

**FINAL DRAFT ENVIRONMENTAL ASSESSMENT
FOR THE RANGE WASH
FROM LAS VEGAS BOULEVARD TO THE
CONFLUENCE DETENTION BASIN PROJECT
NELLIS AIR FORCE BASE, NEVADA**



**Responsible Agency:
United States Air Force
Nellis Air Force Base
99th Air Base Wing**

**Action Proponent:
City of North Las Vegas**

June 2018

Letters or other written comments provided may be published in the Final EA. As required by law, substantive comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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1 **FINDING OF NO SIGNIFICANT IMPACT**

2 **1 NAME OF PROPOSED ACTION**

3 The Range Wash from Las Vegas Boulevard to the Confluence Detention Basin

4 **2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

5 This Environmental Assessment (EA) addresses the potential effects from all reasonable
6 alternatives, beneficial and adverse, resulting from the construction, operation, and maintenance
7 of flood control facilities that the City of North Las Vegas proposes to construct for the Range
8 Wash – Hollywood Branch (RWHW) and Range Wash – East Tributary (RWEA) in Nellis Air Force
9 Base (AFB). The Proposed Action would allow the City of North Las Vegas Department of Public
10 Works to construct a permanent conveyance channel and a detention basin on Nellis AFB
11 property to confine and control flood flows in the Range Wash from Las Vegas Boulevard to the
12 existing Confluence Detention Basin.

13 Range Wash Watershed includes lands under the jurisdictions of the City of North Las Vegas,
14 unincorporated Clark County, and the Bureau of Land Management. The branches of the Range
15 Wash enter Nellis AFB and flow from north to south through Nellis AFB, east of the runways, and
16 ultimately discharge into the Confluence Detention Basin. Flows in the Range Wash are
17 ephemeral, occurring only during rainfall events. Flood flows are generally unconfined and
18 widespread following the natural terrain through Nellis AFB toward the Confluence Detention
19 Basin. Currently, flood flows from the Range Wash overtop Las Vegas Boulevard, Ellsworth
20 Avenue, and Munitions Road. The Hollywood Branch combines with the East Tributary to form a
21 wide natural wash that crosses Nellis AFB south of Munitions Road. Range Wash drains an area
22 of 59 square miles that converges from the north, east, and south at Nellis AFB. The proposed
23 facilities would convey flood flows in a controlled manner through Nellis AFB, providing safe
24 passage for vehicles to cross the Hollywood Branch at Las Vegas Boulevard, Ellsworth Avenue,
25 and Munitions Road, and flood security for the Nellis AFB occupants, runways, and associated
26 infrastructure.

27 Alternative 1 would provide facilities to collect, confine, and convey flood flows from the Hollywood
28 Branch on Nellis AFB property from Las Vegas Boulevard to the East Tributary. Alternative 1
29 would construct a concrete-lined channel on Nellis AFB from Las Vegas Boulevard to Munitions
30 Road, a concrete channel or RCB storm drain lateral between Las Vegas Boulevard and Ellsworth
31 Avenue, and an earthen or rock-lined channel/berm to the East Tributary. The approximate area
32 of disturbance would be 47 acres. Excess dirt from the channel construction would be used to fill
33 an existing gravel pit on Nellis AFB property. Gravel maintenance roads occur on each side of
34 the concrete channels. RCB culverts would be constructed where the channel crosses Ellsworth
35 Avenue, O'Bannon Road, and Munitions Road. The flood control facilities proposed in Alternative
36 1 would confine storm runoff in a narrow channel from Las Vegas Boulevard to Munitions Road
37 and protect the area north of the runways from flooding during a 100-year storm event. The
38 channel would discharge runoff to the existing natural wash of the East Tributary, southeast of
39 the runways. The construction timeline would be approximately 12 months.

40 Alternative 2 would provide facilities to collect, convey, and detain flood runoff on Nellis AFB
41 property for the Hollywood Branch and East Tributary Watersheds. Under Alternative 2, the City
42 of North Las Vegas would construct all of Alternative 1 RWHW facilities plus the East Tributary
43 facilities. East Tributary facilities would include a concrete channel between Munitions Road and
44 the Dunes South Detention Basin, a berm across the natural wash of the East Tributary directing
45 flow into the Dunes South Detention Basin, and a concrete-lined outfall channel connecting the

46 Dunes South Detention Basin to the Confluence Detention Basin in accordance with the Master
47 Plan Update (MPU). The location, size, and type of East Tributary facilities are tentative and
48 subject to future MPUs, with Nellis AFB's input, as well as the actual future facility design. The
49 approximate area of disturbance would be 100 acres. Alternative 2 would be constructed in two
50 phases. The first phase would consist of the Alternative 1 facilities. Phase 2 would remove the
51 earthen channel/berm and construct the East Tributary facilities. Constructing engineered flood
52 control facilities to confine storm runoff in a narrow channel from Las Vegas Boulevard to
53 Munitions Road would protect the area north of the runways from flooding during a 100-year storm
54 event. The channel and East Tributary berm would direct runoff to the Dunes South Detention
55 Basin and protect the southeast portion of Nellis AFB. An outfall channel would safely convey the
56 attenuated flow from the new basin to the existing Confluence Detention Basin. The construction
57 timeline would be approximately 28 months.

58 Under the No Action Alternative, flood control facilities would not be constructed for the Range
59 Wash on Nellis AFB. Excess runoff would continue to overtop Las Vegas Boulevard, Ellsworth
60 Avenue, and Munitions Road and contribute to flooding on Nellis AFB property. Under the No
61 Action Alternative, unconfined flows conveyed in the Range Wash Watershed would continue to
62 affect areas immediately southeast of the Nellis AFB runways.

63 **3 SUMMARY OF ENVIRONMENTAL CONSEQUENCES**

64 Ten resource categories were evaluated during the preparation of the EA. Insignificant and/or
65 negligible impacts would be incurred on these resources, as identified below. The No Action
66 Alternative would result in no change and therefore no improvements to existing conditions.

67 The proposed project would not affect the Air Installation Compatible Use Zone because there
68 would be no change in flight operations.

69 Land use in the study area would not change from its existing use; however, the land surface
70 would be disturbed during construction activities to install the proposed flood control facilities.
71 After construction is completed, the area would be revegetated and landscaped to restore it to
72 conditions previous to the ground disturbance.

73 Based on the relatively low noise contributions, the construction activity is not expected to result
74 in perceptible change in existing noise.

75 Based on the design parameters of the proposed conveyance facilities and the equipment
76 required to construct these facilities, Alternative 1 would produce approximately 0.47 ton of VOCs
77 and 3.4 tons of NOx. These emissions would be far below the general conformity thresholds of
78 50 tons for VOCs and 100 tons for NOx. Emissions under Alternative 2 would be greater than
79 those under Alternative 1 because Alternative 2 builds on Alternative 1. These activities also occur
80 over a longer time frame.

81 No significant impacts on water resources have been identified that would result from
82 implementation of the proposed project; however, construction of the proposed flood control
83 facilities would have long-term effects on flood flows. Impacts on groundwater would be negligible
84 and would have minimal impacts on surface water quality. Construction activities could disturb
85 soils, which in turn, could increase the probability of erosion. The construction activity areas do
86 not lie within a major floodplain. Best Management Practices (BMPs) for construction site soil
87 erosion, as specified in the Stormwater Pollution Prevention Plan, would be implemented to
88 prevent the migration of soils, oil and grease, and construction debris into the local stream
89 networks. Erosion from construction activities would be prevented through BMPs used for
90 stormwater and sediment control. Fugitive dust would be mitigated through application of water
91 when necessary. There are no farmlands or soils considered prime farmland in the study area.

92 No significant impacts on soils or other earth resources have been identified that would result
93 from the implementation of the proposed project.

94 No significant impacts on safety and occupational health have been identified that would result
95 from implementation of the proposed project. During construction, all actions would be performed
96 in accordance with Air Force Office of Safety and Health directives and Occupational Safety and
97 Health Administration regulations.

98 During construction activities the use of hazardous materials and petroleum products would be
99 required. Impacts from the accidental release of hazardous materials or petroleum products (fuel
100 and lubricants) would be minimized by following BMPs such as storing fuel tanks within bermed
101 containment to prevent the accidental release of spilled fuel. Management of other hazardous
102 materials in compliance with Hazardous Material Pharmacy requirements and disposal of
103 hazardous wastes as directed by the Hazardous Waste Management Plan would minimize
104 impacts from handling and disposal of hazardous substances. The Hazardous Material Pharmacy
105 concept is designed to improve control of hazardous materials on Air Force installations. By
106 following the procedures identified, impacts from hazardous and toxic substances related to the
107 proposed project would be negligible.

108 The project area consists of mostly disturbed or previously altered native landscape. No rare or
109 unique habitat is noted in this portion of Nellis AFB, and human disturbance (through typical base
110 activities) would return to current levels following project completion. For areas along the
111 proposed flood control facilities with minimal to no obvious human disturbance, the habitat is
112 representative of typical desert scrub plant communities that are abundant in lands adjacent to
113 Nellis AFB and throughout the lower Mojave Desert valley.

114 No impacts on cultural resources are expected because no eligible cultural resources are present
115 within the study area.

116 No long-term impacts on infrastructure are anticipated. The construction of below-grade flood
117 control facilities would have no impact on transportation along Ellsworth Avenue and O'Bannon
118 Road; however, during construction, traffic would follow detours while the roads are disturbed to
119 place the flood control facilities under them. These detours would be temporary.

120 Because the area proposed for the flood control facilities does not include any residential or
121 commercial development, there would be no direct adverse socioeconomic impacts on the
122 surrounding area associated with the construction or operations of the proposed facilities.

123 **4 CONCLUSION**

124 Based on the analysis of the EA conducted pursuant to the relevant requirements of National
125 Environmental Policy Act (NEPA) of 1969 (42 U.S.C. § 4321 et seq.), the Council on
126 Environmental Quality (CEQ) NEPA Implementing Regulations (40 CFR § 1508.13 et seq.)
127 regulations, and Air Force Environmental Impact Analysis Process (EIAP) (32 CFR Part 989.15),
128 and after careful review of the potential impacts, I conclude that the Range Wash flood control
129 facilities (both Alternatives) and the No Action Alternative would result in no significant impacts
130 on the quality of the human or natural environments. Therefore, a Finding of No Significant Impact
131 is warranted, and an Environmental Impact Statement is not required for this action. The signing
132 of this Finding of No Significant Impact completes the environmental impact analysis process.

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138 PATRICK J. KOLESIAK, Lt Col, USAF

139 Commander

Date

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ACAM	Air Conformity Applicability Model
AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zone
APE	Area of Potential Effect
APZ	Accident Potential Zone
BMP	Best Management Practice
CAS	Close Air Support
CCRFCD	Clark County Regional Flood Control District
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CTS	Combat Training Squadron
dB	Units of Decibel
dBA	A-weighted Decibel
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EIS	Environmental Impact Statement
Leq	Equivalent Sound Level
Lmax	Maximum Instantaneous Sound Level
MPU	Master Plan Update
NAAQS	National Ambient Air Quality Standards
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NO _x	Nitrogen Oxides
NO ₂	Nitrogen Dioxide
O ₃	Ozone
PM _{2.5}	Particulate Matter with a Diameter less than or equal to 2.5 Micrometers
PM ₁₀	Particulate Matter with a diameter less than or equal to 10 Micrometers
RCB	Reinforced Concrete Box
RWEA	Range Wash East Tributary
RWHW	Range Wash Hollywood Branch
SHPO	State Historic Preservation Officer
SNWA	Southern Nevada Water Authority
SO ₂	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
TASS	Tactical Air Support Squadron
USAF	United States Air Force
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound
WRF	Wastewater Recycling Facility

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1.0 PURPOSE OF AND NEED FOR ACTION

This Environmental Assessment (EA) was prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321 et seq.), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] §§ 1500–1508), as well as 32 CFR § 989, Environmental Impact Analysis Process (EIAP) for the United States Air Force (USAF), and other pertinent environmental statutes, regulations, and compliance requirements. The authorities described will be addressed in various sections throughout this EA when relevant to particular environmental resources and conditions.

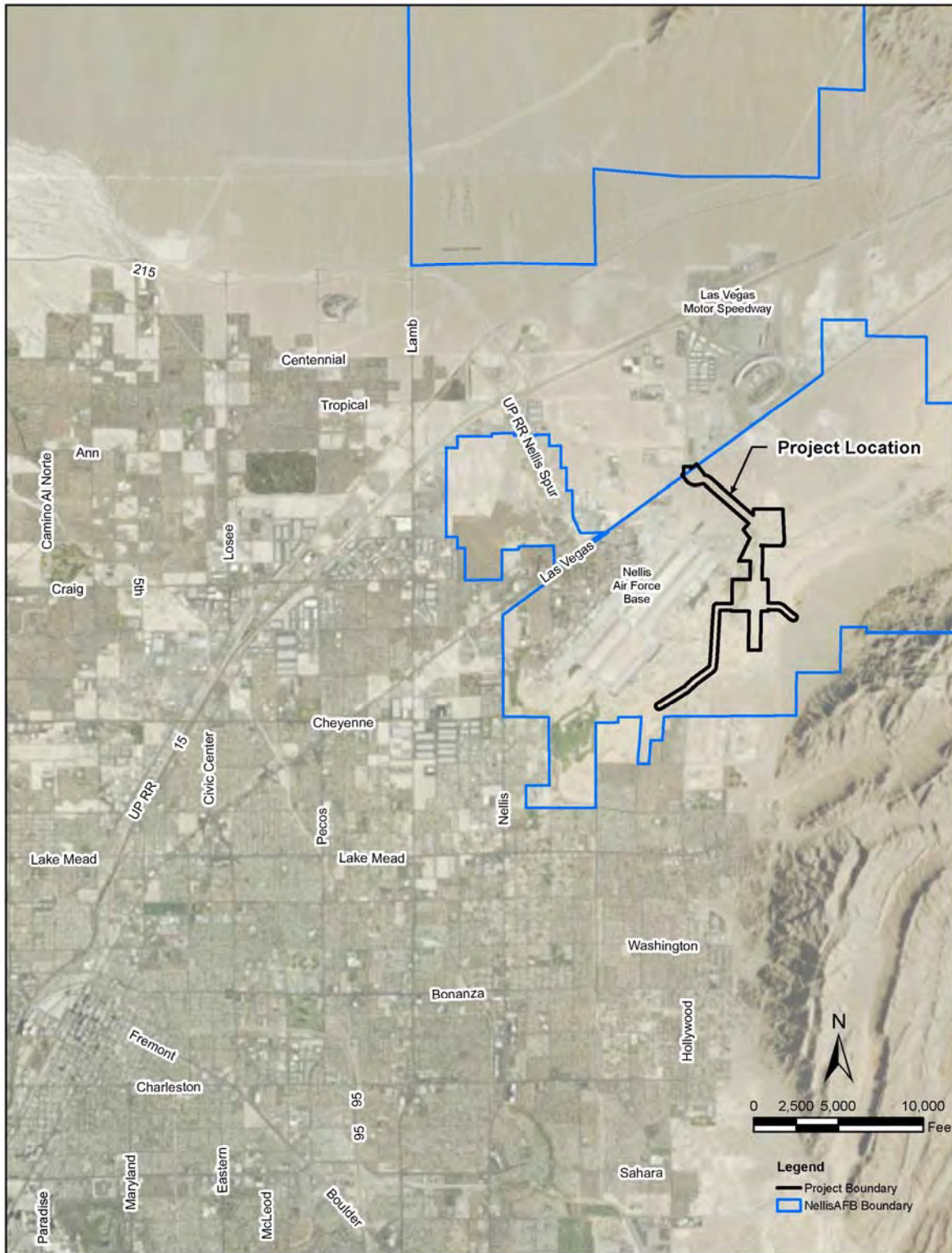
10 1.1 INTRODUCTION

11 This EA addresses the potential effects from all reasonable alternatives, beneficial and adverse, 12 resulting from the construction, operation, and maintenance of flood control facilities that the City 13 of North Las Vegas proposes to construct for the Range Wash – Hollywood Branch (RWHW) and 14 Range Wash – East Tributary (RWEA) in Nellis Air Force Base (AFB). The Proposed Action would 15 allow the City of North Las Vegas Department of Public Works to construct a permanent 16 conveyance channel and a detention basin on Nellis AFB property to confine and control flood 17 flows in the Range Wash from Las Vegas Boulevard to the existing Confluence Detention Basin. 18 Section 2 discusses the Proposed Action, the reasonable alternatives identified for consideration, 19 and the No Action Alternative in detail.

20 Nellis AFB is located northeast of Las Vegas in Clark County, Nevada, see Figure 1-1. The study 21 area for the purposes of this EA is defined as the approximate 200-foot offset area from the 22 proposed disturbance area of the proposed alternatives (Figure 1-2). It should be clarified that for 23 most of the resource topics discussed in Sections 3 and 4, Affected Environment and 24 Environmental Consequences, respectively, the analyses of potential impacts pertain to the study 25 area shown. However, as discussed in detail in Sections 3 and 4, for some resource areas, 26 including water resources and cultural resources, the study areas extend beyond the boundaries 27 shown on Figure 1-2 to account for the potential impacts beyond the immediate vicinity of the 28 proposed flood control facilities.

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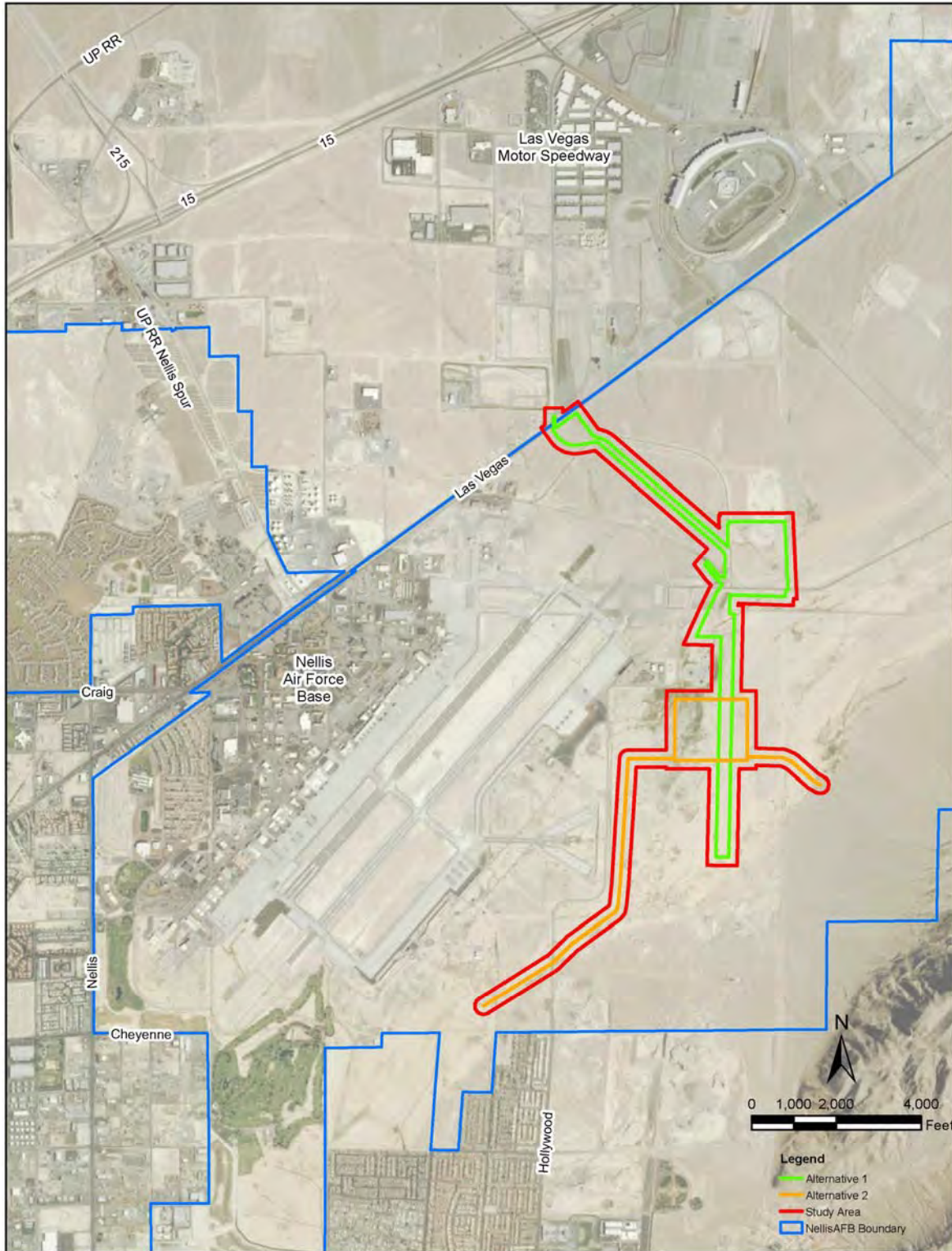
Figure 1-1. Site Location



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Figure 1-2. Study Area



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1.2 BACKGROUND

Range Wash Watershed includes lands under the jurisdictions of the City of North Las Vegas, unincorporated Clark County, and the Bureau of Land Management. The branches of the Range Wash (RWHW and RWEA) enter Nellis AFB and flow from north to south through Nellis AFB, east of the runways, and ultimately discharge into the Confluence Detention Basin. Flows in the Range Wash are ephemeral, occurring only during rainfall events. Flood flows are generally unconfined and widespread following the natural terrain through Nellis AFB toward the Confluence Detention Basin.

The information presented in this EA will serve as the basis for deciding whether the Proposed Action would result in a significant impact on the human environment, requiring the preparation of an Environmental Impact Statement (EIS), or whether no significant impacts would occur, in which case a Finding of No Significant Impact (FONSI) would be appropriate. The proposed flood control facilities for the Range Wash were addressed in the *Final Programmatic Supplemental Environmental Impact Statement, Flood Control Master Plan* that Clark County Regional Flood Control District (CCRFCD) prepared for the Bureau of Land Management, in cooperation with the U.S. Army Corps of Engineers (CCRFCD, 2105). The Proposed Action is not anticipated to involve construction in a wetland as defined in Executive Order 11990, *Protection of Wetlands*, or “action” in a floodplain as defined under Executive Order 11988, *Floodplain Management*.

Currently, flood flows from the Range Wash overtop Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road. The Hollywood Branch combines with the East Tributary to form a wide natural wash that crosses Nellis AFB south of Munitions Road. Range Wash drains an area of 59 square miles that converges from the north, east, and south at Nellis AFB. The CCRFCD 2013 Las Vegas Valley Flood Control Master Plan Update (MPU) identifies flood control facilities that may be constructed to collect, convey, and detain flood flows for Range Wash and its tributaries.

The City of North Las Vegas is planning to construct a storm drain under Hollywood Boulevard, north of Las Vegas Boulevard. In conjunction with that storm drain project, the City has evaluated options to mitigate flooding downstream of Las Vegas Boulevard on Nellis AFB property. The Proposed Action would construct Range Wash flood control facilities on Nellis AFB from Las Vegas Boulevard to the existing Confluence Detention Basin in accordance with the CCRFCD 2013 MPU, which includes Hollywood Branch facilities RWHW 0000 through RWHW 0136 and East Tributary facilities RWEA 0000 through RWEA 0192. The facilities would convey flood flows in a controlled manner through Nellis AFB, providing safe passage for vehicles to cross the Hollywood Branch at Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road, and flood security for the Nellis AFB occupants, runways, and associated infrastructure.

1.3 PURPOSE OF THE ACTION

The purpose of the Proposed Action is to confine and control flood flows. The Proposed Action would reduce flood flows overtop of Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road and reduce flooding on Nellis AFB by directing flood flows through established flood control facilities.

1.4 NEED FOR THE ACTION

Facilities that would collect, convey, and detain flood flows for Range Wash and its tributaries are needed to reduce flooding on Nellis AFB.

The proposed flood control facilities would alleviate current issues associated with flooding, resulting in a net positive effect on the environment. The flood control facilities are needed to:

- 1 1. Reduce the potential of economic losses to existing businesses in Clark County from
2 flooding.
- 3 2. Reduce the potential for economic losses to existing Nellis AFB facilities from flooding.
- 4 3. Improve the safety of civilian and military personnel by controlling flood flows and reducing
5 areas that are subject to flooding.
- 6 4. Allow for the development of industrial zoned lands in Clark County by reducing areas that
7 are subject to flooding.
- 8 5. Allow for improved use of open lands by the USAF by reducing areas in the Nellis AFB
9 that are subject to flooding.
- 10 6. Reduce City of North Las Vegas and USAF maintenance costs by avoiding cleanup
11 following flood events.

12 **1.5 DECISION TO BE MADE**

13 The decision to be made is whether to confine and control flood flows across Nellis AFB from Las
14 Vegas Boulevard to the Confluence Detention Basin. The decision options are:

- 15 1. Selecting the No Action Alternative, where the City of North Las Vegas would not construct
16 the flood control facilities;
- 17 2. Selecting an alternative and preparing a FONSI; or
- 18 3. Preparing an EIS if the alternatives are expected to result in significant environmental
19 impacts.

20 **1.6 AGENCY AND INTERGOVERNMENTAL COORDINATION /** 21 **CONSULTATIONS**

22 **1.6.1 Interagency and Intergovernmental Coordination/Consultations**

23 Federal, state, and local agencies with jurisdiction that could be affected by the alternative actions
24 were notified and consulted during the development of this EA. Section 6 of this EA contains the
25 list of agencies consulted during the preparation of the EA, and copies of the correspondence are
26 presented in Appendix A.

27 **1.6.2 Government to Government Consultations**

28 Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*
29 (6 November 2000), directs federal agencies to coordinate and consult with Native American tribal
30 governments whose interests might be directly and substantially affected by activities on federally
31 administered lands. The federal nexus for the Proposed Action is the construction of flood control
32 facilities on Nellis AFB. On May 11, 2018 Nellis AFB invited federally recognized tribes that are
33 affiliated historically with the Nellis AFB geographic region to consult on the Proposed Action (see
34 Appendix A). In addition, Nellis AFB conducted tribal consultation at the 2017 Semi Annual
35 Meeting - Spring Tribal Meeting with the tribes in Beatty, Nevada. A presentation on the Proposed
36 Action was included in the semi-annual Nellis AFB – Consolidated Group of Tribes and
37 Organizations symposium on April 6, 2018. None of the consulted tribes expressed any concerns.
38 The Yomba Shoshone Tribe Chairman requested notification of any cultural artifacts that might
39 be discovered during construction activities. Nellis AFB also hosted a tour of the project area on
40 June 11, 2018 to representatives from the Colorado River Indian Tribes (CRIT). CRIT provided a
41 concurrence letter on April 27, 2017 (Appendix A).

1 The tribal coordination process is distinct from NEPA consultation or the interagency
2 intergovernmental coordination for environmental planning processes and requires separate
3 notification of all federally recognized tribes. The timelines for tribal consultation are also distinct
4 from those of intergovernmental consultations. The Nellis AFB point-of-contact for Native
5 American tribes is the Installation Commander, while the point-of-contact for consultation with the
6 Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation is the
7 Cultural Resources Manager. The Installation Commander maintained coordination regarding the
8 Proposed Action during semi-annual meetings with the consulted tribes. None of the tribes
9 expressed any concerns of the Proposed Action.

10 **1.7 Public and Agency Review of the EA**

11 The USAF and Nellis AFB invited public participation in the NEPA process. Consideration of the
12 views and information of all interested persons promotes open communication and enables better
13 decision-making. The USAF has a public involvement process that informs local, state, tribal, and
14 federal agencies of proposed projects. All agencies, organizations, and members of the public
15 with a potential interest in the Proposed Action, including minority, low-income, disadvantaged,
16 and Natives American groups, are encouraged to participate in the decision-making process.

17 On October 19, 2017, Nellis AFB mailed letters to the local, state, and federal agencies to inform
18 them of the Proposed Action and the EA development. Responses were received from Clark
19 County Department of Air Quality, Nevada Division of Water Resources, the U.S. Army Corps of
20 Engineers, the Bureau of Water Pollution Control, and the Department of Wildlife. A copy of these
21 communications is included in Appendix A.

22 Nellis AFB mailed a letter to the State Historic Preservation Officer (SHPO), which was received
23 on April 19, 2017, for consultation on the Proposed Action. A response from the SHPO, dated
24 May 18, 2017, requested clarification on the project description and Area of Potential Effect (APE).
25 A response letter was submitted on September 28, 2017, by the City of North Las Vegas per the
26 request of Nellis AFB to include the additional information. A subsequent letter from SHPO, dated
27 November 30, 2017, required additional data and the Bureau of Land Management Negative
28 Report, which were addressed in the response letter from the City of North Las Vegas to the
29 SHPO on February 8, 2018. The letters and responses are included in Appendix A. SHPO
30 concurrence and a No Adverse Effect response was provided on March 14, 2018.

31 The public comment period for review of this EA began on July 8, 2018 and ended on August 6,
32 2018. A copy of the draft EA was available at the Clark County Library located at 1401 East
33 Flamingo Road in Las Vegas, Nevada. Additionally an electronic copy was available for download
34 on the City of North Las Vegas website (www.cityofnorthlasvegas.com) and on Nellis AFB's
35 website (www.nellis.af.mil/About/Environment). Nellis AFB determined a public meeting was not
36 necessary for this EA.

37 **Preparer's Note: Dates on agency, state, tribal, and public consultation will be updated throughout**
38 **the NEPA process.**

39

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section describes the alternatives that are analyzed in this EA. The action alternative analyzed in the EA meets the purpose and need, specifically to ensure effective flood control. As viewed by the CEQ, an alternative is considered reasonable if it is deemed to be “practical or feasible” from a technical and economic standpoint that meets the purpose and need.

2.1 PROPOSED ACTION

The Proposed Action would provide flood control facilities to collect, convey, and detain runoff on Nellis AFB property for the Range Wash from Las Vegas Boulevard to the Confluence Detention Basin. These flood control facilities are listed in the Las Vegas Valley Flood Control MPU prepared by CCRFCD (CCRFCD, 2015) and were evaluated in the *Final Programmatic Supplemental Environmental Impact Statement* (CCRFCD, 2004).

2.2 SELECTION STANDARDS

The selection standards used to screen the alternatives included MPU conformity, reduction of potential economic losses to existing infrastructure, improvement of safety from flooding, allowance for improved use of open lands in Nellis AFB, and reduction of maintenance costs due to flooding. The City of North Las Vegas developed and identified the alternatives for the flood flows from the Range Wash. These alternatives are described below.

2.3 ALTERNATIVES TO THE PROPOSED ACTION

Two alternatives were selected for consideration and analyzed as part of this EA. These alternatives are noted below and compared in Table 2-1 for flood flow control for the Range Wash through Nellis AFB:

Table 2-1. Screening of the Alternatives

	Conforms to Flood Control District Master Plan	Reduces Potential Economic Losses to Existing Businesses and Nellis AFB Facilities	Improves Safety of civilian and military personnel by controlling flood flows	Allows for improved use of open lands in Nellis AFB by reducing flooding	Reduces City and USAF maintenance costs following flood events
No Action Alternative	No	No	No	No	No
Alternative 1	Yes	Yes	Yes	Yes	Yes
Alternative 2	Yes	Yes	Yes	Yes	Yes

2.3.1 Alternative 1 Range Wash – Hollywood Branch Only

Under Alternative 1, the City of North Las Vegas would construct a concrete channel from Las Vegas Boulevard to Munitions Road, a lateral reinforced concrete box (RCB) storm drain between Las Vegas Boulevard and Ellsworth Avenue, and an earthen or rock-lined channel/berm with intermittent cutoff walls that extends south of Munitions Road to discharge 100-year runoff into the broad natural wash of the East Tributary (RWHW 0000 through RWHW 0174) (Figure 2-1).

1 Excavated soil would be used to fill an existing gravel pit located at the northeast corner of
2 Ellsworth Avenue and O'Bannon Road and to construct berms. This area is also proposed as a
3 temporary construction staging area.

4 **2.3.2 Alternative 2 Range Wash – Hollywood Branch and East Tributary**

5 Under Alternative 2, the City of North Las Vegas would construct the Hollywood Branch facilities
6 identified under Alternative 1 plus the East Tributary flood control facilities (RWEA 0000 through
7 RWEA 0192) (Figure 2-2). This option would convey 100-year flows from Las Vegas Boulevard
8 to the Confluence Detention Basin without discharging any flows onto open land and would retain
9 peak flows to reduce the size of downstream facilities.

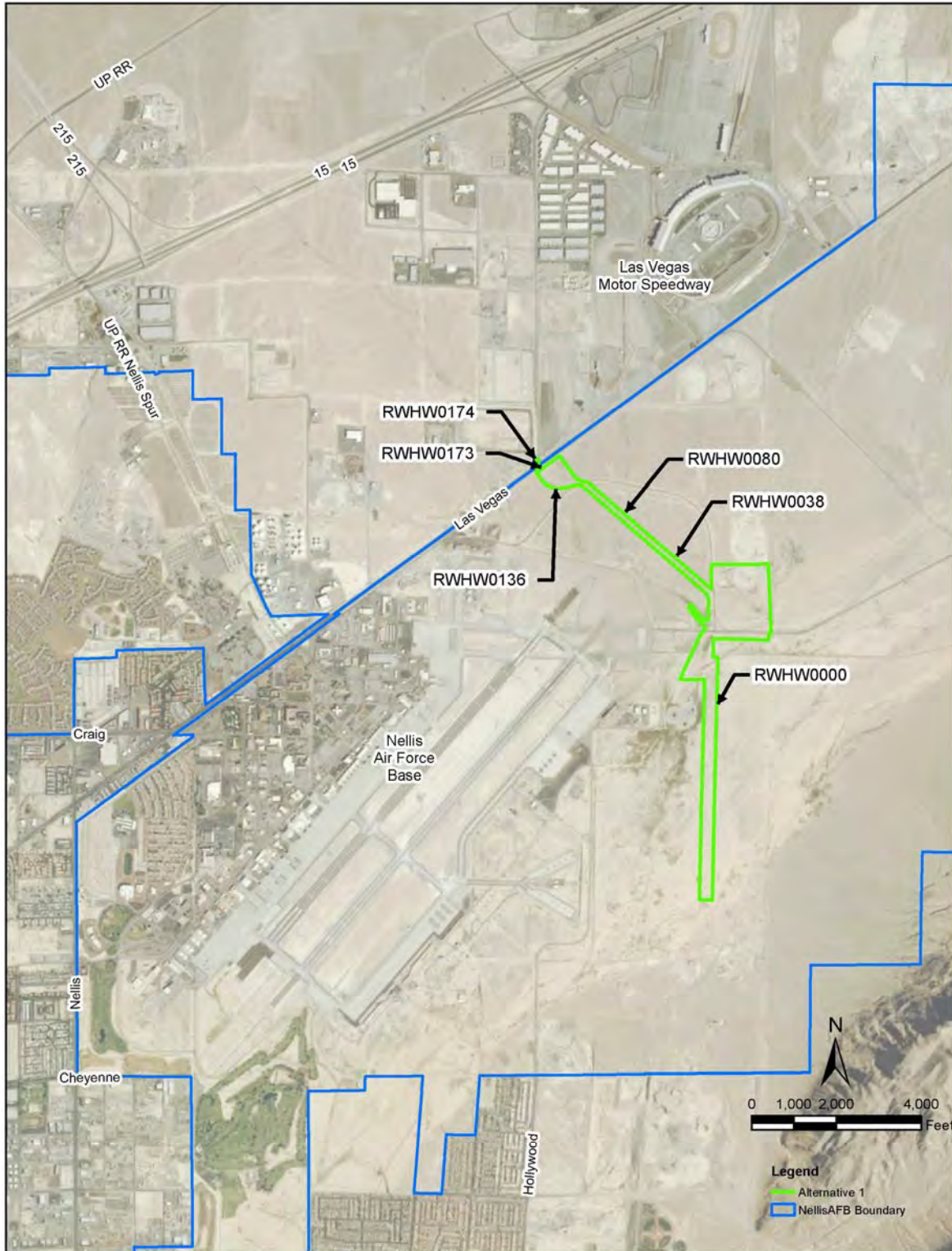
10 Under Alternative 2, the City of North Las Vegas would construct a channel and detention basin
11 on Nellis AFB property to convey 100-year storm flows from the 59-square-mile Range Wash
12 Watershed. However, the full capacity of the facilities would not be used until the upstream
13 watershed is fully developed and all MPU flood control facilities in Range Wash Watershed are
14 constructed (see Figure 2-2).

