix A) must be filled out, submitted and approved by the Control Officer prior to commencing demolition.

**Requirement:** An asbestos survey must be conducted on any facility or structure that is subject to NESHAP requirements before demolition can commence.

**Requirement:** A complete Clark County NESHAP Notification form must be submitted to the DAQEM at least ten working days prior to demolition. The asbestos survey must be attached to this notification.

**Requirement:** Stabilize surface soils where support equipment and vehicles will operate.

- 09-1 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
- 09-2 Apply and maintain a dust palliative to surface soils where support equipment and vehicles will operate.
- 09-3 Area where support equipment and vehicles will operate is completely covered with paving or concrete.

**Requirement:** Stabilize demolition debris during handling.

- 09-4 Apply water to demolition debris during handling.

**Requirement:** Stabilize debris following demolition.

- 09-5 Apply water to stabilize demolition debris.
- 09-6 Apply a dust palliative to stabilize demolition debris.

**Requirement:** Stabilize surrounding area following demolition.

- 09-7 Apply water to stabilize surrounding area following demolition.
- 09-8 Apply and maintain a dust palliative to stabilize surrounding area following demolition.

See also: BMP 23: TRUCK LOADING.

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**DISTURBED SOIL**

**BMP 10**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: For each non-linear project to be permitted for 5 acres or less; install perimeter wind barrier 3 feet or more in height made of material with a porosity of 50% or less.**

**Requirement: Limit vehicle traffic and disturbance of soils where possible.**

- 10-1 Limit vehicle traffic and disturbance of soils with the use of fencing, barriers, barricades, and/or wind barriers.

**Requirement: Stabilize and maintain stability of all disturbed soil throughout construction site.**

**Note: You must choose one or more of the following.**

- 10-2 Apply water to stabilize disturbed soils. Soils must be kept in a sufficiently damp, crusted or covered condition.
- 10-3 Apply and maintain a dust palliative based on soil type and future plans.

**Requirement: Soil conditions, including preventive and corrective measures, must be recorded every day the construction project is active.**

- 10-4 Record soil conditions and dust control actions in daily project records.

**Recommendations: If interior block walls are planned, install as early in the construction as possible.**

**See also: BMP 11: DISTURBED LAND – Long-Term Stabilization, if no continuing activity will occur within 30 days.**

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**DISTURBED LAND – Long-Term Stabilization**

**BMP 11**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Stabilize soil to meet standards required by Air Quality  
Regulation Section 90.**

- 11-1 Apply and maintain a dust palliative on disturbed soils for long-term stabilization.
- 11-2 Stabilize disturbed soil with vegetation for long-term stabilization.
- 11-3 Pave or apply surface rock for long-term stabilization.
- 11-4 Use wind breaks in accordance with a site-specific plan approved by the Control Officer and Region IX Administrator of the EPA.
- 11-5 Apply water and maintain soils in a visible damp or crusted condition for temporary stabilization.

**Requirement: Prevent access to limit soil disturbance.**

- 11-6 Prevent access by fencing, ditches, vegetation, berms or other suitable barrier or means approved by the Control Officer.

**Recommendations: Plant perimeter vegetation early. Use of native and drought-tolerant plants with greater than 50 % silhouette area is encouraged.**

**See also: BMP 12: DUST SUPPRESSANT, DUST PALLIATIVE AND SURFACTANT – Selection and Use.**

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**DUST PALLIATIVE – Selection and Use**

**BMP 12**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Follow AQD "Interim Policy on Dust Palliatives Use In Clark County, Nevada".**

**Requirement: Record use of suppressants and dust palliatives and retain records.**

**Requirement: Follow applicable federal and state regulations.**

**Requirement: Select method of long-term stabilization taking into consideration future land use.**

- 12-1 For traffic area applications use Table 1: Traffic Area Application Requirements, Appropriate Use of Liquid Dust Palliatives and Application Rates, from the Interim Policy on Dust Palliatives Use In Clark County, Nevada.
- 12-2 For non-traffic area applications use Table 2: Non-Traffic Area Application Requirements, Appropriate Use of Liquid Dust Palliatives and Application Rates, from the Interim Policy on Dust Palliatives Use In Clark County, Nevada.

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - B17 Privatized Housing Units

**IMPORTING/EXPORTING SOIL, ROCK AND OTHER BULK MATERIAL**

BMP 13

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Limit visible dust opacity from vehicular operations.**

- 13-1 Apply water and limit vehicle speeds to 15 mph on the work site.
- 13-2 Apply and maintain dust suppressant on haul routes.

**Requirement: Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage.**

**Requirement: Maintain 3-6 inches of freeboard to minimize spillage.**

**Requirement: Stabilize materials during transport on site.**

- 13-3 Use tarps or other suitable enclosures on haul trucks.
- 13-4 Stabilize materials with water.

**Requirement: Clean wheels and undercarriage of haul trucks prior to leaving construction site.**

**Recommendations: Verify State and local laws, concerning the hauling of bulk materials on public roadways.**

**See also: BMP 20: TRACKOUT PREVENTION AND CLEANUP.  
BMP 23: TRUCK LOADING.**

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**LANDSCAPING**

**BMP 14**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Stabilize soils, materials and slopes during handling.**

- 14-1 **L & ML:** Apply water prior to leveling or any other earth moving activity to keep the soil moist throughout the process.
- 14-2 **MH:** Apply a water and tackifier mixture prior to leveling or any other earth moving activity to keep the soil moist throughout the process.
- 14-3 **H:** Apply a water and surfactant mixture prior to leveling or any other earth moving activity to keep the soil moist throughout the process.