15 **2.3.3 No Action Alternative**

16 The No Action Alternative would involve no change to the current drainage system. Excess runoff
17 would continue to overtop Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road, and
18 inundate portions of Nellis AFB during large storms.

1

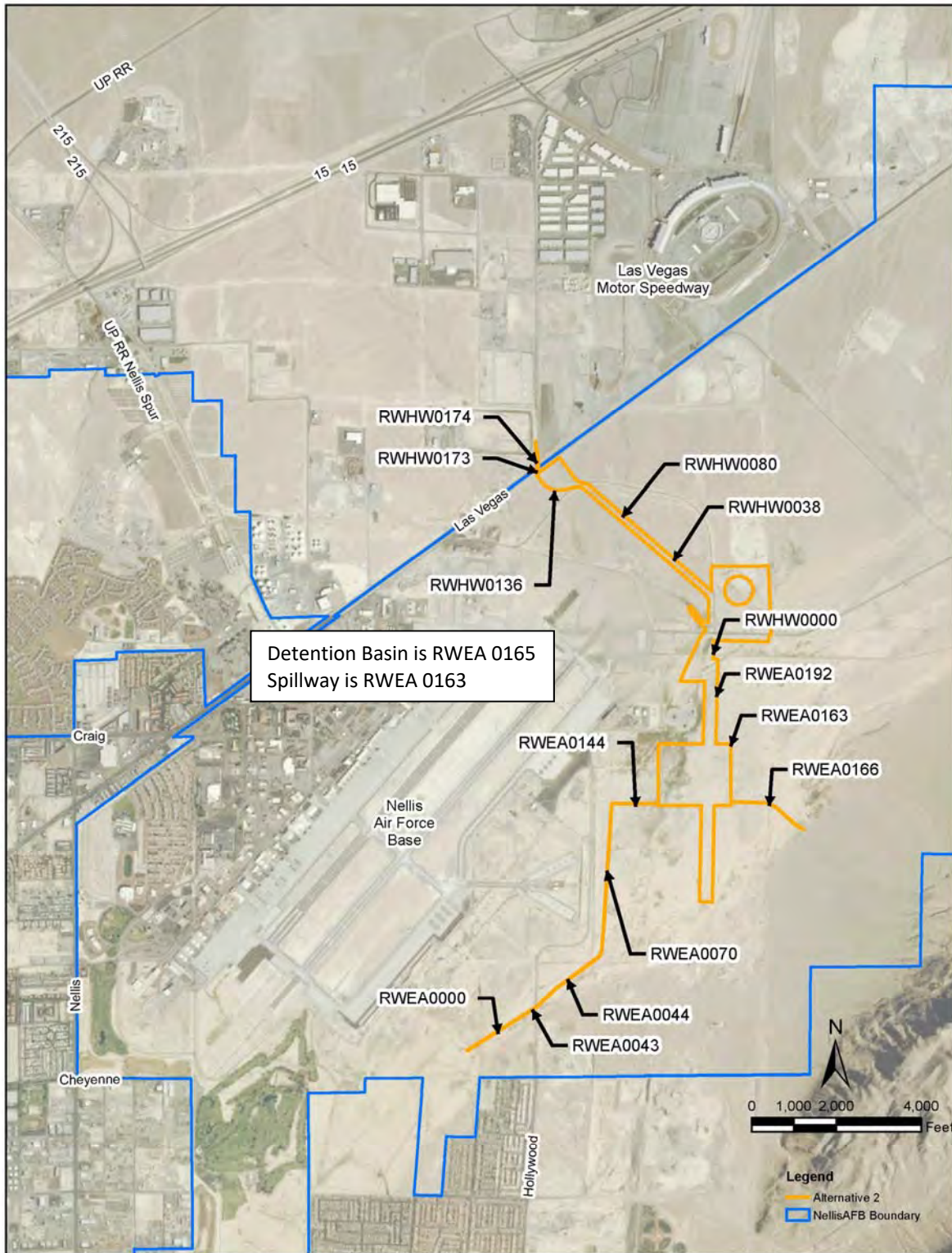
Figure 2-1. Alternative 1 Range Wash – Hollywood Branch Only



2

1

Figure 2-2. Alternative 2 Range Wash – Hollywood Branch and East Tributary



2

2.4 DETAILED DESCRIPTION OF THE ALTERNATIVES

The NEPA and Environmental Impact Analysis Process is intended to support flexible, informed decision-making. The analysis provided in this EA and feedback from the public and other agencies will inform decisions made about whether, when, and how to execute the Proposed Action. Among the alternatives evaluated is a No Action Alternative. The consequences of not undertaking the Proposed Action are analyzed under the No Action Alternative to establish a comparative baseline for analysis.

2.4.1 Alternative 1 – Range Wash – Hollywood Branch Only

Alternative 1 would provide facilities to collect, confine, and convey flood flows from the Hollywood Branch on Nellis AFB property from Las Vegas Boulevard to the East Tributary. Alternative 1 would construct a concrete-lined channel on Nellis AFB from Las Vegas Boulevard to Munitions Road, a concrete channel or RCB storm drain lateral between Las Vegas Boulevard and Ellsworth Avenue, and an earthen or rock-lined channel/berm to the East Tributary. The approximate area of disturbance would be 47 acres. Excess dirt from the channel construction would be used to fill an existing gravel pit on Nellis AFB property. Gravel maintenance roads occur on each side of the concrete channels. RCB culverts would be constructed where the channel crosses Ellsworth Avenue, O'Bannon Road, and Munitions Road.

The facilities would be designed to convey the 100-year storm flow in the Hollywood Branch of the Range Wash (see Table 2-2); however, the entire capacity of the channel would not be fully used until all of MPU facilities in the Hollywood Branch Watershed are constructed. The proposed channel would be located at least 3,000 feet north of the Nellis AFB runways, outside the runway clearance zone. Table 2-2 provides a summary of the design parameters of the proposed conveyance facilities.

Table 2-2. Summary of Alternative 1 Proposed Facilities

Section Number		Facility Description	Approximate Length (feet)	100-year Flow (cfs)
RWHW	0000	Earthen channel/berm 50 feet x 10 feet	2,000	3,564/3,000
Channel		Rectangular channel	50	3,564
RWHW	0038	Concrete channel 36 feet x 7 feet	2,200	3,003
RWHW	0080	Concrete channel 36 feet x 7 feet	1,800	3,003
RWHW	0136	Concrete channel 25 feet x 7 feet	1,860	1,965
Lateral		Concrete channel or storm drain		
RWHW	0173	RCB (2)12 feet x 6 feet	100	2,195
RWHW	0174	RCB (2)12 feet x 5 feet	~500	2,195

Note: cfs – cubic feet per second

The flood control facilities proposed in Alternative 1 would confine storm runoff in a narrow channel from Las Vegas Boulevard to Munitions Road and protect the area north of the runways from flooding during a 100-year storm event. The channel would discharge runoff to the existing natural wash of the East Tributary, southeast of the runways. The construction timeline would be approximately 12 months.

2.4.2 Alternative 2 – Range Wash – Hollywood Branch and East Tributary

Alternative 2 would provide facilities to collect, convey, and detain flood runoff on Nellis AFB property for the Hollywood Branch and East Tributary Watersheds. Under Alternative 2, the City of North Las Vegas would construct all of Alternative 1 RWHW facilities plus the East Tributary facilities. East Tributary facilities would include a concrete channel between Munitions Road and the Dunes South Detention Basin, a berm across the natural wash of the East Tributary directing flow into the Dunes South Detention Basin, and a concrete-lined outfall channel connecting the Dunes South Detention Basin to the Confluence Detention Basin in accordance with the MPU. The location, size, and type of East Tributary facilities are tentative and subject to future MPUs, with Nellis AFB’s input, as well as the actual future facility design. The approximate area of disturbance would be 100 acres.

Alternative 2 would be constructed in two phases. The first phase would consist of the Alternative 1 facilities. Phase 2 would remove the earthen channel/berm and construct the East Tributary facilities.

Similar to Alternative 1, excess dirt from the channel and detention basin excavation may be stockpiled and used on Nellis AFB property. The Hollywood Branch channel would be located outside the runway clearance zone. Gravel maintenance roads are proposed on each side of the concrete channels, and RCB culverts would be constructed where the channel crosses Ellsworth Avenue, O’Bannon Road, and Munitions Road. The Dunes South Detention Basin would provide flood protection for the southeast area of Nellis AFB, intercept the widespread flow from the East Tributary natural wash, and reduce the size of downstream facilities.

Table 2-3 provides a summary of the design parameters for the proposed conveyance and detention facilities. The facilities would be designed to convey the 100-year storm flow in the Hollywood Branch and East Tributary of the Range Wash; however, the entire capacity of Alternative 2 facilities would not be fully used until all of the MPU facilities in the Hollywood Branch and East Tributary Watersheds are constructed.

Table 2-3. Summary of Alternative 2 Proposed Facilities

Section Number		Facility Description	Length (feet)	Flow (cfs)
Conveyance Facilities				
Range Wash – Hollywood Branch				
RWHW	0000	Earthen channel/berm 50 feet x 10 feet	2,000	3,564
Channel		Rectangular channel	50	3,564
RWHW	0038	Concrete channel 36 feet x 7 feet	2,200	3,003
RWHW	0080	Concrete channel 36 feet x 7 feet	1,800	3,003
RWHW	0136	Concrete channel 25 feet x 7 feet	1,860	1,965
Lateral		Concrete channel or storm drain		
RWHW	0173	RCB (2)12 feet x 6 feet	100	2195
RWHW	0174	RCB (2)12 feet x 5 feet	~500	2195
Range Wash – East Tributary				
RWEA	0000	Concrete channel 25 feet x 7 feet	1,925	4,033
RWEA	0043	RCB 10 feet x 8 feet	80	4,033

Section Number		Facility Description	Length (feet)	Flow (cfs)
RWEA	0044	Concrete channel 25 feet x 6.5 feet	1,930	3,230
RWEA	0070	Concrete channel 25 feet x 7 feet	3,565	2,473
RWEA	0144	RCB 8 feet x 6 feet	1,100	732
RWEA	0164	RCB outlet 6 feet x 6 feet	100	732
RWEA	0166	Soil cement berm 13.5 feet	2,000	3,323
RWEA	0192	Concrete channel 75 feet x 9.5 feet	1,500	4,784
Detention Facilities				
RWEA	0163	Probable maximum flood spillway		58,670
RWEA	0165	1,112 acre-feet detention basin		5,867

1 Note: cfs – cubic feet per second

2 Constructing engineered flood control facilities to confine storm runoff in a narrow channel from
 3 Las Vegas Boulevard to Munitions Road would protect the area north of the runways from flooding
 4 during a 100-year storm event. The channel and East Tributary berm would direct runoff to the
 5 Dunes South Detention Basin and protect the southeast portion of Nellis AFB. An outfall channel
 6 would safely convey the attenuated flow from the new basin to the existing Confluence Detention
 7 Basin. The construction timeline would be approximately 28 months.

8 **2.4.3 No Action Alternative**

9 Under the No Action Alternative, flood control facilities would not be constructed for the Range
 10 Wash on Nellis AFB. Excess runoff would continue to overtop Las Vegas Boulevard, Ellsworth
 11 Avenue, and Munitions Road and contribute to flooding on Nellis AFB property. Under the No
 12 Action Alternative, unconfined flows conveyed in the Range Wash Watershed would continue to
 13 affect areas immediately southeast of the Nellis AFB runways.

3.0 AFFECTED ENVIRONMENT

3.1 SCOPE OF THE ANALYSIS

This section describes the existing environmental conditions, either human-made or natural, at and surrounding the proposed flood control facilities. It provides a baseline from which to identify and evaluate changes resulting from the proposed flood control facilities to Nellis AFB. Only those resources that have a potential to be affected are discussed per CEQ guidance (40 CFR § 1501.7(3)).

3.1.1 Resource Analyzed

Based on the components of the Proposed Action, the USAF determined that there would be temporary and short-term effects due to construction of the project at Nellis AFB and long-term effects associated with the operation of the proposed flood control facilities. As a result of this review, eleven resource categories are evaluated:

- Air Installation Compatible Use Zone (AICUZ)/Land Use/Noise
- Air Quality
- Water Resources
- Biological Resources
- Earth Resources/Geology and Soils
- Environmental Justice
- Hazardous Materials/Waste
- Cultural Resources
- Infrastructure/Utilities
- Safety and Occupation Health
- Socioeconomics

3.1.2 Resources Eliminated from Detailed Analysis

The USAF assessed numerous resources that have the potential to be affected by the Proposed Action or the No Action Alternative. In accordance with CEQ regulations, this evaluation determined that five resources did not warrant further examination in the EA:

- Environmental Justice – Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was signed on February 11, 1994. Executive Order 12898 requires that federal agencies “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. No disproportionate impacts on environmental justice communities would be expected as a result of the Proposed Action. The construction and renovation activities associated with the Proposed Action would be contained within the Nellis AFB boundaries and would not effect on- or off-base communities. Therefore, no populations (minority, low-income, or otherwise) would be disproportionately or adversely affected, and no adverse effect with regard to environmental justice would result. Implementation of the Proposed Action would not result in increased exposure of children to environmental health risks or safety risks such as those associated with the generation, use, or storage of hazardous materials. Standard construction site safety precautions (e.g., fencing and other security measures) would reduce potential risks to minimal levels, and any potential effect on children would be negligible and short term.

- 1 • Fire Management – The proposed flood control facilities would not be located in a fire risk
- 2 area.
- 3 • Visual Resources – The proposed facilities would be located below grade, and landscape
- 4 would remain consistent with the existing habitat and visual resources.
- 5 • Wilderness – The proposed flood control facilities would not be located in or near a
- 6 wilderness area.
- 7 • Wild and Scenic Rivers – No wild and scenic rivers exist in proximity to the proposed flood
- 8 control facilities.

9 **3.2 AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE/NOISE**

10 **3.2.1 Air Installation Compatible Use Zone**

11 Nellis AFB updated its AICUZ Study (Nellis AFB, 2017a). The study outlines the location of runway
12 clear zones, aircraft accident potential zones (APZs), and noise contours and recommends
13 compatible land use for the areas in the vicinity of Nellis AFB. Based on the 2017 AICUZ Study,
14 the proposed flood control facilities would traverse all levels of the 65 to 85 units of decibel (dB)
15 noise contours (See Figure 3-1).

16 The Nellis AFB runway is approximately 0.3 mile south of the proposed flood control facilities.
17 Due to the distance of the channel to the runway, portions of the Proposed Action would be within
18 both the Clear Zone and APZ I (Figure 3-1). The Clear Zone is at the end of the runway and is an
19 area designated to remain undeveloped. APZ I extends for 5,000 feet after the Clear Zone. In
20 APZ I, land uses are restricted because of its associated higher safety risk.

21 **3.2.2 Land Use**

22 Land can be used for residential, commercial, industrial, agricultural, transportation, recreational,
23 or conservation purposes. Management plans, policies, ordinances, and regulations determine
24 the manner in which a specific tract of land may be used. The status of land ownership is the
25 primary driver that determines appropriate land use in a specific area. Nellis AFB is an USAF
26 military reservation, thus, appropriate land use is primarily determined by federal laws,
27 Department of Defense directives, and USAF policy and instructions.

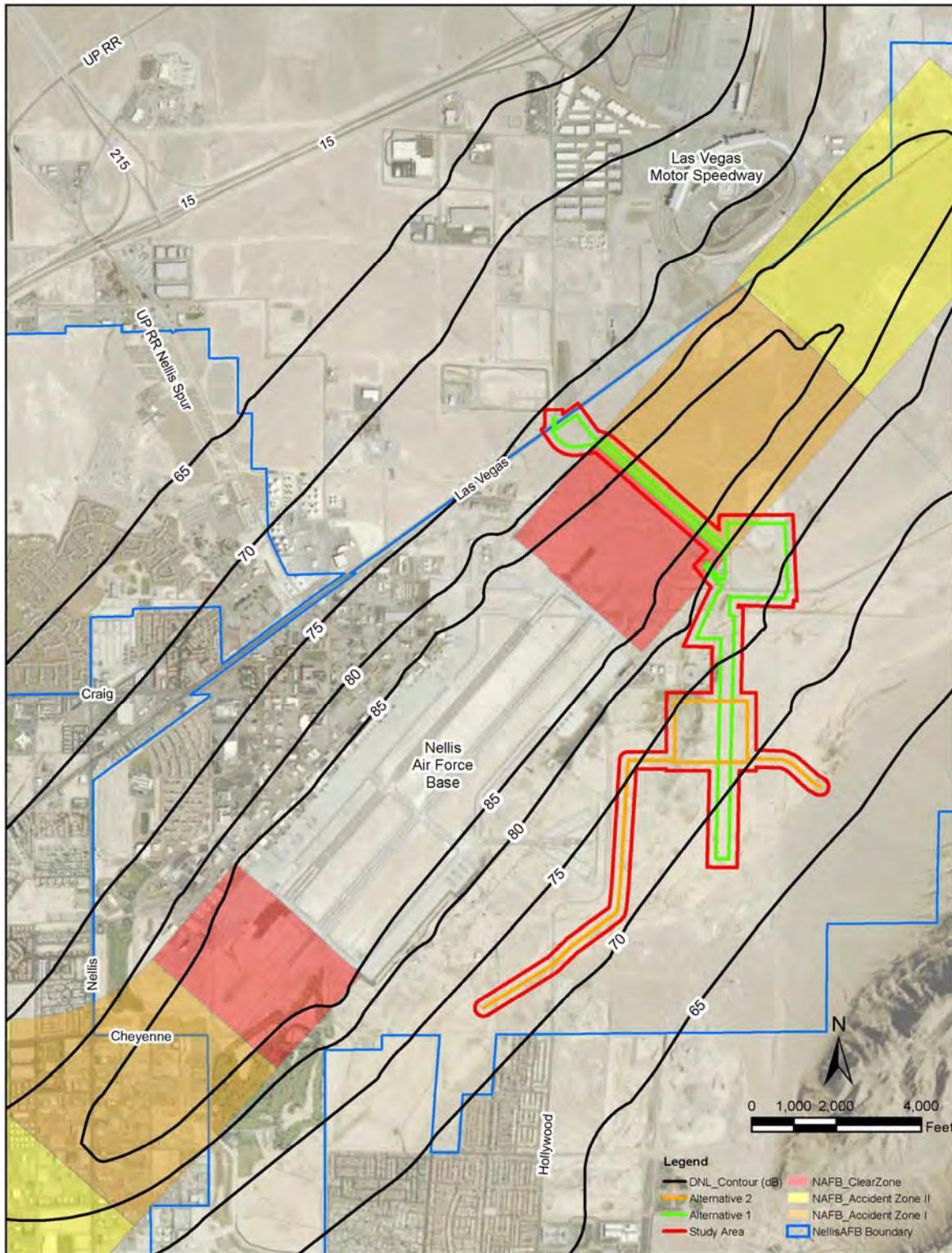
28 The Proposed Action would occur almost entirely on existing Nellis AFB lands. The majority of
29 the areas that would be affected by the Proposed Action are within the current perimeter fence
30 boundary of Nellis AFB. A small portion of the Proposed Action would be outside the perimeter
31 fencing across Las Vegas Boulevard and along Hollywood Boulevard in existing public right-of-
32 way or parcels under jurisdiction of the USAF.

33 Nellis AFB includes developed and undeveloped lands. The main categories of developed land
34 uses include airfield; industrial support areas; administrative services areas; and housing,
35 recreation, and services areas. Undeveloped lands are commonly called open space in planning
36 documents and may include natural or cultural resource preservation sites, safety buffers, or other
37 similar land uses.

38

1

Figure 3-1. Nellis AFB Noise Contours



2

1 Nellis AFB is a well-developed institution that supports a broad spectrum of functions and
2 organizations. It comprises 14,161 acres divided into three areas: Area I (the Main Base); Area
3 II; and Area III. Area I is located east of Las Vegas Boulevard and contains 30 percent of the total
4 base land area. Area I contains the greatest variety of land use activities, including runways;
5 industrial facilities; housing areas; and most of the base's administrative, training, and support
6 facilities. More than 2,000 buildings are located in Area I, including family housing units (enlisted
7 and officers), dormitories, and billeting facilities. Area II is located northeast of the Main Base and
8 accounts for 60 percent of the total base land area, the majority of which is undeveloped. RED
9 HORSE and Security Forces are the primary occupants of the developed acreage in Area II. Area
10 III is west of Las Vegas Boulevard, and it accounts for 10 percent of the total base land area. The
11 majority of base family housing units and recreational facilities are located in Area III. Industrial
12 support areas account for about 39 percent of all Nellis AFB land while open space accounts for
13 about 36 percent. Most of the area designated as industrial is mandatory open space to provide
14 safety zones around munitions storage or similar facilities.

15 The proposed flood control facilities would be located in Area I, in an area primarily void of
16 development with the exception of a chain link fence and travel routes including Ellsworth Avenue
17 and O'Bannon Road. The area surrounding the proposed project is undeveloped desert land. The
18 Nellis AFB runway and developed Nellis AFB structures are south of the proposed flood control
19 facilities.

20 Lands off-base and north of Las Vegas Boulevard are industrial and commercial. The areas
21 adjacent to the proposed project are occupied by industrial businesses and automobile and
22 construction debris recyclers.

23 Views from the proposed project north include undeveloped desert land, sand dunes, and the Las
24 Vegas Mountain Range in the distance. Views to the east are of undeveloped desert land and
25 Sunrise Mountain in the distance. Views to the south of the proposed project include the runway
26 and desert camouflaged Nellis AFB structures, while views to the west are of commercial and
27 industrial areas in the distance.

28 **3.2.3 Noise**

29 Noise is typically defined as unwanted or undesirable sound. The basic parameters of
30 environmental noise that affect human subjective response are intensity or level, frequency
31 content, and variation with time. The intensity of sound is expressed using a logarithmic scale in
32 units of decibel. On a relative basis, a 3 dB change in sound level generally represents a barely
33 noticeable change, whereas a 10 dB change in sound level would typically be perceived as a
34 doubling (or halving) in the loudness of a sound.

35 The frequency content of noise is related to the tone or pitch of the sound and is expressed based
36 on the rate of the air pressure fluctuation in terms of cycles per second (called Hertz). The human
37 ear can detect a wide range of frequencies, from about 20 Hertz to 17,000 Hertz. However,
38 because the sensitivity of human hearing varies with frequency, the "A-weighting system" is
39 commonly used when measuring environmental noise to provide a single number descriptor that
40 correlates with human subjective response. Sound levels measured using this weighting system
41 are called "A-weighted" sound levels, and are expressed in notation as dBA. Throughout this
42 section, all sound levels are expressed with dBA weighting.

43 Because environmental noise fluctuates from moment to moment, it is common practice to
44 condense all of this information into a single number, called the "equivalent" sound level (Leq).
45 Leq can be thought of as the steady sound level (or average sound level) that represents the
46 same sound energy as the varying sound levels over a specified time period. In this report, Leq(h)
47 is used to refer to the Leq sound level over a period of one hour. The day-night average sound

1 level (DNL) is also a commonly used sound level metric that depicts the average noise level over
2 a 24-hour period, with the nighttime noise artificially increased.

3 For purposes of NEPA, evaluation of noise requires identifying criteria that will be used to assess
4 potentially significant noise impacts that may require consideration of mitigation measures. This
5 section first summarizes the relevant local, state, and federal noise impact criteria, and then
6 identifies the criteria selected as most appropriate for use given the specifics of the proposed
7 roadway.

8 Chapter 9.16 in the Las Vegas Code of Ordinances prohibits “noise of such character, intensity
9 or duration as to be detrimental to the life or health of any individual, or in disturbance of the public
10 peace and welfare is prohibited.” In addition, the Las Vegas Code of Ordinances prohibits “the
11 erection, including the excavation, demolition, alteration or repair of any building in any new or
12 existing residential district, or the excavation, construction or repair of any right-of-way
13 improvements in any new or existing residential district other than between the hours of seven
14 a.m. and six p.m., except in the case of urgent necessity in the interest of public health and safety
15 and then only with a permit from the designated official” (City of Las Vegas, 2017). Although
16 construction of the alternatives occurs almost entirely on existing Nellis AFB lands, additional
17 traffic is expected to be generated in existing residential districts.

18 A DNL of 65 dBA is the level most commonly used for noise planning purposes and represents a
19 compromise between community impact and the need for activities like construction. Acceptable
20 DNL noise levels have been established by the U.S. Department of Housing and Urban
21 Development for construction activities in residential areas (HUD, 1984):

- 22 • **Acceptable** (not exceeding 65 dBA DNL) – The noise exposure may be of some concern,
23 but common building construction will make the indoor environment acceptable and the
24 outdoor environment will be reasonably pleasant for recreation and play.
- 25 • **Normally Unacceptable** (above 65 but not greater than 75 dBA DNL) – The noise
26 exposure is significantly more severe. Barriers may be necessary between the site and
27 prominent noise sources to make the outdoor environment acceptable. Special building
28 constructions may be necessary to ensure that people indoors are sufficiently protected
29 from outdoor noise.
- 30 • **Unacceptable** (greater than 75 dBA DNL) – The noise exposure at the site is so severe
31 that the construction costs to make the indoor noise environment acceptable may be
32 prohibitive, and the outdoor environment would still be unacceptable.

33 Most of the affected environment consists of existing Nellis AFB military lands. As described
34 above, developed land uses at Nellis AFB include airfield; industrial support areas; administrative
35 services areas; and housing, recreation, and services areas. Noise modeling in the AICUZ
36 identified the noise level contours, in DNL, that would occur based on existing conditions that
37 range from 65 to 85 dB (Figure 3-1). As shown in the figure, the majority of the study area occurs
38 between the 70 and 80 dBA DNL contours. The majority of the noise originates from operations
39 on the runway and practice jet flights conducted on Nellis AFB lands. Additional noise
40 contributions originates from sirens operated during the Honor Guard and presentation of the flag.

41 **3.3 AIR QUALITY**

42 The United States Environmental Protection Agency (USEPA) defined ambient air in 40 CFR §
43 50.1 as “that portion of the atmosphere, external to buildings, to which the general public has
44 access.” In compliance with the Clean Air Act, USEPA has promulgated National Ambient Air
45 Quality Standards (NAAQS). Air quality is defined by ambient air concentrations of specific criteria
46 pollutants that USEPA determines to be of concern related to the human health and the
47 environment. Primary standards set limits to protect public health, including the health of

1 “sensitive” populations such as children, the elderly, and those suffering from asthma. Secondary
2 standards set limits to protect public welfare, including protection against decreased visibility and
3 damage to animals, crops, vegetation, and buildings. To date, USEPA has issued NAAQS for six
4 criteria air pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate
5 matter with a diameter less than or equal to a nominal 10 micrometers or 2.5 micrometers (PM₁₀
6 and PM_{2.5}, respectively), sulfur dioxide (SO₂), and lead. A description of each criteria air pollutant
7 is below. Table 3-1 shows the federal standards for criteria air pollutants.

- 8 • CO is a colorless, odorless gas emitted from combustion processes, including engine
9 exhaust. Elevated CO concentrations can cause adverse health impacts by reducing
10 oxygen delivery to vital organs. Very high concentrations can cause death.
- 11 • NO₂ is one of a group of reactive gases called oxides of nitrogen or nitrogen oxides (NO_x).
12 NO_x react with ammonia, moisture, and other compounds to form small particles that
13 penetrate deep in the lungs and can cause or worsen existing respiratory system problems
14 such as asthma, emphysema, or bronchitis. NO_x is also a precursor that can lead to the
15 chemical reactions forming ground-level O₃.
- 16 • Ground-level O₃ is an important component of smog and is formed through reactions of
17 NO_x and volatile organic compounds (VOCs) in the presence of sunlight. Sources of NO_x
18 and VOC emissions include both mobile and stationary sources. Health effects of O₃
19 exposure include respiratory irritation, reduced lung function, and worsening of diseases
20 such as asthma. People with lung disease, children, older adults, and people who are
21 active outdoors may be particularly sensitive to O₃. Elevated O₃ can also affect sensitive
22 vegetation.
- 23 • Particulate Matter (PM) is a broad class of air pollutants that exist as liquid droplets or
24 solids with a wide range of size and chemical composition. PM₁₀ and PM_{2.5} are of particular
25 health concern because they can get deep into the lungs and affect respiratory and heart
26 function. Particulates can also affect visibility; damage soil, plants, and water quality; and
27 stain stone materials. Fugitive dust is a primary source of respirable airborne particulate
28 matter. Fugitive dust results from land clearing, grading, excavation, concrete work,
29 blasting, dynamiting, vehicle traffic, and low-flying air traffic. The amount of dust generated
30 is related to the type and duration of mechanical activities, silt and moisture content of the
31 soil, wind speed, frequency of precipitation, vehicle traffic, vehicle types, and roadway
32 characteristics. Particulate matter arising from fugitive dust is regulated by federal, state,
33 and local agencies.
- 34 • SO₂ is part of a group of reactive gases called sulfur oxides. Health effects of SO₂
35 exposure include adverse respiratory effects, such as increased asthma symptoms. The
36 largest sources of SO₂ emissions nationally are from fossil fuel combustion at power
37 plants/industrial facilities, electrical utilities, and residential/commercial boilers. Mobile
38 sources are not a significant source of SO₂ emissions.
- 39 • Lead is a toxic heavy metal that can have numerous adverse health impacts, including
40 neurological damage to children and cardiovascular effects in adults. Lead emissions can
41 contribute to exposure directly through the air or indirectly by causing soil/water
42 contamination. Before leaded gasoline was phased out, automobiles were a source of
43 lead emissions. According to USEPA, the major sources of lead emissions today are ore
44 and metal processing and piston-engine aircraft operating on leaded aviation gasoline.

1 **Table 3-1. Federal Standards for Criteria Air Pollutants**

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
CO		Primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead		Primary and secondary	Rolling 3-month average	0.15 $\mu\text{g}/\text{m}^3$	Not to be exceeded
NO ₂		Primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and secondary	1-year	53 ppb	Annual mean
O ₃		Primary and secondary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
PM	PM _{2.5}	Primary	1-year	12.0 $\mu\text{g}/\text{m}^3$	Annual mean, averaged over 3 years
		Secondary	1-year	15.0 $\mu\text{g}/\text{m}^3$	Annual mean, averaged over 3 years
		Primary and secondary	24 hours	35 $\mu\text{g}/\text{m}^3$	98th percentile, averaged over 3 years
	PM ₁₀	Primary and secondary	24 hours	150 $\mu\text{g}/\text{m}^3$	Not to be exceeded more than once per year on average over 3 years
SO ₂		Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

2 Source: USEPA, 2017

3 Notes: ppm – parts per million; $\mu\text{g}/\text{m}^3$ – micrograms per cubic meter; ppb – parts per billion

4 Counties that do not meet the NAAQS are called nonattainment areas. Former non-attainment
 5 areas are called maintenance areas. Federal actions located in nonattainment or maintenance
 6 areas are required to demonstrate compliance with the general conformity guidelines established
 7 in Determining Conformity of Federal Actions to State or Federal Implementation Plans (40 CFR
 8 § 93). Section 93.153 of this rule sets the applicability requirements for projects subject to it
 9 through the establishment of *de minimis* levels for annual criteria air pollutant emissions. These
 10 *de minimis* levels can vary based on criteria air pollutant nonattainment area designations (e.g.,
 11 moderate, serious, severe, extreme). Projects with emissions below the *de minimis* levels and
 12 projects in counties that are in attainment areas are not subject to the rule. Those projects in
 13 nonattainment areas with emissions at or above the *de minimis* levels are required to perform a
 14 conformity analysis as established in the rule. The *de minimis* levels apply to direct and indirect
 15 sources of emissions that can occur during the construction and operational phases of a project.

16 There are 16 ambient air quality monitoring stations located in Clark County (CCDAQ, 2017). The
 17 Las Vegas Valley Hydrographic Area 212 portion of Clark County—which includes the study
 18 area—is designated a maintenance area (former nonattainment area) for CO and PM₁₀. Clark
 19 County is an attainment or unclassifiable area for the remaining criteria pollutants. Therefore, the
 20 general conformity guidelines described above are applicable to this proposed project for CO and
 21 PM₁₀. A general conformity applicability analysis will be conducted for the study area to compare
 22 CO and PM₁₀ to the *de minimis* levels discussed above.

1 Nellis AFB currently operates under a Title V air quality permit for stationary emissions from base
2 operations. Current aircraft operations contribute to an increase in criteria pollutants in the Clark
3 County airshed. However, these emissions have not adversely affected the attainment status of
4 the county.

5 **3.4 WATER RESOURCES**

6 The Clean Water Act of 1972 is the primary federal law that protects the nation’s waters, including
7 lakes, rivers, aquifers, and coastal areas. The primary objective of the Clean Water Act is to
8 restore and maintain the integrity of the nation’s waters. Other issues relevant to water resources
9 include watershed areas affected by existing and potential runoff and hazards associated with
10 floodplains.

11 **3.4.1 Groundwater**

12 Historically, the principal groundwater aquifer for the Las Vegas Valley provided most of the water
13 supply for residents. In the early 1970s, municipal facilities were built to treat and convey Colorado
14 River water (specifically from the Lake Mead reservoir) to augment groundwater supplies. Today,
15 groundwater provides approximately 10 percent of municipal water supply to Las Vegas and its
16 surrounding communities (SNWA, 2016).

17 Groundwater in the Las Vegas Valley occurs in three general aquifer systems: shallow aquifers
18 (generally less than 50 feet below grade); near-surface aquifers (more than 50 feet and up to 200
19 feet below grade); and principal aquifers (more than 200 feet below grade). The principal aquifers
20 can be broken down into three rather distinct zones of confined aquifers including a shallow zone,
21 an intermediate zone, and a deep zone.