**Requirement: Stabilize soils, materials and slopes at completion of activity.**

- 14-4 Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slope.
- 14-5 Apply water and maintain sloping surfaces in a crusted condition.
- 14-6 Maintain effective cover over materials.

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**PAVING/SUBGRADE PREPARATION**

**BMP 15**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Stabilize soils prior to activities.**

- 15-1 Pre-water subgrade surface until optimum moisture content is reached and maintained.

**Requirement: Stabilize soils during activities.**

- 15-2 Maintain at least 70% of optimum moisture content for Type II material while aggregate is being applied.

**Requirement: Stabilize soils following activities.**

- 15-3 Place tack coat on Type II aggregate base immediately after it is applied.
- 15-4 Apply water to Type II aggregate base immediately after it is applied.

**Requirement: Stabilize adjacent disturbed soils following paving activities.**

- 15-5 Stabilize adjacent disturbed soils following paving activities by crusting with water.
- 15-6 Stabilize adjacent disturbed soils following paving activities by applying a dust palliative.
- 15-7 Stabilize adjacent disturbed soils following paving activities with immediate landscaping activity or installation of vegetative or rock cover.
- 15-8 There are no soils adjacent to paving activities.

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**SAWING/CUTTING MATERIALS**

BMP 16

YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.

Requirement: Limit visible emissions to no more than an average of 20% opacity, pursuant to Air Quality Regulations.

- 16-1 Use water to control dust when cutting materials.
- 16-2 Use a vacuum to collect dust when cutting materials.

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**SCREENING**

**BMP 17**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: If using a powered screen, obtain the appropriate Operating Permit for powered screens prior to engaging in screening activity. Comply with permit conditions.**

**Requirement: Drop material through the screen slowly and minimize drop height.**

**Requirement: Stabilize surface soils where support equipment and vehicles will operate.**

- 17-1 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
- 17-2 Apply and maintain a dust palliative on surface soils where support equipment and vehicles will operate.

**Requirement: Pre-treat material prior to screening.**

- 17-3 Apply sufficient water to obtain at least 70% optimum moisture in material prior to screening.
- 17-4 Apply a dust suppressant to material prior to screening.

**Requirement: Stabilize material during screening.**

- 17-5 Dedicate water truck or large hose to screening operation and apply water as needed to prevent dust.
- 17-6 Apply water to material as it is being dropped through the screen.
- 17-7 Install wind barrier upwind of screen as high as the screen drop point and made of material with a porosity of 50% or less.

**Requirement: Stabilize material and surrounding area immediately after screening.**

- 17-8 Apply water to stabilize screened material and surrounding area after screening.
- 17-9 Apply and maintain a dust palliative to stabilize screened material and surrounding area after screening.

See also: BMP 19: STOCKPILING

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 317 Privatized Housing Units

**STAGING AREAS**

**BMP 18**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: Limit visible dust opacity from vehicular operations.**

- 18-1 Limit vehicle speeds to 15 mph in the staging area and on all unpaved access routes.
- 18-2 Apply and maintain dust suppressant on all vehicle traffic areas in the staging areas and unpaved access routes.

**Requirement: Stabilize staging area soils during use.**

- 18-3 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
- 18-4 Apply and maintain a dust palliative to surface soils where support equipment and vehicles will be operated.

**Requirement: Stabilize staging area soils at project completion.**

- 18-5 Apply a dust palliative.
- 18-6 Apply screened or washed Type II aggregate.
- 18-7 Use wind breaks in accordance with a site-specific plan approved by the Control Officer and Region IX Administrator of the EPA.
- 18-8 Pave with thin paving.
- 18-9 Completed project will cover staging area with buildings, paving, and/or landscaping.
- 18-10 Apply water to form adequate crust and prevent access.

Recommendations: Limit size of staging areas.

Limit ingress and egress points.

See also: BMP 20: TRACKOUT PREVENTION AND CLEANUP

CONTROL MEASURES SELECTION PAGES

The Landings At Nellis AFB - 817 Privatized Housing Units

**STOCKPILING**

**BMP 19**

**YOU MUST SELECT AT LEAST ONE CONTROL MEASURE FOR EACH REQUIREMENT.  
PLACE A CHECK IN THE BOX IN FRONT OF YOUR SELECTION.**

**Requirement: To the extent possible, maintain stockpile to avoid steep sides or faces.**

**Requirement: Stockpile location and height must be maintained pursuant to Air Quality Regulations. Stockpiles located within 100 yards of occupied buildings must not be constructed over 8 feet in height.**

- 19-1 Stockpiles will not be constructed over 8 feet in height.
- 19-2 Stockpiles will be constructed over 8 feet high and must have a road bladed to the top to allow water truck access or must have a sprinkler irrigation system installed, used and maintained

**Requirement: Stabilize surface soils where support equipment and vehicles will operate.**

- 19-3 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
- 19-4 Apply and maintain a dust palliative on surface soils where support equipment and vehicles will operate.

**Requirement: Stabilize stockpile materials during handling.**

- 19-5 Maintain stockpile materials with at least 70% optimum moisture content.
- 19-6 Remove material from the downwind side of the stockpile, when safe to do so.

**Note: Select at least one of the above; in addition the appropriate control measure for your soil type must be selected from the following.**

- 19-7 **L & ML:** Apply water during stacking, loading and unloading operations.
- 19-8 **MH:** Apply a water and tackifier mixture during stacking, loading and unloading operations.
- 19-9 **H:** Apply a water and surfactant mixture during stacking, loading and unloading operations.

(Continued on next page)

CONTROL MEASURES SELECTION PAGES

**Requirement: Stabilize stockpiles at completion of activity.**

- 19-10 Water stockpiles to form a crust immediately at the completion of activity.
- 19-11 Apply and maintain a dust palliative to all outer surfaces of the stockpiles.
- 19-12 Provide and maintain wind barriers on 3 sides of the pile, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and made of material with a porosity of 50% or less.
- 19-13 Apply a cover or screen to stockpiles.



*ATTACHMENT 3: Privatization of Military Family Housing at Nellis Air Force Base Stormwater Pollution Prevention Plan*



**PRIVITIZATION OF MILITARY FAMILY HOUSING  
AT NELLIS AIR FORCE BASE**

Clark County, Nevada

Storm Water Pollution Prevention Plan  
Narrative and Specifications  
**The Landings at Nellis AFB Site**

November 2, 2006

Prepared for:

**Hunt Building Company, LTD.**  
Nellis AFB, Nevada

Prepared by:

**Briggs Engineering, Inc.**  
1800 Overland Road  
Boise, Idaho 83705  
208.344.9700



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**STORM WATER POLLUTION PREVENTION PLAN**  
**NARRATIVE FOR**  
**Nellis Air Force Base, Nevada**  
Privitization of Military Family Housing  
November 2, 2006

**STORM WATER POLLUTION PREVENTION**

**Section 1.0 – General Notes**

1. A Notice of Intent (NOI) shall be submitted at least 2 days prior to commencement of construction activity to the Nevada Division of Environmental Protection (NDEP). Failure to do so constitutes a violation of the approved Sediment and Storm Water Management plan.
2. Review and or approval of the Sediment and Storm Water Management plan shall not relieve the Contractor from his or her responsibilities for compliance with the requirements of the Sediment and Storm Water regulations, nor shall it relieve the Contractor from errors or omissions in the approved plan.
3. If the approved plan needs to be modified, additional sediment and storm water control measures may be required as deemed necessary by the DNREC.
4. Permittee Name: Hunt Building Company, LTD.  
Site Location: Nellis Air Force Base  
Point of Contact: John Leidolf - (915) 227-5911
5. A notice of permit coverage sign shall be posted near the main construction site entrance.
6. No solid materials including building materials shall be discharged to waters of the United States, except as authorized by a permit issued under Section 404 of the C.W.A.

**Section 2.0 – Site Information**

1. The site is located within Nellis Air Force Base, Clark County, Nevada. (See vicinity map for location of site within Base)
2. For soils information, refer to the Government Soils Report in the project R.F.P.
3. Existing runoff water quality – No storm water runoff from the site has been analyzed for the presence of any pollutant.
4. Location of surface water – There are no surface waters on site.

5. Runoff from offsite areas north of the site shall be stored in two newly constructed detention ponds. Drainage for the entire developed site flows to the south at an average slope of 1% - 1 ½%. Onsite runoff shall be drained by a newly constructed underground storm drain system and shall outfall into existing underground and surface drainage systems that are a part of the Range Wash Facility. These existing drainage facilities are of adequate size so that water quantity management will not be provided.
6. This site is a previously developed site and shall require demolition of existing structures for construction of a family residential development. The entire site shall be re-graded for construction of a new street network, including utilities and storm drainage facilities. Runoff from these activities shall be directed into sediment traps or silt fences.
7. Total disturbed areas = 310 acres  
Total project area = 349 acres.
8. Runoff coefficient (post development):
  - 0.55 (estimated, based on 50% impervious (C=0.9) and 50% landscaped (C=0.2) areas.
9. Construction dates:
  - Start: 08/01/2006
  - Completion: 08/01/2010

Note: Construction shall be completed in four (4) phases. (See plans for delineation of phases)

### **Section 3.0 – Description of Sediment Controls**

1. Silt Fence – A temporary sediment barrier of synthetic filter fabric stretched across supporting posts and entrenched. Its purpose is to intercept sediment from sheet flow off disturbed areas.
2. Inlet Protection – A sediment filter of sandbags and filter fabric (silt sock) used to prevent sediment from entering storm drainage systems prior to permanent stabilization.
3. Temporary or Permanent Stabilization – The establishment of a temporary or permanent vegetative cover on disturbed areas by planting seed. Rapidly growing annual plants should be used in temporary seeding and grasses or legumes should be used in permanent seeding. This is an economical method of reducing erosion and sediment yield over a large area.
4. Stone Construction Entrance – A stabilized stone pad with filter fabric underliner located at points of vehicular access to a construction site. Its purpose is to reduce the amount of mud transported onto paved public roads by vehicles or runoff.

5. Dust Control – Temporary seeding shall be used to control dust blowing and movement on the site. Water truck may also be used to control dust as required.
6. Diversion Dike – An earth dike used to direct storm runoff into a sediment trap.
7. Sediment Trap – An excavated area used to store sediment-laden runoff so that sediment will settle to the bottom of the trap.
8. Mountable Berm – A berm constructed of aggregate and compacted earth used to direct storm water across streets or other construction travel areas.

#### **Section 4.0 – Sequence of Construction (All Phases)**

1. Clear and grub areas where sediment controls shall be installed, then install silt fence, diversion dikes and sediment traps, and stone construction entrances. Do not disturb any area until it is necessary for construction to proceed.
2. Clear and grub only areas where construction will take place. Following soil disturbance, temporary or permanent stabilization shall be completed within 14 calendar days.
3. Construct proposed underground storm drainage system and underground utilities. Storm drain and sewer systems are to be constructed from downstream to upstream, installing inlet protection as each storm drain inlet is installed.
4. Construct housing units and connect to proposed utilities.
5. Construct concrete curb, then street paving section, driveways and sidewalk.
6. Fine grade and permanently stabilize non-impervious areas per landscape plan.
7. Remove all sediment controls when all construction is complete and entire site is permanently stabilized. Apply permanent stabilization to areas used by sediment control devices.