22 The shallow aquifer system is generally unconfined; however, semi-confined conditions occur
23 locally under layers of caliche or other sediments. The water quality of the shallow aquifer does
24 not meet minimum standards set for potable water. The poor water quality is related to dissolution
25 of naturally occurring salts in the fine-grained sediments.

26 The CCRFCD MPU indicates depth to groundwater in the study area is well over 100 feet below
27 ground surface (CCRFCD, 2004). Review of the Nevada Division of Water Resources well log
28 database indicates the wells within vicinity of the proposed project have a static water level of
29 approximately 80 to 120 feet below ground surface. Based on surface topography, an inferred
30 groundwater flow direction in the vicinity of the proposed project is interpreted to be toward the
31 south.

32 **3.4.2 Surface Water**

33 Surface water includes all lakes, ponds, rivers, streams, impoundments, and wetlands within a
34 defined area or watershed.

35 Las Vegas Valley runs northwest to southeast through the area ending just beyond the City of
36 Henderson (about 10 miles west of Hoover Dam). The broad portion of the valley is known locally
37 as the Las Vegas Basin. Topography is characterized primarily by flat alluvial deposits within the
38 valley surrounded by numerous mountains and ranges in all directions. To the north (the Desert,
39 Sheep and Las Vegas Ranges) and east (the Black, Frenchman, and Muddy Mountains), they
40 are generally north-south trending ranges. To the west (Spring Mountains) and south (El Dorado
41 Mountains and McCullough Range), the mountains are less linear and not as consistently aligned.

42 The Range Wash Watershed is in the northeastern part of the Las Vegas Valley. Floodwaters are
43 generated in the mountains to the north and east and flow onto a large upland alluvial fan and
44 then southward from the apex of the fan. These flows are routed overland and through small

1 braided washes, finally being collected along the Union Pacific Railroad tracks and then
2 southward through existing culverts under the tracks. Flows are overland or directed into eastern
3 and western tributary channels that flow to a dry playa with no connection to any navigable waters.

4 **3.4.3 Floodplains**

5 Nellis AFB lies within the Upper Colorado River Basin Hydrological Region of Nevada. The portion
6 of the Range Wash Watershed in which Nellis AFB is located is characterized by few perennial
7 streams and numerous ephemeral washes.

8 Flood zone information for the proposed project was reviewed from the Federal Emergency
9 Management Agency's web page. According to this information, the proposed project is not in a
10 100-year flood zone. Additionally, the panel map provided by the Flood Insurance Rate Map
11 indicates that the proposed project is not located in a Zone X, an area shown as "being protected
12 from the 1 percent annual chance or greater flood hazard by a levee system. Overtopping or
13 failure of any levee system is possible."

14 **3.5 EARTH RESOURCES/GEOLOGY AND SOILS**

15 The area for the proposed flood control facilities is relatively flat, undeveloped desert land with an
16 elevation of approximately 1,870 feet. Generally the topography of the area slopes to the
17 southeast.

18 Nellis AFB is located within the Las Vegas Valley, which is a topographical depression trending
19 across Clark County, Nevada, and surrounded by mountain ranges. The Las Vegas Valley is
20 structural in origin and has a considerable accumulation of Quaternary alluvium derived from the
21 surrounding mountains and transported to the valley. Coarse material has been deposited closest
22 to the mountain fronts in alluvial fans, while the finer particles have reached the valley bottoms
23 where they were deposited in alluvial floodplain and lacustrine environments (Longwell et al.,
24 1965). The alluvial sediments generally become finer grained from west to east within the valley.
25 Soils in the area include Glencarb loam (silty to fine sand) and Weiser-Wechech association
26 (gravelly sandy loam) (USDA, 2018). Tectonically, the Las Vegas Valley is underlain by a series
27 of Miocene strike-slip faults and normal Quaternary faults capable of producing significant
28 earthquakes. Much of the recent fault movement has been normal faulting associated with
29 subsidence as a result of groundwater withdrawal. The geology of the proposed flood control area
30 is associated with its location in the Las Vegas Valley. No known active faults are located in the
31 area proposed for the flood control facility.

32 No farmlands or soils considered prime farmland are located within the study area.

33 **3.6 SAFETY AND OCCUPATIONAL HEALTH**

34 The Nellis AFB runway is located south of the proposed flood control facilities. Safety and
35 emergency response for the area located within the base fence-line are currently the responsibility
36 of Nellis AFB, and as part of the base, the fenced area is not accessible to unauthorized entry of
37 non-military personnel. Outside the base, the North Las Vegas Police Department, Las Vegas
38 Metropolitan Police Department Northeast Area Command, and Clark County Fire Department
39 Station 23 serve the study area.

40 Mike O'Callaghan Federal Medical Center, a 104-bed medical treatment facility in a joint venture
41 project with the Department of Veterans Affairs, serves Nellis AFB. North Vista Hospital, a
42 177-bed facility, serves the area off-base.

43 The safety of the public, with respect to the aircraft operation at Nellis AFB, is a primary concern
44 for the USAF. The areas surrounding Nellis AFB have AICUZ guidelines established to define

1 those areas with the highest potential for aircraft accidents and aircraft noise impacts. The AICUZ
2 guidelines establish flight rules and flight patterns that will have the least effect on the civilian
3 population of Las Vegas and North Las Vegas with regard to safety and noise. With regard to
4 potential aircraft accidents, Clear Zones and APZs have been established to identify the areas
5 with the greatest risk for aircraft accidents and to guide off-base development away from these
6 higher risk areas. Clear Zones extend approximately 3,000 feet from the end of each runway and
7 are totally contained within Nellis AFB. APZ I is an extension of the Clear Zone; it is about 4,000
8 feet wide and 5,000 feet long (i.e., extends 8,000 feet from the end of the runway). APZ II retains
9 the width of 4,000 feet, but extends another 7,000 feet from the end of APZ I. The greatest
10 potential for aircraft accidents occur within the Clear Zone; risks are reduced as distances from
11 the runway increase. Thus, aircraft accidents are lower in APZ II. While the potential for aircraft
12 accidents within APZ I and APZ II, which are mostly located off-base, does not warrant land
13 acquisition by the USAF, land use planning and controls are strongly encouraged in these areas
14 for the protection of the public (Nellis AFB, 2004).

15 The USAF identifies categories of aircraft mishaps. Class A mishaps are those that result in a
16 human fatality or permanent total disability, the destruction of an aircraft, or a total cost in excess
17 of \$2 million (\$1 million for mishaps occurring before fiscal year 2010) for injury, occupational
18 illness, or destruction of an aircraft. Class B mishaps are those that result in a permanent partial
19 disability, inpatient hospitalization of three or more personnel, or a total cost in excess of \$200,000
20 but less than \$1 million for injury, occupational illness, or property damage. Class C mishaps are
21 those that result in total damage in excess of \$20,000 but less than \$200,000; an injury resulting
22 in a lost workday (i.e., duration of absence is at least 8 hours beyond the day or shift during which
23 the mishap occurred); or occupational illness that causes loss of time from work at any time.

24 While Nellis AFB has not experienced an individual Class A mishap, the mishap rates for all
25 aircraft are calculated based on worldwide deployment of the aircraft type. The mishap rates are
26 based on the number of mishaps per 100,000 flying hours for each type of aircraft. The mishap
27 rate depends on the number of each aircraft type deployed, the time elapsed since the aircraft
28 type has been in operation, the number of hours flown for each type, and the location of the
29 operations. The mishap rates can then be converted to a risk factor for each aircraft type based
30 on the number of hours flown by aircraft type. The F-16 has been in operation for 40 years and
31 for the past 10 years, the average annual hours flown by F-16s worldwide has been 244,8903,
32 with an average Class A mishap rate of 2.08 (USAF Safety Office, 2016).

33 **3.7 HAZARDOUS MATERIALS/WASTE**

34 An Environmental Baseline Survey and supplemental Environmental Baseline Survey were
35 conducted for the study area. Based on the reconnaissance, interviews, environmental database
36 report review, document searches, and historical resource review, the study found no evidence
37 that hazardous substances or petroleum products were released in the area that would pose a
38 threat to proposed improvements, and no further investigation of the area is proposed (Nellis AFB,
39 2017b).

40 The proposed project is classified as Standard Environmental Condition of Property Area
41 Category 1, i.e., no storage, release, or disposal of hazardous substances or petroleum products
42 or their derivatives has occurred (including no migration of these substances from adjacent
43 properties). Based on the information gathered during the Environmental Baseline Survey, no
44 evidence of contamination was found in connection with the subject parcels that would pose an
45 environmental risk to the proposed project.

46 The Final First Five-Year Review Report for Nellis AFB (Nellis AFB, undated) was reviewed for
47 information on the environmental quality of subject parcels within Nellis AFB. Nellis AFB prepared

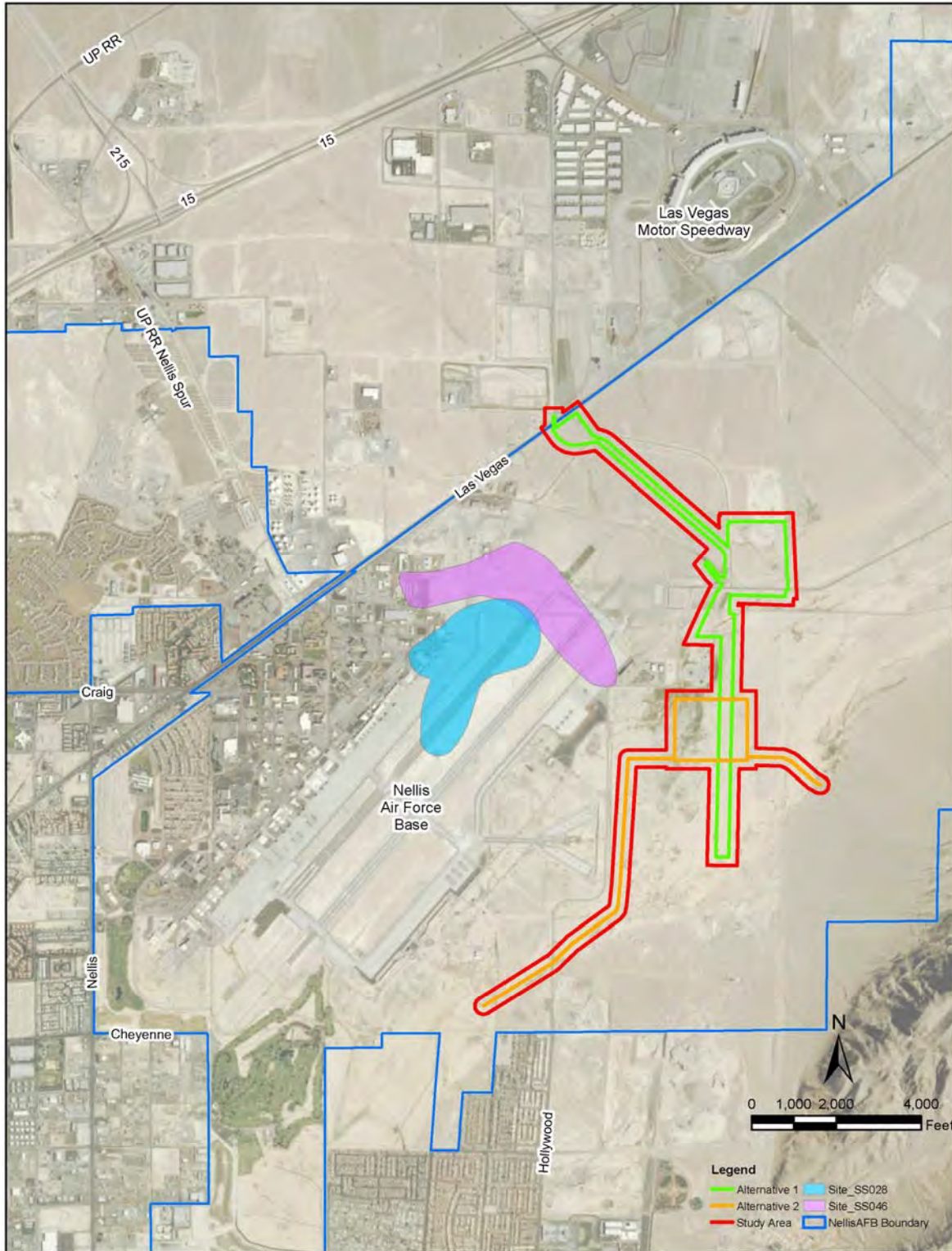
1 the Five-Year Review to analyze information regarding environmental conditions at Nellis AFB
2 and to determine whether the remedies currently in place are, and will continue to be, protective
3 of human health and the environment, and in support of Nellis AFB's Environmental Restoration
4 Program. The Environmental Restoration Program at Nellis chose to utilize the Comprehensive
5 Environmental Response, Compensation, and Liability Act process even though Nellis AFB is not
6 on the National Priorities List for Federal Superfund Cleanup.

7 Nellis AFB Sites SS046 and SS028 are located on the north end of the runway and both are
8 described in the Five-Year Review (Figure 3-2). However, the plume associated with Site SS028,
9 as delineated in the Five-Year Review, occurs southwest of the proposed project and does not
10 encroach on it. The groundwater plume associated with Site SS046 is depicted as much closer
11 to the proposed project and is further described below. Although there are comingled plumes of
12 benzene, toluene, ethylbenzene, and xylenes; methyl tert-butyl ether, and solvents associated
13 with Site SS046, trichloroethylene is the primary chemical of concern at this site. Past solvent
14 disposal practices have been identified as the source of the solvent plume extending from the
15 Propulsion Maintenance Shop (Building 858) to the flightline (Runway 21R). The source of the
16 encroaching methyl tert-butyl ether plume is an off-base Kinder Morgan tank farm. This plume
17 extends west from the base perimeter to the Hush Houses (Buildings 61635 through 61641).

18 In-situ chemical oxidation using potassium permanganate was the selected remedial technology
19 for the trichloroethylene plume. Full-scale injections began in October 2006 and concluded in
20 August 2008, following eight quarterly injection events. The Nevada Division of Environmental
21 Protection (NDEP) approved A No Further Action Required decision document for the chlorinated
22 solvents plume on June 23, 2010. In 2013, trichloroethylene concentrations generally remained
23 stable in monitoring wells in the downgradient and upgradient portions of the plume. Generally,
24 the overall extent of the solvent plume reflects a stable trend. Based on evaluation of nature and
25 extent of contamination and contaminant fate and transport, Nellis AFB's recommendations for
26 Site SS046 are to continue a long-term monitoring program. Based on the current site conditions,
27 Nellis AFB determined that the remedy selected is protective of human health and should be
28 protective of the environmental in the near future.

1

Figure 3-2. Environmental Restoration Program Sites



2

1 **3.8 BIOLOGICAL RESOURCES**

2 Natural resources refer to all components of the natural environment absent humankind.
3 Biological resources specifically refer to those natural resources that are derived from the
4 biosphere (living and organic material). These include all living resources (e.g., plants and
5 animals), as well as materials derived from organic material (e.g., petroleum and coal).

6 **3.8.1 Vegetation**

7 The study area is predominately classified by the creosote-white bursage vegetation association,
8 although the density and diversity of vegetation in the study area varies from disturbed-developed
9 to relatively undisturbed native desert scrub.

10 The portion of the proposed project located off-base is now developed as urban space and no
11 longer retains any of the native vegetation or landscape characters associated with this
12 community. This part of the proposed project runs parallel to and within the public right-of-way of
13 Hollywood Boulevard and Las Vegas Boulevard. Hollywood Boulevard is flanked by developed
14 commercial properties with planted ornamentals and/or privately held business properties that
15 have been cleared but are yet to be developed. Existing vegetation is almost entirely non-native
16 species, primarily Russian thistle (*Salsola tragus*) and dead patches of invasive grasses, including
17 Bermudagrass, Shismus, and Bromus spp.

18 On base, the study area varies from sparse to moderately dense shrubland composed primarily
19 of creosote bush and white bursage, with various other small shrubs, perennials and some cacti
20 (primarily *Opuntia* and *Cholla* spp). On the westernmost side of the proposed project, vegetation
21 is somewhat sparse with open areas of well-developed desert pavement. This area transitions to
22 a more typical creosote-bursage desert scrub community punctuated by areas of previously
23 disturbed habitat where the native vegetation has been mostly replaced with non-native invasive
24 species such as Russian thistle and red brome (*Bromus rubens*). Characteristic of the lower valley
25 desert community, the area is frequently bisected with small ephemeral washes/arroyos, which
26 when intermittently flooded, can exhibit relatively dense blooms of annual forbs. Though usually
27 dry, the deeper channels contain a higher density and richness of desert wash associated
28 vegetation. Although still desert scrub community, the plants are characteristically desert-wash
29 species and include: apache plume (*Fallugia paradoxa*), cheesebush (*Hymenoclea salsola*),
30 catclaw acacia (*Acacia greggi*), fourwing saltbush (*Atriplex canescens*), desert willow (*Chilopsis*
31 *linearis*), and occasionally honey mesquite (*Prosopis glandulosa*).

32 In accordance with the Plant Protection Act of 2000, 7 USC §§ 7711-7786, the U.S. government
33 has designated certain plants as noxious weeds. These weeds are injurious to agricultural or
34 horticultural crops, natural habitats or ecosystems, or humans or livestock. According to the
35 Nevada Department of Agriculture, 21 of the 47 state-listed noxious weeds are known to occur in
36 Clark County (University of Nevada Cooperative Extension, 2010). Of these 21 species, most are
37 associated with higher elevations and/or moist soils. While no noxious weed survey was
38 performed, site assessments were completed with no obvious signs of the two most common
39 noxious weeds, saltcedar (*Tamarix spp*) and Sahara (African) mustard (*Brassica tournefortii*)
40 noted. However, the lack of confirmed noxious weeds does not exclude the possibility of seeds
41 remaining active in the seed bank until conditions are more favorable (i.e., supplemental watering
42 during construction). A noxious weed survey of the selected alternative would be completed prior
43 to any surface-disturbing activity to identify any infestations before they are disturbed.

44 **3.8.2 Wildlife**

45 A walking survey of the study area was conducted in October 2016 and again in May 2017. Bird
46 species observed in the area included typical desert scrub/urban environment species such as

1 gambels quail, Say's phoebe, mourning dove, lesser nighthawk, and common raven. Other
2 wildlife noted included a coachwhip (*Coluber flagellum*), several common whiptail lizards
3 (*Callisaurus draconoides*), and a black tailed jackrabbit (*Lepus californicus*). No small mammals
4 were noted, but signs of their activity was prevalent in sandy soil burrow complexes typical of
5 desert rodents.

6 Nearly all bird species that are known from the Nellis AFB area are protected under the Migratory
7 Bird Treaty Act of 1918, which prohibits the intentional take of migratory birds or any part, nest,
8 or egg thereof, without appropriate permits. In July 2000, the United States Court of Appeals for
9 the District of Columbia Circuit ruled that the prohibitions in the Migratory Bird Treaty Act apply to
10 federal agencies, and that a federal agency's incidental taking and killing of migratory birds
11 without a permit would violate the Migratory Bird Treaty Act. Although federal courts disagree on
12 these issues, Congress responded by including a waiver for "military readiness activities" in the
13 National Defense Authorization Act for Fiscal Year 2003 (Public Law 107-314), Section 315, and
14 directed the Department of the Interior to promulgate regulations covering such activities.

15 The United States Fish and Wildlife Service (USFWS) published its final rule in the *Federal*
16 *Register* on February 28, 2007 (72 *Federal Register* 8931). Per 50 CFR § 21.15, the Armed
17 Forces are allowed to take migratory birds incidental to military readiness; however, if the Armed
18 Forces determine that an activity may result in a significant adverse effect on a population of a
19 migratory bird species, it must confer and cooperate with the USFWS to develop and implement
20 appropriate conservation measures. Public Law 107-314, Section 315(f), defines "military
21 readiness activity" as training operations related to combat and the testing of military systems for
22 proper operation and suitability for combat use. The term does not include routine operation,
23 construction, or demolition of facilities related to routine installation support functions or industrial
24 activities.

25 Within the study area, areas with higher diversity and density of native vegetation, such as the
26 desert dry washes, provide suitable habitat for many bush and/or ground-nesting birds that would
27 fall under the purview of the Migratory Bird Treaty Act of 1918. Surveys for ground/bush-nesting
28 bird species would need to occur prior to surface disturbance occurring during active breeding
29 season (typically between March 1 and August 31).

30 **3.8.3 Sensitive Species**

31 The USFWS official species list (USFWS, 2016) for the study area lists four federally listed
32 species for consideration during the project assessment: the Pahrump poolfish (*Empetrichthys*
33 *latos*), the southwestern willow flycatcher (*Empidonax traillii extimus*), the yellow-billed cuckoo
34 (*Coccyzus americanus*), and the Mojave desert tortoise (*Gopherus agassizii*). The primary habitat
35 for both the southwestern willow flycatcher and yellow-billed cuckoo is characterized by dense
36 riparian woodlands in close proximity to surface water. No suitable habitat is present within or
37 near the proposed project. The absence of any bodies of water also precludes the presence of
38 the Pahrump poolfish.

39 Suitable habitat for the Mojave desert tortoise is present in the study area; however, habitat
40 suitability and therefore tortoise density is predominantly located on the eastern side of Area II
41 (Nellis AFB, 2007). While a tortoise could be encountered in the study area, connectivity between
42 the area with higher densities and the western side of Area II is affected by poor/degraded habitat
43 and permanent Nellis AFB infrastructure. The likelihood of encountering a tortoise in the study
44 area is therefore low. However, in accordance with the terms and conditions of the Programmatic
45 Biological Opinion (USFWS, 2007), the proposed project would be surveyed and cleared of desert
46 tortoise using the USFWS clearance protocol prior to project commencement. Additionally, the
47 presence of a biological monitor during construction would mitigate the potential for project

1 construction to affect desert tortoises. A project-specific monitoring plan would be developed with
2 and approved by the Nellis AFB resource manager at the appropriate time. A data request
3 submitted to Nevada Natural Heritage Program resulted in records for two species of concern
4 within the study area—western burrowing owl (*Athene cunicularia*) and banded Gila monster
5 (*Heloderma suspectum*).

6 Western burrowing owls are a state-protected species, also covered under the Migratory Bird
7 Treaty Act. Western burrowing owls are known to use abandoned rabbit and rodent burrows and
8 human-made holes throughout the landfill and golf course in Area III, south of the proposed
9 project. They are known to nest in undisturbed desert and disturbed, undeveloped areas. During
10 the walking surveys in October 2016 and May 2017, no signs of nesting owls were noted, although
11 no species-specific surveys were conducted. Habitat suitable for nesting is available in the study
12 area; therefore, clearance surveys would be required prior to any surface-disturbing activity during
13 breeding/nesting season.

14 Records for the banded Gila monster are from more than 80 years ago, before any development
15 in the area. No recent accounts of this large lizard have been noted; however, suitable wash
16 habitat is present in the study area. Clearance surveys for desert tortoise would also be aimed at
17 detecting the presence of Gila monsters to avoid potential impacts on this species.

18 **3.9 CULTURAL RESOURCES**

19 The National Historic Preservation Act was established in 1966 to ensure the protection of cultural
20 and historic resources, including archaeological resources. The act established the Advisory
21 Council on Historic Preservation and authorized the creation and maintenance of a National
22 Register of Historic Places (National Register). The National Register is composed of districts,
23 sites, buildings, structures, and objects that are significant in American history, architecture,
24 archaeology, engineering, and culture. Cultural resources are defined as prehistoric or historic
25 archaeological sites, buildings, structures, districts, artifacts, or other physical evidence of human
26 activity considered to be important to a culture, subculture, or community for scientific, traditional,
27 religious, or other reasons.

28 Section 106 of the National Historic Preservation Act (implemented under 36 CFR § 800) requires
29 federal agencies to consider the effects of undertakings (i.e., actions) on any district, site, building,
30 structure, or object that is included or eligible for inclusion in the National Register and to afford
31 the Advisory Council on Historic Preservation a reasonable opportunity to comment on such
32 undertakings. As defined under 36 CFR § 800.5, an “adverse effect” occurs “when an undertaking
33 may alter, directly or indirectly, any of the characteristics of the historic property that qualify the
34 property for inclusion in the National Register in a manner that would diminish the integrity of the
35 property’s location, design, setting, materials, workmanship, feeling, or association.”

36 The National Historic Preservation Act also authorized the creation of a SHPO for each state. The
37 SHPO participates in statewide historic preservation planning and surveying activities; nominates
38 properties for the National Register; provides advice, assistance, training, and public outreach;
39 and participates in Section 106 undertaking reviews. If the federal agency proposing the
40 undertaking determines that it may result in an adverse effect on a historic property, the agency
41 must seek ways to avoid, minimize, or mitigate adverse effects.

42 The City of North Las Vegas, as the project proponent, initiated consultation with the Nevada
43 SHPO November 2, 2017, pursuant to Section 106, the federal nexus being the construction of
44 flood control facilities on Nellis AFB by the USAF.

3.9.1 Area of Potential Effect

Pursuant to 36 CFR § 800.4(a)(1), the APE is defined as the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. Within the APE, impacts on cultural resources are evaluated for both historic structures (aboveground cultural resources) and archaeology (belowground cultural resources). The APE encompasses all lands within the study area, including proposed detention basins and staging areas. The APE also includes a 5-meter buffer along either side of the channel to account for direct effects from machinery during construction and would include the entire area of ground disturbance (Figure 3-3).

3.9.2 Existing Conditions

Nellis AFB originated as a United States Army school for gunnery, parachute, and pilot training from 1940 to 1948. In 1947, the USAF was created as a separate military department, and the post was renamed Nellis AFB in 1950 in honor of First Lieutenant William H. Nellis of Searchlight, Nevada, who was killed on December 27, 1944, when his P-47 Thunderbolt was downed over Luxembourg (Nellis AFB, 2012).

Nellis AFB has conducted numerous archaeological and historic architectural surveys since the late 1970s. The USAF has surveyed 22,341 acres in the Las Vegas Valley, including all of Area I and part of the Nevada Test and Training Range, for archaeological resources. These surveys have identified 85 sites, only 1 of which, a quarry site, is eligible for listing in the National Register. All other sites were determined to be ineligible for listing through consultation with the Nevada SHPO in 2001 (by letter dated April 12, 2001).

Key surveys conducted in the study area include:

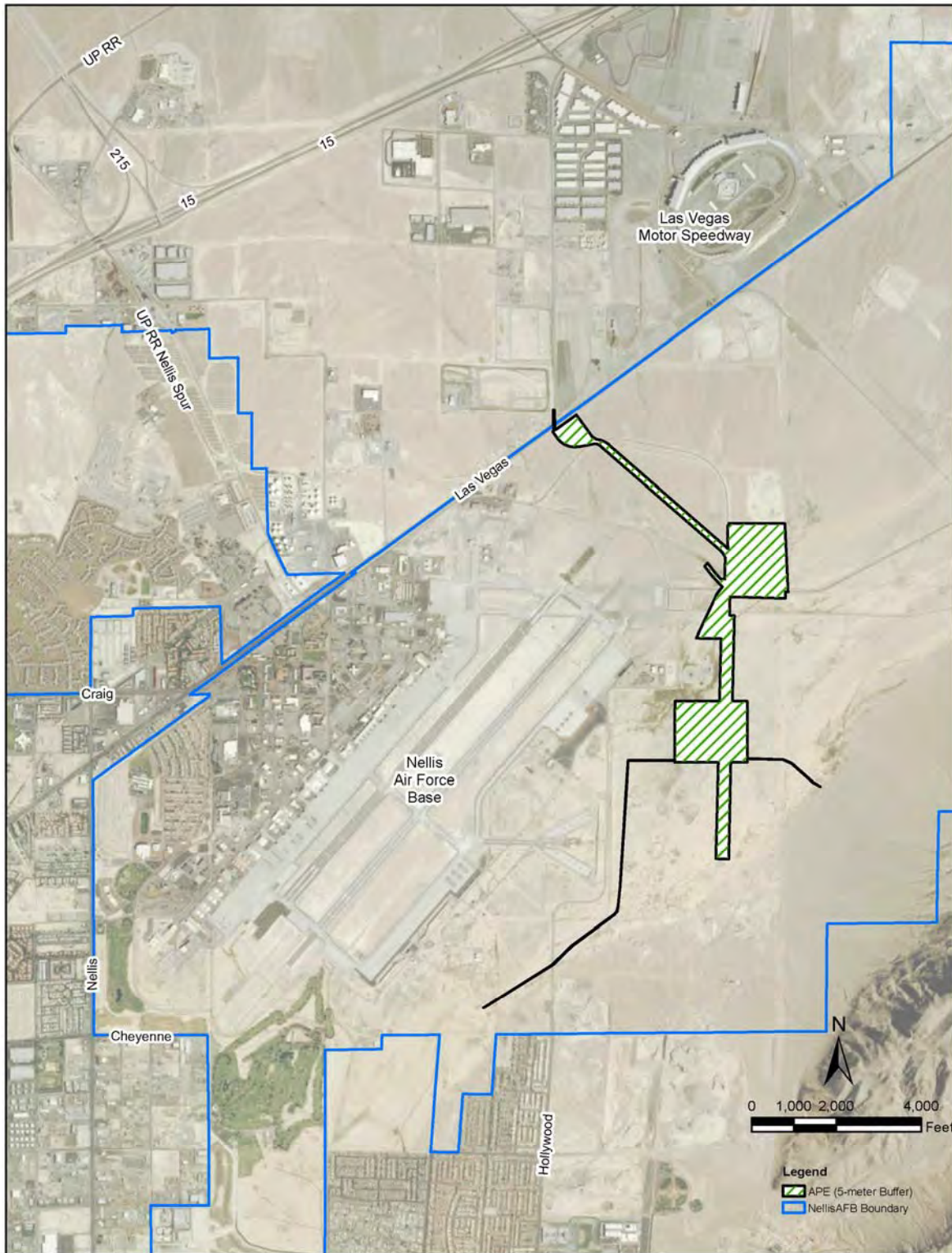
- Archaeology of the Main Cantonment: Nellis Air Force Base, Clark County, Nevada. Kathleen Ann Bergin, 1993 (SHPO Report No. 1361)
- Clark County Regional Flood Control District Final Master Plan: 10-Year Plan Facility Cultural Resource Survey Report. Dames and Moore. BLM report 5-2127, 1991 (SHPO Report No. 13255)
- Nellis Air Force Withdrawal Lands, Clark County, Nevada, 1999 (SHPO Report No. 13137)
- *Cultural Resource Survey of the Las Vegas Motor Speedway*. Knight & Leavitt Associates, 1994 (SHPO Report No. 13301).

A review of the Nevada Cultural Resource Information System was conducted to ascertain whether any previous archaeological sites were located in the study area. Twenty-four archaeological sites have been identified within a mile of the study area. Four sites are recommended as eligible. Two sites are within close proximity to the east end of the proposed project and may be within the limits of ground disturbance. Both sites have been determined ineligible for listing in the National Register.

Three historic building inventories have been completed at Nellis AFB evaluating World War II structures. Page and Turnbull (1988) completed an inventory and evaluation of World War II structures at Nellis AFB and Creech AFB. In a letter dated 14 June 1991, the SHPO reviewed the evaluation and concurred with its recommendations. In 2004, 336 Wherry houses constructed from 1950 to 1957 and 113 Capehart structures built on Nellis AFB in 1960 were proposed for demolition. Deborah Dobson-Brown (2004) conducted the field research and argued the buildings lacked physical integrity for further eligibility consideration. The SHPO concurred with the recommendation. In 1995, Mariah Associates, Inc., completed a preliminary evaluation, interpretation, and prioritization of Cold War facilities for 27 Air Combat Command bases throughout the United States. This report was not subject to SHPO review; however, no facilities were recommended for further review.

1

Figure 3-3. Area of Potential Effect



2

1 The APE for the off-base area was not surveyed because the area is entirely within the existing
2 right-of-way. The proposed construction staging area at the northeast corner of Ellsworth Avenue
3 and O'Bannon Road was previously used as a borrow pit. No archaeological survey was
4 conducted in this area because of the extensive ground disturbance.

5 **3.10 INFRASTRUCTURE/UTILITIES**

6 **3.10.1 Infrastructure**

7 Major transportation arteries in the area around Nellis AFB include Las Vegas Boulevard, which
8 runs northeast-southwest through Nellis AFB and separates Area I from Area III. It is a major
9 regional artery connecting the base area with downtown Las Vegas. The Range Road Gate on
10 Las Vegas Boulevard North provides access to Area III. East Craig Road intersects Las Vegas
11 Boulevard North at the Nellis AFB Craig Road Gate (Main Base Gate). It also is a major artery
12 that funnels traffic from Interstate 15 north of the base to Las Vegas Boulevard North. The main
13 gate to the Area III on-base housing is on East Craig Road. Area I of Nellis AFB is bounded on
14 the west by North Nellis Boulevard, which is a major north-south road that connects south Las
15 Vegas with the City of North Las Vegas and Nellis AFB. The Tyndall Avenue Gate provides access
16 from North Nellis Boulevard to Area I.

17 On base, Nellis AFB has approximately 147 miles of paved roads. Intersections are controlled by
18 stop signs, which can cause minor traffic delays at these intersections. Traffic circles to facilitate
19 vehicle flow have been planned, and two have been constructed – one at the intersection of
20 Ellsworth Avenue and Fitzgerald Boulevard and the other at Ellsworth and Beale Avenues.
21 Unpaved roads are located in Areas II and III, with the majority located along the perimeter of the
22 base. They are minimally used for fence maintenance and security.

23 **3.10.2 Utilities**

24 The Clark County Water Reclamation District currently takes in approximately 1.5 million gallons
25 per day from Nellis AFB. In 2009, Nellis AFB rented land to the City of North Las Vegas for a
26 water reclamation facility. Septic systems are in place for areas that have remote access or no
27 access to pipes. The Clark County Water Reclamation district is a member of the Southern
28 Nevada Water Authority (SNWA) and governs the Clark County section of SNWA. The district
29 services all areas in Clark County and collects and reclaims approximately 83 million gallons of
30 wastewater per day.

31 Nellis AFB's drinking water is supplied by SNWA from Lake Mead (formed by Hoover Dam and
32 fed by the Colorado River) and nine active wells (USAF, 2015). Water treatment from Lake Mead
33 water is conducted at the Alfred Merritt Smith or River Mountains treatment facilities using a
34 multistage filtration system (USAF, 2015). Water collected by SNWA from wells is chlorinated by
35 Civil Engineering Utilities (USAF, 2015). All water is certified as safe to drink in accordance with
36 the USEPA (USAF, 2015). SNWA predicts that water demand will increase over future years
37 (SNWA, 2015).

38 The majority of electricity provided to Nellis AFB is provided by NV Energy. The remaining energy
39 is provided by a large solar array stationed on Nellis AFB and owned by NV Energy, which was
40 completed and became fully operational in 2015. The system encompasses about 140 acres and
41 contains approximately 70,000 solar panels. In 2014, the solar array produced 31.202 gigawatt
42 hours (USEIA, 2016).

43 The majority of solid waste is taken to an approved landfill by Republic Services. In 1991, Nevada
44 legislature set a recycling goal of 25 percent. In 2012 and 2013, Clark County recycling rates were
45 27.5 and 22.0 percent, respectively (NDEP, 2015).