#### **Section 5.0 – Inspection and Maintenance of Sediment Controls**

All erosion and sediment control measures will be checked and repaired if necessary weekly in dry periods and within 24 hours after any rainfall of 0.5 inches or greater within a 24-hour period.

If periodic inspections indicate a sediment control is not appropriate for a situation, it must be replaced or modified for site conditions. See Section g. of the Storm Water General Permit (included in this narrative) for inspection requirements.

The following items will be checked in particular:

1. The silt fence barrier shall be checked regularly for undermining or deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches half way to the top of the barrier.

2. The seeded areas shall be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and reseeded as needed. (See stabilization practices below)
3. The inlet protection silt sock shall be replaced when accumulated silt impedes the flow of runoff into the inlet. Sand bags should be checked to ensure that curb openings are completely blocked. Store all construction materials away from storm drain inlets.
4. The stone construction entrance shall be maintained in a condition, which will prevent tracking or flow of mud onto public Right-of-Way. This includes applying additional stone or washing existing stone. All materials tracked from vehicles onto roadways or into storm drains outside the construction area must be removed immediately.
5. The diversion dike should be checked to ensure that temporary stabilization is covering the berm. Any accumulated sediment should be removed from the trench area. Check to see that runoff is being directed into a sediment trap.
6. The sediment trap accumulated sediment shall be removed when depth reaches one half depth of the trap.
7. The mountable berm shall be inspected to ensure that the aggregate material and earth berm is intact per the plan detail cross-section.
8. If sediment escapes the construction site, it shall be removed at a frequency sufficient to minimize offsite impacts. (e.g. before the next precipitation event) All litter, construction debris and construction chemicals exposed to storm water shall be prevented from becoming a pollutant source for storm water discharges.
9. Prevent contamination of runoff by:
  - a. Protecting materials from wind and rain by storing them under a roof or plastic.
  - b. Keeping vehicles and equipment in good working condition and inspecting frequently for leaks.
  - c. Washing out concrete mixers only in washout areas.
  - d. Practicing proper waste disposal.
  - e. Covering open dumpsters with plastic. Have dumpsters emptied regularly.
  - f. Removing existing vegetation only as needed.

## **Section 6.0 – Stabilization Practices**

Stabilization practices may include but are not limited to: establishment of temporary stabilization (See detail on Sheet PP-3 of plans), establishment of permanent vegetation (See site landscape plans), mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures.

The following records shall be maintained and attached to the SWPPP: the dates when major grading activities occur; the dates when construction activities temporarily or permanently cease on a portion of the site; and the dates when stabilization measures are initiated.

Except as provided below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

- a. Where the initiation of stabilization measures by the 14<sup>th</sup> day after construction activity temporarily or permanently cease(s) is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.
- b. Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of site.
- c. In arid areas (areas with an average annual rainfall of 0 to 10 inches), semiarid areas (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts where the initiation of stabilization measures by the 14<sup>th</sup> day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

## **APPENDICES**

Appendix A – Vicinity Maps

Appendix B – Storm Water General Permit

Appendix C – Storm Water Pollution Prevention Plans



Stormwater General Permit NVR100000

State of Nevada

Division of Environmental Protection

General Permit

In compliance with the provisions of the Federal Clean Water Act as amended (33 U.S.C. 1251 et seq; the "Act") and Chapter 445A of the Nevada Revised Statutes (NRS), eligible dischargers who have submitted a Notice of Intent, filing fee, and have a Stormwater Pollution Prevention Plan(s) completed and maintained on the Permittee's site location in accordance with this permit, are authorized to discharge

Stormwater Associated with Construction Activity

or

Stormwater Associated with Small Construction Activity

and

Stormwater Associated with Industrial Activity from Temporary Concrete, Asphalt, and Material Plants or Operations Dedicated to the Permitted Construction Project

to Waters of the United States

in accordance with the conditions set forth in Parts I and II hereof.

This permit shall become effective on September 16, 2002.

This permit and the authorization to discharge shall expire at midnight September 15, 2007.

Signed this 16<sup>th</sup> day of SEPTEMBER, 2002



Clifford M. Lawson  
Bureau of Water Pollution Control

**PART I      SPECIFIC CONDITIONS**

**I.A    PERMIT COVERAGE**

**I.A.1    Objective**

The objective of this permit is to control and reduce pollution of Waters of the U.S. from: Stormwater Discharges Associated with Construction Activity; Stormwater Discharges Associated with Small Construction Activity; and Stormwater Discharges Associated with Industrial Activity from temporary plants or operations set up to produce concrete, asphalt, or other materials for the permitted construction project; through the use of Best Management Practices (BMPs).

- a. *Stormwater Discharge Associated with Construction Activity*, applying to projects disturbing five or more acres, is defined at Title 40 of the Code of Federal Regulations Part 122 section 26 paragraph (b)(14)(x) [40 CFR §122.26(b)(14)(x)].
- b. *Stormwater Discharge Associated with Small Construction Activity*, applying to projects disturbing at least one acre but less than five acres, is defined at 40 CFR §122.26(b)(15).
- c. *Stormwater Discharge Associated with Industrial Activity* is defined at 40 CFR §122.26(b)(14).
- d. *Waters of the U.S.* is defined at 40 CFR §122.2. Discharges to storm drain systems that in turn discharge to Waters of the U.S. are considered to be discharges to Waters of the U.S.
- e. *Best Management Practice* (BMP) is defined at 40 CFR §122.2 and in addition the term shall include erosion and sediment controls, stormwater conveyance, stormwater diversion, and treatment structures, and any procedure or facility used to minimize the exposure of pollutants to stormwater or to remove pollutants from stormwater.