1 The distributor of natural gas to heat the base is the Southwest Gas Company through
 2 approximately 200,000 linear feet (40 miles) of polyethylene pipes. The base hosts three
 3 1,000-cubic-foot tanks for natural gas storage to be used for equipment.

4 Jet fuel, diesel, and gasoline are delivered to Nellis AFB by the CALNEV Pipeline (owned and
 5 operated by Kinder Morgan) (Clark County Planning Commission, 2006). The CALNEV Pipeline
 6 moves fuel from California to Nellis AFB and McCarran International Airport via a 550-mile,
 7 two-line pipe system. It provides Clark County with approximately 130,000 barrels of fuel per day
 8 (Clark County Planning Commission, 2006).

9 **3.11 SOCIOECONOMICS**

10 Socioeconomic resources include population, race and ethnicity, income, poverty, housing, and
 11 employment. Data on existing socioeconomic conditions were collected from the U.S. Census,
 12 Bureau, the U.S. Bureau of Labor Statistics, and the Nevada Department of Employment,
 13 Training, and Rehabilitation.

14 According to information obtained from the 2016 American Community Survey’s 5-year estimates,
 15 there were 2,070,153 residents in Clark County and 230,436 residents in North Las Vegas (Table
 16 3-2). Based on that same data source, the population of Nellis AFB was 3,252. There were
 17 735,475 occupied housing units in Clark County, 69,109 in North Las Vegas, and 832 on Nellis
 18 AFB.

19 **Table 3-2. Population and Housing Units**

	Population	Occupied Housing Units
Clark County	2,070,153	735,475
City of North Las Vegas	230,436	69,109
Nellis AFB	3,252	832

20 Source: U.S. Census Bureau (2016)

21 The largest racial and ethnic group in Clark County and Nellis AFB is non-Hispanic white,
 22 accounting for 45.0 and 51.8 percent, respectively (Table 3-3). In the City of North Las Vegas,
 23 Hispanics/Latinos are the largest population group (40.4 percent).

24 **Table 3-3. Race and Ethnicity**

	Clark County	City of North Las Vegas	Nellis AFB
Non-Hispanic White	45.0%	29.0%	51.8%
Non-Hispanic Black/African American	10.6%	19.5%	23.2%
American Indian/ Alaska Native	0.4%	0.5%	0.0%
Asian	9.2%	5.9%	3.1%
Native Hawaiian/Other Pacific Islander	0.7%	0.9%	0.2%
Non-Hispanic Other Race	0.2%	0.2%	0.0%

	Clark County	City of North Las Vegas	Nellis AFB
Non-Hispanic More than one race	3.6%	3.6%	6.6%
Hispanic/Latino	30.4%	40.4%	15.0%
Total	100%	100%	100%
Minority	55.0%	71.0%	48.2%

1 Source: U.S. Census Bureau (2016)

2 The median household income in Clark County and the City of North Las Vegas was about
 3 \$53,000 (Table 3-4). The median household income of residents of Nellis AFB was \$45,000. The
 4 proportion of the population living in poverty in the City of North Las Vegas (15.7 percent) was
 5 also similar to that of Clark County (15.0 percent). On Nellis AFB, the poverty rate was 11.2
 6 percent.

7 **Table 3-4. Income and Poverty**

	Median Household Income	Percent Population in Poverty
Clark County	\$52,629	15.0
City of North Las Vegas	\$53,565	15.7
Nellis AFB	\$45,000	11.2

8 Source: U.S. Census Bureau (2016)

9 The most recent annual data from the Bureau of Labor Statistics and the Nevada Department of
 10 Employment, Training, and Rehabilitation shows that the average employment in Clark County in
 11 2016 was 936,513 (U.S. Bureau of Labor Statistics, 2016).

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This section addresses potential impacts on environmental resources within or near the proposed project. An impact (consequence or effect) is defined as a modification of 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 farther 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. The significance of the impacts presented in this EA is based on existing regulatory standards, scientific and environmental knowledge, and best professional opinions. For the purpose of this analysis, the intensity of impacts would be classified as negligible, minor, moderate, or major.

4.2 AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE/NOISE

4.2.1 Air Installation Compatible Use Zone

Alternative 1

Portions of the proposed project are within the Clear Zone and APZ I; however, the proposed project would not affect the AICUZ because there would be no change in flight operations. The proposed project would not affect compatibly with the defense flying mission.

Alternative 2

The impacts on the AICUZ under Alternative 2 would be similar to those described for Alternative 1.

No Action Alternative

Under the No Action Alternative, the flood control facilities would not be constructed and no impacts on the AICUZ would occur.

4.2.2 Land Use

Alternative 1

Land use in the study area would not change from its existing use; however, the land surface would be disturbed during construction activities to install the proposed flood control facilities. After construction is completed, the area would be revegetated and landscaped to restore it to conditions previous to the ground disturbance.

1 **Alternative 2**

2 The impacts on land use under Alternative 2 would be similar to those described for Alternative
 3 1.

4 **No Action Alternative**

5 Under the No Action Alternative, the proposed flood control facilities would not be constructed,
 6 and flood flows would continue to overtop Nellis AFB. No changes to land use would occur.

7 **4.2.3 Noise**

8 **Alternative 1**

9 *Construction Equipment*

10 Potential noise impacts may result from the combined noise levels emitted from construction
 11 equipment during the construction of the proposed project. The noise levels emitted from typical
 12 equipment used for the construction of berms, channels, and detention basins are listed in Table
 13 4-1.

14 **Table 4-1. Construction Equipment Noise Emission Reference Levels**

Equipment Description	Maximum Instantaneous Sound Level (Lmax) at 50 feet (dBA)
Backhoe	80.0
Compactor	80.0
Dozer	85.0
Dump truck	84.0
Excavator	85.0
Front end loader	80.0
Tractor	84.0
Combined Noise Level	91.6

15 Source: FHWA (2006)

16 Sensitive receptors, such as residential properties and parks, near the proposed project were
 17 identified. Identified receptors include the Bullring at Las Vegas Motor Speedway, residential
 18 properties within Nellis AFB, and additional residential properties along North Hollywood
 19 Boulevard and East Cheyenne Avenue.

20 The distance between the sensitive receptors, including the receptor nearest to the proposed
 21 project, and the proposed project was measured. This distance and the noise levels referenced
 22 above were used to estimate the noise contribution of the construction equipment at the nearest
 23 sensitive receptor. To determine the noise contribution during an expected worst case scenario,
 24 the noise levels of all construction equipment was considered in this estimate. The distance
 25 between the sensitive receptors and the proposed project is shown in Table 4-2.

1 **Table 4-2. Distance between Sensitive Receptors and Project Footprint**

Receptor	Distance from Alternative 1 (feet)	Distance from Alternative 2 (feet)
The Bullring at Las Vegas Motor Speedway	1,900	1,900
Residential property along East Cheyenne Avenue	5,716	890

2 A sound level decrease of 6 dBA was assumed per doubling of the distance (FHWA, 2017).

3 For Alternative 1, the sensitive receptor nearest to the proposed project is the Bullring at Las
 4 Vegas Motor Speedway (1,900 feet). An additional receptor, a residential property along East
 5 Cheyenne Avenue (5,716 feet), was identified and assessed.

6 The noise contributions from construction activities at the receptors during Alternative 1 is shown
 7 in Table 4-3 below.

8 **Table 4-3. Noise Contributions from Construction Activities at Sensitive Receptors**
 9 **during Alternative 1**

Receptor	Noise Contribution (dBA)
The Bullring at Las Vegas Motor Speedway	60.0
Residential property along East Cheyenne Avenue	50.0

10 Based on the relatively low noise contributions shown in Table 4-3 (which are typical of a suburban
 11 area background noise), the construction activity is not expected to result in perceptible change
 12 in existing noise. In addition, any noise level increase is temporary and expected to occur only
 13 during construction hours. Note that noise level changes up to 3 dBA represents a barely
 14 noticeable change.

15 Based on the assessment above, noise impacts would be minor. No significant construction
 16 impacts would occur.

17 **Alternative 2**

18 *Construction Equipment*

19 The methodology described above for assessing noise impacts from construction equipment was
 20 performed for Alternative 2.

21 For Alternative 2, the distance to the Bullring at Las Vegas Motor Speedway and the residential
 22 property along East Cheyenne Avenue was 1900 feet and 890 feet, respectively.

23 The noise contributions from construction activities at the receptors during Alternative 2 is shown
 24 in Table 4-4.

1 **Table 4-4. Noise Contributions from Construction Activities at Sensitive Receptors**
2 **during Alternative 2**

Receptor	Noise Contribution (dBA)
The Bullring at Las Vegas Motor Speedway	60.0
Residential property along East Cheyenne Avenue	66.6

3 Based on the relatively low noise contributions shown in Table 4-4, the construction activity is not
4 expected to result in a substantial change in existing noise levels. In addition, any noise level
5 increase is temporary and expected to occur only during construction hours.

6 Based on the assessment above, noise impacts would be minor. No significant construction
7 impacts would occur.

8 *Hauling of Excavated Soil*

9 In addition to the noise generated by the construction equipment, noise is also expected to be
10 generated from dump trucks hauling excavated soil offsite. Assuming that the dump trucks are
11 routed southbound along North Las Vegas Boulevard, residential properties along the street are
12 expected to experience an increase in noise levels.

13 To assess the potential for noise impacts, a traffic noise screening analysis was performed using
14 the Federal Highway Administration traffic noise model (TNM2.5).

15 Residential receptors along North Las Vegas Boulevard were identified as sensitive receptors.
16 The background noise at these receptors was assumed to be the existing noise levels,
17 conservatively estimated to be 70 dBA.

18 Based on the hauling of excavated soil from the detention basin, a traffic increase of 133 heavy
19 duty trucks per hour on each direction along North Las Vegas Boulevard was conservatively
20 estimated.

21 The receptor with the maximum noise contribution due to the traffic increase had a noise
22 contribution of 60.5 dBA, which is within the range of typical suburban background noise levels.
23 Therefore, a substantial increase in noise at sensitive receptors from temporary daytime haul
24 truck activity is not anticipated.

25 **No Action Alternative**

26 Under the No Action Alternative, no new structures would be built. Therefore, the No Action
27 Alternative would have no impacts on noise.

28 **4.3 AIR QUALITY**

29 The analysis of criteria pollutant emissions from construction activities are presented below were
30 calculated using the USAF's Air Conformity Applicability Model (ACAM). The estimates below
31 represent maximum emissions without mitigation measures. The proposed project would require
32 construction permits from the Clark County Department of Air Quality. Under these permits,
33 emissions would be controlled for all operations producing fugitive dust. The ACAM Record of
34 Conformity Analysis is provided in Appendix B. For all proposed construction actions, the model
35 found that none of the criteria pollutants emitted would exceed the applicable *de minimis*

1 thresholds. Clark County air quality regulations are applicable to the construction activities include
 2 obtaining a dust control permit and implementing a detailed supplemental dust mitigation plan.

3 **Alternative 1**

4 Under Alternative 1, construction activities would include land clearing; excavating soil and rocks
 5 (e.g. removal, hauling, crushing, and screening); initial landscaping; establishing staging, parking,
 6 and material storage areas; and developing access routes to construction sites. Equipment used
 7 for these activities would include, but would not be limited to, bulldozers, graders, loaders,
 8 compactors, scrapers, haul trucks, and watering trucks. This equipment would produce criteria air
 9 pollutants such as CO, PM₁₀, NO_x, and VOCs. Based on the design parameters of the proposed
 10 conveyance facilities and the equipment required to construct these facilities, Alternative 1 would
 11 emit less than 61.23 tons of PM₁₀ and 2.1 tons of CO. These emissions are well below the general
 12 conformity thresholds of 100 tons for PM₁₀ and 100 tons for CO (USEPA, 2018).

13 As noted previously, large amounts of NO_x and VOCs in the atmosphere can produce smog.
 14 Based on the design parameters of the proposed conveyance facilities and the equipment
 15 required to construct these facilities, Alternative 1 would produce approximately 0.47 ton of VOCs
 16 and 3.4 tons of NO_x. These emissions would be far below the general conformity thresholds of 50
 17 tons for VOCs and 100 tons for NO_x. Table 4-5 presents the total emissions for construction
 18 activities under Alternative 1.

19 **Table 4-5. Alternative 1 – Total Emissions for Construction Activities (tons)**

VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
0.47	3.4	2.1	0.01	61.23	0.14

20 **Alternative 2**

21 Emissions under Alternative 2 would be greater than those under Alternative 1 because
 22 Alternative 2 builds on Alternative 1. These activities also occur over a longer time frame. More
 23 than 200 tons of PM₁₀ would be generated and would require a general conformity threshold
 24 determination if this alternative is selected. . Approximately 4.84 tons of CO would be produced,
 25 which would be well below the general conformity thresholds of 100 tons for CO. Alternative 2
 26 would produce less than 1.1 tons of VOCs and less than 8.05 tons of NO_x. Table 4-6 presents the
 27 total emissions for construction activities under Alternative 2.

28 **Table 4-6. Alternative 2 – Total Emissions for Construction Activities (tons)**

VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
1.1	8.05	4.84	0.01	217.01	0.34

29 **No Action Alternative**

30 The No Action Alternative would involve no change to the current drainage system, and no
 31 impacts on air quality would occur. Excess runoff would continue to overtop Las Vegas Boulevard,
 32 Ellsworth Avenue, and Munitions Road and inundate portions of Nellis AFB during large storms.

33 **4.4 WATER RESOURCES**

34 No significant impacts on water resources have been identified that would result from
 35 implementation of the proposed project; however, construction of the proposed flood control
 36 facilities would have long-term effects on flood flows. Ground-disturbing activities, such as
 37 excavation, grubbing, or vegetation removal that may increase soil erosion or produce fill material

1 that requires deposition, may lead to filling of potentially jurisdictional ephemeral streams or
2 washes. Increased susceptibility to erosion may lead to some long-term and/or recurring impacts
3 on surface waters that receive increased sedimentation during rain or high wind events that occur.

4 There would be no impacts on wetlands because no wetlands occur within or in the vicinity of the
5 proposed project. Concurrence from the U.S. Army Corps of Engineers on June 12, 2017,
6 confirmed that water flows into a dry playa and has no connection to traditionally navigable waters
7 (Appendix A).

8 **4.4.1 Alternative 1**

9 **Groundwater**

10 Impacts on groundwater would be negligible. Shallow groundwater occurs at depths of a few
11 hundred feet at Nellis AFB, and production wells are monitored for contaminants on a monthly
12 basis. It is unlikely that construction activities would introduce new sources of groundwater
13 contamination. Monitoring for leaks and spills, secondary containment, and other best
14 management practices (BMPs) would be implemented to prevent or reduce any contamination of
15 groundwater during construction activities.

16 No long-term use of groundwater would occur during construction of the flood control facilities;
17 therefore, no long-term impact on groundwater quality or supply is expected. Water would be
18 used during construction activities for dust suppression and soil compaction; water for these
19 purposes would be drawn from municipal water supplies and would not affect groundwater.

20 **Surface Water**

21 Alternative 1 would have minimal impacts on surface water quality. Construction activities could
22 disturb soils, which in turn, could increase the probability of erosion. Temporary water quality
23 impairments may occur if a major rain event occurs while surfaces are exposed during the
24 placement of additional fill or grading of soils before landscaping and asphalt are installed.
25 Alternative 1 would be required to obtain coverage under the Nevada Construction Stormwater
26 General Permit NV100000 by submitting a Notice of Intent to the Bureau of Water Pollution
27 Control with the Nevada Division of Environmental Protection prior to construction. In addition,
28 the contractor would need to develop a Stormwater Pollution Prevention Plan (SWPPP). SWPPP
29 requirements include an outline of the stormwater drainage system for each discharge point,
30 actual and potential pollutant contact, and surface water locations. The SWPPP would also
31 incorporate stormwater BMPs, such as silt fencing and other stormwater controls. Compliance
32 with the SWPPP would minimize potential impacts on surface water quality. The project may be
33 subject to other Bureau of Water Pollution Control permitting (Nevada Administrative Code
34 445A.228).

35 **Floodplains**

36 The construction activity areas do not lie within a major floodplain. Minor to negligible impacts on
37 small, localized floodplains and alluvial fans created by networks of ephemeral streams and
38 washes may occur under the Proposed Action. Diverting flood flows through the proposed flood
39 control facilities would have a long-term impacts. Flood flows would terminate in a playa.

40 **4.4.2 Alternative 2**

41 The impacts on groundwater, surface water, and floodplains under Alternative 2 would be similar
42 to those described for Alternative 1.

1 **Groundwater**

2 Water would be used during construction activities for dust suppression and soil compaction;
3 water for these purposes would be drawn from municipal water supplies and would not affect
4 groundwater.

5 **Surface Water**

6 Activities under Alternative 2 would follow provisions in the SWPPP and Spill Prevention, Control,
7 and Countermeasures Plan to control and reduce impacts on surface water.

8 To limit the potential for debris and pollution of surface water via storm event runoff, all solid waste
9 would be gathered and disposed of at approved sites.

10 **Floodplains**

11 Flood flows would be diverted through permanent proposed flood control facilities with a terminus
12 in a playa.

13 **4.4.3 No Action Alternative**

14 Under the No Action Alternative, there would be no impacts on surface waters, floodplains,
15 wetlands, or groundwater because no flood control improvements would occur at Nellis AFB.

16 **Groundwater**

17 Under the No Action Alternative, flood control facilities would not be installed; therefore, no
18 impacts on groundwater would occur.

19 **Surface Water**

20 Under the No Action Alternative, flood control facilities would not be installed; therefore, flood
21 flows would remain the same with no impacts on surface water.

22 **Floodplains**

23 Under the No Action Alternative, flood control facilities would not be installed; therefore, flood
24 flows would continue to overtop Nellis AFB, causing continued erosion and property destruction.

25 **4.5 EARTH RESOURCES/GEOLOGY AND SOILS**

26 BMPs for construction site soil erosion, as specified in the SWPPP, would be implemented to
27 prevent the migration of soils, oil and grease, and construction debris into the local stream
28 networks. Erosion from construction activities would be prevented through BMPs used for
29 stormwater and sediment control. Fugitive dust would be mitigated through application of water
30 when necessary. No significant impacts on surface water are expected during construction.

31 **4.5.1 Alternative 1**

32 There are no farmlands or soils considered prime farmland in the study area.

33 No significant impacts on soils or other earth resources have been identified that would result
34 from the implementation of Alternative 1. Site preparation and construction activities would disturb
35 approximately 47 acres. Any soil disturbance that would expose the soils to wind, rain, and
36 stormwater runoff would be stabilized during construction activities. Nellis AFB would be required
37 to obtain inclusion in the Nevada Department of Environmental Protection's Stormwater

1 construction permit and would maintain a SWPPP. The SWPPP would detail erosion prevention
2 and control measures during construction activities until permanent stabilization.

3 **4.5.2 Alternative 2**

4 Impacts on earth resources, geology, and soils would be similar to those described for Alternative
5 1. Site preparation and construction activities would disturb approximately 100 acres.

6 **4.5.3 No Action Alternative**

7 Under the No Action Alternative, flood control facilities would not be installed; therefore, flood
8 flows would continue to erode the natural ephemeral washes during storm events.

9 **4.6 SAFETY AND OCCUPATIONAL HEALTH**

10 The safety and occupational health analysis addresses issues related to the health and well-being
11 of construction workers, military personnel, and civilians working or living in the study area.

12 **4.6.1 Alternative 1**

13 No significant impacts on safety and occupational health have been identified that would result
14 from implementation of the proposed project. During construction, all actions would be performed
15 in accordance with Air Force Office of Safety and Health directives and Occupational Safety and
16 Health Administration regulations. No specific aspects of construction would create any unique or
17 extraordinary safety issues. The handling, processing, storage, and disposal of hazardous by-
18 products from these activities would be accomplished in accordance with all federal, state, and
19 local requirements, as well as applicable Nellis AFB plans. All current day-to-day operations have
20 established safety guidelines and procedures that would continue to be observed. No adverse
21 impact on safety would be anticipated under the proposed project.

22 Construction activities related to Alternative 1 would comply with the applicable regulations and
23 guidance, including 29 CFR § 1926, Safety and Health Regulations for Construction, and
24 applicable subparts of 29 CFR § 1910, Occupational Safety and Health Standards, and would
25 ensure the safety and health of workers during construction. To minimize potential safety hazards
26 to construction workers and the public, Nellis AFB would implement a health and safety program
27 that ensures that construction workers are aware of the hazards associated with the proposed
28 construction activities and the safety measures that must be taken to prevent injury and
29 hazardous conditions within and outside the working environment. The program would identify
30 and address safety issues such as site access, construction hazards, safe work practices,
31 security, heavy equipment transportation, traffic management, emergency procedures, unknown
32 hazards, and fire control. It also would identify requirements for temporary fencing around staging
33 areas, storage yards, and excavation areas during construction, as well as measures to be taken
34 during operation of the project to limit public access to potential hazards (e.g., permanent fencing,
35 locked access).

36 Nellis AFB would also be required to generate an occupational health and safety plan that
37 addresses identification, evaluation, and assessment of all physical, chemical, biological,
38 radiation, or nuclear hazards in all tasks or processes for the project per compliance with
39 Occupational Safety and Health Administration standards and protection of their employees
40 equivalent to AFI 48-145, *Occupational and Environmental Health Program*. The plan would
41 address personal protective equipment usage and risk management that deals with the stated
42 hazards.

1 To prevent unauthorized members of the public from entering the proposed roadway during
2 construction, construction workers would be clearly identifiable so as to prevent unauthorized
3 persons from entering the site during construction.

4 **4.6.2 Alternative 2**

5 The construction activities related to Alternative 2 would comply with the applicable regulations
6 and guidance described under Alternative 1. Similar to Alternative 1, an occupational health and
7 safety plan would be prepared and submitted.

8 **4.6.3 No Action Alternative**

9 Under the No Action Alternative, no flood control facilities would be constructed and there would
10 be no effect on health and safety.

11 **4.7 HAZARDOUS MATERIALS/WASTE**

12 No significant impacts relative to hazardous materials/waste have been identified that would result
13 from implementation of the proposed project. The extent of the plume provided in the Five-Year
14 Review is in proximity to, but does not reach, the proposed project area. Based on these plume
15 limits, the depth to groundwater (80 to 120 feet below grade), and nature of the proposed project
16 at this time, it does not appear that Environmental Restoration Program Site SS0046 would
17 adversely affect the construction of new facilities as part of the proposed project and would not
18 affect any existing or former Environmental Restoration Program sites.

19 During construction and remodeling activities, the use of hazardous materials and petroleum
20 products would be required. Impacts from the accidental release of hazardous materials or
21 petroleum products (fuel and lubricants) would be minimized by following BMPs such as storing
22 fuel tanks within bermed containment to prevent the accidental release of spilled fuel.
23 Management of other hazardous materials in compliance with Hazardous Material Pharmacy
24 requirements and disposal of hazardous wastes as directed by the Hazardous Waste
25 Management Plan would minimize impacts from handling and disposal of hazardous substances.
26 By following the procedures identified, impacts from hazardous and toxic substances related to
27 the Proposed Action would be minor.

28 **4.7.1 Alternative 1**

29 Alternative 1 would limit potential impacts on the proposed roadway from hazardous substances
30 (i.e., anti-freeze, fuels, oils, lubricants) used during construction. Although catch pans would be
31 used when refueling, accidental spills could occur as a result of maintenance procedures for
32 construction equipment. A spill could result in adverse impacts on on-site soils and waters.
33 However, the amount of fuel, lubricants, and oil would be limited, and equipment necessary to
34 quickly contain any spills would be present when refueling. A Spill Prevention, Control, and
35 Countermeasures Plan would be in place prior to the start of construction, and all personnel would
36 be briefed on the implementation and responsibilities of this plan.

37 Other solid wastes associated with construction would include human waste and trash. Portable,
38 self-contained toilets at worksites would be used for human waste disposal. Toilets would be
39 pumped, and the contents hauled away for disposal at an approved sewage disposal facility on a
40 timely basis. All garbage and non-flammable waste material would be disposed of at an approved,
41 off-site facility.

42 Because the study area has been assessed for the presence of hazardous materials/waste and
43 found to contain none, Alternative 1 would not disturb hazardous materials.

1 During construction, temporary secondary containment equipment would be used where
2 practicable to ensure accidental releases of hazardous material are prevented or limited in scope.
3 Portable catch basins, containment berms, and other similar equipment would be used for
4 refueling equipment where feasible. Spill kits would be kept on-site to provide easily accessible
5 cleanup materials should a spill occur. No hazardous materials/waste would be used or generated
6 during operation of the new flood control facilities.

7 **4.7.2 Alternative 2**

8 Impacts would be the similar to those described for Alternative 1.

9 **4.7.3 No Action Alternative**

10 Under the No Action Alternative, there would be no construction of flood control facilities, therefore
11 no impacts related to hazardous materials/waste would occur.

12 **4.8 BIOLOGICAL RESOURCES**

13 The portion of Area II under consideration, consists of mostly disturbed or previously altered
14 native landscape. No rare or unique habitat is noted in this portion of Nellis AFB, and human
15 disturbance (through typical base activities) would return to current levels following project
16 completion. For areas along the proposed flood control facilities with minimal to no obvious human
17 disturbance, the habitat is representative of typical desert scrub plant communities that are
18 abundant in lands adjacent to Nellis AFB and throughout the lower Mojave Desert valley.

19 **4.8.1 Alternative 1**

20 Construction of Alternative 1 would result in the temporary disturbance of 100 acres of mostly
21 previously disturbed habitat. Reclamation of the areas outside any permanent structures would
22 consist of grading, contouring, and permanently stabilizing the soil to minimize impacts from
23 invasive/noxious weed establishment. Overall, some existing vegetation would be destroyed
24 during project construction; however, in context of the current condition, disturbance to the
25 existing habitat overall would be negligible.

26 Preconstruction surveys for nesting birds would be completed prior to project mobilization during
27 breeding/nesting months (typically between March 1 and August 31). If any actively nesting birds
28 are located in the study area, suitable buffer zones would be employed to prevent disturbance
29 until a trained biologist determines that the nest is no longer active. While some potential nesting
30 habitat would be removed, the amount would be minor in comparison to the available resources
31 located in the surrounding area. Therefore, no adverse impacts on birds species covered under
32 the Migratory Bird Treaty Act are expected under this alternative.

33 Areas of marginally suitable desert tortoise are present within or immediately adjacent to the
34 proposed project. However, because habitat suitability (and therefore tortoise density) tends to
35 increase with distance from disturbed/developed lands, this habitat is considered poor or of low
36 value habitat. While no tortoises or tortoise signs were documented directly during site visits,
37 conditions of the Programmatic Biological Opinion (USFWS, 2007) state that clearance surveys
38 for desert tortoise would be conducted in Area II prior to any surface disturbance. Specific
39 implementation of any additional mitigation besides clearance surveys would be per the direction
40 of Nellis AFB Resource Personnel in consultation with USFWS. Clearance surveys coupled with
41 the use of biological monitor during construction would effectively mitigate any potential adverse
42 impacts on desert tortoise that may move into the area following clearance activities.

1 Per the direction of the USFWS consultation, construction activities will make every effort to avoid
2 or minimize potential impacts on wildlife during construction, and facility design features will
3 preclude the possibility of protected wildlife from becoming entrapped post-construction
4 (Appendix A). Nevada Department of Wildlife reporting protocols will be followed if Mojave desert
5 tortoises or Gila monsters are observed.

6 **4.8.2 Alternative 2**

7 Impacts on biological resources under Alternative 2 would be the same as those described for
8 Alternative 1.

9 **4.8.3 No Action Alternative**

10 Under the No Action Alternative, the proposed project would not be constructed; therefore
11 biological resources would not be affected.

12 **4.9 CULTURAL RESOURCES**

13 All of Nellis AFB, including Area I, has been previously surveyed for archaeological resources and
14 architectural resources. In 2001, in consultation with Nevada SHPO, 1 quarry site (26CK4825)
15 was determined to be eligible for National Register listing and the remaining 84 archaeological
16 sites were considered to be not eligible due to the limited information potential of the site data
17 and/or the lack of integrity of the cultural deposit (Nellis AFB, 2012). The quarry site is not located
18 in the study area for the Proposed Action.

19 On October 2, 2017, the City of North Las Vegas, acting on behalf of Nellis AFB, invited federally
20 recognized tribes that are affiliated historically with the Nellis AFB geographic region to consult
21 on the Proposed Action. Follow-up government-to-government consultation was conducted
22 during Nellis AFB's meetings with the tribes and at the semi-annual Nellis AFB – Consolidated
23 Group of Tribes and Organizations symposium on April 6, 2018, where a presentation on the
24 Proposed Action was presented. None of the consulted tribes expressed any concerns. The
25 Yomba Shoshone Tribe Chairman requested notification of any cultural artifacts that might be
26 discovered during construction activities. On April 14, 2017, consultation was initiated with the
27 Nevada SHPO for the Proposed Action, and the Nevada SHPO requested additional information
28 on May 18 and November 30, 2017. The City of North Las Vegas provided this information on
29 September 28, 2017, and February 7, 2018. On March 14, 2018, the Nevada SHPO concurred
30 with the City's finding of No Adverse Effect to Historic Properties (Appendix A).

31 No impacts on cultural resources are expected because no eligible cultural resources are present
32 within the study area. Other than temporary indirect effects from noise and vibration, the proposed
33 project has little potential to have audible or atmospheric indirect effects on historic resources. No
34 changes to lighting or elevation would occur as a result of the project. The new structures would
35 be flush with the ground surface and would not significantly change the landscape.

36 If construction activities uncover what may be human remains, funerary objects, or items of
37 cultural patrimony, construction would cease within 50 feet of the discovery, and all appropriate
38 personnel, including the tribal contacts would be notified. Any discovered Native American human
39 remains, funerary objects, or items of cultural patrimony would be handled in accordance with the
40 Native American Graves Protection and Repatriation Act. Construction activities would not
41 resume until the Nellis AFB official notice to proceed has been issued.

1 **4.9.1 Alternative 1**

2 No National Register-eligible archaeological or architectural resources are present in the APE.
3 Therefore, no impacts on cultural resources are expected as a result of Alternative 1. Alternative
4 2

5 **4.9.2 Alternative 2**

6 No National Register-eligible archaeological or architectural resources are present in the APE.
7 Therefore, no impacts on cultural resources are expected as a result of Alternative 2.

8 **4.9.3 No Action Alternative**

9 The No Action Alternative would potentially have an impact on cultural resources because floods,
10 which may affect the condition and integrity of cultural resources, would continue.

11 **4.10 INFRASTRUCTURE/UTILITIES**

12 **4.10.1 Alternative 1**

13 No significant impacts on infrastructure/utilities have been identified that would result from
14 implementation of the Proposed Action. The construction of below-grade flood control facilities
15 would have no impact on transportation along Ellsworth Avenue and O'Bannon Road; however,
16 during construction, traffic would follow detours while the roads are disturbed to place the flood
17 control facilities under them. These detours would be temporary. No long-term impacts on
18 infrastructure are anticipated.

19 Construction and operation of the proposed flood control facilities would not involve the use of
20 any utility resources that would exceed the capacity for delivery by the local authorities. No
21 impacts would occur.

22 **4.10.2 Alternative 2**

23 Impacts would be the similar to those described for Alternative 1.

24 **4.10.3 No Action Alternative**

25 The existing infrastructure and utilities would not be affected under the No Action Alternative.
26 Likewise, Nellis AFB would not experience any change in utility use under the No Action
27 Alternative. The existing conditions and resources would remain the same.

28 **4.11 SOCIOECONOMICS**

29 Any potential adverse impacts of the Proposed Action on the surrounding community are
30 expected to occur within an approximate 200-foot offset area from the proposed area of
31 disturbance. The area proposed for the flood control facilities does not include any residential or
32 commercial development. Benefits of the Proposed Action are expected to affect a larger area.
33 The construction of the proposed facilities would support jobs for residents of Clark County. Once
34 operational, the proposed facilities would offer flood protection to Nellis AFB and surrounding
35 roads. The occupants of Nellis AFB and people residing and/or working in the City of North Las
36 Vegas or Clark County would benefit from the proposed flood control facilities. Therefore,
37 socioeconomic conditions are summarized for Nellis AFB, the City of North Las Vegas, and Clark
38 County.

1 **4.11.1 Alternative 1**

2 Because the area proposed for the flood control facilities does not include any residential or
3 commercial development, there would be no direct adverse socioeconomic impacts on the
4 surrounding area associated with the construction or operations of the proposed facilities. The
5 construction spending associated with Alternative 1 would generate construction jobs for Clark
6 County residents during the construction phase. Once construction is completed, the USAF and
7 occupants of Nellis AFB would benefit from (1) reduced potential for economic losses to Nellis
8 AFB facilities from flooding, (2) improved safety of civilian and military personnel by controlling
9 flooding, and (3) the option to improve the AFB land use by reducing areas that could be subject
10 to flooding. Residents, employees, and businesses in the City of North Las Vegas and Clark
11 County would benefit from reduced economic losses due to flooding of the roadways.

12 **4.11.2 Alternative 2**

13 Impacts would be the same as those described for Alternative 1.

14 **4.11.3 No Action Alternative**

15 Under the No Action Alternative, there would be no flood protection and the USAF, Nellis AFB
16 occupants and residents, employees and business of the City of North Las Vegas and Clark would
17 continue to be at risk for economic and human losses caused by flooding.

18 **4.12 OTHER NEPA CONSIDERATIONS**

19 **4.12.1 Unavoidable Adverse Effects**

20 Unavoidable adverse impacts are the effects on natural and human resources that would remain
21 after mitigation measures have been applied. Unavoidable adverse effects associated with the
22 Proposed Action are summarized below.

- 23 • Soils: The topsoil within the construction footprint that would be graded, stockpiled, and
24 replaced would be mixed, buried, or lost due to installation activities.
- 25 • Native Vegetation/Wildlife Habitats: clearing and grading of native vegetation would result
26 in long-term changes in habitat within the study area.

27 **4.12.2 Relationship of Short-Term Uses and Long-Term Productivity**

28 NEPA requires an analysis of the relationship between a project's short-term impacts on the
29 environment and the effects that these impacts may have on the maintenance and enhancement
30 of the long-term productivity of the affected environment. Impacts that narrow the range of
31 beneficial uses of the environment are of particular concern. This refers to the possibility that
32 choosing one development site reduces future flexibility in pursuing other options or that using a
33 parcel of land or other resources often eliminates the possibility of other uses at that site.

34 In the short-term, effects on the human environment with implementation of the Proposed Action
35 would primarily relate to the construction of the proposed flood control facilities. These flood
36 control improvements would affect air quality, geological resources (i.e., soils), biological
37 resources, hazardous materials and wastes, and infrastructure in the short term. In the long term,
38 land use and water resources would be affected. The flood control facilities would not significantly
39 affect the long-term natural resource productivity of the area nor would they result in any impacts
40 that would significantly reduce environmental productivity or permanently narrow the range of
41 beneficial uses of the environment. In addition, the flood control facilities and improvements would
42 not pose long-term risks to the health, safety, or the general welfare of the public.

4.12.3 Irreversible and Irrecoverable Commitment of Resources

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel and natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment. The loss of a cultural resource (i.e., through demolition) is also considered irretrievably committed to a project.

Implementation of the proposed flood control facilities would involve human labor, consumption of fuel during construction, the use of non-renewable construction materials, and a loss of natural resources. The Proposed Action would result in a long-term commitment of land to the proposed flood control but would not constitute an irretrievable commitment of resources for Nellis AFB. Construction and operation of these facilities would be an irretrievable commitment of various resources, including labor, capital, and land resources by Nellis AFB, the City of North Las Vegas, and its contractors.

4.12.4 Cumulative Effects

A cumulative impact is defined in 40 CFR § 1508.7 as “the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” By memorandum dated 24 June 2005, from the Chairman of the CEQ to the Heads of Federal agencies, entitled “Guidance on the Consideration of Past Actions in Cumulative Effects Analysis,” CEQ made clear its interpretation that “generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions,” and that the “CEQ regulations do not require agencies to catalogue or exhaustively list and analyze all individual past actions.” Cumulative effects are most likely when there is a spatial or temporary relationship between the Proposed Action and other actions that overlap with or are in proximity to each other, or have schedules that coincide.

Several projects have recently been constructed on Nellis AFB. The City of North Las Vegas completed construction of a Wastewater Recycling Facility (WRF) located at the southeast corner of Area I on Nellis AFB lands. A new gym and fitness center was recently completed in Area I south of Lomie Gray Heard School. The Lomie Gray Heard School is scheduled to be demolished in the near future to free up lands in Area I for more mission-related support activities; the school will be replaced with a new school to be constructed in Area III.

A solar photovoltaic system is currently under construction at the south end of Area I. A new fire station is planned for Area III. Numerous small repair, modification, and replacement projects are scheduled for Nellis AFB Area I (Nellis AFB, 2013). All capital improvement projects on Nellis AFB comply with NEPA requirements to minimize impacts on human and natural resources.

In 2011, Air Combat Command issued a Final EIS for the implementation of a Force Development Evaluation Program and a Weapons School at Nellis AFB. This action is ongoing at Nellis AFB and, by 2020, would base 36 F-35s at Nellis. The F-35s would include an increase of 17,280 annual airfield operations at Nellis AFB. The infrastructure constructed to accommodate the new action would affect approximately 26 acres, some of which would be adjacent to the MILCON projects proposed for the Beddown of Tactical Air Support Squadron (TASS).

1 The City of North Las Vegas is continually repairing and improving roads in the city, including
2 some roads in the vicinity of Nellis AFB. The city is also planning to construct a pipeline in the
3 Sloan Channel to convey treated water from the new WRF on Nellis AFB to the Las Vegas Wash
4 (Clark County School District, 2014).

5 Past and present operations at Nellis AFB are responsible for generation of hazardous waste and,
6 ultimately, the contamination of AFB soil and groundwater. However, it is important to note that
7 the study area itself is currently and has historically been undeveloped, desert land. Furthermore,
8 groundwater in the vicinity of the study area is anticipated to be encountered at an approximate
9 depth of 50 to 120 feet below grade, while proposed excavation activities in the study area would
10 reach a maximum depth of 14 feet.

11 **4.12.5 Past Actions**

12 Nellis AFB recently constructed a solar photovoltaic system and WRF adjacent to the proposed
13 roadway.

14 **Nellis Solar Photovoltaic System**

15 The solar photovoltaic system is intended to increase the use of renewable energy at Nellis AFB
16 in compliance with the USAF Energy Strategic Plan. The USAF provided a renewable outgrant to
17 NV Energy for approximately 160 acres of USAF property for the solar field. An underground
18 electric feeder line was constructed along the western perimeter of Nellis AFB to transfer energy
19 generated at the solar photovoltaic system to the Nellis Northgate Substation. Solar panels were
20 constructed north of Range Wash to generate 10 to 15 megawatts of alternating current. If
21 deemed economically feasible, the outgrant would be renewed; however, if decommissioning
22 occurs, all solar panels would be removed.

23 **North Las Vegas Wastewater Reclamation Facility**

24 The North Las Vegas WRF was constructed to serve the increasing population of the City of North
25 Las Vegas, surrounding areas, and Nellis AFB. The USAF initiated a long-term enhanced use
26 lease with the City of North Las Vegas for approximately 40 acres of Nellis AFB property. The
27 initial WRF processed 20 million gallons per day with the ability to expand to 50 million gallons
28 per day of wastewater. Most of the WRF process structures were constructed belowground,
29 extending no more than 6 to 10 feet above ground level. The processing facilities use membrane
30 technology, ultraviolet disinfection, filtered air emissions for odor control, and solids reduction
31 technology. All processing and holding basins are completely covered. Gated security walls and
32 fencing surround the WRF. The WRF includes administration, maintenance, and process
33 buildings, which were constructed of concrete block and painted to blend with the surrounding
34 landscape. Reclaimed water is discharged through the Range Wash to Sloan Channel, located
35 approximately 2,500 feet east of the property; some reclaimed water returns to Nellis AFB as non-
36 potable for water conservation uses.

37 **4.12.6 Present Actions**

38 Recently approved projects also being constructed on Nellis AFB include the Beddown of TASS
39 and the wastewater treatment facility underground pipeline installation for reclaimed wastewater
40 to the golf course.

41 **Beddown of Tactical Air Support Squadron**

42 The Beddown of TASS is proposed to use up to 16 F-16s to beddown and activate the TASS to
43 enhance the Close Air Support (CAS) training and support. The F-16s are excess aircraft from

1 Hill AFB that are being replaced with F-35s that were analyzed under a separate NEPA action.
2 Additionally, a new organizational structure will be developed to provide supervision for the
3 desired level of CAS training. The TASS would be organizationally integrated to an existing
4 Operations Group and would reflect USAF emphasis on CAS and the USAF commitment to
5 enhance and preserve the joint CAS culture to 2025 and beyond. The TASS would jointly train
6 with existing Combat Training Squadrons (CTSs) at Nellis AFB (6 CTS and 549 CTS) and Fort
7 Irwin (12 CTS) to fulfill this mission. The new TASS would be an integral element of the CAS
8 Integration Group 1, which is envisioned to be a joint participative (joint billeted) activity that would
9 work to advance the CAS mission set through academics, practical instruction in the air and on
10 the ground, and development and review of CAS doctrine.

11 **Wastewater Pipeline**

12 The City of North Las Vegas is proposing to install a reclaimed water line within an existing utility
13 corridor between the Nellis AFB golf course, known as Sunrise Vista Golf Course, and the City of
14 North Las Vegas WRF. The primary purpose of the reclaimed water line would be to reduce the
15 use of potable water for irrigation purposes on the golf course. Reducing the withdrawals from
16 aquifers in the Las Vegas Valley would be in accordance with the USAF goal to conserve
17 environmental resources where possible. The project would provide reclaimed water for the
18 existing irrigation system at the golf course. Currently Sunrise Vista Golf Course relies on potable
19 water pumped from three wells for its irrigation needs. The demand for potable water in the Las
20 Vegas Valley is growing as the population of the area is steadily increasing, while the
21 replenishment of present water supplies is limited by recent periods of drought in the region.

22 **Hollywood Gravel Pit**

23 Boulder Sand and Gravel, Inc. operates an ongoing gravel pit mining operation at the Hollywood
24 Pit, located near the corner of North Hollywood Avenue and Alto Avenue. Mined gravel is
25 transported throughout the valley from the mine site using arterial and collector streets. The
26 Hollywood Pit has a portable minor source air operating permit for emissions from mining and
27 hauling activities. Nellis AFB operates under a Title V Part 70 operating permit for base-wide
28 fueling operations and combustion equipment.

29 **4.12.7 Air Installation Compatible Use Zone/Land Use/Noise**

30 All noise generated by the construction activities would be temporary, limited to the duration of
31 construction. The addition of the flood control facilities would result in imperceptible increases in
32 the noise level surrounding Nellis AFB. Land use would not be changed above ground level.
33 Therefore, there would be no permanent change to the noise environment or land use on Nellis
34 AFB and no cumulative impacts.

35 **4.12.8 Air Quality**

36 The construction associated with the proposed flood control facilities could create temporary, but
37 cumulative effects on air quality. However, emissions caused by the proposed construction
38 projects would be below any NAAQS thresholds; therefore, the addition of emissions from other
39 construction projects would likely result in minimal cumulative effects. Mitigation of air quality
40 impacts through BMPs for the proposed project would minimize any cumulative air quality impacts
41 on Nellis AFB and the Clark County area.

1 **4.12.9 Water Resources**

2 The proposed construction projects would add to the impermeable surfaces at Nellis AFB.
3 Engineering designs of stormwater controls such as retention basins would consider the
4 additional impermeable areas so that no additional cumulative effects on natural drainages would
5 occur. No impacts on subsurface water resources would result from the proposed project, and
6 surface water impacts would be mitigated through appropriate Nevada Division of Environmental
7 Protection permits. Incorporation of post-construction stormwater controls, including revegetation,
8 would minimize long-term impacts on surface water associated with excess stormwater runoff
9 during rain events, so only minimal cumulative impacts on water resources would result from of
10 the proposed flood control facilities.

11 **4.12.10 Safety and Occupational Health**

12 Cumulative public health and safety impacts from past, present, and future actions in the study
13 area would be less than significant because contractors would implement a health and safety
14 program for the proposed projects and minimize potential significant safety hazards to
15 construction workers and the public. Therefore the proposed project combined with the past,
16 present, and reasonably foreseeable future projects, would not result in significant impacts on
17 public health and safety in the study area.

18 Cumulative public health and safety impacts that would occur with implementation of the proposed
19 project would include impacts from construction-related activities, including construction-related
20 traffic, if construction schedules overlap.

21 **4.12.11 Hazardous Materials/Waste**

22 No impacts on hazardous materials/waste would result from the Proposed Action, so there would
23 be no cumulative impacts.

24 **4.12.12 Biological Resources**

25 The construction activities for the proposed project would comply with the requirements to
26 minimize impacts on native biological resources, including sensitive species. Therefore, the
27 impacts from the proposed project would not contribute to cumulative impacts on biological
28 resources.

29 **4.12.13 Cultural Resources**

30 Impacts on cultural resources from construction and operation of the proposed flood control
31 facilities are not expected because no cultural resources are present within the study area.
32 Therefore, the impacts from the proposed project would not contribute to cumulative impacts on
33 cultural resources.

34 **4.12.14 Infrastructure/Utilities**

35 There would be negligible impacts on utilities and infrastructure with implementation of the
36 proposed project; therefore, there would be no cumulative impacts.

37 **4.12.15 Socioeconomics**

38 There would be no adverse impacts on socioeconomic resources from the construction and
39 operations of the proposed project because there is no residential and commercial development
40 in the project area. Therefore, the proposed project would not contribute to cumulative impacts
41 on socioeconomic resources. The proposed project would benefit socioeconomic resources in the

- 1 area surrounding the project area by providing flood protection and would disproportionately high
- 2 and adverse positively contribute to other actions including road improvements near Nellis AFB.
- 3

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7.0 REFERENCES

- 1
2 CCDAQ (Clark County Department of Air Quality). 2017 Air Monitoring Site Information.
3 Available at: http://airquality.clarkcountynv.gov/cgi-bin/site_info.pl. Accessed October 10,
4 2017.
- 5 CCRFD (Clark County Regional Flood Control District). 2015. 2013 Las Vegas Valley Flood
6 Control Master Plan Update. July.
- 7 CCRFCD. 2004. Final Programmatic Supplemental Environmental Impact Statement, 2002
8 Master Plan Update. September.
- 9 Clark County Planning Commission. 2006. Clark County Utilities Element Report. Clark County
10 Department of Comprehensive Planning.
- 11 Clark County School District. 2014. Comprehensive Annual Budget Report, For Fiscal Year
12 Ending June 30, 2014.
- 13 City of Las Vegas, 2017. Title 9 – Health and Safety, Chapter 9.16 – Noise. Available at:
14 https://library.municode.com/nv/las_vegas/codes/code_of_ordinances?nodet=TIT9HES
15 [A_CH9.16NO](#).
- 16 Dobson-Brown, D. 2004. Final Wherry and Capehart Housing Historic Building Inventory and
17 Evaluation, Nellis Air Force Base, Nevada. Earthtech, Colton, California.
- 18 FHWA (Federal Highway Administration). 2017. Highway Traffic Noise Analysis and Abatement
19 Policy Guidance. Available at:
20 [https://www.fhwa.dot.gov/Environment/noise/regulations_and_guidance/polguide/polguide](https://www.fhwa.dot.gov/Environment/noise/regulations_and_guidance/polguide/polguide02.cfm)
21 [e02.cfm](#). Accessed December 20, 2017.
- 22 FHWA. 2006. FHWA Roadway Construction Noise Model, Version 1.0 User’s Guide. Available
23 at: https://www.fhwa.dot.gov/Environment/noise/construction_noise/rcnm/rcnm.pdf.
- 24 HUD (U.S. Housing and Urban Development). 1984. 24 CFR Part 51 – Environmental Criteria
25 and Standards Sec. 51.103 Criteria and standards 44 FR 40861, 12 July 1979, as
26 amended at 49 FR 12214. 29 March 1984.
- 27 Longwell, C.R., E.H. Pampeyan, B. Bower, and R.J. Roberts. 1965. *Geology and Mineral*
28 *Deposits of Clark County, Nevada*. Bulletin 62, Nevada Bureau of Mines and Geology.
29 Reno: Mackay School of Mines, University of Nevada.
- 30 Mariah Associates, Inc. 1995. Nellis Air Force Base Cold War Material Culture Inventory.
31 Prepared for U.S. Army Corp of Engineers, Fort Worth District.
- 32 NDEP (Nevada Division of Environmental Protection). 2015. 2015 Recycling and Waste
33 Reduction Report. Nevada Department of Conservation and Natural Resources, Division
34 of Environmental Protection, and Bureau of Waste Management.
- 35 Nellis AFB (Nellis Air Force Base). Undated. Draft Final First Five-Year Review Report for Nellis
36 AFB, Clark County, Nevada.

- 1 Nellis AFB. 2017a. Final Nellis Air Force Base Air Installations Compatible Use Zones (AICUZ)
2 Study. Air Force Civil Engineer Center.
- 3 Nellis AFB. 2017b. Final Environmental Baseline Survey Range Wash – Hollywood Branch and
4 East Tributary Improvements. Nellis Air Force Base, Clark County, Nevada. Prepared by
5 Louis Berger. July 2017.
- 6 Nellis AFB. 2013. Final Nellis Air Force Base Capital Improvements Program Environmental
7 Assessment.
- 8 Nellis AFB. 2012. Plan 32-7065, Integrated Cultural Resource Management Plan. Installation
9 (Nellis, Creech, and NTTR). Department of the Air Force, Headquarters 99th Air Base
10 Wing, Nellis Air Force Base, Nevada. August.
- 11 Nellis AFB. 2007. Plan 126-4. Draft Integrated Natural Resources Management Plan. May.
12 Available at:
13 <https://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/USAF%202007e.pdf>.
- 14 Nellis AFB. 2004. Air Installation Compatible Use Zone (AICUZ). Volume 1 and 2. U.S. Air
15 Force, Nellis AFB, Nevada.
- 16 Page and Turnbull, Inc. 1988. An Inventory and Evaluation of World War II Structures at Nellis
17 Air Force Base and Indian Springs Auxiliary Air Force Field, Nevada. Turnbull and
18 Associates, San Francisco, California.
- 19 SNWA (Southern Nevada Water Authority). 2016. Las Vegas Valley groundwater. Available at:
20 https://www.snwa.com/ws/groundwater_southernnevada.html. Accessed October 13,
21 2017.
- 22 SNWA. 2015. Water Resource Plan. Available at:
23 https://www.snwa.com/ws/resource_plan.html.
- 24 University of Nevada Cooperative Extension. 2010. Nevada Noxious Weed Field Guide.
25 Available at: http://nvwma.org/pdfs/publications/nevada_noxious_weed_field_guide.pdf.
26 Accessed February 27, 2018.
- 27 USAF (United States Air Force). 2015. 2015 Drinking Water Quality Report for Nellis Air Force
28 Base. Available at:
29 <http://www.nellis.af.mil/Portals/104/Documents/Environmental%20Assessments/2015%20Nellis%20AFB%20Consumer%20Confidence%20Report%20V2.pdf?ver=2016-06-14-165736-780>.
30
31
- 32 USAF Safety Office (United States Air Force Safety Office). 2016. Aviation Statistics for F-16.
33 Available at: [http://www.safety.af.mil/Divisions/Aviation-Safety-Division/Aviation-
34 Statistics](http://www.safety.af.mil/Divisions/Aviation-Safety-Division/Aviation-Statistics).
- 35 U.S. Bureau of Labor Statistics. 2016. Quarterly Census of Employment and Wages. Reported
36 by the Nevada Department of Employment, Training and Rehabilitation. Available at:
37 <http://nevadaworkforce.com/>. Accessed February 27, 2018.

- 1 U.S. Census Bureau. 2016. American Community Survey 5-Year Estimates, Table, generated
2 using American FactFinder. Available at: <http://factfinder2.census.gov>. Accessed
3 February 27, 2018.
- 4 USDA-NRCS (U.S. Department of Agriculture, National Resources Conservation Service).
5 2018. Web Soil Survey. Available at:
6 <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed April 13,
7 2018.
- 8 USEIA (United States Energy Information Administration). 2016. Electricity Data Browser: Nellis
9 Air Force Base Solar Array.
- 10 USEPA (United States Environmental Protection Agency). 2018. General Conformity De
11 Minimis Tables. Available at: <https://www.epa.gov/general-conformity/de-minimis-tables>.
- 12 USEPA. 2017. Criteria air pollutants. Available at: <https://www.epa.gov/criteria-air-pollutants>.
13 Accessed October 10, 2017.
- 14 USFWS (United States Fish and Wildlife Service). 2016. Official species list for Carey Avenue
15 road project. 08ENVS00-2016-SLI-0097. September 22, 2016.
- 16 USFWS. 2007. Programmatic biological opinion for implementation of actions proposed on
17 Nellis Air Force Base and the Small Arms Range, Clark County, Nevada (File No.1-5-07-
18 F-497). Nevada Fish and Wildlife Office, Reno, Nevada.
- 19

APPENDIX A: AGENCY CONSULTATION

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**DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE, NEVADA**



99 CES/CENP
6020 Beale Avenue
Nellis AFB, NV 89191-6520

Name, Title
Organization
Street Address
City, State, Zip

Dear Mr./Ms. Name,

The United States Air Force (USAF) is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts associated with providing flood control facilities to collect, convey and detain runoff on Nellis Air Force Base (AFB) property for the Range Wash watershed from Las Vegas Boulevard to the Confluence Detention Basin. The purpose of the proposed action is to confine and control flood flows. The proposed action will reduce flood flows overtop of Las Vegas Boulevard, Ellsworth Avenue, and munitions Road to reduce flooding on Nellis AFB by directing flood flows through established flood control facilities. The USAF, in conjunction with the City of North Las Vegas, selected two alternatives for consideration to meet the purpose of this project.

The EA will evaluate the Proposed Action (constructing flood control facilities) and the No Action alternatives. The EA will assess the potential impacts associated with the Proposed Action options, including water resources, air quality, natural resources, and socioeconomic impacts. The EA will also examine the cumulative effects when combined with past, present, and any foreseeable future proposals.

Please reach out to my point of contact, provided below on any issues or concerns for the [Organization] in the development of this EA. We ask for your assistance in identifying any issues or concerns of which we may be unaware, particularly those that may be affected by this proposal.

The USAF point of contact for Environmental Planning is Mr. Tod Oppenborn. Please send him your comments and concerns at 6020 Beale Ave, Nellis AFB, NV, 89191-6520, or by e-mail or phone at tod.oppenborn@us.af.mil or (702) 652-9366. I look forward to receiving any input you may have regarding this endeavor. Thank you in advance for your assistance in this effort.

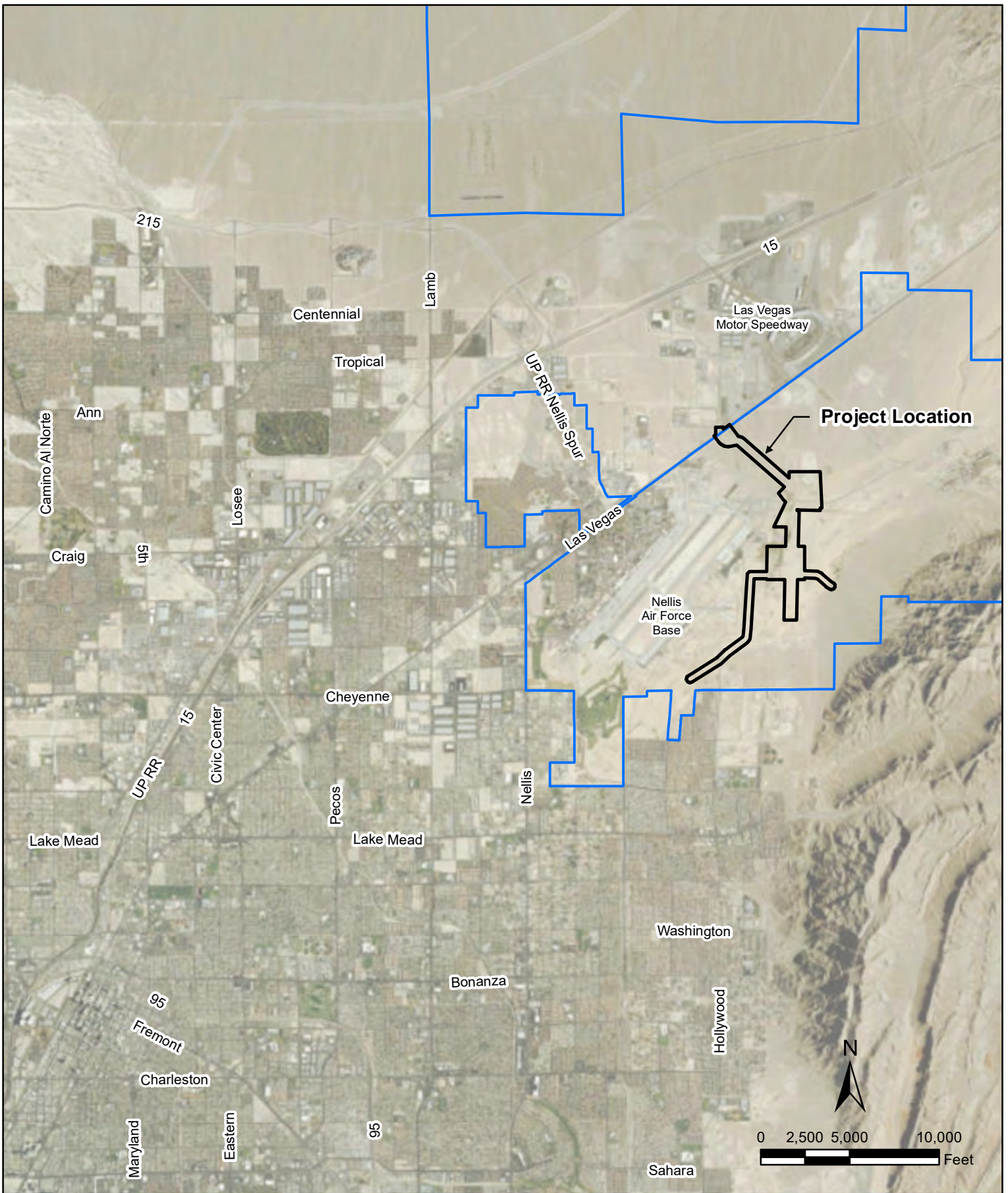
Sincerely,

A handwritten signature in black ink, appearing to read 'C. Rowland Jr.', with a stylized flourish at the end.

CHARLES W. ROWLAND JR.
Chief, Portfolio Optimization



Attachments:

1. Site Location Map
2. Study Area Map

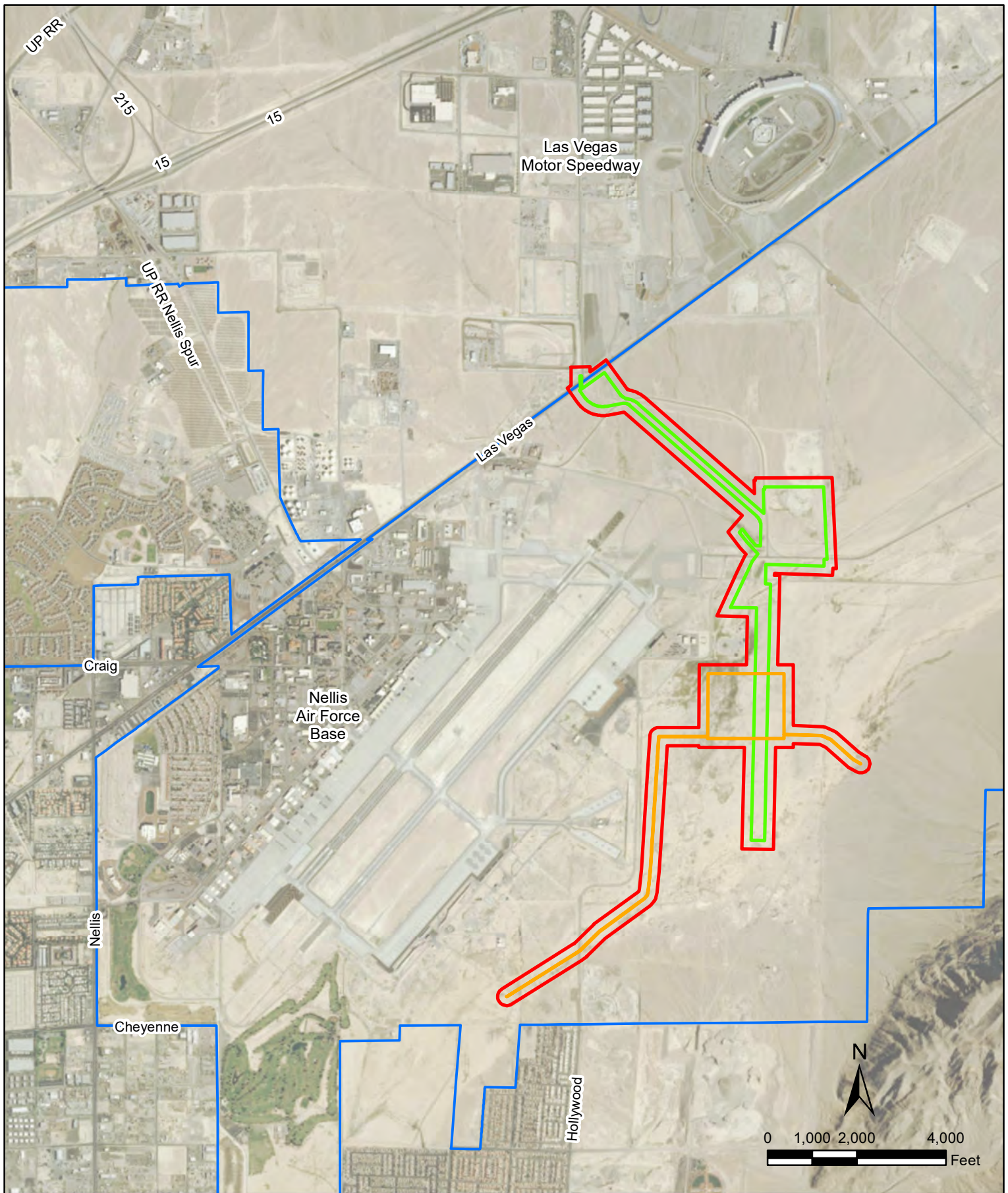






Site Location

Legend

-  Project Boundary
-  NellisAFB Boundary






Study Area

Legend

- Alternative 1
- Alternative 2
- Study Area
- NellisAFB Boundary





**DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE, NEVADA**



99 CES/CENP
6020 Beale Avenue
Nellis AFB, NV 89191-6520

Mr. Skip Canfield
Nevada State Clearinghouse
Department of Administration
Division of Budget and Planning
209 East Muster Street, Room 200
Carson City, NV 89701

Subject: Introduction of the Environmental Assessment for Range Wash from Las Vega Boulevard to Confluence Detention Basin, at Nellis Air Force Base, Nevada

Mr. Canfield,

The purpose of this letter is twofold: to give you an opportunity to review the proposed action in which the Nevada State Clearinghouse may have an interest; and for your organization to provide comments and any potential concerns to Nellis Air Force Base (AFB).

The United States Air Force (USAF) is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts associated with the flood control facilities for Range Wash from Las Vegas Boulevard to Confluence Detention Basin on Nellis AFB. The purpose of the proposed action is to confine and control flood flows. The proposed action will reduce flood flows ovetop of Las Vegas Boulevard, Ellsworth Avenue, and munitions Road to reduce flooding on Nellis AFB by directing flood flows through established flood control facilities. The USAF, in conjunction with the City of North Las Vegas, selected two alternatives for consideration to meet the purpose of this project.

The EA will evaluate the Proposed Action (constructing flood control facilities) and the No Action alternatives. The EA will assess the potential impacts associated with the Proposed Action options, including water resources, air quality, natural resources, and socioeconomic impacts. The EA will also examine the cumulative effects when combined with past, present, and any foreseeable future proposals.

Please reach out to my point of contact, provided below on any issues or concerns for the Nevada State Clearinghouse in the development of this EA. We ask for your assistance in identifying any issues or concerns of which we may be unaware, particularly those that may be affected by this proposal.

The USAF point of contact for Environmental Planning is Mr. Tod Oppenborn. Please send him your comments and concerns at 6020 Beale Ave, Nellis AFB, NV, 89191, or by e-mail or phone at tod.oppenborn@us.af.mil or (702) 652-9366. I look forward to receiving any input you may have regarding this endeavor. Thank you in advance for your assistance in this effort.

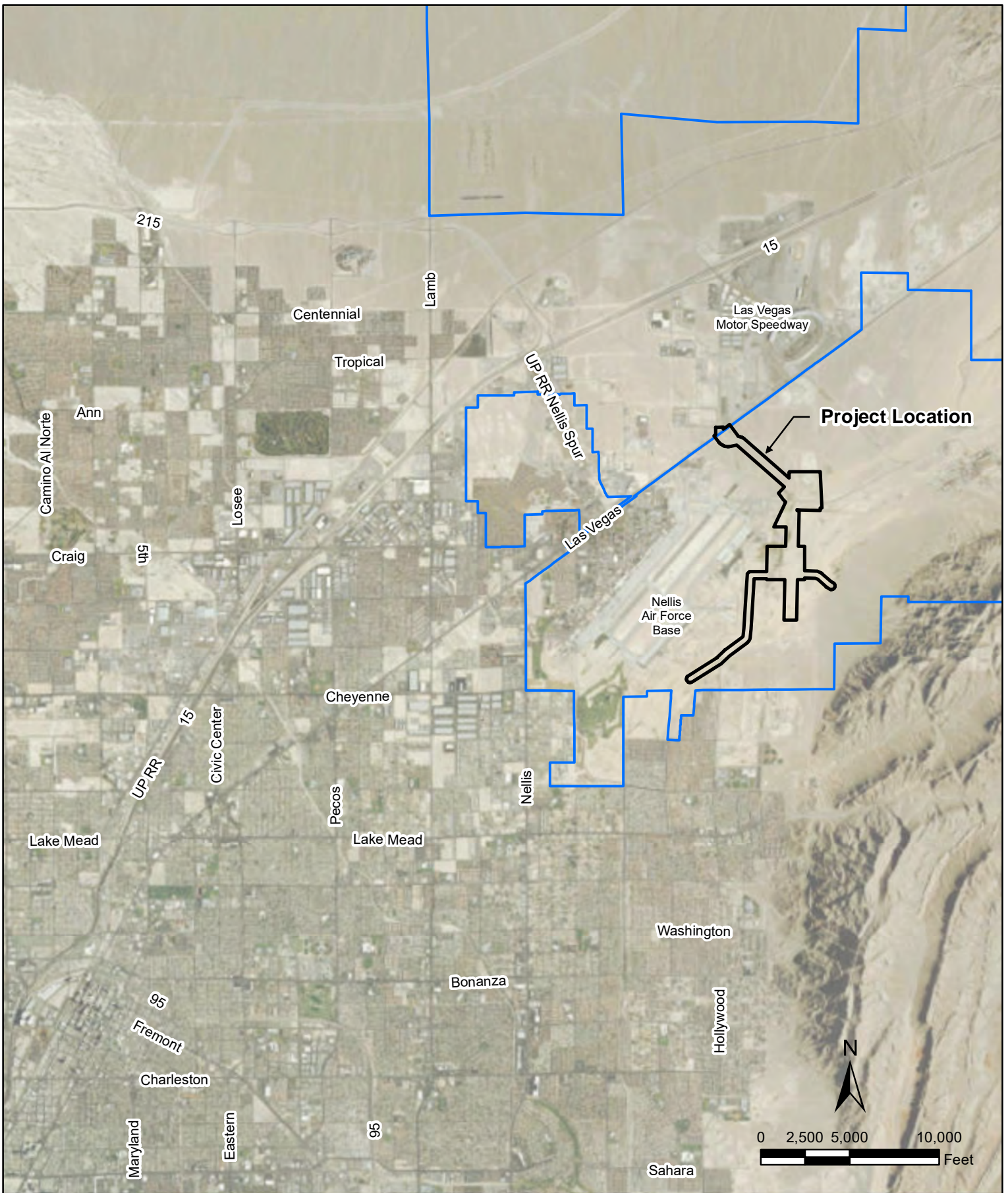
Sincerely,

CHARLES W. ROWLAND JR.
Chief, Portfolio Optimization

Attachments:



1. Figures
2. Description of the Proposed Action and Alternatives

Attachment 1: Figures

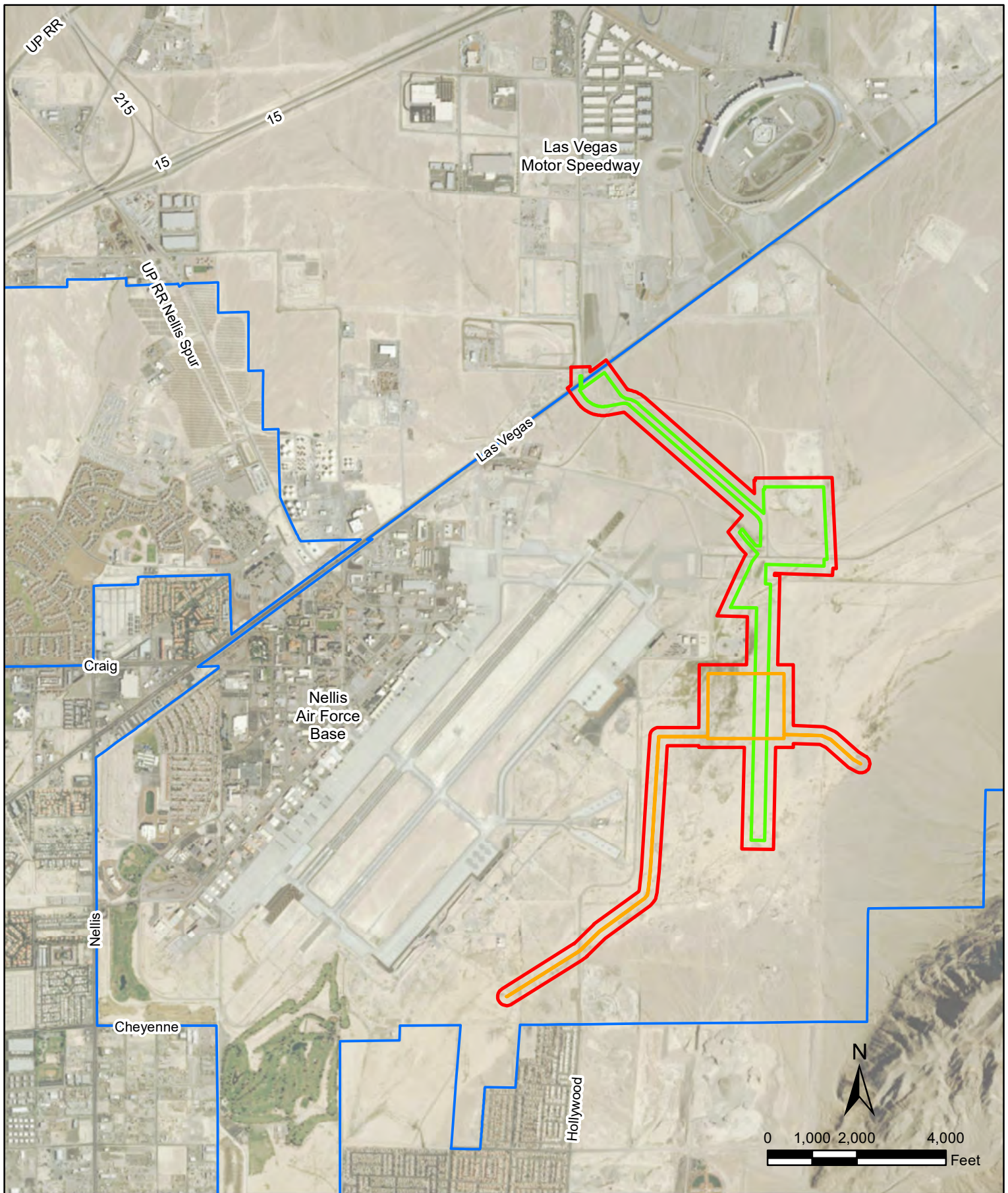


Site Location

Legend

-  Project Boundary
-  NellisAFB Boundary





Study Area

Legend

- Alternative 1
- Alternative 2
- Study Area
- NellisAFB Boundary



Attachment 2: Description of the Proposed Action and Alternatives

**DRAFT DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES
ENVIRONMENTAL ASSESSMENT FOR RANGE WASH FROM LAS VEGAS
BOULEVARD TO CONFLUENCE DETENTION BASIN, AT NELLIS AIR FORCE BASE,
NEVADA**

**Prepared for:
Department of the Air Force**

May 1, 2017

1.0 PURPOSE AND NEED FOR ACTION

This Description of Proposed Action and Alternatives (DOPAA) was prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), as well as 32 CFR Part 989, Environmental Impact Analysis Process (EIAP) for the USAF, and other pertinent environmental statutes, regulations, and compliance requirements. The authorities described will be addressed in various sections throughout this DOPAA when relevant to particular environmental resources and conditions.