**I.A.2    Eligibility, Request for Inclusion, Continuation of Coverage**

**a.    Eligibility**

- (i) Construction projects with Stormwater Discharges Associated with Construction Activity to Waters of the U. S. are eligible for this permit.
- (ii) Construction projects with Stormwater Discharges Associated with Small Construction Activity to Waters of the U. S. are eligible for this permit beginning March 10, 2003.

- (iii) Stormwater Discharges Associated with Industrial Activity (as defined in 40 CFR §122.26) to Waters of the U.S. from temporary plants or operations set up to produce concrete, asphalt, or other materials for the permitted construction project are eligible for this permit. This does not apply to commercial operations, or those that serve multiple projects.

**b. Request for Inclusion**

- (i) Eligible dischargers must request inclusion in this permit by submitting a Notice of Intent (Exhibit A), filing fee, no later than two (2) days prior to the start of construction.
- (ii) Eligible concrete, asphalt, and material plants or operations shall be included on the Notice of Intent submitted for the construction project. A separate Stormwater Pollution Prevention Plan shall be prepared and maintained on the Permittees project site for these discharges.
- (iii) Notice of Intent forms are available from the Division. The minimum information required on a Notice of Intent consists of:
  - (1) Owner/Operator (Applicant) Information: Name, address, city, state, zip code and phone number
  - (2) Project/Site Information: Project Name, Project Address/Location, City, State, Zip Code, Latitude, Longitude, County
  - (3) Name of Receiving Water
  - (4) Estimated Construction Start Date
  - (5) Estimated Completion Date
  - (6) Estimate of area to be disturbed (to nearest acre)
  - (7) Estimate of Likelihood of Discharge
  - (8) Address of location of SWPPP for viewing, City, State, Zip Code, Phone
  - (9) Certification statement, defined in section II.B.1.d, signed and dated by the permittee.

**c. Continuation of Coverage**

To be included in this permit, holders of expired general permit GNV0022241 must submit a new Notice of Intent without the filing fee within thirty days of the effective date of this permit. In addition, the previously supplied permit i.d. number (3XXXX) must be included with the submittal for identification purposes.

**I.A.3 Authorization**

- a. Eligible dischargers shall be included in this permit effective upon the authorization date.
- b. The authorization date shall be:

- (i) The date the Notice of Intent, and filing fee are received and approved by the Division, or
  - (ii) The effective date of this permit for all holders of expired general permit GNV0022241 that have submitted a new Notice of Intent for this permit.
- c. An authorization letter will be sent to the general permit holder stating the authorization date. Special conditions may be included.
- d. During the period beginning on the authorization date and lasting until permit coverage is terminated, the Permittee is authorized to discharge:
- (i) Stormwater Associated with Construction Activity, or
  - (ii) Stormwater Associated with Small Construction Activity, and
  - (iii) Stormwater Associated with Industrial Activity from temporary concrete, asphalt, and material plants or operations dedicated to the permitted construction project,

to Waters of the U. S. in accordance with the Stormwater Pollution Prevention Plan and the conditions of this permit.

#### **I.A.4 Miscellaneous Non-stormwater Discharges**

Permittees authorized under this permit are also authorized for miscellaneous non-stormwater discharges if those discharges are not significant contributors of pollutants. Such discharges may include: discharges from fire fighting activities; fire hydrant flushings; waters used to wash vehicles where detergents are not used; water used to control dust; potable water sources including waterline flushings; routine external building wash down which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated ground water or spring water; and foundation or footing drains where flows are not contaminated with process materials such as solvents. BMPS shall be implemented if needed to minimize impacts of these discharges. Non-stormwater discharges that are significant contributors of pollutants shall be eliminated or authorized under a separate permit. Although fire-fighting drainage may contain significant pollutant concentrations, the frequency of occurrence is low and the discharge is hereby authorized out of necessity.

#### **I.A.5 Requirement for Individual Permit**

The Division may require the holder of a general permit to apply for and obtain an individual permit in accordance with NAC 445A.269.

#### **I.A.6 Notice of Termination**

A Notice of Termination must be submitted upon completion of the project. To terminate permit coverage, a Notice of Termination (Exhibit B), as approved by the

Division, shall be submitted when final stabilization has been achieved or when the project has been transferred to another operator.

- a. The minimum information required on a Notice of Termination consists of:
  - (1) Stormwater general permit number
  - (2) Facility operator information: name, address, city, state, zip code, phone
  - (3) Facility/site location information: name, address, city, state, zip code, phone
  - (4) Certification statement signed and dated by the permittee. The certification statement is: (For construction projects with more than one Permittee and/or operator, the Permittee need only make this certification for those portions of the construction site where the Permittee was authorized under this permit and not for areas where the Permittee was not an operator):

"I certify under penalty of law that all storm water discharges associated with industrial activity from the identified facility that was authorized by a general permit have been eliminated or that I am no longer the operator of the facility or construction site. I understand that by submitting this notice of termination, I am no longer authorized to discharge storm water associated with industrial activity under this general permit, and that discharging pollutants in storm water associated with industrial activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the Clean Water Act."

Final Stabilization means that either:

1. All soil disturbing activities at the site have been completed and a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures have been employed. In such parts of the country, background native vegetation will cover less than 100% of the ground. Establishing at least 70% of the natural cover of the native vegetation meets the vegetative cover criteria for final stabilization (e.g., if the native vegetation covers 50% of the ground, 70% of 50% would require 35% total cover for final stabilization; on a beach with no natural vegetation, no stabilization is required); or

2. For individual lots in residential construction by either:
  - a. The homebuilder completing final stabilization as specified above, or
  - b. The homebuilder establishing temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for, and benefits of, final stabilization; or
3. For construction projects on land used for agricultural purposes (e.g., pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to "water of the United States," and area which are not being returned to their preconstruction agricultural use must meet the final stabilization criteria (1) or (2) above.

#### **I.A.7 Address for Submittal**

All Notices of Intent, filing fees and any other information required by this permit or the Division shall be submitted to the Division at the following address:

Stormwater Coordinator  
Bureau of Water Pollution Control  
Nevada Division of Environmental Protection  
333 West Nye Lane  
Carson City NV 89706-0851

#### **I.B. STORM WATER POLLUTION PREVENTION PLAN (SWPPP)**

##### **I.B.1 Objective**

Prior to submitting the Notice of Intent and filing fee the SWPPP shall be completed and available for inspection at the project site for each construction project and material plant or operation covered by this permit. The purpose of the plan is to guide the identification of stormwater pollution sources, the reduction of their impacts, and otherwise lead to compliance with the conditions of this permit. The SWPPP shall be prepared in accordance with good engineering practice and shall consist of project information, BMPs, inspection and maintenance, non-stormwater discharges, and a description of permanent stormwater controls that will be built as part of the project. Each of the plan elements must be revised as necessary to maintain accuracy if there are changes in design or construction of the project or if the SWPPP is found to be insufficient. The Division may require modifications to a SWPPP within a specified time frame. The permittee shall make SWPPPs available upon request to the State or local agency approving sediment and erosion plans, grading plans, or storm water management plans; local government officials; or the operator of a municipal separate storm sewer receiving discharges from the site. The copy of the SWPPP that is

required to be kept on-site or locally available must be made available by the Division for review at the time of an on-site inspection. The SWPPP shall include the following minimum elements.

**a. Project Description**

- (1) Permittee: Company or agency, street address, city, state, zip code, and phone number
- (2) Contact information: Name, street address, city, state, zip code, and phone number
- (3) Person(s) responsible for implementation of plan
- (4) Project Name
- (5) Project Location: Address, City, and County
- (6) A description of the nature of the construction activity;
- (7) A description of the intended sequence of major activities which disturb soils for major portions of the site (e.g., grubbing, excavation, grading, utilities and infrastructure installation);
- (8) Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities including offsite borrow and fill areas;
- (9) An estimate of the runoff coefficient of the site for both the preconstruction and post-construction conditions and data describing the soil or the quality of any discharge from the site;
- (10) A general location map (e.g., a portion of a city or county map) and a site map indicating the following:
  - (i) Drainage patterns and approximate slopes anticipated after major grading
  - (ii) Activities; areas of soil disturbance;
  - (iii) Areas which will not be disturbed;
  - (iv) Locations of major structural and nonstructural controls identified in the SWPPP;
  - (v) Locations where stabilization practices are expected to occur;
  - (vi) Locations of off-site material, waste,
  - (vii) Borrow or equipment storage areas;
  - (viii) Surface waters (including wetlands); and
  - (ix) Locations where storm water discharges to a surface water;
- (11) Location and description of any discharge associated with industrial activity other than construction, including storm water discharges from dedicated asphalt plants and dedicated concrete plants, which is covered by this permit;
- (12) The name of the receiving water(s) and the aerial extent and description of wetland or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from disturbed areas of the

- project;
- (13) A copy of the permit requirements (attaching a copy of this permit is acceptable);

**b. Controls**

Each SWPPP shall include a description of appropriate control measures (i.e., BMPs) that will be implemented as part of the construction activity to control pollutants in storm water discharges to the maximum extent practicable (MEP). The SWPPP must clearly describe for each major activity identified in Part I.B.1.a. (7): (a) Appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented; and (b) Which Permittee is responsible for implementation (e.g., perimeter controls for one portion of the site will be installed by Contractor A after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site; and perimeter controls will be actively maintained by Contractor B until final stabilization of those portions of the site up-gradient of the perimeter control; and temporary perimeter controls will be removed by the owner after final stabilization). The description and implementation of control measures shall address the following minimum components:

**(1) Erosion and Sediment Controls.**

**(i) Short and Long Term Goals and Criteria:**

- (a)** The construction-phase erosion and sediment controls should be designed to retain sediment on site to the maximum extent practicable.
- (b)** All control measures must be properly selected, installed, and maintained in accordance with the manufacturers specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, the Permittee must replace or modify the control for site situations.
- (c)** If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts (e.g., fugitive sediment in street could be washed into storm sewers by the next rain and/or pose a safety hazard to users of public streets).
- (d)** Sediment must be removed from sediment traps or sedimentation ponds when design capacity has been reduced by 50%.
- (e)** Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for storm water discharges (e.g., screening outfalls, picked up daily).
- (f)** Offsite material storage areas (also including overburden and

stockpiles of dirt, borrow areas, etc.) used solely by the permitted project are considered a part of the project and shall be addressed in the SWPPP.

**(2) Stabilization Practices:**

The SWPPP must include a description of interim and permanent stabilization practices for the site, including a schedule of when the practices will be implemented. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include but are not limited to: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures.

The following records shall be maintained and attached to the SWPPP: the dates when major grading activities occur; the dates when construction activities temporarily or permanently cease on a portion of the site; and, the dates when stabilization measures are initiated.

Except as provided in Parts I.B.1.b. (2)(i), (ii), and (iii) below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

- (i) Where the initiation of stabilization measures by the 14th day after construction activity temporary or permanently cease(s) is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.
- (ii) Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of site.
- (iii) In arid areas (areas with an average annual rainfall of 0 to 10 inches), semiarid areas (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

**(3) Structural Practices:**

The SWPPP must include a description of structural practices to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable. Structural practices may include but are not limited to: silt fences, earth dikes, drainage swales, sediment traps, check

dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Placement of structural practices in floodplains should be avoided to the degree attainable. The installation of these devices may be subject to section 404 of the CWA.

- (i) For common drainage locations that serve an area with ten (10) or more acres disturbed at one time, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 2 year, 24 hour storm from each disturbed acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. Where no such calculation has been performed, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. When computing the number of acres draining into a common location it is not necessary to include flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. In determining whether installing a sediment basin is attainable, the Permittee may consider factors such as site soils, slope, available area on site, etc. In any event, the Permittee must consider public safety, especially as it relates to children, as a design factor for the sediment basin and alternative sediment controls shall be used where site limitations would preclude a safe design. For drainage locations which serve ten (10) or more disturbed acres at one time and where a temporary sediment basin or equivalent controls is not attainable, smaller sediment basins and/or sediment traps should be used. Where neither the sediment basin nor equivalent controls are attainable due to site limitations, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area and for those side slope boundaries deemed appropriate as dictated by individual site conditions.
- (ii) For drainage locations serving less than 10 acres, smaller sediment basins and/or sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction area unless a sediment basin providing storage for a calculated volume of runoff from a 2 year, 24 hour storm or 3,600 cubic feet of storage per acre drained is provided.

**c. Stormwater Management.**

A description of measures that will be installed during the construction process to control pollutants in stormwater discharges that will occur after construction operations have been completed must be included in the SWPPP. Structural measures should be placed on upland soils to the degree attainable. The installation of these devices may also require a separate permit under section 404 of the CWA. Permittees are only responsible for the installation and maintenance of stormwater management measures prior to final stabilization of the site, and are not responsible for maintenance after stormwater discharges associated with construction activity have been eliminated from the site. However, post construction stormwater BMPs that discharge pollutants from point sources once construction is completed may, in themselves, need authorization under a separate NPDES permit.

- (1) Such practices may include but are not limited to: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). The SWPPP shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed predevelopment levels.
- (2) Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide a non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water).

**d. Other Controls.**

- (1) No solid materials, including building materials, shall be discharged to waters of the United States, except as authorized by a permit issued under section 404 of the CWA.
- (2) Off-site vehicle tracking of sediments and the generation of dust shall be minimized.
- (3) The SWPPP shall be consistent with applicable State, and/or local waste disposal, sanitary sewer or septic system regulations to the extent these are located within the permitted area.
- (4) The SWPPP shall include a description of construction and waste materials expected to be stored on-site with updates as appropriate. The SWPPP shall also include a description of controls to reduce pollutants from these materials including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response.
- (5) The SWPPP shall include a description of pollutant sources from areas

other than construction (including stormwater discharges from dedicated asphalt plants and dedicated concrete plants), and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.

**e. Approved State or Local Plans.**

- (1) Permittees which discharge storm water associated with construction activities must ensure their storm water pollution prevention plan is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by State or local officials.
- (2) Storm water pollution prevention plans must be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by State or local officials for which the Permittee receives written notice.

**f. Maintenance**

All erosion and sediment control measures and other protective measures identified in the SWPPP must be maintained in effective operating condition. If site inspections required by Part I.B.1.g identify BMPs that are not operating effectively, maintenance shall be performed before the next anticipated storm event, or as necessary to maintain the continued effectiveness of stormwater controls. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable.

**g. Inspections**

Qualified personnel (provided by the Permittee or cooperatively by multiple Permittees) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site, at least once every seven (7) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

- (1) Permittees are eligible for a waiver of weekly inspection requirements until one month before thawing conditions are expected to result in a discharge if all of the following requirements are met:
  - (i) The project is located in an area where frozen conditions are anticipated to continue for extended periods of time (i.e., more than one month);
  - (ii) Land disturbance activities have been suspended; and

- (iii) The beginning and ending dates of the waiver period are documented in the SWPPP.
- (2) Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Sediment and erosion control measures identified in the SWPPP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations shall be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.
- (3) Based on the results of the inspection, the SWPPP shall be modified as necessary (e.g., show additional controls on map required by Part I.B.1.a; revise description of controls required by Part I.B.1.b) to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within 7 calendar days following the inspection. If existing BMPs need to be modified or if additional BMPs are necessary, implementation shall be completed within 7 days following receipt of the inspection results or prior to the next anticipated storm event, whichever is sooner.
- (4) A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, and major observations relating to the implementation of the SWPPP shall be made and retained as part of the SWPPP for at least three years from the date that the site is finally stabilized. Major observations should include: the location(s) of discharges of sediment or other pollutants from the site; location(s) of BMPs that need to be maintained; location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location; and location(s) where additional BMPs are needed that did not exist at the time of inspection. Actions taken in accordance with Part I.B.1.g. (3) of this permit shall be made and retained as part of the storm water pollution prevention plan for at least three years from the date that the site is finally stabilized. Such reports shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the SWPPP and this permit. The report shall be signed in accordance with Part VI.G of this permit.

#### **h. Non-Storm Water Discharges**

Except for flows from fire fighting activities, sources of non-storm water listed in Part I.A.4 of this permit that are combined with storm water discharges associated with construction activity must be identified in the SWPPP. The SWPPP shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

### **PART II STANDARD CONDITIONS**

#### **II.A OPERATING REQUIREMENTS**

##### **II.A.1 Proper Operation and Maintenance**

The Permittee shall implement all BMPs used to comply with this permit and maintain them in good working order.

##### **II.A.2 Removed Substances**

Solids and other pollutants removed in the course of treatment or control of stormwater shall be disposed of in accordance with applicable laws, regulations, codes, and ordinances.

##### **II.A.3 Water Quality Standards**

There shall be no discharge of substances that cause or contribute to a violation of the water quality standards of the State of Nevada.

##### **II.A.4 Sampling and Analysis**

If any samples or measurements are taken pursuant to this permit they shall be representative of the volume and nature of the discharge. Laboratory analyses shall be performed by a State of Nevada certified laboratory. Results from this lab must be provided to the Division.

##### **II.A.5 Test Procedures**

Test procedures for analyses of pollutants shall conform to regulations (40 CFR § 136) published pursuant to Section 304(h) of the Act, under which such procedures may be required, unless other procedures are approved by the Division.

##### **II.A.6 Recording the Results**

If any measurement or sample is taken pursuant to this permit, the Permittee shall record the following information:

- a. The exact place, date, and time of sampling
- b. The dates the analyses were performed
- c. The person(s) who performed the analyses
- d. The analytical techniques or methods used, and

- e. The results of all required analyses.

#### **II.A.7 Adverse Impact**

The Permittee shall take all reasonable steps to minimize any adverse impacts to receiving waters from any unauthorized discharge including monitoring as necessary to determine the nature and impact of the unauthorized discharge.

### **II.B ADMINISTRATIVE REQUIREMENTS**

#### **II.B.1 Signature Requirements**

##### **a. Notices of Intent**

All notices of intent shall be signed as follows:

##### **(i) For a corporation**

By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

- (1) A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or
- (2) The manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (In second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

##### **(ii) For a partnership or sole proprietorship**

By a general partner or the proprietor, respectively; or

##### **(iii) For a municipality, state, federal, or other public agency**

By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a federal agency includes:

- (1) The chief executive officer of the agency, or
- (2) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

##### **b. Duly Authorized Representative**

All Stormwater Pollution Prevention Plans and any other information required by this permit or requested by the Administrator shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- (i) The authorization is made in writing by a person described in paragraph (a) of this section
- (ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the construction project or for environmental matters for the company, and
- (iii) The authorization is submitted to the Division.

**c. Changes to Authorization**

If an authorization under paragraph (b) of this section is no longer accurate because the individual or position has changed, a new written authorization must be submitted to the Division prior to or together with any information signed by the new representative.

**d. Certification**

Any person signing a document under paragraphs (a) or (b) of this section shall make the following certification.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. I also confirm that a storm water pollution prevention plan (SWPPP) has been completed, will be maintained at the project site from the start of construction activities, and that the SWPPP will be compliant with any applicable local sediment and erosion control plans. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines for knowing violations."

**II.B.2 Records Retention**

All records and information resulting from activities performed pursuant to this permit shall be retained for a minimum of three years; or longer if required by the Division.

**II.B.3 Availability of Reports**

Except for data determined to be confidential under NRS 445A.665, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of the Division. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in NRS 445A.710.

**II.B.4 Continuation of Coverage**

In accordance with NAC 445A.241, this permit shall remain in effect until reissued, and existing permittees shall be included in the reissued permit if a new Notice of Intent is submitted prior to the expiration date of this permit. A filing fee is not required for this submittal.

#### **II.B.5 Transfer of Ownership or Control**

If control or ownership of the construction project changes, the Permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Division. To transfer permit coverage, the new owner or controller must submit a written request to the Division. All transfer of permits shall be approved by the Division.

#### **II.B.6 Annual Fee**

The permittee shall remit an annual fee in accordance with NAC 445A.268 on or before July 1 every year except the year the filing fee is submitted.

#### **II.B.7 Right of Entry**

The permittee shall allow representatives of the Division upon the presentation of credentials:

- a. To enter upon the construction site or the permittees premises where any records are kept under the terms and conditions of this permit; and
- b. At reasonable times, to have access to and copy any records kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method used pursuant to this permit; and to perform any necessary sampling to determine compliance with this permit or to sample any discharge.

#### **II.B.8 Penalty for Violation of Permit Conditions**

NRS 445A.675 provides that any person who violates a permit condition is subject to administrative and judicial sanctions as outlined in NRS 445A.690 through 445A.705.

#### **II.B.9 Furnishing False Information and Tampering with Monitoring Devices**

Any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained by the provisions of NRS 445A.300 to 445A.730, inclusive, or by any permit, rule, regulation or order issued pursuant thereto, or who falsifies, tampers with or knowingly renders inaccurate any monitoring device or method required to be maintained under the provisions of NRS 445A.300 to 445A.730, inclusive, or by any permit, rule, regulation or order issued pursuant thereto, is guilty of a gross misdemeanor and shall be punished by a fine of not more than \$10,000 or by imprisonment. This penalty is in addition to any other penalties, civil or criminal, provided pursuant to NRS 445A.300 to 445A.730, inclusive.

#### **II.B.10 Permit Modification, Suspension or Revocation**

After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any terms or conditions of this permit

- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts, or
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

**II.B.11 Liability**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable Federal, State or local laws, regulations, or ordinances.

**II.B.12 Property Rights**

The issuance of this permit does not convey any property rights, in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

**II.B.13 Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provisions of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.