1.1 INTRODUCTION

This DOPAA addresses the potential effects from all reasonable alternatives, beneficial and adverse, resulting from the construction, operation, and maintenance of flood control facilities proposed to be constructed for the Range Wash – Hollywood Branch and East Tributary (herein referred to as the Range Wash) within Nellis Air Force Base (AFB) by the City of North Las Vegas. The proposed action would allow the City of North Las Vegas Department of Public Works to construct a permanent conveyance channel and a detention basin on Air Force property to confine and control flood flows in the Range Wash from Las Vegas Boulevard to the existing Confluence Detention Basin. Chapter 2 discusses in greater detail the proposed action as well as the reasonable alternatives identified for consideration and the No Action Alternative.

1.2 BACKGROUND

Range Wash watershed includes lands within the jurisdictions of the City of North Las Vegas, unincorporated Clark County, and the Bureau of Land Management. Two main branches of the Range Wash, Hollywood Branch and East Tributary, enter Nellis AFB and flow from north to south through the Base, east of the runways, and ultimately discharge into Confluence Detention Basin (see Figure 1). Flows in the Range Wash are ephemeral, occurring only during rainfall events. Flood flows are generally unconfined and widespread following the natural terrain through the Nellis AFB toward the Confluence Detention Basin.

The information presented in this DOPAA will serve as the basis for deciding whether the proposed action would result in a significant impact to the human environment, thus requiring the preparation of an Environmental Impact Statement (EIS), or whether no significant impacts would occur, in which case a

finding of no significant impact (FONSI) would be appropriate. It is recommended that the proposed action proceed forward and be granted a Categorical Exclusion (CATEX) under 32 CFR Part 989 EIAP A2.3.11 condition “Actions similar to other actions which have been determined to have an insignificant impact in a similar setting as established in an EIS or an EA resulting in a FONSI”. The MPU flood control facilities, including the Range Wash, were addressed in the Final Programmatic Supplemental Environmental Impact Statement, Flood Control Master Plan, Clark County Regional Flood Control District, prepared for the US Department of the Interior Bureau of Land Management, in cooperation with the US Army Corps of Engineers. The proposed action is not anticipated to involve construction in a wetland as defined in Executive Order (EO) 11990, Protection of Wetlands, or “action” in a floodplain as defined under EO 11988, Floodplain Management (amended by EO 13690).

1.3 PURPOSE OF THE ACTION

The purpose of the proposed action is to confine and control flood flows. The proposed action will reduce flood flows overtop of Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road to reduce flooding on Nellis AFB by directing flood flows through established flood control facilities.

1.4 NEED FOR THE ACTION

Currently, flood flows from the Range Wash - Hollywood Branch overtop Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road. The Hollywood Branch combines with the East Tributary forming a wide natural wash that crosses the Base south of Munitions Road (see Figure 1). Range Wash drains an area of 59 square miles which converges from the north, east, and south at Nellis AFB (see Figure 1). The Clark County Regional Flood Control District’s (CCRFCD) 2013 Las Vegas Valley Flood Control Master Plan Update (MPU) identifies facilities that may be constructed to collect, convey and detain flood flows for Range Wash and its tributaries (see Figures 2 and 3). In accordance with the MPU, the proposed action intends to construct CCRFCD MPU facilities identified as Range Wash – Hollywood Branch (green on Figure 2), RWHW 0000 that RWHW 0136, and Range Wash – East Tributary (red on Figures 2 and 3), RWEA 000 through RWEA 0192. These facilities would intercept and convey flood flows safely through Nellis AFB from Las Vegas Boulevard to the existing Confluence Detention Basin (blue on Figure 2). The Dunes South Detention Basin, RWEA 0165, would attenuate flood flows so that downstream flood control facilities may be reduced in size and cost. These facilities would be constructed as an extension of the City of North Las Vegas’ proposed Range Wash - Hollywood Branch storm drain facilities in Hollywood Boulevard north of Las Vegas Boulevard (RWHW 0174, see Figure 2).

The City of North Las Vegas is planning to construct a storm drain under Hollywood Boulevard north of Las Vegas Boulevard, Range Wash – Hollywood Branch (RWHW 0174, see Figure 2). In conjunction with the storm drain project, the City has evaluated options to mitigate flooding downstream of Las Vegas Boulevard on Nellis AFB property. The proposed action would construct Range Wash flood control facilities on the Nellis AFB from Las Vegas Boulevard to the existing Confluence Detention Basin in accordance with the CCRFCD 2013 MPU (Range Wash – Hollywood Branch, RWHW 0000 that RWHW 0136, and Range Wash – East Tributary, RWEA 0000 through RWEA 0192). The facilities will convey flood flows in a controlled manner through Nellis AFB providing safe passage for vehicles to cross the Hollywood Branch at Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road, and flood security for the Base occupants, runways, and associated infrastructure.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The proposed action will provide flood control facilities to collect, convey and detain runoff on Nellis AFB property for the Range Wash watershed from Las Vegas Boulevard to the Confluence Detention Basin.

2.2 SELECTION STANDARDS

The selection standards used to screen the alternatives evaluates the alternative's estimated cost, project footprint, MPU conformity, maintenance requirements, and ability to satisfy the proposed action's purpose and need. The City of North Las Vegas developed and identified the alternatives for the flood flows from the Hollywood Branch watershed, and are discussed below.

2.3 ALTERNATIVES

Two alternatives were selected for consideration and analyzed as part of this USAF Form 813. These alternatives are noted below and compared in Table 1 for flood flow control for the Range Wash through Nellis AFB:

Alternative 1 Range Wash – Hollywood Branch Only. Construct the Range Wash - Hollywood Branch (RWHW 0000 that RWHW 0136) from Las Vegas Boulevard to Munitions Road, a lateral reinforced concrete box (RCB) storm drain between Las Vegas Boulevard and Ellsworth Avenue, and an earthen or rock-lined channel/berm that extends south of Munitions Road to discharge 100-year runoff into the broad natural wash of the East Tributary. Excavated soil will be used to fill an existing gravel pit located at the north east corner of Ellsworth Avenue and O'Bannon Road (black on Figure 2). This area is also proposed as a temporary construction staging area.

Alternative 2 Range Wash – Hollywood Branch and East Tributary. Construct the Range Wash – Hollywood Branch (RWHW 0000 that RWHW 0136) and Range Wash – East Tributary (RWEA 0000 through RWEA 0192). This option would convey 100-year flows from Las Vegas Boulevard to the Confluence Detention Basin without discharging any flows onto open land and would retain peak flows to reduce the size of downstream facilities.

This Alternative would construct a channel and a detention basin on Nellis AFB property to convey 100-year storm flows from the 59-square-mile Range Wash watershed. However, the full capacity of the facilities will not be utilized until the upstream watershed is fully developed and all Master Planned flood control facilities in Range Wash watershed are constructed. The Hollywood Branch (RWHW) channel facilities will be located at least 3,000 feet north of the Nellis AFB runways to be outside of the runway clear zone (see Figure 2).

No Action Alternative. This alternative would involve no change to the current drainage system. Excess runoff would continue to overtop Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road, and inundate portions of Nellis AFB during large storm events.

**TABLE 1
 SCREENING OF THE ALTERNATIVES**

	Meets Purpose and Need	Estimated Cost	Project Footprint	Provides Permanent Facilities	Conforms to Flood Control District Master Plan	Eliminates Flooding on Air Force Property	Level of Maintenance
No Action Alternative	No	\$0M	0 acres	No	No	No	High
Alternative 1 Range Wash – Hollywood Branch only	Yes	\$12.80M	47 acres*	Partially	Partially	Partially	High
Alternative 2 Range Wash – Hollywood Branch and East Tributary	Yes	\$22.98M	100 acres	Yes	Yes	Yes	Low

*excluding soil disposal area and temporary construction staging area

Alternative 2, the preferred alternative, is the most expensive, but it is the only proposed action that provides permanent flood control facilities to eliminate flooding from the East Tributary east of the runways. Alternative 2 includes all of the facilities proposed under Alternative 1 in addition to the East Tributary improvements. If Alternative 2 is constructed, the City of North Las Vegas proposes to construct the Hollywood Branch (RWHW) first followed by the East Tributary (RWEA) when funding becomes available.

2.4 DETAILED DESCRIPTION OF THE ALTERNATIVES

The NEPA and EIAP processes are intended to support flexible, informed decision-making; the analysis provided by this DOPAA and feedback from the public and other agencies will inform decisions made about whether, when and how to execute the proposed action. Among the alternatives evaluated is a No-Action Alternative. The No-Action Alternative will substantively analyze the consequences of not undertaking the proposed action, not simply conclude no impact, and will serve to establish a comparative baseline for analysis.

2.4.2 Alternative 1 – Range Wash – Hollywood Branch Only

This alternative will provide facilities to collect, confine, and convey flood flows from the Range Wash – Hollywood Branch on Nellis AFB property from Las Vegas Boulevard to the East Tributary. Alternative 1 would construct a concrete-lined channel on Nellis AFB from Las Vegas Boulevard to Munitions Road, a concrete channel or RCB storm drain lateral between Las Vegas Boulevard and Ellsworth Avenue, and an earthen or rock-lined channel/berm to the East Tributary. Excess dirt from the channel construction will be used to fill an existing gravel pit on Nellis AFB property. Gravel maintenance roads are on each side of the concrete channels. RCB culverts will be constructed where the channel crosses Ellsworth Avenue, O'Bannon Road, and Munitions Road.

The facilities would be designed to convey the 100-year storm flow in the Hollywood Branch of the Range Wash (see Table 2); however, the entire capacity of the channel will not be fully utilized until the all of the MPU facilities in the Hollywood Branch watershed are constructed. The proposed channel will be located at least 3,000 feet north of the Nellis AFB runways to be outside the runway clearance zone. Table 2 provides a summary of the design parameters of the proposed conveyance facilities.

The flood control facilities proposed in Alternative 1 will confine storm runoff in a narrow channel from Las Vegas Boulevard to Munitions Road and protect the area north of the runways from flooding during a 100-year storm event. The channel will discharge runoff to the existing natural wash of the East Tributary southeast of the runways. Jurisdictional wetlands or endangered species are not anticipated to be present in the pathway of the proposed channel, and the property on which the facility will be constructed is not anticipated to have historic significance. Construction best management practices will limit any impact on the environment during construction and will improve conditions during flood events. The proposed system would not individually or cumulatively have a significant effect on the human environment.

There will be temporary impacts to Nellis AFB during channel construction and subsequent periodic maintenance and inspection. However, Alternative 1 does not address the uncontrolled East Tributary, which will continue to inundate the area east of the runways. Although not a part of this analysis, the combined runoff reaching the existing Confluence Detention Basin may exceed basin capacity, potentially flooding areas in the vicinity of the basin on Air Force and Clark County properties.

TABLE 2
SUMMARY OF Alternative 1 PROPOSED FACILITIES

Section Number		Facility Type	100-year Flow (cfs)
RWHW	0000	Earthen channel/berm	3,564/3,000
RWHW	0038	concrete channel	3,003
RWHW	0080	concrete channel	3,003
RWHW	0136	concrete channel	1,965
Lateral		concrete channel or storm drain	

2.4.3 Alternative 2 Range Wash – Hollywood Branch and East Tributary

This alternative will provide facilities to collect, convey, and detain flood runoff on Nellis AFB property for the Range Wash - Hollywood Branch and East Tributary watersheds. Alternative 2 would construct all of Alternative 1 Hollywood Branch (RWHW) facilities in addition to the East Tributary facilities. East Tributary (RWEA) facilities include a concrete channel between Munitions Road and the Dunes South Detention Basin, Dunes South Detention Basin, a berm across the natural wash of the East Tributary directing flow into the Dunes South Detention Basin, and a concrete-lined outfall channel connecting the Dunes South Detention Basin to the Confluence Detention Basin in accordance with the MPU. The location, size and type of East Tributary facilities are tentative and subject to future Master Plan Updates, with Nellis AFB’s input, as well as the actual future facility design.

Alternative 2 is proposed to be constructed in two phases. The first phase would consist of the Alternative 1 Range Wash - Hollywood Branch facilities. Phase 2 would remove the earthen channel/berm and construct the East Tributary facilities.

Excess dirt from the channel and detention basin excavation may be stockpiled on the Nellis AFB property or hauled offsite. The Hollywood Branch channel will be located outside the runway clearance zone. Gravel maintenance roads are proposed on each side of the concrete channels and RCB culverts will be constructed where the channel crosses Ellsworth Avenue, O’Bannon Road, and Munitions Road. The Dunes South Detention Basin will provide flood protection for the southeast area of the Base, intercept the widespread flow from the East Tributary natural wash, and reduce the size of downstream facilities.

Table 3 provides a summary of the design parameters of the proposed conveyance and detention facilities. The facilities would be designed to convey the 100-year storm flow in the Hollywood Branch and East Tributary of the Range Wash; however, the entire capacity of Alternative 2 facilities will not be fully utilized until the all of the MPU facilities in the Hollywood Branch and East Tributary watersheds are constructed.

TABLE 3
SUMMARY OF Alternative 2 PROPOSED FACILITIES
CONVEYANCE FACILITIES

Section Number	Facility Type	Flow (cfs)
RWHW 0000	concrete channel	3,564
RWHW 0038	concrete channel	3,003
RWHW 0080	concrete channel	3,003
RWHW 0136	concrete channel	1,965
RWEA 0000	concrete channel	4,033
RWEA 0043	RCB	4,033
RWEA 0044	concrete channel	3,230
RWEA 0070	concrete channel	2,473
RWEA 0144	RCB	732
RWEA 0164	RCB outlet	732
RWEA 0166	soil cement berm	3,323
RWEA 0192	concrete channel	4,784

DETENTION FACILITY

Section Number	Number	Facility Type	Flow (cfs)
RWEA	0163	PMF spillway	58,670
RWEA	0165	detention basin	5,867

Constructing engineered flood control facilities to confine storm runoff in a narrow channel from Las Vegas Boulevard to Munitions Road will protect the area north of the runways from flooding during a 100-year storm event. The channel and East Tributary berm will direct runoff to the Dunes South Detention Basin providing protection for the southeast portion of Nellis AFB. An outfall channel will safely convey the attenuated flow from the new basin to the existing Confluence Detention Basin. There will be temporary impacts to Nellis AFB during project construction and subsequent periodic maintenance and inspection.

Jurisdictional wetlands, endangered species, and historic property are not anticipated to be present in the footprint of the proposed flood control system. Construction best management practices will limit any impact on the environment during construction and will improve conditions during flood events. The proposed system would not individually or cumulatively have a significant effect on the human environment.

Alternative 2 will alleviate current issues associated with flooding resulting in a net positive effect on the environment and produce positive socio-economic effects. Socio-economic benefits of the project include:

1. Reduce the potential of economic losses to existing businesses in Clark County due to flooding.
2. Reduce the potential for economic losses to existing Base facilities due to flooding.

3. Improve the safety of civilian and military personnel by controlling flood flows and reducing areas that are subject to flooding.
4. Allow for the development of industrially zoned lands in Clark County by reducing areas that are subject to flooding.
5. Allow for improved use of lands by the Air Force by reducing areas within the Base that are subject to flooding.
6. Reduce civilian and Air Force maintenance costs by avoiding clean-up following flood events.

2.4.1 No-Action Alternative

Under the No-Action Alternative, storm drainage facilities will not be constructed for the Range Wash on Nellis AFB property. Excess runoff will continue to overtop Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road and contribute to flooding on Air Force property. Under the No Action Alternative, areas immediately southeast of the Nellis AFB runways will continue to be impacted by unconfined flows conveyed within the East Tributary.

3. CONCLUSION

This DOPAA addresses the potential effects from all reasonable alternatives, beneficial and adverse, resulting from the construction, operation, and maintenance of flood control facilities proposed to be constructed for the Range Wash within Nellis AFB. The preferred alternative (Alternative 2) will allow the City of North Las Vegas Department of Public Works to construct permanent conveyance facilities on Air Force property to confine and control flood flows.



Jurisdictional wetlands, endangered species, and historic property are not anticipated to be present in the footprint of the proposed flood control system. Construction best management practices will limit any impact on the environment during construction and will improve conditions during flood events. The proposed project would not individually or cumulatively have a significant effect on the human environment. The Proposed Action will alleviate current issues associated with flooding resulting in a net positive effect on the environment and produce positive socioeconomic effects.

Constructing engineered flood control facilities to confine storm runoff in a narrow channel from Las Vegas Boulevard to Munitions Road will protect the area north of the runways from flooding during a 100-year storm event. The channel and East Tributary berm will direct runoff to the Dunes South Detention Basin providing protection for the southeast portion of Nellis AFB. An outfall channel will safely convey the attenuated flow from the new basin to the existing Confluence Detention Basin. The proposed facilities will convey flood flows in a controlled manner through Nellis AFB providing safe passage for vehicles to cross the Hollywood Branch at Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road, and flood security for the Base occupants, runways, and associated infrastructure.



Range Wash

Legend

-  East Tributary Watershed (33.4 sq mi)
-  Hollywood Branch Watershed (25.7 sq mi)

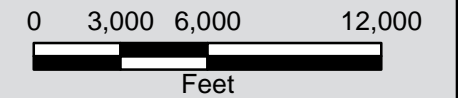
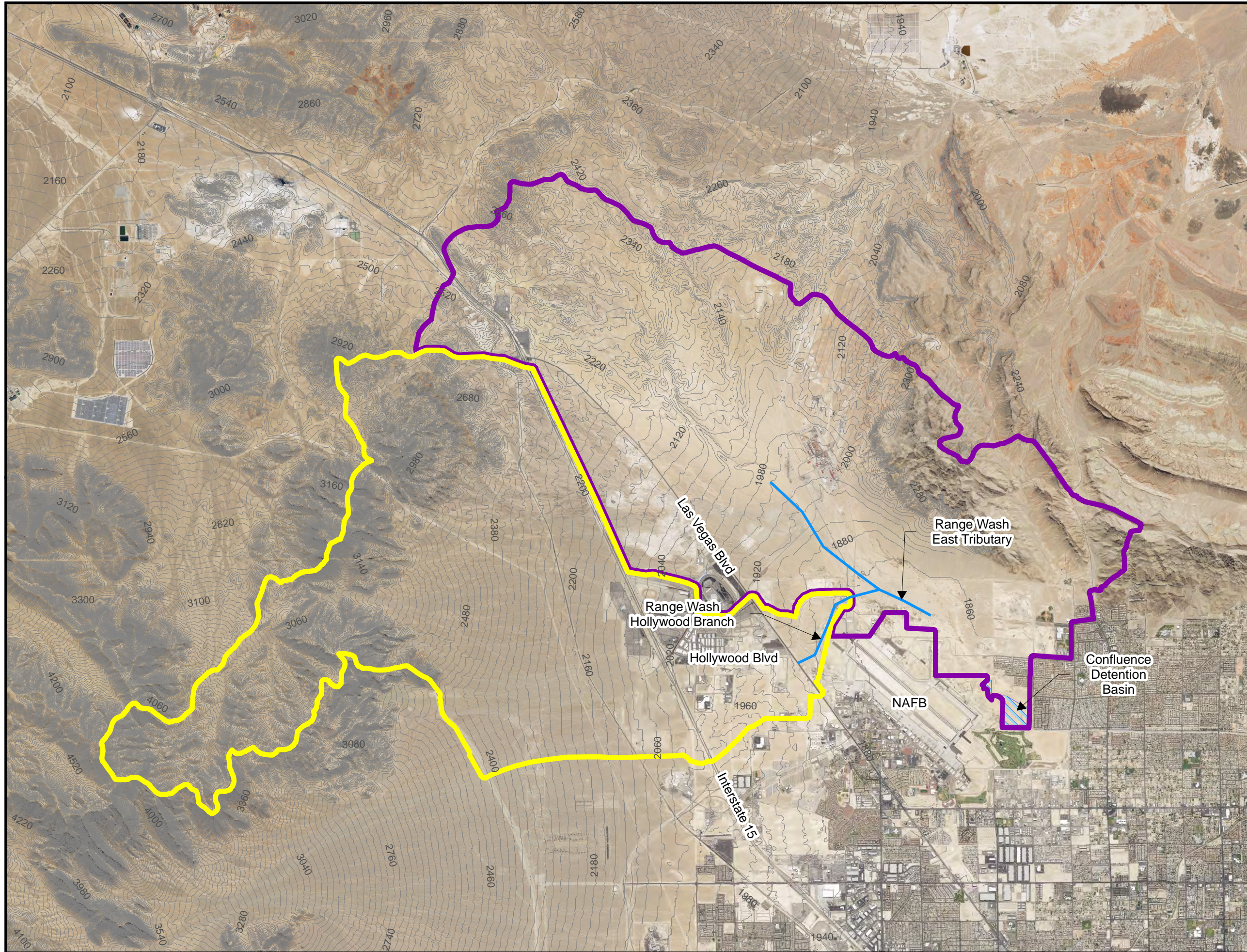
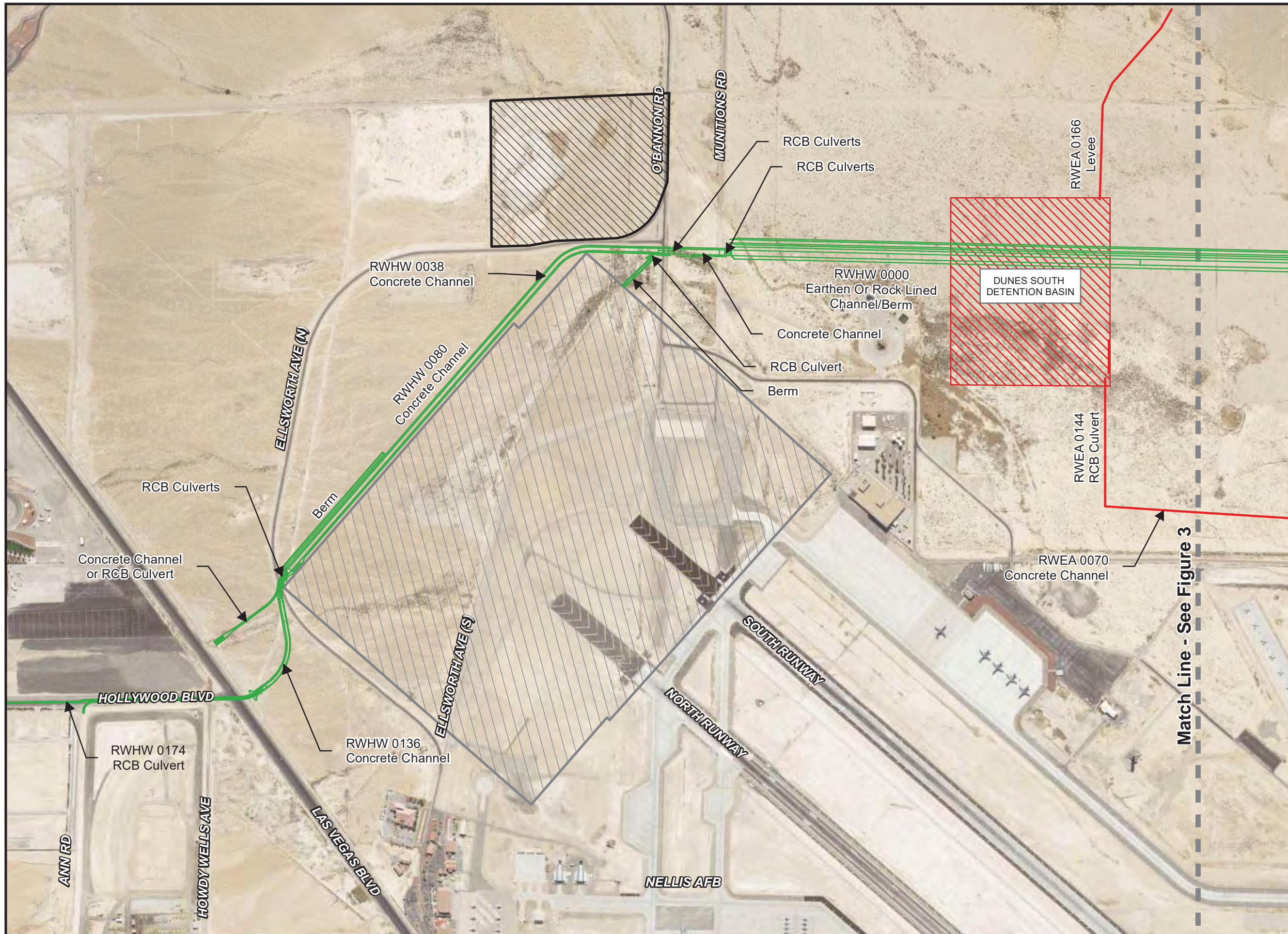


Figure 1
Watershed Map



Range Wash

- Legend**
- Clear_Zone
 - Soil Disposal Area/Construction Staging Area
 - Range Wash Hollywood Branch (RHW)
 - Range Wash East Tributary (RWEA)
- Option 2 - Construct RHW
 Option 3 - Construct RHW and RWEA

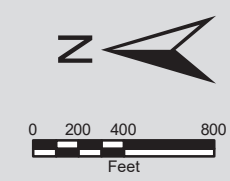


Figure 2
Proposed Flood Control Facilities



Range Wash

- Legend**
- Range Wash
 - East Tributary (RWEA)
 - Existing Detention Basin
- Option 2 - Construct RHHW
 Option 3 - Construct RHHW and RWEA

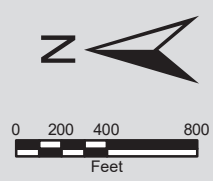


Figure 3
Proposed Flood Control Facilities



BRIAN SANDOVAL
Governor

STATE OF NEVADA
DEPARTMENT OF WILDLIFE

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

TONY WASLEY
Director

LIZ O'BRIEN
Deputy Director

JACK ROBB
Deputy Director

November 28, 2017

NDOW-SR#: 18-040

Tod Oppenborn
Environmental Planning
99CES/CENP
6020 Beale Avenue
Nellis AFB, NV 89191-6520

Re: Nellis Air Force Base Range Wash Flood Control Project, Las Vegas Boulevard to
Confluence Detention Basin

Dear Mr. Oppenborn:

The Nevada Department of Wildlife (NDOW) is in receipt of the letter from Charles W. Rowland, Jr., dated October 19, 2017, noticing intent of the United States Air Force (USAF) to prepare an environmental assessment (EA) concerning Nellis Air Force Base (AFB) property. The EA is to fulfill NEPA requirements regarding the proposed flood control project for confining and controlling flood flows overtop AFB property in the Range Wash watershed from Las Vegas Boulevard to the Confluence Detention Basin. In the absence of additional information, preliminary considerations of interest to NDOW include USAF actions taken to avoid or minimize potential impacts to wildlife during construction, and facility design features precluding the possibility of protected wildlife becoming entrapped post-construction.

The Mojave desert tortoise (*Gopherus agassizii*) and Gila monster (*Heloderma suspectum*) are State of Nevada protected reptiles (NAC 503.080). Both species have a history of occurring in vicinity of the project area and should construction be performed during these species' active periods there is potential for either to wander into the project area. It is anticipated that pre-construction surveys for these species regardless of season would be performed.

- Relative to the desert tortoise, should the U.S. Fish and Wildlife Service's biological opinion allow for removal of tortoises out of harm's way, authorization must also be obtained from the NDOW (NAC 503.093, NAC 503.0935).
- Regarding the Gila monster, observance of NDOW's Gila monster reporting protocols is requested (http://www.ndow.org/Nevada_Wildlife/Conservation/).
- A Special Purpose Permit for removing Gila monsters out of harm's way can be applied for concurrently with application for desert tortoise authorization. NDOW Biologist Jason L. Jones can be contacted for additional assistance at 702-486-5127 x3718, or by e-mail at jljones@ndow.org. Application information can be found online at: http://www.ndow.org/Forms_and_Resources/Special_Permits/.

Birds protected under the Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act are also State of Nevada protected wildlife (Nevada Administrative Code 503.050). Mindful of project site location, the bird nesting generally occurs from mid-February through August. Avoidance of construction during the nesting season if practicable is recommended. An impact minimization measure in lieu of avoiding construction activities during the nesting season is performance of a pre-construction survey by a qualified biologist for determining the presence of active nests (containing eggs or young), especially those of cryptic and difficult to detect ground-nesting species like the lesser nighthawk. In the event an active nest is discovered or frequently attended by adult birds, a buffer area around the nest appropriate for the species involved would be identified and avoided until young birds have fledged. This measure would be consistent with preventive actions advocated by the U.S. Fish & Wildlife Service concerning MBTA-protected birds.

Without additional information, the need for facility design features of the flood control facilities allowing escape by wildlife would be speculative. To that end, the NDOW looks forward to reviewing the draft EA when it becomes available.

Should there be any other questions or concerns regarding this correspondence, please contact me.

Sincerely,



D. Bradford Hardenbrook
Supervisory Habitat Biologist
Nevada Department of Wildlife, Southern Region
4747 Vegas Drive, Las Vegas, Nevada 89108
702.486.5127 x3600; 702.486.5133 FAX
bhrdnbrk@ndow.org

cc: NDOW, Files



CLARK COUNTY • DEPARTMENT OF AIR QUALITY
4701 W. Russell Road Suite 200 • Las Vegas, NV 89118-2231
(702) 455-5942 • Fax (702) 383-9994
Marci Henson Director

November 2, 2017

Mr. Tod Oppenborn
Nellis Air Force Base
6020 Beale Avenue
Nellis AFB, NV 89191-6520

E-mail: tod.oppenborn@us.af.mil

Re: Providing Flood Control Facilities to Collect, Convey, and Detain Runoff on NAFB Property for the Range Wash Watershed from LV Blvd. to the Confluence Detention Basin, Proposed Environmental Assessment

Dear Mr. Tod Oppenborn:

Thank you for the opportunity to review and comment on the Environmental Assessment (EA) letter for the proposed flood control facilities to confine and control flood waters. The Department of Air Quality has reviewed the proposed EA letter and provides the following comments for your consideration.

Since the proposed construction project is located within the Las Vegas Valley—which is currently a maintenance area for the carbon monoxide, ozone, and PM₁₀ pollutants—there are several Clark County Air Quality Regulations (AQRs) that may be applicable. In particular, the following regulatory requirements may apply depending upon the type of activities taking place at the construction site.

Section 94 of the AQRs requires that a dust control permit be obtained prior to soil disturbance or construction activities that impact 0.25 acres or more of land. A dust control permit is also required if there is 100 feet or more of mechanized trenching or mechanical demolition of any structure occupying at least 1,000 square feet. Construction activities include, but are not limited to the following practices: land clearing; soil and rock excavation, removal, hauling, crushing or screening; initial landscaping; or establishing and/or using staging, parking, material storage areas, or access routes to and/or from a construction site.

http://www.clarkcountynv.gov/Depts/AirQuality/Documents/DustControl/DustForms/DUST_CONTROL_HANDBOOK.pdf

In addition, a detailed supplemental to a Dust Mitigation Plan (DMP) is required if there is a construction project of ten (10) acres or more, trenching activities of one mile or more, or structure demolition using implosive or explosive blasting techniques. If applicable, the supplement must be in the form of a written report and must, at a minimum, detail the project description, the area and schedule of the phases of land disturbance, the control measures and the contingency measures to be used for all construction activities.



CLARK COUNTY • DEPARTMENT OF AIR QUALITY
4701 W. Russell Road Suite 200 • Las Vegas, NV 89118-2231
(702) 455-5942 • Fax (702) 383-9994
Marci Henson Director

The supplemental will become part of the dust control permit as an enforceable permit condition.

If you have any further questions, please contact Brenda Whitfield, Air Quality Specialist, at (702) 455-1665. Thank you.

Sincerely,

Brenda Whitfield
Department of Air Quality
Planning Division
4701 W. Russell Road, Suite 200
Las Vegas, NV 89118
702-455-1665

DATE: 10/24/2017
TO: Nevada State Clearinghouse, DCNR
FROM: Nevada Division of Environmental Protection, Bureau of Water Pollution Control
SUBJECT: State Clearinghouse Comments for E2018-058 (EA – Range Wash Flood Control Project – Nellis AFB)

Disclaimer: The Nevada Division of Environmental Protection (NDEP), Bureau of Water Pollution Control (BWPC) does not have authority for projects occurring on Tribal Lands.

The NDEP, BWPC has received the aforementioned State Clearinghouse item and offers the following comments:

The project may be subject to BWPC permitting. Permits are required for discharges to surface waters and groundwaters of the State (Nevada Administrative Code NAC 445A.228). BWPC permits include, but are not limited to, the following:

- Stormwater Industrial General Permit
- De Minimis Discharge General Permit
- Pesticide General Permit
- Drainage Well General Permit
- Temporary Permit for Discharges to Groundwater's of the State
- Working in Waters Permit
- Wastewater Discharge Permits
- Underground Injection Control Permits
- Onsite Sewage Disposal System Permits
- Holding Tank Permits

Please note that discharge permits must be issued from this Division before construction of any treatment works (Nevada Revised Statute 445A.585).

For more information on BWPC Permitting, please visit our website at:
<https://ndep.nv.gov/water/water-pollution-control/permitting> .

Additionally, the applicant is responsible for all other permits that may be required, which may include, but may not be limited to:

- | | |
|-----------------------------------|---|
| • Dam Safety Permits | - Division of Water Resources |
| • Well Permits | - NDEP |
| • 401 Water Quality Certification | - U.S. Army Corps of Engineers |
| • 404 Permits | - Local Health or State Health Division |
| • Air Permits | - Local Government |
| • Health Permits | |
| • Local Permits | |

Thank you for the information and the opportunity to comment.

E2018-058 (EA Range Wash Flood Control Project - Nellis AFB)

DATE: October 31, 2017

Division of Water Resources – Sue Gilbert

Nevada SAI # E2018-058

Project: EA Range Wash Flood Control Project - Nellis AFB

_____ No comment on this project X Proposal supported as written

AGENCY COMMENTS:

Water for Construction Projects

Ensure that any water used on a project for any use shall be provided by an established utility or under permit or temporary change application or waiver issued by the State Engineer's Office with a manner of use acceptable for suggested projects water needs.

Dams

Ponds, dams, or diversion structures must comply with the permitting provisions of NRS 535. Any person proposing to construct a dam, reconstruction or alteration of old structures in this state shall, before beginning construction, obtain from the State Engineer a permit to appropriate, store and use the water to be impounded by or diverted by the dam. If the proposed dam is or will be 20 feet or more in height, measured from the downstream toe to the crest of the dam, or is less than 20 feet in height and will impound more than 20 acre-feet of water, must submit to the State Engineer in triplicate plans and specifications thereof for his approval in accordance with Nevada Revised Statute Chapter 535 and Nevada Administrative Code Chapter 535 prior to construction is to begin.

Hoffman, Sarah

From: OPPENBORN, TOD GS-11 USAF ACC 99 CES/CENPP <tod.oppenborn@us.af.mil>
Sent: Wednesday, November 08, 2017 3:06 PM
To: Hoffman, Sarah
Subject: FW: comment on range wash EA

From the Army Corp.

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

From: Brown, Craig J CIV USARMY CESPCK (US) [mailto:Craig.J.Brown@usace.army.mil]
Sent: Wednesday, November 8, 2017 12:36 PM
To: OPPENBORN, TOD GS-11 USAF ACC 99 CES/CENPP <tod.oppenborn@us.af.mil>
Subject: [Non-DoD Source] comment on range wash EA

Tod,

This project may or may not impacts waters of the U.S. If it does, then a permit from USACE is required. I suggest that you get a delineation done for the project area. You may want to talk with the environmental department. I believe they intend to hire a consultant to delineate waters on Nellis AFB.

Craig J. Brown
Senior Project Manager, St. George Regulatory Office U.S. Army Corps of Engineers
196 E. Tabernacle St., Suite 30
St. George, Utah 84770-3474
Ph: 435-986-3979

See concurrence on email communication 12 June 2017

Hoffman, Sarah

From: John Tennert <JTennert@regionalflood.org>
Sent: Monday, June 12, 2017 2:29 PM
To: Dudley, Syndi; Tom Brady (bradyt@cityofnorthlasvegas.com); Debra Yamachika; Reilly, Jill; Dennis, Rachael; Hoffman, Sarah
Cc: Steve Parrish; Andrew Trelease
Subject: FW: Hollywood System WOUS (UNCLASSIFIED)

External

FYI. Let me know if you need anything else.

John

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

From: Brown, Craig J CIV CESPCK CESP (US) [mailto:Craig.J.Brown@usace.army.mil]
Sent: Monday, June 12, 2017 2:26 PM
To: John Tennert <JTennert@regionalflood.org>
Subject: RE: Hollywood System WOUS (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Hi John,

I agree. Water flows into a dry playa and has no connection to a TNW. I talked with a consultant a while back about for this project and told him/her (forgot) the same thing.

Craig

Craig J. Brown
Senior Project Manager, St. George Regulatory Office U.S. Army Corps of Engineers
196 E Tabernacle St. Suite 30
St. George, Utah 84770-3474
Ph: 435-986-3979

* Our customer service hours are 9am to 3pm Monday through Friday.

* Information on the Regulatory Program can be found at; <http://www.spk.usace.army.mil/Missions/Regulatory.aspx>

Let us know how we're doing. Please complete the survey at:
http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

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

From: John Tennert [mailto:JTennert@regionalflood.org]
Sent: Monday, June 12, 2017 2:03 PM

To: Brown, Craig J CIV CESPCK CESPDP (US) <Craig.J.Brown@usace.army.mil>
Cc: Dudley, Syndi <sdudley@louisberger.com>; Tom Brady (bradyt@cityofnorthlasvegas.com)
<bradyt@cityofnorthlasvegas.com>; Debra Yamachika <DYamachika@regionalflood.org>; Dennis, Rachael
<RDennis@louisberger.com>; jreilly@louisberger.com
Subject: [Non-DoD Source] Hollywood System WOUS

Good afternoon Craig,

We are working on a project near Nellis Air Force Base and wanted to get your concurrence of our assessment of waters of the United States (WOUS) and Corps jurisdiction. The City of North Las Vegas, Department of Public Works is proposing to construct the Hollywood System flood control facilities depicted in the attached KMZ file. The system is approximately 3.75 miles long starting at Centennial Parkway and ending southeast of the Nellis Air Force Base (AFB) runways. The Hollywood System will collect flood flows that are conveyed within Hollywood Boulevard (north of Las Vegas Boulevard) and discharge them in an ephemeral wash southeast of the Nellis AFB runways.

On May 18, 2017, project personnel including an engineer, biologist, and environmental scientist performed a field investigation to determine the extent of WOUS occurring within the proposed project area on Nellis AFB. No acres of relatively permanent waters constituting Wetland WOUS were observed within the project boundaries. Although there are ephemeral washes located within the project boundary, all washes either die out or drain to an isolated termini within Nellis AFB as depicted on google earth and the attached U.S. Geological Survey (USGS) 7.5-minute quadrangle map and photographs. Therefore, the washes do not appear to meet the federal guidelines to be considered jurisdictional. Based on our observations, no permit or action would be warranted or required by the Corps for the proposed project because of the absence of navigable waters or wetlands, isolation of the site resulting from absence of hydrological connection to the nearest tributary to navigable water (Colorado River), and lack of other indicators of jurisdiction under other statutory authority such as use for interstate or foreign commerce.

Please review the attached documents and let me know if you agree with our assessment. Feel free to call me at any time should you wish to discuss this project in more detail or if you have any questions.

Hope all is well.

John

John R. Tennert, Ph.D.

Environmental Mitigation Manager

Clark County Regional Flood Control District

600 S. Grand Central Parkway, Suite 300

Las Vegas, NV 89106

(702) 685-0023

JTennert@regionalflood.org <mailto:JTennert@regionalflood.org>

Visit

<https://linkprotect.cudasvc.com/url?a=https://Blockedwww.ccrfcd.org&c=E,1,dfE6ib8vfOFIcsSIv10hHIT11A8VlcsObK0BjX9yUSBLUaiSg4W-Fym2JO-zpeHPBv6sas92selMMQCTBKsjDe6vafB11EkN1vn2Fw,,&typo=1>
<Blockedhttp://https://linkprotect.cudasvc.com/url?a=https://www.ccrfcd.org/&c=E,1,UUZdzMLF3Se7hGzHuGWNDmYG3Yw4TUEkJveUATg6Ek0bAMiBzUU9dN_Sddyq0tsAHolcdxq2f_ZZ0SVXuAGqu5eHb7LaWrpjQYZy6jLXGw,,&typo=1>

CLASSIFICATION: UNCLASSIFIED



DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE NEVADA



Lt Col Michael A. Freeman
Commander
99 CES
6020 Beale Ave.
Nellis AFB NV 89191

14 April 2017

Ms. Rebecca Palmer
State Historic Preservation Officer
State Historic Preservation Office
Department of Conservation and Natural Resources
901 South Stewart Street, Ste. 5004
Carson City NV 89701-5248

Subject: *Proposed Range Wash-Hollywood Branch and East Tributary Improvements from Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base, Clark County, Nevada*

Dear Ms. Palmer

Nellis Air Force Base (NAFB) is forwarding this in compliance with 36 CFR §800.4(a)(1). Nellis seeks your office's concurrence on the adequacy on a proposed Area of Potential Effect (APE) for the City of Las Vegas' *Proposed Range Wash-Hollywood Branch and East Tributary Improvements from Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base, Clark County, Nevada*.

The City of Las Vegas is proposing a project which involves construction of flood improvements to the Range Wash-Hollywood Branch (RWHB) from Centennial Parkway to Munitions Road and to the Range Wash – East Tributary Watershed (RWEA) between Munitions Road and the Confluence Detention Basin (Map 1).

The RWHW will include a storm drain under Hollywood Boulevard between Centennial Parkway and Las Vegas Boulevard and a concrete-lined channel on NAFB from Las Vegas Boulevard to Munitions Road, a concrete channel or reinforced concrete box (RCB) storm drain lateral between Las Vegas Boulevard and Ellsworth Avenue, and an earthen or rock-lined channel/berm to the East Tributary. Excess dirt from the channel construction will be used to fill an existing gravel pit on Air Force property. Gravel maintenance roads are proposed on each side of the concrete channels. Reinforced concrete box (RCB) culverts will be constructed where the channel crosses Ellsworth Avenue, O'Bannon, and Munitions Roads. An existing sewer at O'Bannon Road will be lowered where it is in conflict with the new channel.

Enable Success Through Innovative Base Support

The RWEA will have a concrete channel between Munitions Road and the Dunes South Detention Basin, a berm across the natural wash of the East Tributary directing flow into the Dunes South Detention Basin, and a concrete-lined outfall channel connecting the Dunes South Detention Basin to the Confluence Detention Basin in accordance with the MPU. The location, size, and type of East Tributary facilities are tentative and subject to future Master Plan Updates, with NAFB's input, as well as the actual future facility design. The RWHW facilities under Hollywood Boulevard north of Las Vegas Boulevard are referred to herein as the Hollywood Storm Drain (SD) and consists of underground RCB and reinforced concrete pipe (RCP) of various sizes, drop inlets, pavement reconstruction, and utility relocations. The Hollywood SD will be constructed entirely within existing public right-of-way except upstream of Las Vegas Boulevard where the storm drain falls on private land and NAFB property. Connections to existing lateral storm drains will be made and new drop inlets will be constructed where necessary along the new storm drain.

Area of Potential Effect (APE)

The proposed project location includes a proposed construction of RCBs on the west side of Las Vegas Boulevard. The east side of the project area encompasses a Las Vegas Boulevard City Right-of Way and lands on NAFB. This east half of the project includes a concrete channel and RCB culvert in part of the Right-of-Way, with the remainder occurring on NAFB. The project items occurring on NAFB include the aforementioned RCBs, as well as a berm, concrete channel, associated gravel maintenance road, and additional RCB culverts. This letters seeks concurrence on the portion of the project on NAFB land which will cause soil disturbance (18 m wide with a total length of 6,000 m and 6 m deep), totaling approximately 2,754 acres.

An archaeological survey with Louis Berger Inc. will take place in areas not previously surveyed, a six meter buffer is included around the project area to define the APE. NAFB identified approximately six previous archaeological surveys as being directly associated with the proposed APE. There are no known archaeological sites within the proposed APE (Map 1).

Tribal notification will consist of forwarding copies of this letter to affiliated tribal offices. Additional consultation with the tribes will take place at the next semi-annual government to government meeting scheduled for May 10-11, 2017.

Should you or your staff have any questions about the project, please contact our tribal liaison/archaeologist, Ms. Kish La Pierre, 99 CES/CEIEA, at (702) 682-5813 or at kish.lapierre@us.af.mil.

Sincerely



MICHAEL A. FREEMAN, Lt Col, USAF
Commander

Attachments (1 hardcopy):

Map

cc (w/o attachments):

Affiliated Tribal Offices

Tom Brady, City of Las Vegas



CEIEA
4/28/2017
Brian Sandoval, Governor
Bradley Crowell, Director
Rebecca L. Palmer, SHPO

May 18, 2017

Lt. Col. Michael A. Freeman
Commander
99 Civil Engineer Squadron
Department of the Air Force
6020 Beale Ave
Nellis Air Force Base, Nevada 89191

Re: Proposed Range Wash-Hollywood Branch and East Tributary Improvements from Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base, Clark County, Nevada.
Undertaking #2017-4873

Dear Lt. Col. Freeman:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject documents received April 19, 2017 in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

Project Description

The SHPO understands this undertaking to be the construction of flood improvements to (1) the Range Wash – Hollywood Branch and (2) the Range Wash – East Tributary Watershed.

It is not clear if the proposed flood management facilities are new construction, an upgrade to existing facilities, the removal and replacement of existing flood management facilities, and/or some combination new construction and work on existing facilities. Please clarify.

Area of Potential Effect (APE)

The Department of the Air Force (Air Force) has determined that the area of potential effect (APE) for this undertaking will be contained within a 2,754-acre area.

The indirect effects of this undertaking are unclear at this time. Were visual, audible, and atmospheric effects considered in keeping with 36 CFR §800.4(a)(1) and 36 CFR §800.16(d)? If so, please provide a justification summary for the APE as it relates to possible indirect effects for this undertaking.

Identification Effort for Historic Properties

The Air Force is proposing to conduct an intensive pedestrian survey to identify archaeological resources for all parts of the 2,754-acre APE that have not been previously surveyed. What efforts will be made to identify other types of historic properties (e.g., architectural, engineered, etc.) that might be located within the direct and indirect APE? Please clarify.

Native American Consultation

The SHPO notes that consultation with the affected Native American tribes has been initiated per 36 CFR §800.3(f)(2). If this consultation results in the identification of properties of religious and/or cultural significance that could be affected by the undertaking, the SHPO looks forward to consulting with the Air

901 S. Stewart Street, Suite 5004 ✦ Carson City, Nevada 89701 ✦ Phone: 775.684.3448 Fax: 775.684.3442

www.shpo.nv.gov

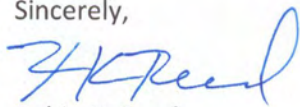
Force on the National Register eligibility and possible effects of the undertaking per 36 CFR §800.4(c) and 36 CFR §800.4(d). In order to maintain a complete and accurate record of consultation, please forward a brief narrative summary of the results of this consultation to our office so this may be added to the administrative record for this undertaking.

Consulting Parties and Public Consultation

The SHPO reminds the Air Force that the agency must consult with the public and representatives of organizations that have a demonstrated interest in historic properties per 36 CFR §800.2(c)(5). What efforts have been made to provide the public and interested parties with an opportunity to comment on this undertaking? In order to maintain a complete and accurate record of consultation, please forward a brief narrative summary of the results of this consultation to our office so this may be added to the administrative record for this undertaking.

Should you have any questions concerning this correspondence, please contact Jessica Axsom at (775)684-3445 or by e-mail at jaxsom@shpo.nv.gov.

Sincerely,



Robin K. Reed
Deputy State Historic Preservation Officer

Mayor
John J. Lee

Council Members
Isaac E. Barron
Pamela A. Goynes-Brown
Scott Black
Richard J. Cherchio



City Manager
Dr. Qiong X. Liu, P.E., PTOE

Public Works Department

Engineering & Construction Services Division

2250 Las Vegas Boulevard North, Suite 610 · North Las Vegas, Nevada 89030
Telephone: (702) 633-1206 · Fax: (702) 633-1158 · TDD: (800) 326-6868
www.cityofnorthlasvegas.com

September 28, 2017

Ms. Robin K. Reed
Deputy State Historic Preservation Officer
901 S. Stewart Street, Suite 5004
Carson City Nevada 89701

RE: Proposed Range Wash – Hollywood Branch and East Tributary Improvements From Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base, Nevada.

Dear Ms. Reed,

The City of North Las Vegas (City) received a copy of the consultation letter from you to Lt. Col. Michael A. Freeman, Commander at Nellis Air Force Base. As the City is the project proponent, we have formulated the following reply to your questions.

Louis Berger completed a Class III Cultural Resource Survey for the Proposed Range Wash – Hollywood Branch and East Tributary Improvements from Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base (AFB), Nevada (Figure 1). The proposed project involves construction of a storm drain under Hollywood Boulevard north of Las Vegas Boulevard, and the Range Wash – Hollywood Branch (RWHW) and Range Wash – East Tributary (RWEA). All of the proposed construction north of Las Vegas Boulevard will be done within existing rights-of-way (ROW). South of Las Vegas Boulevard, the proposed improvements to Range Wash are located on Nellis AFB. This letter presents our findings and recommendations for the proposed project.

Project Description

The proposed project involves construction of flood improvements to the Range Wash – Hollywood Branch (RWHW) from Centennial Parkway to Munitions Road, and to the Range Wash - East Tributary Watershed (RWEA) between Munitions Road and the Confluence Detention Basin.

The RWHW will include the following new construction:

- A storm drain under Hollywood Boulevard between Centennial Parkway and Las Vegas Boulevard,
- A concrete-lined channel on Nellis AFB from Las Vegas Boulevard to Munitions Road,
- A concrete channel or reinforced concrete box (RCB) storm drain lateral between Las Vegas Boulevard and Ellsworth Avenue,
- An earthen or rock-lined channel/berm to the East Tributary,
- Gravel maintenance roads on each side of the concrete channels, and

- Reinforced concrete box (RCB) culverts will be constructed where the channel crosses Ellsworth Avenue, and O'Bannon and Munitions Roads.

An existing sewer at O'Bannon Road will be lowered where it is in conflict with the new channel. Excess dirt from the channel construction will be used to fill an existing gravel pit on AFB property.

The RWEA will have the following new facilities:

- A concrete channel between Munitions Road and the Dunes South Detention Basin,
- A berm across the natural wash of the East Tributary directing flow into the Dunes South Detention Basin, and
- A concrete-lined outfall channel connecting the Dunes South Detention Basin to the Confluence Detention Basin in accordance with the MPU.

The location, size and type of East Tributary facilities are tentative and subject to future Master Plan Updates, with Nellis AFB's input, as well as the actual future facility design.

The new RWHW facilities under Hollywood Boulevard north of Las Vegas Boulevard are referred to herein as the Hollywood Storm Drain (SD) and consists of:

- a 6-foot x 6-foot RCB between Centennial Parkway and Azure Avenue;
- a 10-foot x 6-foot RCB between Azure Avenue and Tropical Parkway;
- a 10-foot x 6-foot RCB between Tropical Parkway and Ann Road;
- a double 12-foot x 5-foot RCB between Ann Road and Las Vegas Boulevard; and
- a 10-foot x 6-foot RCB between Shatz Street and Hollywood Boulevard within the Azure Avenue ROW.

The Hollywood SD will be constructed entirely within existing public right-of-way except upstream of Las Vegas Boulevard where the storm drain falls on private land and Nellis AFB property. Connections to existing lateral storm drains will be made and new drop inlets will be constructed where necessary along the new storm drain.

Area of Potential Effects

The area of potential effect (APE) encompasses all lands within the proposed project area including proposed detention basins and staging areas. Other than temporary indirect effects from noise and vibration, the proposed project has little potential to have audible or atmospheric indirect effects on historic resources. There will be no lighting or elevation changes as a result of the project. The new structures will be flush with the ground surface and will not significantly change the landscape. The APE also includes a 5-meter buffer on either side of the project area to account for direct effects from machinery during construction (see Figure 1).

Scope of Work and Project Personnel

The scope of work included background research, an archaeological survey of all areas of permanent and temporary ground disturbance, and reconnaissance of historic structures within the APE. Andrew Wilkins, an RPA-certified archaeologist, served as the principal investigator for the project; Delland Gould, RPA served as the project manager; and Erin Hudson, RPA, provided QA/QC. The pedestrian survey was conducted October 15, 2016, by Mr. Wilkins and architectural historian Camilla Deiber.

Background Research

Prehistoric Resources

Nellis AFB has conducted numerous archaeological and historic architectural surveys since the late 1970s. A total of 22,341 acres at Nellis AFB, including all of Area I, have been surveyed for archaeological

resources (see Figure 1). These surveys have identified a total of 85 sites, only one of which, a quarry site, is eligible for listing in the National Register of Historic Places (NRHP). All other sites were determined to be ineligible for listing through consultation with the Nevada SHPO in 2001 (Rowe and Myhrer 2001). Key surveys that have been conducted that extend over a majority of the project area include:

- *Archaeology of the Main Cantonment: Nellis Air Force Base, Clark County, Nevada.* Kathleen Ann Bergin, 1993 (SHPO Report No. 1361)
- *Clark County Regional Flood Control District Final Master Plan: 10 Year Plan Facility Cultural Resource Survey Report.* Dames and Moore. BLM report 5-2127, 1991 (SHPO Report No. 13255)
- *Nellis Air Force Withdrawal Lands, Clark County, Nevada, 1999* (SHPO Report No. 13137)
- *Cultural Resource Survey of the Las Vegas Motor Speedway.* Knight & Leavitt Associates, 1994 (SHPO Report No. 13301).

Review of the Nevada Cultural Resource Information System (NV-CRIS) was conducted to ascertain whether any previous archaeological sites were located in the project area. A total of 24 archaeological sites are located within a mile of the project area (Table 1). Four sites are recommended as eligible: the remnants of the Arrowhead Trail Highway (CK4369), a campsite (CK4865) and two refuse scatters associated with the highway (CK4978 and CK4990). The remaining sites are either unevaluated or ineligible.

Table 1. Previously Recorded Sites Within One Mile of the Project Area

Site Number	Site Type	National Register Status
CK4369	Arrowhead Trail Highway	Eligible
CK4857	Lithic scatter, FAR,	Ineligible
CK4858	Lithic scatter, FAR	Ineligible
CK4859	FAR feature	Ineligible
CK4860	Lithic scatter	Ineligible
CK4861	Lithic and ceramic scatter	Ineligible
CK4862	Lithic scatter	Ineligible
CK4865	Campsite	Eligible
CK4866	Diffuse Lithic scatter	Not Significant
CK4967	Trash scatter	Unevaluated
CK4968	Campsite/trash scatter	Unevaluated
CK4950	Resource procurement locus	Ineligible
CK4970	Trash scatter	Not Significant
CK4977	Road	Not Significant
CK4978	Refuse scatter	Eligible
CK4979	Well and rest stop area	Ineligible
CK4980	Lithic scatter	Ineligible
CK4990	Trash scatter	Significant
CK5717	Artifact scatter	Ineligible
CK5718	Artifact scatter	Ineligible
CK5719	Artifact scatter associated	Ineligible
CK5720	FAR scatter	Ineligible
CK5721	Campsite, lithic scatter	Ineligible
CK5722	Campsite, lithic scatter	Ineligible

None of the sites are within the project area; however, two sites (CK5719 and CK5718) are within close proximity to the east end of the proposed Range Wash -East Tributary and may be within the limits of ground disturbance for the project. Both sites have been determined ineligible for listing in the National Register.

Historic Structures and Resources

Three historic building inventories have been completed at Nellis AFB evaluating World War II structures (Page and Turnbull, 1988), Cold War facilities (Mariah Associates 1995), and Capehart-Wherry housing (Dobson-Brown, 2004). No buildings were determined eligible for the NRHP.

Field Methodology

Louis Berger conducted a pedestrian survey of sections of the APE that had not been previously surveyed, located in Township 19 South, Range 62 East, Section 35 and Township 20 South, Range 62 West, Sections 2 and 11 (see Figure 1). The pedestrian survey included walking parallel transects spaced at 15-meter intervals. The survey covered all areas with greater than 25 percent ground surface visibility, which included all of the APE. A handheld global positioning system (GPS) unit capable of sub-meter accuracy was used to navigate within the boundary of the APE.

The APE for the Hollywood Storm Drain was not surveyed as the area is entirely within the existing right of way. The proposal construction staging area at the northeast corner of Ellsworth Avenue N and O'Bannon Road was previously used as a borrow pit. No archaeological survey was conducted in this area due to the extensive ground disturbance.

Archaeological Survey Results

No cultural resources were encountered during the survey. A Bureau of Land Management Cultural Resources Inventory Negative Report is attached to this letter.

Consultation

Native American Consultation

Nellis AFB provided 17 tribes with a copy of the cultural resource letter report completed by Louis Berger in November 2016 and the Section 106 consultation letter sent to the Nevada SHPO. The project was further discussed between Nellis AFB and the tribes at the Semi-annual Tribal Meeting held on May 11, 2017.

Consulting Parties and Public Consultation

The Public Affairs Office at Nellis AFB has been notified of the project. The City of North Las Vegas is planning to conduct a NEPA environmental assessment for the project. The City will provide a number of opportunities during the NEPA process for the public to provide comments on the project and its effects on historic resources.

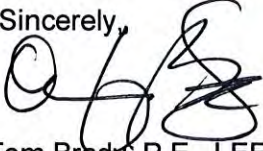
Summary and Recommendations

Louis Berger completed a Class III Cultural Resource Survey for the Proposed Range Wash – Hollywood Branch and East Tributary Improvements from Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base, Nevada in October 2016. A majority of the APE had been previously surveyed. Two previously documented archaeological sites are located within close proximity to the APE (CK5719 and CK5718). However, both sites have been determined ineligible for listing in the National Register. Louis Berger surveyed for archaeological resources within the portion of the APE that had not been surveyed. No cultural resources were identified during the survey. The construction staging area, which had been previously used as a borrow pit, and the right of way for the Hollywood Storm Drain were not surveyed as there was low probability of finding intact archaeological deposits due to previous ground disturbance.

Proposed Range Wash
September 28, 2017
Page 5

If you have questions or need additional information regarding the results of the Class III Cultural Resources Survey, please contact Andrew Wilkins at 816.559.3816 or awilkins@louisberger.com or Camilla Deiber at cdeiber@louisberger.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tom Brady', written over a horizontal line.

Tom Brady, P.E., LEED AP
Senior Engineer

cc: Dr. John Tennert, Clark County Regional Flood Control District
Jessica Axsom, Nevada State Historic Preservation Office
Andrew Wilkins, Louis Berger
Camilla Deiber, Louis Berger



NEVADA
**STATE HISTORIC
PRESERVATION OFFICE**

Department of Conservation and Natural Resources

Brian Sandoval, Governor
Bradley Crowell, Director
Rebecca L. Palmer, SHPO

November 30, 2017

Lt. Col. Michael A. Freeman
Commander
99 Civil Engineer Squadron
Department of the Air Force
6020 Beale Ave.
Nellis Air Force Base, NV 89191

Re: Section 106 consultation with the Department of the Air Force, 99 CES, for the Range Wash-Hollywood Branch and East Tributary Improvement Nellis Air Force Base, Clark County, Nevada (UT 2017-4873)

Dear Lt. Col. Freeman:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject documents received November 2, 2017, from the City of North Las Vegas, in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The Department of the Air Force, 99 CES (USAF), is the lead federal agency for this undertaking. The City of North Las Vegas (the City) is the project proponent. What is not clear is if the City has been provided by USAF:

- 1) the authorization "to act as the agency official [USFS] for the purposes of section 106" in keeping with 36 CFR §800.2(c)(3), or
- 2) if the agency official [USAF] authorized the "applicant [the City] ... to initiate consultation with the SHPO" per 36 CFR §800.2(c)(4)?

If either of these two options is being used for this undertaking this office needs something in writing (e.g., email) confirming this authorization from USAF. Otherwise we will await formal consultation directly from USAF on the undertaking. In the meantime, the SHPO offers these informal comments on the subject documents.

Thank you for providing clarification regarding the scope of work, APE, consultation process, and identification efforts for this undertaking.

Project Description

The undertaking includes the lowering of one sewer and the construction of several storm drains, channels, gravel roads, and culverts at various locations along the Range Wash-Hollywood Branch from Centennial Parkway to Munitions Road and along the Range Wash-East Tributary Watershed between Munitions Road and the Confluence Detention Basin in Nellis Air Force Base (AFB).

The submitted map does not specify which activities will occur at which locations. Furthermore, the submitted materials state that "the location, size, and type of East Tributary facilities are tentative." In order to fully review the effects of this undertaking, the SHPO recommends that Section 106 consultation occur after the scope of work has been finalized.

Area of Potential Effect (APE)

The subject document defined the APE as the area where work will occur, plus a 5-meter buffer. The submitted materials state that indirect effects are not anticipated since the new structures will be flush with ground level. Since the undertaking's scope of work is not yet fully known, the SHPO is unable to comment on the APE at this time. Once the scope of work is finalized, USAF, or the City on behalf of USAF, should submit a detailed scope of work along with maps indicating where each new structure will be constructed.

Identification and Evaluation of Historic Properties

Archaeology:

This correspondence indicates that an intensive archaeological survey of the APE has occurred. The SHPO is not in receipt of this survey report from USAF. The SHPO will promptly review the results and associated USAF determination upon receipt.

Architecture:

The submitted materials state that past surveys have been conducted at Nellis AFB and no resources were determined eligible for listing in the National Register. It is not clear if those past surveys covered the area in the present APE, or if SHPO concurrence was ever received for the National Register eligibility determinations. It is also unclear which built resources, if any, are present within the APE for this undertaking. Once the scope of work and APE are finalized, please submit a list of built resources located in the APE (i.e., roads, runways, fences, structures, culverts, and other resources) and state whether they have received formal National Register evaluation or if USAF wishes to leave the resources unevaluated and treat them as eligible for the purposes of this undertaking.

Consultation with Interested Parties

The SHPO acknowledges receipt of additional information about the consultation efforts with affected Native American tribes. The SHPO also acknowledges that USAF will be conducting public consultation for this undertaking during the NEPA process. Please ensure that the public is invited to comment on cultural resources during the consultation process and that the distinction between NEPA and NHPA/Section 106 is made clear.

Should you have questions concerning this correspondence, please contact SHPO staff architectural historian Kristen Brown at (775) 684-3439 or by email at knbrown@shpo.nv.gov or SHPO staff archaeologist Jessica Axsom at (775)684-3445 or by e-mail at jaxsom@shpo.nv.gov

Sincerely,



Robin K. Reed
Deputy State Historic Preservation Officer

cc: Tom Brady, P.E., LEED AP, Senior Engineer, City of North Las Vegas

Hoffman, Sarah

From: LAPIERRE, KISH D GS-12 USAF ACC 99 CES/CEIEA <kish.lapierre@us.af.mil>
Sent: Wednesday, December 6, 2017 11:27 AM
To: Jessica Axsom; 'Tom Brady'
Cc: Hoffman, Sarah; Kristen Brown; Robin K. Reed; COLLINS, RUSSELL S GS-12 USAF ACC 99 CES/CEIEC
Subject: RE: Proposed Range Wash-Hollywood Branch Improvements, Nellis Air Force Base

Thanks Jessica,

The Air Force is deferring consultation to the City of North Las Vegas per 36 CFR800.2(c)(4).

VR
Kish

Kish LaPierre
Cultural Resource Manager
Nellis Air Force Base, Nevada
702-652-5813

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

From: Jessica Axsom [mailto:jaxsom@shpo.nv.gov]
Sent: Thursday, November 30, 2017 4:37 PM
To: 'Tom Brady' <bradyt@cityofnorthlasvegas.com>; LAPIERRE, KISH D GS-12 USAF ACC 99 CES/CEIEA <kish.lapierre@us.af.mil>
Cc: 'Hoffman, Sarah' <SHoffman@louisberger.com>; Kristen Brown <knbrown@shpo.nv.gov>; Robin K. Reed <rreed@shpo.nv.gov>
Subject: [Non-DoD Source] RE: Proposed Range Wash-Hollywood Branch Improvements, Nellis Air Force Base

Hi Tom and Kish,

A hard copy of this SHPO letter is in the mail.

Jessica Axsom

Review and Compliance Archaeologist

Nevada State Historic Preservation Office

901 S. Stewart Street, Suite 5004

Carson City, NV 89701-5248

775.684.3445

jaxsom@shpo.nv.gov <mailto:jaxsom@shpo.nv.gov>

From: Tom Brady [mailto:bradyt@cityofnorthlasvegas.com]
Sent: Friday, November 3, 2017 12:33 PM
To: Jessica Axsom <jaxsom@shpo.nv.gov>; Robin K. Reed <rreed@shpo.nv.gov>
Cc: Hoffman, Sarah <SHoffman@louisberger.com>
Subject: Re: Proposed Range Wash-Hollywood Branch Improvements, Nellis Air Force Base

Jennifer,

It's no problem at all. The hard copy should have been sent by USPS, but as you did not receive it, we greatly appreciate your consideration.

Please let me know if you have any questions.

Best Regards,

Tom

On Fri, Nov 3, 2017 at 12:15 PM Jessica Axsom <jaxsom@shpo.nv.gov <mailto:jaxsom@shpo.nv.gov> > wrote:

Good Afternoon Tom,

I apologize for the delay – there was confusion on our end of things as we were awaiting a hard copy submission (with a wet signature), as this is the more typical and legally accepted format for formal review. Our office did not realize that the email was the submission to be reviewed – in order to get this review quickly back on track I will print the email out and associated attachments so that I can promptly complete our review. Again I am sorry for the confusion <https://linkprotect.cudasvc.com/url?a=https://maps.google.com/%3fq%3d901+S.+Stewart+Street,+Suite+5004%250D+Carson+City,+NV+89701%26entry%3dgmail%26source%3dg&c=E,1,fPdaew12xOUfrtdUJgMHfuct8WP-1gSiDDYua5sllm6iIPwABYExitHzc-GX911Kesg_eEjUW_-yMme4qVplvELfs3qp7-iz3dODqg7VcSJfoK535Wqig,,&typo=1> on our end.

Jessica Axsom

Review and Compliance Archaeologist

Nevada State Historic Preservation Office

901 S. Stewart Street, Suite 5004

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Carson City, NV 89701

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775.684.3445

jaxsom@shpo.nv.gov <<mailto:jaxsom@shpo.nv.gov>>

From: Tom Brady [<mailto:bradyt@cityofnorthlasvegas.com> <<mailto:bradyt@cityofnorthlasvegas.com>>]

Sent: Thursday, November 2, 2017 5:15 PM

To: Jessica Axsom <jaxsom@shpo.nv.gov <<mailto:jaxsom@shpo.nv.gov>> >; Robin K. Reed <rreed@shpo.nv.gov <<mailto:rreed@shpo.nv.gov>> >

Subject: Proposed Range Wash-Hollywood Branch Improvements, Nellis Air Force Base

Good afternoon,

This email was to confirm your receipt of our September 28, 2017 letter for the above-mentioned project, regarding proposed action on the Nellis Air Force Base. I have attached a copy of the previous letter and wanted to check to see if you had any comments. Please let me know at your earliest convenience.

Tom Brady, P.E., LEED AP

Senior Engineer

City of North Las Vegas

702.633.1227

702.633.1158 fax
bradyt@cityofnorthlasvegas.com <mailto:bradyt@cityofnorthlasvegas.com>

--

Tom Brady, P.E., LEED AP

City of North Las Vegas

702.633.1227 (w)

702.633.1158 (fx)

bradyt@cityofnorthlasvegas.com <mailto:bradyt@cityofnorthlasvegas.com>

Mayor
John J. Lee

Council Members
Isaac E. Barron
Pamela A. Goynes-Brown
Scott Black
Richard J. Cherchio



Acting City Manager
Ryann Juden

Your Community of Choice

Public Works Department

Engineering & Construction Services Division

2250 Las Vegas Boulevard North, Suite 610 · North Las Vegas, Nevada 89030
Telephone: (702) 633-1206 · Fax: (702) 633-1158 · TDD: (800) 326-6868

www.cityofnorthlasvegas.com

February 7, 2018

Robin K. Reed
Deputy State Historic Preservation Officer
901 S. Stewart Street, Suite 5004
Carson City Nevada 89701

RE: Additional Information for the Proposed Range Wash – Hollywood Branch and East Tributary Improvements From Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base, Nevada.

Dear Ms. Reed,

The City of North Las Vegas (City) received a copy of the follow-up consultation letter from you to Lt. Col. Michael A. Freeman, Commander at Nellis Air Force Base dated November 30, 2017. In an e-mail dated December 8, 2017, Nellis Air Force Base gave authorization to the City to act as the applicant per 36 CFR800.2(c)(4). This letter is to provide you with the additional information on the project.

Project Description

The City, in cooperation with the United States Air Force (USAF), is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts associated with the proposed range wash project. The project description provided in the letter to your office dated September 28, 2017 presented both Alternative 1 (the preferred alternative): Range Wash –Hollywood Branch (RWHW); and Alternative 2, which combines Alternative 1 with the Range Wash – East Tributary (RWEA) as an expansion to the south (Figure 1). Cultural resource screening was completed for both alternatives; while a more in-depth analysis and cultural resource survey was completed for the preferred alternative.

The construction of Alternative 2 is not anticipated in the near future. If Alternative 2 is considered for design and construction, the City will provide additional details to your office to complete Section 106 consultation for that project.

Figure 2 provides the location of each of the structures included in Alternatives 1 and 2. Table 1 below lists the structures included in Alternative 1 with section numbers and the length of each section. The gravel maintenance roads that are adjacent to the concrete channels on each side are within the area of potential effect (APE). Table 2 provides the same information for structures associated with Alternative 2.

Table 1. Summary of Alternative 1 Proposed Facilities

Section Number		Facility Description	Length (feet)	100-year flow (cfs)
RWHW	0000	Earthen channel/berm 50 feet x 10 feet	2,000	3,564/3,000
Channel		Rectangular channel	50	3,564
RWHW	0038	Concrete channel 36 feet x 7 feet	2,200	3,003
RWHW	0080	Concrete channel 36 feet x 7 feet	1,800	3,003
RWHW	0136	Concrete channel 25 feet x 7 feet	1,860	1,965
Lateral		Concrete channel or storm drain		
RWHW	0173	RCB (2)12 feet x 6 feet	100	2,195
RWHW	0174	RCB (2)12 feet x 5 feet	~500	2,195

Table 2. Summary of Alternative 2 Proposed Facilities*

Section Number		Facility Description	Length (feet)	Flow (cfs)
Conveyance Facilities				
RWEA	0000	Concrete channel 25 feet x 7 feet	1,925	4,033
RWEA	0043	RCB 10 feet x 8 feet	80	4,033
RWEA	0044	Concrete channel 25 feet x 6.5 feet	1,930	3,230
RWEA	0070	Concrete channel 25 feet x 7 feet	3,565	2,473
RWEA	0144	RCB 8 feet x 6 feet	1,100	732
RWEA	0164	RCB outlet 6 feet x 6 feet	100	732
RWEA	0166	Soil cement berm 13.5 feet	2,000	3,323
RWEA	0192	Concrete channel 75 feet x 9.5 feet	1,500	4,784
Detention Facilities				
RWEA	0163	Probable maximum flood spillway		58,670
RWEA	0165	1,112 acre-feet detention basin		5,867

*Only Facilities Associated with RWEA are included in this table.

Area of Potential Effects

The project activities outlined above in Tables 1 and 2 as well as depicted in Figure 1 are not likely to significantly change the landscape. The proposed berm will only be 10' high, which will not significantly change the overall view of the landscape. Given this information, the City believes that the current APE is appropriate and encompasses all lands within the proposed project area that may experience effects from project activities (see Figure 1).

Identification and Evaluation of Historic Properties

Archaeology:

The Bureau of Land Management Cultural Resources Inventory Negative Report was inadvertently omitted from the previous submission. This report is attached to this letter (Attachment 1).

Architecture:

The cultural resource survey conducted by Louis Berger did not identify any buildings within the APE. There are a number of roads and fences within the APE. The security fences to the north and east of the runway as well as Munitions Road, the section of O'Bannon Road that runs along the southeast side of the runway and Ellsworth Avenue to the north of the runway were not present in 1969 (Plate 1). Munitions Road was constructed around 2003. O'Bannon and Ellsworth were constructed after 2012. However, the section of O'Bannon Road that extends east from the northern end of the runway was present in 1969, likely constructed around 1954 connecting the main base to Area II, which was commissioned in 1954 as Lake Mead Base, a

weapons storage facility commanded by the U.S. Navy. No structures beyond O'Bannon Road that are 50 years of age or older are within the APE for Alternative 1. Nellis AFB conducted a Cultural Resources Survey associated with the Beddown of Tactical Support Squadron (Project No. 02-2016-NAFB) that included the O'Bannon Road area (Attachment 2). The report, which has been recently submitted to your office for review, concluded that no historic properties are present.

Two of the three previous historic structure surveys mentioned in the previous consultation letter have been reviewed by SHPO. Page and Turnbull (1988) completed an inventory and evaluation of World War II structures at NAFB and CAFB. In a letter dated 14 June 1991, the SHPO reviewed the evaluation and concurred with its recommendations. In 2004, 336 Wherry houses constructed from 1950 to 1957 and 113 Capehart structures built on NAFB in 1960 were proposed for destruction. Deborah Dobson-Brown (2004) conducted the field research and argued the buildings lacked physical integrity for further eligibility consideration. The SHPO concurred with the recommendation. In 1995, Mariah Associates, Inc., completed a preliminary evaluation, interpretation, and prioritization of Cold War facilities for 27 ACC bases throughout the U.S. This report was not subject to SHPO review; however, no facilities were recommended for further review. None of previously surveyed resources are within the APE.

Consultation

The City will ensure that the public is invited to comments on cultural resources during the consultation process and that the difference between NEPA and NHPA/Section 106 is made clear.

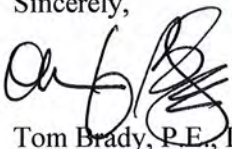
Finding of Effect

Previous and recent identification efforts have failed to identify archaeological resources within or adjacent to the APE. Given these results, coupled with the extensive disturbance of the gravel pit area, there is little to no potential for archaeological sites to be present in the APE. This project will have no effect on historic properties.

Architectural survey of the APE did not identify any resources that are eligible for listing in the NRHP. Therefore, the City, on behalf of Nellis AFB and as project proponent, recommends a **No Historic Properties Affected** finding for this undertaking.

If you have questions or need additional information on the project, please contact Sarah Hoffman at 702.789.1909 or SHoffman@louisberger.com or Camilla Deiber at cdeiber@louisberger.com.

Sincerely,



Tom Brady, P.E., LEED AP
Senior Engineer

cc: Dr. John Tennert, Clark County Regional Flood Control District
Jessica Axsom, Nevada State Historic Preservation Office

Attachments:

Figure 1: Project Area
Figure 2: Flood Control Facilities
Plate 1: 1969 Aerial Photograph

Attachment 1: BLM Negative Report
Attachment 2: TASS Cultural Resources Survey

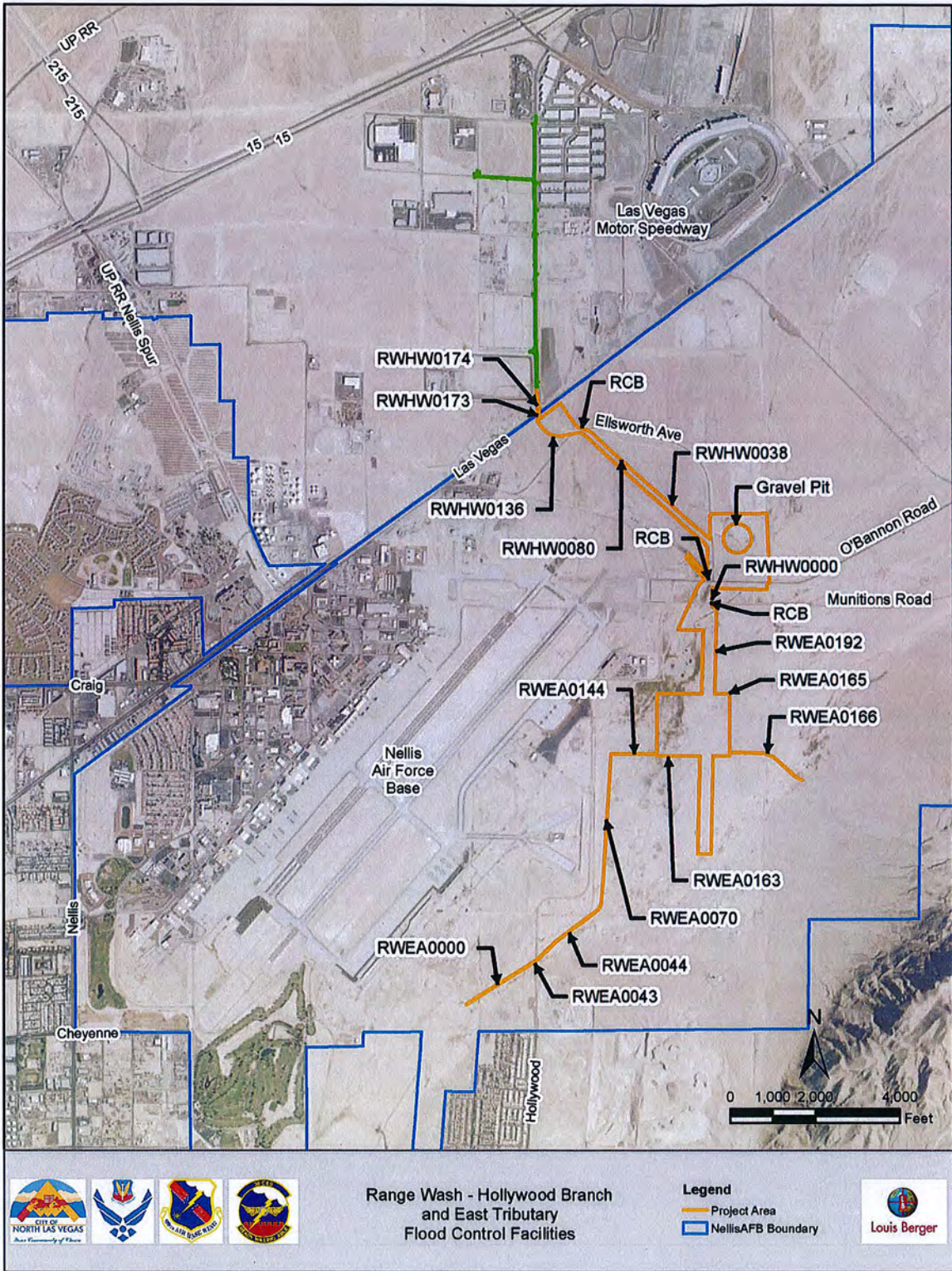


Figure 2: Flood Control Facilities



Plate 1. Aerial Photograph of Nellis Air Force Base, 1969

(USGS Earth Explorer)

Appendix E

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CULTURAL RESOURCES INVENTORY NEGATIVE REPORT

BLM Office: N/A

BLM Report Number: N/A

Organization/Field Crew: Louis Berger/ Andrew Wilkins, RPA and Camilla Deiber

Project Name and Description: Hollywood SD Project. Environmental baseline survey in for proposed flood control improvements to be constructed within the Nellis AFB.

Project Area: 63 acres

Legal Description: Section 35, T19S R62E and Sections 2 and 11, T20S R62W

County: Clark Map Reference: USGS 7.5' maps Las Vegas NE 2014 and Valley, NV 2015

UTM Reference: 11S E678455m, N4013695m

Records Check: BLM Records; NVCRIS; NR List; State Archive; Other

Results of Previous Inventories: 1987 Fiberoptics cable survey, 1992 Nellis AFB main cantonment survey, and 1999 NAFB withdrawal lands survey cover nearly all of APE

Recorded and Unrecorded Sites: none recorded within APE, 16 sites within 1 mile including 2 eligible historic sites (CK4978 and CK4369) associated with Arrowhead Trail

Expectation: moderate potential due to numerous sites in proximity

Inventory Date(s): 10/25/2016

Inventory Type: Class I/II

Findings: No cultural resources were encountered during the inventory.

**ATTACH CLEAN REPRODUCIBLE 7.5' MAP(S) SHOWING
AREA OF POTENTIAL EFFECT AND AREA INVENTORIED**

Prepared By: Andrew Wilkins, RPA Date: 1/11/2017

Approved By: _____ Date: _____



March 14, 2018

Tom Brady, P.E., LEED AP
Senior Engineer, Public Works Dept.
City of North Las Vegas
2250 Las Vegas Blvd. North, Ste. 610
North Las Vegas, NV 89030

Re: Section 106 consultation with the City of North Las Vegas, for the Range Wash-Hollywood Branch and East Tributary Improvements, Nellis Air Force Base, Clark County, Nevada (UT 2017-4873)

Dear Mr. Brady:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject documents received February 13, 2018, from the City of North Las Vegas, in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. In an email dated December 6, 2017, the Department of the Air Force, 99 CES (USAF), delegated Section 106 consultation responsibilities to the City of North Las Vegas (City).

Thank you for providing clarification regarding the scope of work, APE, consultation process, and identification efforts for this undertaking.

Project Description

The undertaking includes the lowering of one sewer and the construction of several storm drains, channels, gravel roads, and culverts at various locations along the Range Wash-Hollywood Branch from Centennial Parkway to Munitions Road and along the Range Wash-East Tributary Watershed between Munitions Road and the Confluence Detention Basin in Nellis Air Force Base (AFB). One earthen channel will include construction of a 10-foot-tall earthen berm.

The SHPO acknowledges that Project Alternative 1 is being considered at this time and that the City will submit additional details to our office in the future if Alternative 2 is pursued.

Area of Potential Effect (APE)

The City has defined the APE as the area where work will occur plus a 5-meter buffer. The SHPO concurs with the adequacy of the APE as defined for this undertaking.

Consultation with Interested Parties

The SHPO previously commented on the City's consultation efforts for this undertaking.

Identification and Evaluation of Historic Properties

Archaeology:

The APE, approximately 63 acres, was intensively surveyed for archaeological resources. This inventory (Attachment 1) did not result in the identification of archaeological properties within the established APE.

Tom Brady
Page 2 of 2
March 14, 2018

The SHPO acknowledges receipt of Attachment 2: *Cultural Resources Survey Associated with the Beddown of Tactical Air Support Squadron, Nellis Air Force Base, Clark County, Nevada (Project Number 02-2016-NAFB)*. The SHPO assumes that this document was sent in error as the area surveyed in this document differs greatly from the APE established for this current undertaking (i.e., Range Wash-Hollywood Branch and East Tributary Improvements).

Architecture:

The City has confirmed that the APE contains only one historic built resource, a section of O'Bannon Road that was constructed in c. 1954. Since the submitted materials do not contain an NRHP evaluation for the road, the SHPO assumes that the City is leaving the road unevaluated and treating it as NRHP-eligible for the purposes of this undertaking. If this is not the case, please notify our office.

Finding of Effect

The SHPO concurs with the City's finding, on behalf of the Air Force, of **No Adverse Effect** to Historic Properties for Alternative 1 of this undertaking.

Unanticipated Discoveries

If any buried and/or previously unidentified resources are located during the project activities, the SHPO recommends that all work in the vicinity of the find cease and this office be contacted for additional consultation per 36 CFR §800.13(b)(3) or NRS 383.150-383.190.

Should you have questions concerning this correspondence, please contact SHPO staff architectural historian Kristen Brown at (775) 684-3439 or by email at knbrown@shpo.nv.gov or SHPO staff archaeologist Jessica Axsom at (775)684-3445 or by e-mail at jaxsom@shpo.nv.gov

Sincerely,



Karyn de Dufour
Deputy State Historic Preservation Officer

cc: Lt. Col. Michael A. Freeman, Commander, 99 Civil Engineer Squadron, USAF



**DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE NEVADA**

MAY 11 2018

Lt Col Patrick J. Kolesiak
Commander
99 CES
6020 Beale Ave.
Nellis AFB NV 89191

Big Pine Paiute Tribe
Ms. Shannon Romero, Chairperson
P.O. Box 700
Big Pine, CA 93513

Subject: *Proposed Range Wash-Hollywood Branch and East Tributary Improvements from Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base, Clark County, Nevada*

Dear Ms. Romero

Nellis Air Force Base (NAFB) is forwarding this in compliance with 36 CFR §800.4(a) (1). Nellis seeks your office's concurrence on the adequacy on a proposed Area of Potential Effect (APE) for the City of Las Vegas' *Proposed Range Wash-Hollywood Branch and East Tributary Improvements from Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base, Clark County, Nevada*.

The City of Las Vegas is proposing a project which involves construction of flood improvements to the Range Wash-Hollywood Branch (RWHB) from Centennial Parkway to Munitions Road and to the Range Wash – East Tributary Watershed (RWEA) between Munitions Road and the Confluence Detention Basin (Attachment).

The RWHB will include a storm drain under Hollywood Boulevard between Centennial Parkway and Las Vegas Boulevard and a concrete-lined channel on NAFB from Las Vegas Boulevard to Munitions Road, a concrete channel or reinforced concrete box (RCB) storm drain lateral between Las Vegas Boulevard and Ellsworth Avenue, and an earthen or rock-lined channel/berm to the East Tributary. Excess dirt from the channel construction will be used to fill an existing gravel pit on Air Force property. Gravel maintenance roads are proposed on each side of the concrete channels. RCB culverts will be constructed where the channel crosses Ellsworth Avenue, O'Bannon, and Munitions Roads. An existing sewer at O'Bannon Road will be lowered where it is in conflict with the new channel.

The RWEA will have a concrete channel between Munitions Road and the Dunes South Detention Basin, a berm across the natural wash of the East Tributary directing flow into the

Enable Success Through Innovative Base Support

Dunes South Detention Basin, and a concrete-lined outfall channel connecting the Dunes South Detention Basin to the Confluence Detention Basin in accordance with the MPU. The location, size, and type of East Tributary facilities are tentative and subject to future Master Plan Updates, with NAFB's input, as well as the actual future facility design. The RWHW facilities under Hollywood Boulevard north of Las Vegas Boulevard are referred to herein as the Hollywood Storm Drain (SD) and consists of underground RCB and reinforced concrete pipe (RCP) of various sizes, drop inlets, pavement reconstruction, and utility relocations. The Hollywood SD will be constructed entirely within existing public right-of-way except upstream of Las Vegas Boulevard where the storm drain falls on private land and NAFB property. Connections to existing lateral storm drains will be made and new drop inlets will be constructed where necessary along the new storm drain.

Area of Potential Effect (APE)

The project location includes proposed construction of RCBs on the west side of Las Vegas Boulevard. The east side of the project area encompasses a Las Vegas Boulevard City Right-of-Way and lands on NAFB. This east half of the project includes a concrete channel and RCB culvert in part of the Right-of-Way and on NAFB. The project items occurring on NAFB include the aforementioned RCBs, a berm, concrete channel, associated gravel maintenance road, and additional RCB culverts. This letters seeks concurrence on the portion of the project on NAFB land, which will cause ground disturbance to approximately 2,754 acres (6,000 m by 18 meter area, excavated to a depth of 6 meters).

An archaeological survey with Louis Berger Inc. was completed in locations not previously surveyed, and a six meter buffer was included around the project area as part of the APE. NAFB identified six previous archaeological surveys associated with the APE. There are no known prehistoric archaeological sites within the APE, but one historic road was identified within the project area. This resource is unevaluated for listing in the National Register of Historic Places (NRHP) but will not be affected by project activities (Map 1). Therefore, NAFB has determined the proposed undertaking will have No Adverse Effects on Historic Properties, as defined in CFR 800.5(b).

Should you or your staff have any questions about the project, please contact our tribal liaison/archaeologist, Ms. Kish La Pierre, 99 CES/CEIEA, at (702) 682-5813 or at kish.lapierre@us.af.mil.

Sincerely



PATRICK J. KOLESIAK, Lt Col, USAF
Commander

Attachments (1 hardcopy):

1. Cultural Report

2. APE Map

cc (w/ attachments):

Affiliated Tribal Offices

Tom Brady, City of Las Vegas

Louis Berger Group, Inc.



COLORADO RIVER INDIAN TRIBES

Tribal Historic Preservation Office

26600 Mohave Road

Parker, Arizona 85344

Telephone: (928)-669-5822 Fax: (928) 669-5843

April 27, 2017

Department of the Air Force
99th Civil Engineer Squadron
6020 Beale Ave.
Nellis Air Force Base, Nevada 89191

RE: Range Wash-Hollywood Branch Flood Improvements

Dear Ms. Kish LaPierre:

The Colorado River Indian Tribes' Tribal Historic Preservation Office ("CRIT THPO") has received your letter dated April 2017, regarding the *proposed flood improvements to Range Wash-Hollywood Branch and East Tributary Improvements from Las Vegas Boulevard to Confluence Detention Basin, Nellis Air Force Base, Clark County, Nevada.*

As a preliminary matter, the Colorado River Indian Tribes are a federally recognized Indian tribe comprised of over 4,200 members belonging to the Mohave, Chemehuevi, Hopi and Navajo Tribes. The almost 300,000 acre Colorado River Indian Reservation sits astride the Colorado River between Blythe, California and Parker, Arizona. The ancestral homelands of the Tribe's members, however, extend far beyond the Reservation boundaries. Significant portions of public and private lands in California, Arizona and Nevada were occupied by the ancestors of the Colorado River Indian Tribes' Mohave and Chemehuevi members since time immemorial. These landscapes remain imbued with substantial cultural, spiritual and religious significance for the Tribes' current members and future generations. For this reason, we have a strong interest in ensuring that potential cultural resource impacts are adequately considered and mitigated.

In particular, the Colorado River Indian Tribes are concerned about the removal of artifacts from this area and corresponding destruction of the Tribes' footprint on this landscape. As such, the Tribes request that all prehistoric cultural resources, including both known and yet-to-be-discovered sites, be avoided if feasible. If avoidance of the site is infeasible, then the Tribes request that the resources be left in-situ or reburied in a nearby area, after consultation. This language should be incorporated into enforceable mitigation measures.

In addition, we respond as follows:

_____ Given the potential impact of the project on important cultural resources, the Colorado River Indian Tribes request in-person government-to-government consultation. Please contact the CRIT THPO to discuss our concerns and schedule a meeting with Tribal Council.

CRIT THPO

Project Name: Range Wash-Hollywood Branch Project

Date: April 27, 2017

Page 2

In the event any human remains or objects subject to provision of the Native American Graves Protection and Repatriation Act, or cultural resources such as sites, trails, artifacts are identified during ground disturbance, please contact the CRIT THPO within 48 hours.

The Colorado River Indian Tribes request tribal monitoring of any ground disturbing activity as a condition of project approval. The Tribes request notification of any opportunities to provide tribal monitoring for the project.

The Colorado River Indian Tribes do not have any specific comment on the proposed project and instead defer to the comments of other affiliated tribes.

Thank you for your consideration. Please contact the undersigned if you have any questions or concerns.

Sincerely,

**COLORADO RIVER INDIAN TRIBES
TRIBAL HISTORIC PRESERVATION OFFICE**

/s/David Harper, Director

26600 Mohave Road

Parker, AZ 85344

Phone: (928) 669-5822

E-mail: david.harper@crit-nsn.gov

critthpo@crit-nsn.gov

APPENDIX B: AIR QUALITY

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DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: NELLIS AFB
County(s): Clark
Regulatory Area(s): Clark Co, NV; Las Vegas, NV

- **Action Title:** Range Wash - Hollywood Branch and East Tributary

- **Project Number/s (if applicable):**

- **Projected Action Start Date:** 11 / 2018

- Action Purpose and Need:

The purpose of the Proposed Action is to confine and control flood flows. The Proposed Action would reduce flood flows overtop of Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road and reduce flooding on Nellis AFB by directing flood flows through established flood control facilities.

The proposed flood control facilities would alleviate current issues associated with flooding, resulting in a net positive effect on the environment. The flood control facilities are needed to:

1. Reduce the potential of economic losses to existing businesses in Clark County from flooding.
2. Reduce the potential for economic losses to existing Nellis AFB facilities from flooding.
3. Improve the safety of civilian and military personnel by controlling flood flows and reducing areas that are subject to flooding.
4. Allow for the development of industrial zoned lands in Clark County by reducing areas that are subject to flooding.
5. Allow for improved use of open lands by the USAF by reducing areas in the Nellis AFB that are subject to flooding.
6. Reduce City and USAF maintenance costs by avoiding cleanup following flood events.

- Action Description:

Under Alternative 1, the City of North Las Vegas would construct a concrete channel from Las Vegas Boulevard to Munitions Road, a lateral reinforced concrete box (RCB) storm drain between Las Vegas Boulevard and Ellsworth Avenue, and an earthen or rock-lined channel/berm with intermittent cutoff walls that extends south of Munitions Road to discharge 100-year runoff into the broad natural wash of the East Tributary (RWHW 0000 through RWHW 0174). Excavated soil would be used to fill an existing gravel pit located at the northeast corner of Ellsworth Avenue and O'Bannon Road and to construct berms. This area is also proposed as a temporary construction staging area.

Under Alternative 2, the City of North Las Vegas would construct the Hollywood Branch facilities identified under Alternative 1 plus the East Tributary flood control facilities (RWEA 0000 through RWEA 0192). This option would convey 100-year flows from Las Vegas Boulevard to the Confluence Detention Basin without discharging any flows onto open land and would retain peak flows to reduce the size of downstream facilities. Under Alternative 2, the City of North Las Vegas would construct a channel and detention basin on Nellis AFB property to convey 100-year storm flows from the 59-square-mile Range Wash Watershed. However, the full capacity of the facilities would not be used until the upstream watershed is fully developed and all MPU flood control facilities in Range Wash Watershed are constructed.

The No Action Alternative would involve no change to the current drainage system. Excess runoff would continue to overtop Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road, and inundate portions of Nellis AFB during large storms.

- Point of Contact

Name: Sarah Hoffman
Title: Senior Environmental Planner
Organization: Louis Berger
Email: shoffman@louisberger.com
Phone Number: 7027891909

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity List:

	Activity Type	Activity Title
2.	Construction / Demolition	Construction of Flood Control Facilities

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: Clark

Regulatory Area(s): Clark Co, NV; Las Vegas, NV; Las Vegas, NV

- Activity Title: Construction of Flood Control Facilities

- Activity Description:

Construction includes clearing and grading for installation of permanent flood control facilities.

- Activity Start Date

Start Month: 11

Start Month: 2018

- Activity End Date

Indefinite: False

End Month: 1

End Month: 2019

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.466484
SO _x	0.005722
NO _x	3.404582
CO	2.103087
PM 10	61.234534

Pollutant	Total Emissions (TONs)
PM 2.5	0.144062
Pb	0.000000
NH ₃	0.000560
CO _{2e}	574.5

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date

Start Month: 11

Start Quarter: 1

Start Year: 2018

- Phase Duration

Number of Month: 3

Number of Days: 0

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft²): 2047000

Amount of Material to be Hauled On-Site (yd³): 27

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Amount of Material to be Hauled Off-Site (yd³): 0

- Site Grading Default Settings

Default Settings Used: Yes
 Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rubber Tired Dozers Composite	2	8
Scrapers Composite	4	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)
 Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.1049	0.0014	0.7217	0.5812	0.0354	0.0354	0.0094	132.97
Other Construction Equipment Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0633	0.0012	0.4477	0.3542	0.0181	0.0181	0.0057	122.66
Rubber Tired Dozers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.2343	0.0024	1.8193	0.8818	0.0737	0.0737	0.0211	239.61
Scrapers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.2135	0.0026	1.6041	0.8417	0.0653	0.0653	0.0192	262.96
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0512	0.0007	0.3330	0.3646	0.0189	0.0189	0.0046	66.912

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.347	000.002	000.298	003.513	000.008	000.007		000.025	00352.061
LDGT	000.444	000.003	000.525	005.150	000.010	000.009		000.027	00454.877
HDGV	000.943	000.005	001.449	018.879	000.023	000.020		000.045	00797.765

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

LDDV	000.115	000.003	000.156	002.578	000.004	000.004		000.008	00344.974
LDDT	000.319	000.004	000.513	005.136	000.007	000.007		000.008	00501.756
HDDV	000.576	000.014	006.275	002.043	000.232	000.213		000.029	01554.144
MC	003.044	000.003	000.833	013.597	000.027	000.024		000.052	00395.604

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

PM10_{FD}: Fugitive Dust PM 10 Emissions (TONs)
 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
 ACRE: Total acres (acres)
 WD: Number of Total Work Days (days)
 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
 NE: Number of Equipment
 WD: Number of Total Work Days (days)
 H: Hours Worked per Day (hours)
 EF_{POL}: Emission Factor for Pollutant (lb/hour)
 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
 HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
 HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)
 HC: Average Hauling Truck Capacity (yd³)
 (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
 HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
 VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
 0.002205: Conversion Factor grams to pounds
 EF_{POL}: Emission Factor for Pollutant (grams/mile)
 VM: Vehicle Exhaust On Road Vehicle Mixture (%)
 2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
 WD: Number of Total Work Days (days)
 WT: Average Worker Round Trip Commute (mile)
 1.25: Conversion Factor Number of Construction Equipment to Number of Works
 NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

V_{POL} : Vehicle Emissions (TONs)

VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL} : Emission Factor for Pollutant (grams/mile)

VM : Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: NELLIS AFB
County(s): Clark
Regulatory Area(s): Clark Co, NV; Las Vegas, NV

- **Action Title:** Range Wash - Hollywood Branch and East Tributary

- **Project Number/s (if applicable):**

- **Projected Action Start Date:** 11 / 2018

- Action Purpose and Need:

The purpose of the Proposed Action is to confine and control flood flows. The Proposed Action would reduce flood flows overtop of Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road and reduce flooding on Nellis AFB by directing flood flows through established flood control facilities.

The proposed flood control facilities would alleviate current issues associated with flooding, resulting in a net positive effect on the environment. The flood control facilities are needed to:

1. Reduce the potential of economic losses to existing businesses in Clark County from flooding.
2. Reduce the potential for economic losses to existing Nellis AFB facilities from flooding.
3. Improve the safety of civilian and military personnel by controlling flood flows and reducing areas that are subject to flooding.
4. Allow for the development of industrial zoned lands in Clark County by reducing areas that are subject to flooding.
5. Allow for improved use of open lands by the USAF by reducing areas in the Nellis AFB that are subject to flooding.
6. Reduce City and USAF maintenance costs by avoiding cleanup following flood events.

- Action Description:

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The No Action Alternative would involve no change to the current drainage system. Excess runoff would continue to overtop Las Vegas Boulevard, Ellsworth Avenue, and Munitions Road, and inundate portions of Nellis AFB during large storms.

- Point of Contact

Name: Sarah Hoffman
Title: Senior Environmental Planner
Organization: Louis Berger
Email: shoffman@louisberger.com
Phone Number: 7027891909

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity List:

Activity Type	Activity Title
2.	Construction / Demolition
	Construction of Flood Control Facilities

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: Clark

Regulatory Area(s): Clark Co, NV; Las Vegas, NV; Las Vegas, NV

- Activity Title: Construction of Flood Control Facilities

- Activity Description:

Clearing and grading activities to install permanent flood control facilities.

- Activity Start Date

Start Month: 11

Start Month: 2018

- Activity End Date

Indefinite: False

End Month: 3

End Month: 2019

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.098320
SO _x	0.013164
NO _x	8.052177
CO	4.836795
PM 10	217.008014

Pollutant	Total Emissions (TONs)
PM 2.5	0.341298
Pb	0.000000
NH ₃	0.001244
CO ₂ e	1323.2

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date

Start Month: 11

Start Quarter: 1

Start Year: 2018

- Phase Duration

Number of Month: 5

Number of Days: 0

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft²): 4356000

Amount of Material to be Hauled On-Site (yd³): 55

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Amount of Material to be Hauled Off-Site (yd³): 0

- Site Grading Default Settings

Default Settings Used: Yes
 Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rollers Composite	1	8
Rubber Tired Dozers Composite	3	8
Scrapers Composite	6	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)
 Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.1049	0.0014	0.7217	0.5812	0.0354	0.0354	0.0094	132.97
Other Construction Equipment Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0633	0.0012	0.4477	0.3542	0.0181	0.0181	0.0057	122.66
Rollers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0682	0.0007	0.4484	0.3884	0.0290	0.0290	0.0061	67.198
Rubber Tired Dozers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.2343	0.0024	1.8193	0.8818	0.0737	0.0737	0.0211	239.61
Scrapers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.2135	0.0026	1.6041	0.8417	0.0653	0.0653	0.0192	262.96
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0512	0.0007	0.3330	0.3646	0.0189	0.0189	0.0046	66.912

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.347	000.002	000.298	003.513	000.008	000.007		000.025	00352.061
LDGT	000.444	000.003	000.525	005.150	000.010	000.009		000.027	00454.877
HDGV	000.943	000.005	001.449	018.879	000.023	000.020		000.045	00797.765
LDDV	000.115	000.003	000.156	002.578	000.004	000.004		000.008	00344.974
LDDT	000.319	000.004	000.513	005.136	000.007	000.007		000.008	00501.756
HDDV	000.576	000.014	006.275	002.043	000.232	000.213		000.029	01554.144
MC	003.044	000.003	000.833	013.597	000.027	000.024		000.052	00395.604

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

PM10_{FD}: Fugitive Dust PM 10 Emissions (TONs)

20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)

ACRE: Total acres (acres)

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

EF_{POL}: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)

HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL} : Vehicle Emissions (TONs)

VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL} : Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons