Systems Conveyance and Operations Program (SCOP)
Environmental Assessment
for
Proposed Project Changes on
Bureau of Reclamation Administered Land

DRAFT

May 2008

Bureau of Reclamation
Lower Colorado Region

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

IN REPLY REFER TO:

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MAY 13 2008

Dear Interested Parties:

Enclosed for your review and comment is the Bureau of Reclamation, Lower Colorado Region's Draft Environmental Assessment (EA) for the Systems Conveyance and Operations Program (SCOP) for Proposed Changes on Bureau of Reclamation Administered Land. This document analyzes the potential impacts associated with changes to the alignment and construction technique used for segments of the pipeline alignment, originally proposed and analyzed in the SCOP Final Environmental Impact Statement dated October 2006.

Copies of the Draft EA are available at the following libraries: Boulder City Library, Clark County Library, Green Valley Library, James I. Gibson Library, Las Vegas Public Library, Sahara West Library, Sunrise Public Library, University of Nevada, Las Vegas James R. Dickinson Library, and College of Southern Nevada Library. The Draft EA is also available electronically at the Lower Colorado Region Bureau of Reclamation website at www.usbr.gov/lc/region/g2000/envdocs.html and at the Clean Water coalition website at www.cleanwatercoalition.com/Home/PublishDocuments/tabid/60/Default.aspx.

Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be available for public inspection in their entirety.

Comments concerning the Draft EA for the SCOP Proposed Changes on Bureau of Reclamation Administered Land will be accepted through June 23, 2008. Please submit your comments to Mr. Marc Maynard, Natural Resource Specialist, LC-2621, Bureau of Reclamation, P.O. Box 61470, Boulder City, Nevada, 89006. For more information regarding this action, please contact Mr. Maynard at 702-293-8344.

Sincerely,

William J. Liebhauser, Director
Resources Management Office

Enclosure

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1.0 Purpose and Need for the Action

1.1 Introduction

The Clean Water Coalition (CWC), which is comprised of the four agencies currently responsible for wastewater treatment in the Las Vegas Valley: the City of Las Vegas (CLV), the City of North Las Vegas (CNLV), the City of Henderson (COH), and Clark County Water Reclamation District (CCWRD), proposed to implement the Systems Conveyance and Operations Program (SCOP). The SCOP will provide an alternate discharge location for the effluent, which is currently discharged to Lake Mead through the Las Vegas Wash. The SCOP includes activities and infrastructure that would be located on lands owned or managed by the CLV, CNLV, COH, Clark County (CC), Bureau of Reclamation Lower Colorado Region (Reclamation), National Park Service (NPS), and the United States (U.S.) Bureau of Land Management (BLM), all within Clark County, Nevada. The original location of the SCOP conveyance system and facilities as analyzed in the SCOP Environmental Impact Statement (EIS) are shown on Figure 1.1-1.

The NPS and Reclamation prepared the SCOP EIS as joint-lead federal agencies. Each lead agency issued a Record of Decision (ROD) pertaining exclusively to actions under the authority of that agency. A copy of the Reclamation ROD is included in Appendix A. The Reclamation ROD, issued on July 9, 2007 stated that:

> After thorough analysis and public involvement, Reclamation has determined it will issue a right-of-way permit to construct and operate the Boulder Islands North Alternative on Reclamation land. The Boulder Islands North Alternative, the environmentally preferred alternative, includes the use of current, conventional treatment processes, plant optimization, increased treatment, and a pipeline that would convey highly treated effluent from the three treatment facilities to an alternate discharge location near the Boulder Islands in Lake Mead.

Thorough impact analyses were conducted as part of the SCOP EIS process to identify potential impacts resulting from the construction and implementation of SCOP. However, changes to segments of the project located on Reclamation land were identified during final design activities. The proposed changes, which are the Proposed Action, include the use of cut-and-cover construction techniques instead of tunneling for a 6,050-feet (ft) segment of the Reach 3 alignment within the Clark County Wetlands Park (Wetlands Park) boundary, widening of the construction area for the COH Forcemain, the addition of a temporary power line to the effluent interceptor (EI) Terminus site, and the realignment of 16,000 ft of the North River Mountains Tunnel 3 (NRMT3) to avoid private property. Details regarding the Proposed Action being analyzed in this Environmental Assessment (EA) are provided in Chapter 2. Relevant information from the SCOP Final EIS will be incorporated by reference into this EA to the extent possible.

This EA is prepared in compliance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA. The Proposed Action analyzed in this EA traverses lands administered by Reclamation. Therefore, the CWC would need to obtain a right-of-way (ROW) permit that allows the construction and operation of the SCOP on Reclamation lands. The issuance of federal permits is a federal action and requires NEPA compliance. Reclamation is the lead agency for the preparation of this EA. The NEPA requires federal agencies to consider the environmental consequences of all proposed actions in their decision-making process. The CEQ was established under NEPA to implement and oversee federal policy in this process.

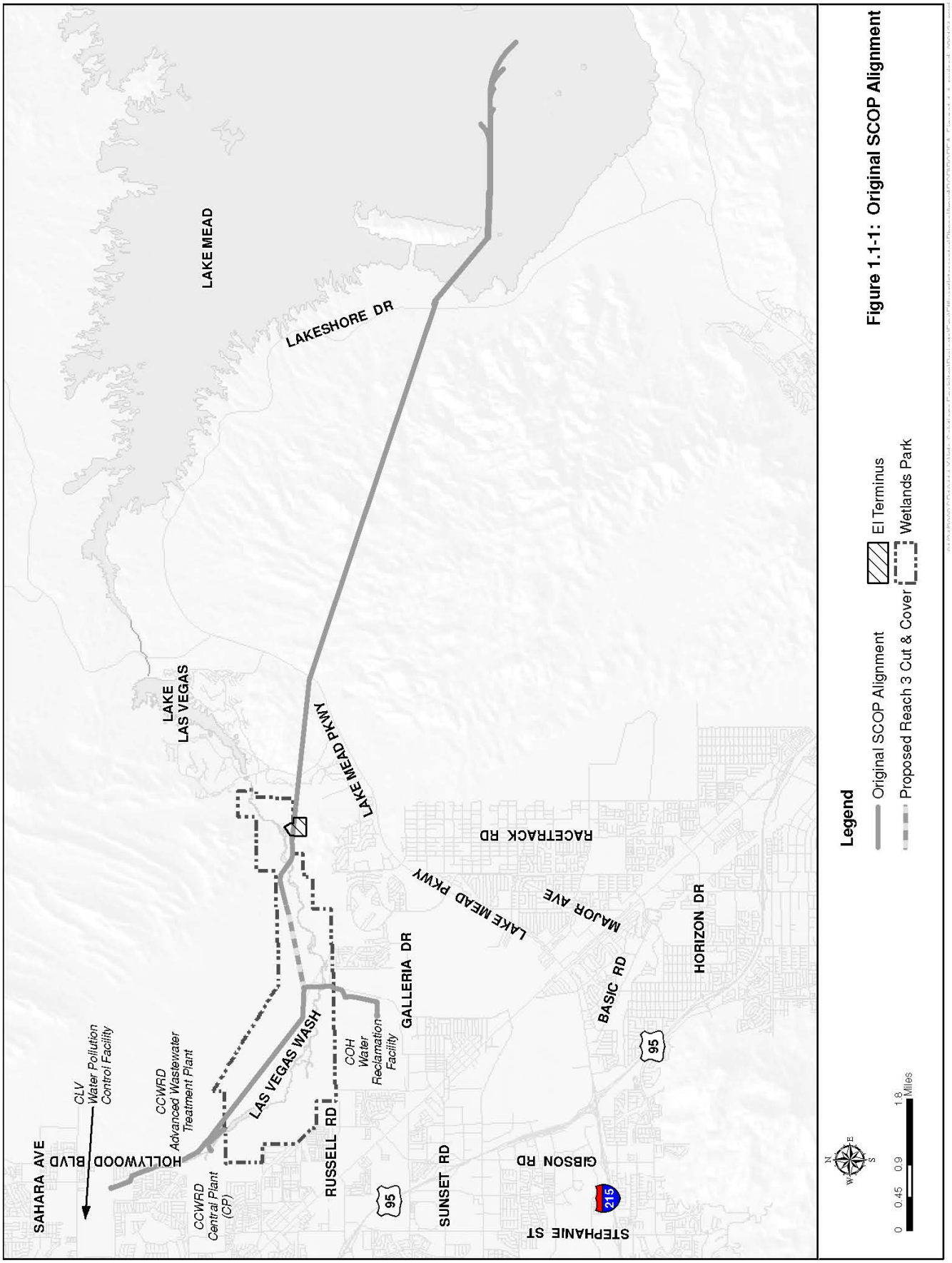

Figure 1.1-1: Original SCOP Alignment

1.2 Purpose and Need

The purpose and need for the Reach 3 cut-and-cover segment are related to geology, groundwater, and cost.

Geology: Information regarding geologic conditions and fault locations were obtained during final design of Reach 3. The data indicate that constructing a segment of Reach 3 using cut-and-cover construction is advantageous since the geologic conditions are not optimal for tunneling activities. A fault identified near the middle of Reach 3 would be crossed. Engineering design can more readily accommodate the pipeline crossing of the fault in a trench than a tunnel. After crossing the fault with trench (cut-and-cover) construction, the pipeline would be diverted through a shaft and into a tunnel. In the event there is movement along the fault, any damage to the pipeline can be repaired more easily in a shallow trench than in a tunnel.

Groundwater: A known perchlorate groundwater plume, originating from the Basic Magnesium Inc. (BMI) Complex located to the southwest of the EI is present in the project area. The plume migrated off the BMI site in a northeasterly direction and enters the Las Vegas Wash in the vicinity of the Pabco Road Erosion Control Structure (ECS). The source of the perchlorate has been traced to Kerr McGee Chemical Corporation and American Pacific Corporation facilities located in Clark County, Nevada.

Reach 3 of the EI pipeline alignment would be located in areas of known or suspected perchlorate groundwater contamination. Perchlorate-contaminated groundwater would likely be encountered along the length of Reach 3 (Werle 2008). Originally, the entire Reach 3 alignment (11,400 ft) was to be constructed using tunneling construction techniques. Groundwater levels at the COH Forcemain shaft are approximately 30 ft below the ground surface and in the vicinity of the Reach 3 pipeline, which is located at slightly higher elevations; the depth to groundwater is greater than 30 ft. Therefore, trenching 6,050-ft of Reach 3 to a depth of 15 to 20 ft deep rather than tunneling at a depth of 75 ft would significantly reduce the quantity of groundwater encountered. Reducing the amount of contaminated groundwater would reduce treatment costs, as well as the cost of handling groundwater to construct the pipeline.

Cost: The cost of installing the EI in Reach 3 using cut-and-cover construction techniques rather than tunneling reduces the cost of Reach 3 by approximately $30 million. The CWC, a coalition of public agencies, receive funding through connection and service payments from member-agency customers.

The purpose and need for increasing the width of the COH Forcemain construction area is to provide sufficient area for receiving pits and staging areas.

The purpose and need for the adjustment to the NRMT3 alignment are the acquisition of subsurface easements. It is CWC policy to locate the pipeline on public lands and within existing ROWs to the extent possible. A segment of the original NRMT3 tunnel alignment would cross private land. Therefore, the alternate alignment that is part of the Proposed Action was designed to avoid the crossing of private property and to stay within existing ROWs. The new alignment for the NRMT3 allows this tunnel to remain beneath Magic Way (a COH ROW) and Lake Mead Parkway (a Nevada Department of Transportation [NDOT] ROW).

1.3 Related Laws, Policies, and Planning Documents

The following federal, state, and local statutes, regulations, management plans, and studies are relevant to the proposed project.

- NEPA of 1969
- Executive Order (EO) 11514: Protection and Enhancement of Environmental Quality
- Clean Air Act of 1970 and amendments of 1977
- Clean Water Act
- EO 11988: Floodplain Management
- Endangered Species Act of 1973
- Migratory Bird Treaty Act of 1918
- National Historic Preservation Act of 1966
- Archaeological Resources Protection Act of 1979
- Native American Graves Protection and Repatriation Act of 1990
- Noise Control Act of 1972
- Clark County Air Quality Regulations
- Clark County Multiple Species Habitat Conservation Plan (MSHCP)
- Las Vegas Wash Comprehensive Adaptive Management Plan
- Biological Opinion for the Systems Conveyance and Operations Program for the Discharge of Municipal Wastewater into Lake Mead, Clark County, Nevada (File Number: 1-5-07-F-433)
- Clark County Wetlands Park Trail Corridors and Guidelines Plan
- Sunrise Management Area Interim Management Plan and Environmental Assessment
- Final Program Environmental Impact Statement of the Clark County Wetlands Park

1.4 Impact Topics Identified for further Analysis

Geology, Topography, and Soils
Soils would be disturbed in the project area. Construction-related earthmoving activities could affect geologic features or alter local topography. Construction activities would occur on previously disturbed and undisturbed land.

Hazardous Materials
Construction activities would occur in areas of a known perchlorate groundwater plume and areas of known metal contamination. Construction activities also have the potential for hazardous material spills or require disposal of hazardous materials.

Water Resources
Construction activities would cross several ephemeral washes. Construction activities in the washes could temporarily increase sediment in the project area, and downstream from the areas of activity. The addition

of culverts and/or bridges could moderate water flows in the washes and decrease erosion. Construction activities could also occur in or adjacent to a floodplain.

Biological Resources
Construction activities would affect vegetation. The area provides wildlife habitat for small mammals, reptiles, and birds that could be disturbed or displaced during construction. Threatened, endangered, or other special status species in or near the project area could be affected during construction. The Proposed Action would occur in desert tortoise habitat. Construction activities could also impact wetlands adjacent to the Las Vegas Wash.

Air Quality
Airborne particulates could increase in the area during construction. The intermittent dust created by construction activities could compromise air quality and temporarily decrease visibility in the project area. Exhaust from construction equipment could temporarily impact air quality in the project area.

Noise
Construction-related noise could temporarily disturb sensitive receptors in the project area.

Cultural Resources
Sensitive cultural resources are located in the vicinity of the Proposed Action. Construction could have an impact on several of these resources.

Visual Resources
Reach 3 of the Proposed Action would occur within the boundaries of the Wetlands Park. Construction activities could temporarily detract from the natural setting.

Land Use and Access
Land use and access within the construction area would be affected temporarily during construction.

1.5 Impact Topics Dismissed from Analysis

The following topics are not further addressed in this document. These resources were dismissed because they are not located within the proposed project area. Therefore, there would be no potential impacts to these resources.

- Designated ecologically significant or critical areas;
- Designated coastal zones;
- Indian Trust Assets;
- Prime and unique agricultural lands; or
- Sole or principal drinking water aquifers.

In addition, the Proposed Action would not appreciably affect local businesses; therefore a discussion on the socioeconomic environment was dismissed from discussion.

There are no potential effects to local or regional employment, occupation, income changes, or tax base as a result of this project. There are no potential effects on minorities, Native Americans, women, or the civil liberties (associated with age, race, creed, color, national origin, or sex) of any American citizen. No disproportionate high or adverse effects to minority populations or low-income populations are expected to occur as a result of implementing any alternative.

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2.0 DESCRIPTION OF ALTERNATIVES

This EA analyzes two alternatives, the Proposed Action and the No Action Alternative, which are described in the following sections.

2.1 Proposed Action

As described in Chapter 1, the CWC proposed to implement SCOP, which will provide an alternate discharge location for the Las Vegas Valley's treated effluent. The NPS and Reclamation prepared the SCOP EIS as joint-lead federal agencies, and conducted thorough impact analyses. However, changes to segments of the project located on Reclamation land were identified during final design activities. The proposed changes, which are the Proposed Action of this EA, include the following actions:

- The use of cut-and-cover construction techniques instead of tunneling for a 6,050- ft segment of the Reach 3 alignment within the Wetlands Park boundary;
- Widening of the temporary construction easement for the COH Forcemain from 125 ft to 200 ft;
- Installation of a temporary power line along Olsen Street to the EI Terminus site;
- The realignment of 16,000 ft of the NRMT3 to avoid private property; and
- Addition of a 0.5-acre staging area along Reach 3 and a 3-acre staging area along the NRMT3 (Figure 2.1-1).

2.1.1 Reach 3

A 6,050-ft segment of Reach 3 would be constructed using cut-and-cover techniques. The cut-and-cover segment (Reach 3 pipeline) would begin on the north side of the Las Vegas Wash at the COH connection to the EI, near the Pabco Road ECS, and continue in a northeasterly direction terminating at the Reach 3 Tunnel portal shaft (Figure 2.1-2). Vibration monitoring would be conducted throughout construction of Reach 3.

Cut-and-cover construction is comprised of heavy excavators trenching along the alignment and laying pipe to a specified slope. The depth of the trench would vary from 17 to 35 ft, depending on the natural topography of the alignment. Portions along the Reach 3 pipeline may require dewatering in areas near the Las Vegas Wash and at the Reach 3 Tunnel shaft. Dewatering water would be transported to the COH's Pond 13 for infiltration back into the groundwater system. A temporary pipeline located within the Reach 3 and COH Forcemain alignments would be used to convey the dewatering water to Pond 13. Coordination with the Nevada Department of Environmental Protection (NDEP) regarding dewatering activities is ongoing.

The Reach 3 pipeline would require a 175-ft wide construction easement. The permanent easement width for the Reach 3 pipeline would be 110 ft. A fenced staging and storage area would be located as shown on Figure 2.1-2. The Reach 3 staging area would be approximately 0.5 acres.

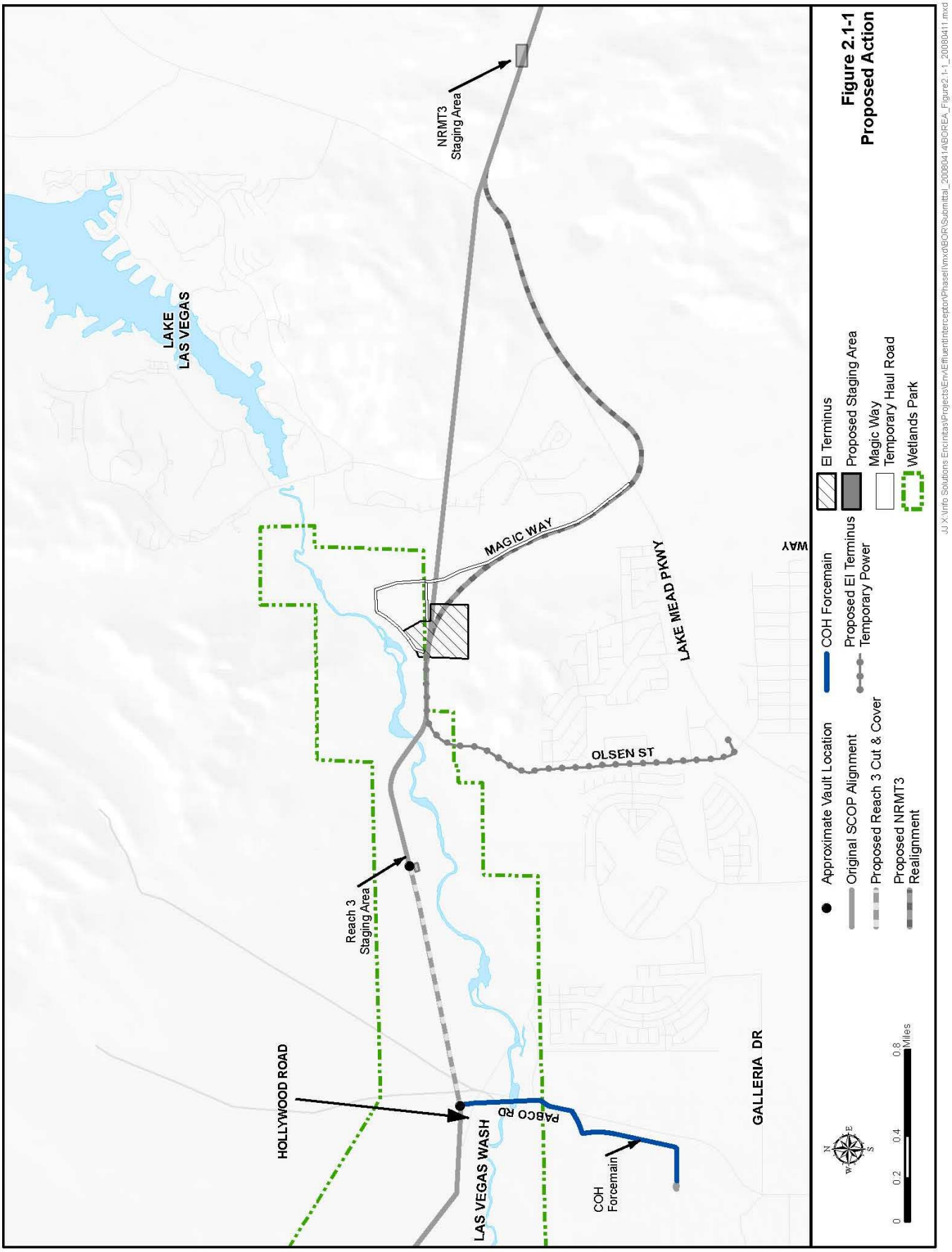

Figure 2.1-1
Proposed Action

Figure 2.1-2 - Reach 3 Area

The Reach 3 pipeline would terminate at the Reach 3 Tunnel shaft, which would be approximately 150 ft deep and up to 25 ft in diameter. The shaft site would be within the permanent easement. Spoils would be excavated from the tunnel shaft, temporarily stored along the trench then used for backfill to the extent possible. Excess spoils would be hauled by truck to a disposal site using the existing roadway system. Once construction is complete, no spoils would remain within the SCOP project area.

There would be two vault structures associated with the Reach 3 pipeline. Vault #1, approximately 14 ft by 14 ft, would be located at the start of the Reach 3 pipeline where the COH Forcemain, Reach 2, and Reach 3 connect (Figure 2.1-2). Vault #2, approximately 20 ft by 20 ft, would be located at the eastern end of the Reach 3 pipeline where the Reach 3 tunnel begins (Figure 2.1-2). The vaults would be located within the 110-ft permanent easement corridor. Once construction is complete, each vault would have one or two manholes that provide access into the vault for maintenance purposes.

The top 4 to 6 inches of surface material along the Reach 3 pipeline would be stockpiled separately from other excavated material at the staging areas, and would be used as seedbed after final grading. It is assumed that the majority of the excavated material would be used as trench backfill or during final grading. The amount of excess material excavated from the Reach 3 pipeline would be approximately 44,000 cubic yards and would be used for backfill, other projects, or hauled off to the nearest disposal area.

Access manholes would be necessary to enter the pipeline for inspection or maintenance. An access manhole includes pipeline access and a manhole or vault with ground-level access and cover. Along the Reach 3 pipeline, access manholes would be located at approximately every 2,000 ft. The manholes would be 30 inches in diameter and would be located at bends and transitions along the alignment. Once construction is complete, the manholes located along the SCOP pipeline alignment would be accessed for maintenance purposes using existing roads and walking the remainder of the distance. Existing paved and unpaved roads would be used for access to the construction site to the greatest extent possible. Temporary roads would be required to access portions of the Reach 3 pipeline for construction. These roads would be limited to the area within the 175 ft-wide construction corridor. All temporary roads will be re-graded and restored to pre-construction conditions once Reach 3 construction is complete.

Construction of the Reach 3 pipeline would take approximately 12 months. Construction is tentatively scheduled to begin in September 2008.

2.1.2 COH Forcemain Temporary Construction Area

The COH Wastewater Reclamation Facility effluent would be conveyed to the EI via the COH Forcemain as analyzed in the SCOP Final EIS. The Proposed Action for this EA includes a 6,500-ft long, 200-ft wide temporary easement corridor for use during construction of the COH Forcemain (Figure 2.1-3). The temporary corridor would be used during construction for pipe assembly and pulling, as well as other construction-related activities. The permanent easement width required for the COH Forcemain would be 50 ft, which is consistent with the SCOP EIS.

2.1.3 Temporary Power Line

A temporary easement along Olsen Street and northeast to the EI Terminus would be needed to provide temporary power to the EI Terminus site (Figure 2.1-4). The power lines would be 12,000 kilovolt (kV) lines. It has not yet been determined whether the temporary power line would be above or below ground. Above ground power would be provided to the EI Terminus site on power poles spaced 50 ft apart. The

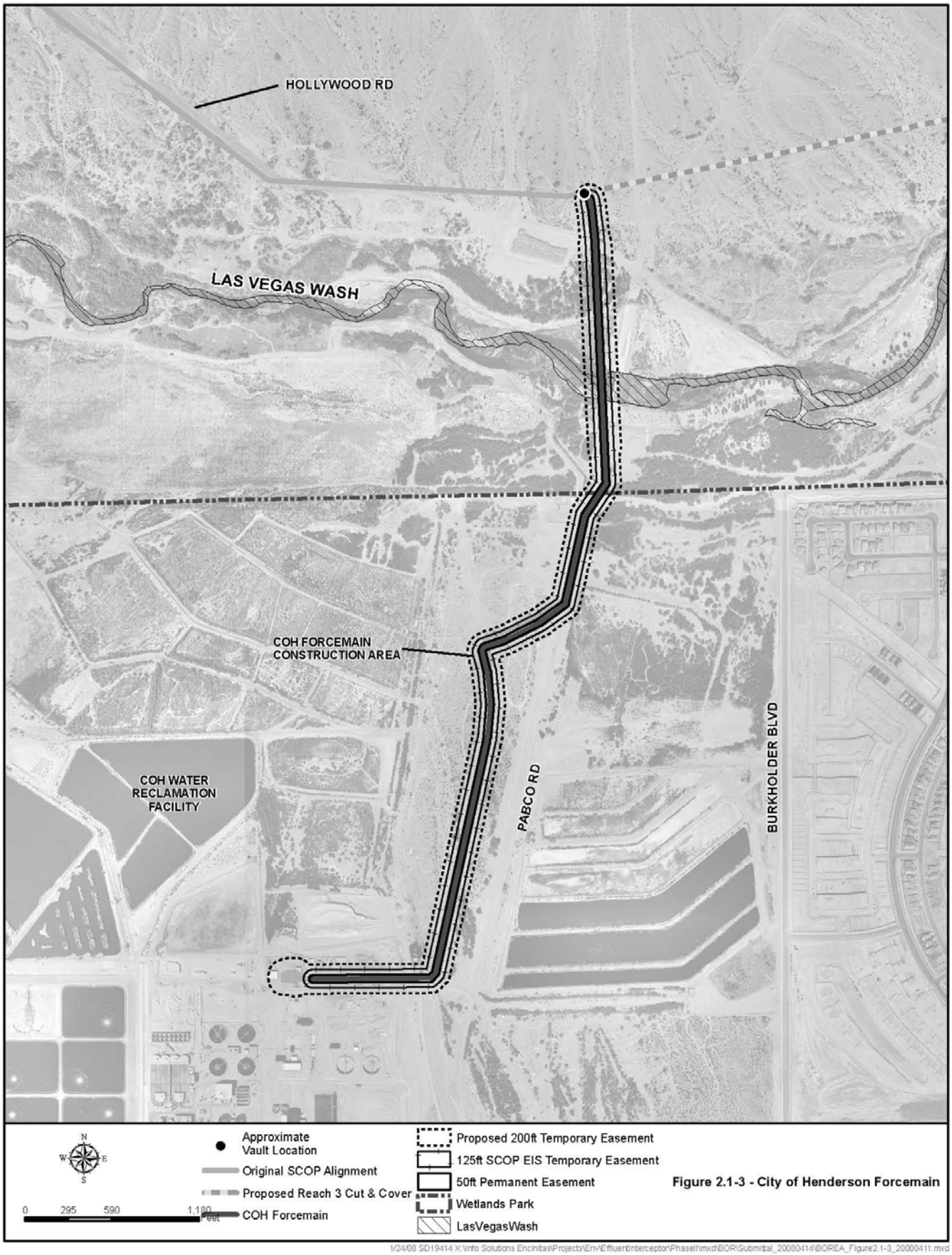

Figure 2.1-3 - City of Henderson Forcemain

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power poles would be approximately 15 ft in height. Below ground power would be provided to the EI Terminus site via an existing utility corridor. There is an existing 30-ft - wide utility corridor along Olsen Street. The temporary power line would be located in this existing utility corridor in an underground concrete duct bank. In order to connect the temporary power line to the EI Terminus site, a temporary easement of 50 ft would be needed for the portion of the power alignment that is not located in the existing utility corridor (approximately 4,700 ft). Approximately 1,184 ft of the EI Terminus temporary power line would cross Reclamation land. The remainder of the temporary power line alignment would be located within public ROW through COH lands and privately owned lands.

2.1.4 North River Mountains Tunnel 3 (Reach 4) Alignment

Approximately 16,000 ft of the NRMT3 would be realigned as shown in Figure 2.1-4. The revised NRMT3 (Reach 4 alignment) would begin at the working shaft located at the EI Terminus and would proceed in a southeasterly direction along Magic Way, cross beneath Lake Mead Parkway, then continue roughly parallel to Lake Mead Parkway for approximately 7,900 ft to the original alignment location. The NRMT3 alignment arcs to the south of Lake Mead Parkway beneath Reclamation land. The arc is needed to accommodate the turning radius of the tunnel boring machine. The NRMT3 realignment would be mined through competent bedrock and would pass beneath property owned by Reclamation. The NRMT3 tunnel realignment would be between 300 and 500 ft deep. Staging activities would be conducted at the EI Terminus site as analyzed in the SCOP Final EIS and at a 3-acre staging area at the location shown in Figure 2.1-4. A permanent subsurface utility easement approximately 40 ft wide would be needed along the entire tunnel section.

Existing paved and unpaved roads would be used to access the construction site at the EI Terminus as analyzed in the SCOP Final EIS. The material excavated from the NRMT3 realignment would be considered “public minerals” with respect to subsurface rights on federal lands. The excess spoils may be used for public projects such as dust control on federal lands or construction materials for roadways, flood control facilities, or other public projects. The amount of spoils generated from the NRMT3 realignment would be approximately 40,000 cubic yards. The tunnel spoils would be 1/2 to 6 inches or less in size, and would be used for public purposes or hauled offsite for disposal.

Construction of the entire NRMT3 alignment would take approximately 36 months. Construction is tentatively scheduled to begin in January 2009.

2.1.5 North River Mountains Tunnel 3 Staging Area

A temporary staging area is required along the NRMT3 alignment. The staging area would be 3 acres as shown on Figure 2.1-4. This area would be used during NRMT3 construction to provide a temporary access shaft to the tunnel construction below. Tunnel ventilation would be provided via the temporary access shaft. The access shaft also would be used for placement of materials into the tunnel during construction.

Activities at the staging area would include excavation of the shaft, installation of ventilation equipment for the tunnel, and maintenance activities required for the equipment. The materials placed into the tunnel would include miscellaneous ancillary materials and concrete material for the grouting of the tunnel lining. All equipment and materials would be removed from the area and the area restored according to the guidelines presented in a Reclamation-approved restoration plan. The area would be accessible by existing unpaved roads throughout construction of the NRMT3. Travel to the construction area would be limited to existing roads.

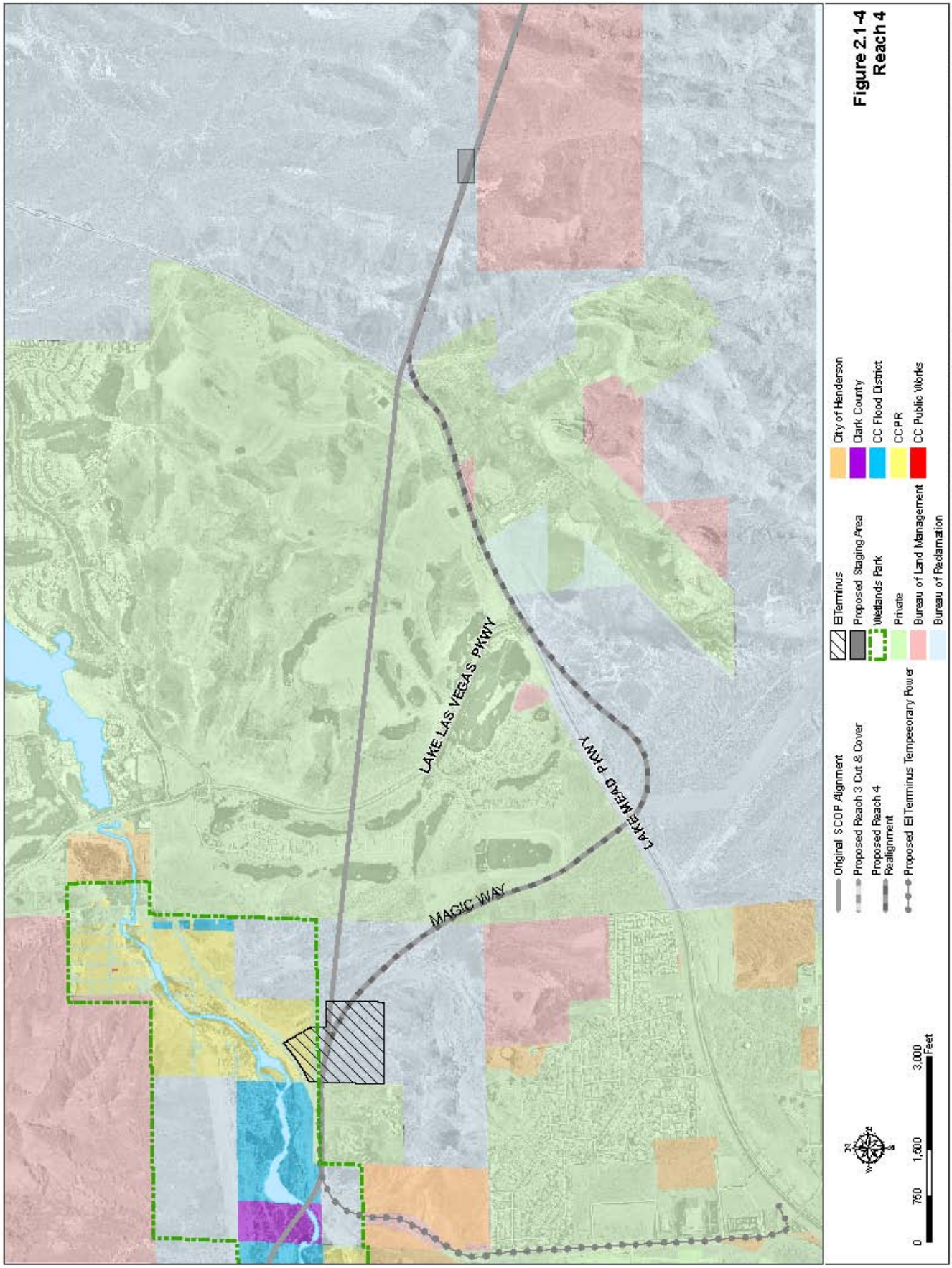

Figure 2.1-4
Reach 4

2.2 No Action Alternative

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative (the Boulder Islands North Alternative) as described in the SCOP Final EIS and the Reclamation ROD, which was issued on July 9, 2007. Figure 1.1-1 shows the original SCOP alignment within the Proposed Action Area.

2.2.1 Reach 3

The entire 11,400 ft of Reach 3 would be constructed using tunneling construction techniques as described for the Environmentally Preferred Alternative in the SCOP Final EIS. However, issues relating to geology, groundwater, and cost would need to be resolved.

The cost of installing the EI in Reach 3 using tunneling construction techniques would be approximately $30 million more than using cut-and-cover techniques. The CWC, a coalition of public agencies, receive funding through connection fees and service payments from member-agency customers. Therefore, these costs would be passed on to the public.

2.2.2 COH Forcemain Temporary Construction Area

The COH Forcemain temporary construction easement would be 125-ft wide as described and analyzed in the SCOP Final EIS. All construction activities would be confined to the 125-ft wide construction corridor.

2.2.3 North River Mountains Tunnel 3 (Reach 4) Alignment

The NRMT3 alignment would remain as described for the Environmentally Preferred Alternative in the SCOP Final EIS (Figure 1.1-1). The NRMT3 would be drilled through competent bedrock and would pass beneath property managed by Reclamation and private land owners. A permanent subsurface utility easement approximately 40 ft wide would be needed along the NRMT3 alignment. However, it is CWC policy to locate the pipeline on public lands and within existing ROWs to the extent possible, and private landowners have indicated that they will not grant permission for the SCOP pipeline to be installed beneath their land. The CWC may be unable to obtain the subsurface utility easements along the original NRMT3 alignment without resorting to legal actions. Therefore, the No Action Alternative does not meet the purpose and need for the Proposed Action.

3.0 AFFECTED ENVIRONMENT

This chapter contains the description of the existing environmental conditions in the vicinity of the Proposed Action and No Action Alternative. During EA preparation, the most up-to-date and accurate information available was used to describe the existing environment. The information serves as a baseline from which to identify and evaluate environmental changes resulting from the Proposed Action and No Action Alternative.

The environmental resources discussed in this chapter include geology, topography, and soils; water resources; biological resources, air quality; noise; cultural resources; visual resources; and land use and access.

3.1 Geology, Topography, and Soils

This section describes the existing geology, topography, and soils in the project area.

3.1.1 Geology

Bedrock and Valley-fill sediments are the two main geologic units that characterize the Proposed Action area. The mountain ranges to the west, east, and north consist primarily of Paleozoic and Mesozoic sedimentary rocks including sandstone, limestone, siltstone, and conglomerates. The Valley-fill sediments predominantly consist of Miocene to Holocene age fine to coarse grained deposits (Longwell et al. 1965).

The western portion of the Proposed Action area has underlying Quaternary deposits while the eastern portion is underlain by Tertiary sedimentary rocks. The Miocene and Pliocene Muddy Creek Formation and overlying younger deposits are generally thought to comprise the Valley-fill sediments.

The Muddy Creek Formation is overlain by up to 1,000 ft of Tertiary and Quaternary basin fill deposits in the Valley. These fill deposits of gravel, sand, silt, clay, and conglomerates contain abundant carbonate clasts, and consist of coarse-grained deposits, fine-grained deposits, and thin interbedded coarse- and fine-grained deposits. Coarse-grained deposits generally occur on alluvial fans and pediments near the Valley margins and along the Las Vegas Wash (Longwell et al. 1965).

The current level of seismicity in southern Nevada is relatively low compared to more active parts of the Basin and Range Province (Rogers et al. 1991, Harmsen 1991). There have been no major earthquakes (greater than 6.0 magnitude) in the vicinity of Las Vegas since at least 1852. The record of seismicity in southern Nevada is dominated by small earthquakes (less than 4.0 magnitude) that generally occur in two areas: in the vicinity of the Nevada Test Site, which suggests the seismographs were recording nuclear explosions; and in the Lake Mead area, which may be related to strain release in the crust after the Lake was filled (Rogers et al. 1991, Rogers and Lee 1976).

Reach 3 and the NRMT3 of the Proposed Action cross Late Quaternary Active Faults. A large fault zone (Sunrise-Frenchman-River Mountain) is located on the west side of the Frenchman Mountain in the Rainbow Gardens area (Longwell, et al. 1965, Bell and Smith 1980). This fault zone begins to split and form splays (divergent smaller faults) as it nears the Las Vegas Wash (Converse Consultants 2002). One such southeast trending splay was observed near the Las Vegas Wash crossing (Converse Consultants 2002). Figure 3.1-1 shows the fault in the vicinity of the Reach 3 and NRMT3 segments of the Proposed Action. A major fault zone (Lake Mead Fault Zone) runs in a northeast/southwest direction in the

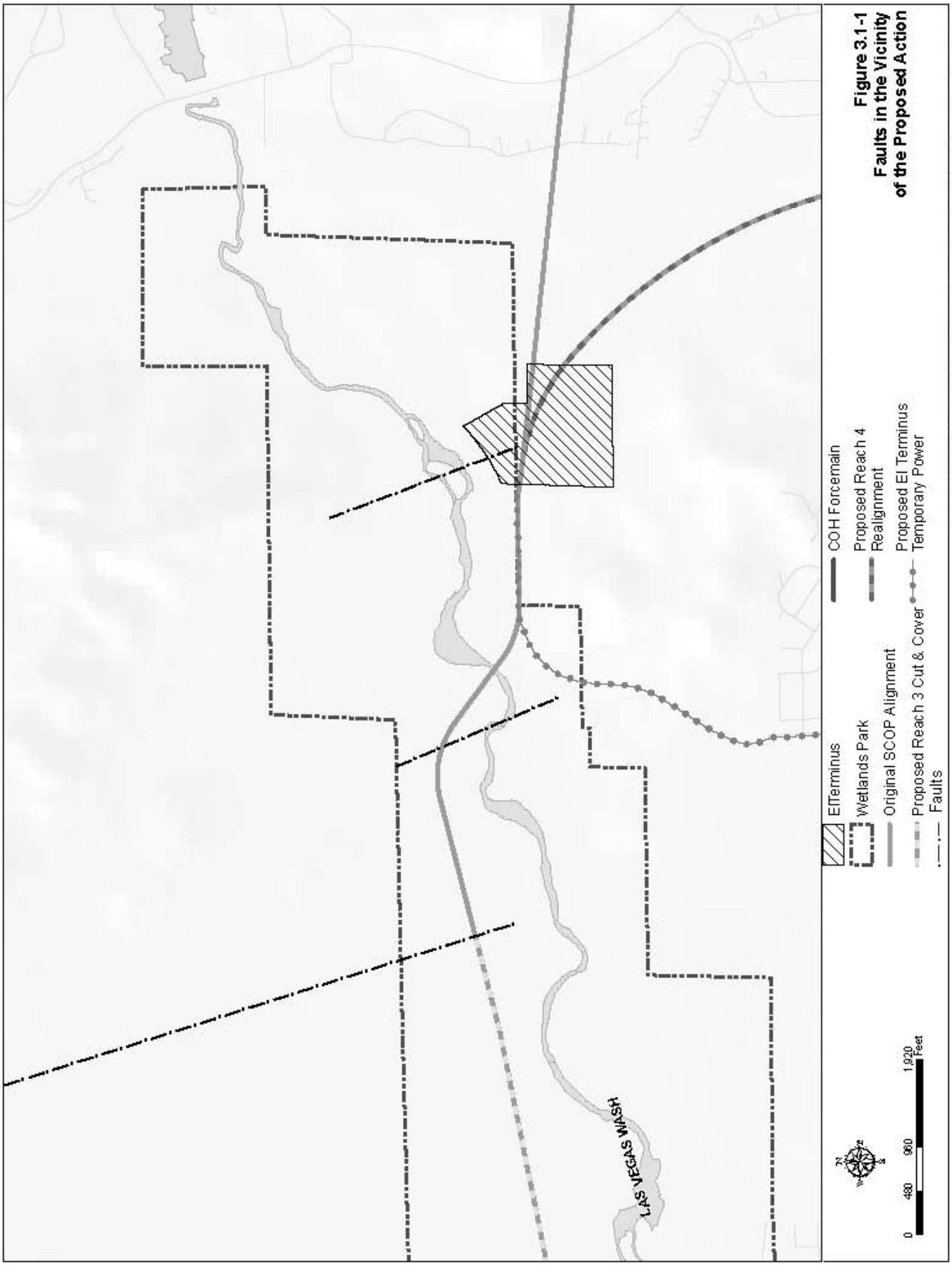

Figure 3.1-1 Faults in the Vicinity of the Proposed Action

Boulder Basin of Lake Mead National Recreation Area (Black & Veatch 2004). The project site is located within Seismic Zone 2B as defined in the Uniform Building Code (International Conference of Building Officials 1997). Zone 2B represents a low to moderately active seismic area and is defined as an area with moderate damage potential. The potential for damage from seismic activity becomes more severe in Zones 3 and 4.

3.1.2 Topography

The existing topography in the vicinity of the Proposed Action generally slopes from the northwest to the southeast at an average gradient of less than 1 percent (Converse Consultants 2002). The topography in the vicinity of Reach 3 includes moderate slopes. The topography along the NRMT3 segment is generally characterized by gentle slopes with an average gradient of less than 1 percent.

3.1.3 Soils

The U.S. Department of Agriculture Soil Conservation Service (1985) has mapped the soils in the majority of the Proposed Action area but not along the NRMT3 segment. Quaternary deposits in the area consist of poorly sorted, unconsolidated to cemented gravel and sandy gravel on alluvial fans, and fine sand along the Las Vegas Wash. Sand along the Las Vegas Wash is less than 10-ft thick, and coarse-grained deposits on alluvial fans and pediments are generally less than 30-ft thick. The Muddy Creek Formation includes clayey silt and silty clay; interbedded gravel, sand, silt, and clay; fanglomerates; and fine sandstone, siltstone, and clay (Longwell et al. 1965). Most of the soils in the Proposed Action area can be generally described as having a permeability ranging from moderately slow to moderately rapid, low to moderate shrink-swell potential, a slight to moderate potential for water erosion, and a moderate to high potential for wind erosion.

3.2 Hazardous Materials

A review of state and federal regulatory agency databases was conducted as part of the SCOP Final EIS for reported release locations of hazardous substances to soils and/or groundwater in the project area. The results of this review were presented in the *Phase I Environmental Site Assessment for the Systems Conveyance and Operations Program Effluent Interceptor Alignment* (Ninyo & Moore 2004). The purpose of the review was to ascertain the location of existing hazardous materials and the impact those materials have had on the environment and to identify any Recognizable Environmental Conditions.

Review of environmental databases indicated that ten sites located in the project area have been reported as having unauthorized releases of hazardous materials or waste and/or petroleum products (Ninyo & Moore 2004). The Phase I Environmental Site Assessment was conducted for the entire SCOP aligment and all proposed alternative alignments. A site reconnaissance was conducted 1 mile on either side of the alignment centerline on March 24, 2004. No stored hazardous substances or petroleum products; unidentified containers; or evidence of above-ground storage tanks, underground storage tanks, and chemical releases (e.g., odors, stressed vegetation, stains, leaks, pools of liquids, and spills) were observed during the site reconnaissance. No pole- or pad-mounted transformers that may contain polychlorinated biphenyls were observed during the site investigation along the proposed alignment. No evidence of pits, sumps, or drywells were observed during the site investigation.

Visible evidence of prior agriculture or landscaping activity that may indicate historic use of pesticides or herbicides within the project area was not present. There were numerous piles of waste rock and miscellaneous household debris in the vicinity. Solid waste observed in the proposed project area included construction waste, automobile parts, and domestic debris, but not to the extent of being an environmental concern.

The following Recognizable Environmental Conditions were identified during the Phase I Environmental Site Assessment:

- Portions of the NRMT3 realignment would pass beneath the southwest portion of the Three Kids Mine Site, an area with known metal (manganese, lead, and arsenic) and diesel contamination of the soil. Contamination resulted from historical mining activities. The facility, located in the River Mountains west of Lake Mead and south of Lake Mead Drive, mined manganese from 1917 to 1961. Part of the mining process entailed using diesel fuel in flotation tanks. The waste liquid from the flotation tanks was pumped to evaporation ponds. Site investigation activities have occurred at the site, but no remedial actions have been performed. Groundwater does not appear to have been impacted.
- The Henderson Landfill has known metal contamination as a result of its use as a landfill. The facility located west of Calico Hills and north of Lake Mead Parkway, was operated as a municipal landfill until 1975. Land use in the area is deed-restricted, with no residential development or water supply well construction allowed. A portion of the EI Terminus temporary power line would cross the Henderson Landfill.
- A known perchlorate groundwater plume, originating from the BMI Complex is located to the southwest of the project area The plume migrated off the BMI site in a northeasterly direction and enters the Las Vegas Wash in the vicinity of the Pabco Road ECS. The source of the perchlorate has been traced to Kerr McGee Chemical Corporation and American Pacific Corporation facilities located in Clark County, Nevada. A groundwater interception system, overseen by Nevada Department of Environmental Protection (NDEP), has been installed to intercept and treat the contaminated groundwater. Treated groundwater is returned to the Las Vegas Wash.

Portions of the COH Forcemain and the Reach 3 pipeline alignment near the EI Terminus would be located in areas of known or suspected perchlorate groundwater contamination. Based on data received from the Southern Nevada Water Authority (SNWA), concentrations of perchlorate in the area of the Pabco ECS on the Las Vegas Wash range from 4.8 to 83.2 parts per billion (ppb), and perchlorate concentrations in the Las Vegas Wash near the EI Terminus range from 190 to 200 ppb. Concentrations of perchlorate in the groundwater obtained from soil borings located west of the EI Terminus on the south bank of the Las Vegas Wash ranged from 2,600 to 3,900 ppb (Ninyo and Moore 2004).

3.3 Water Resources

Reach 3 is located adjacent to the Las Vegas Wash and within the Lower Las Vegas Wash Watershed. The Las Vegas Wash is the primary conveyance corridor of surface water runoff for the Las Vegas Valley. The total area of the Lower Las Vegas Watershed is 25 square miles (Clark County Regional Flood Control District [CCRFCD] 2002). This watershed is bounded on the west by Nellis Boulevard and Boulder Highway and on the south by the Duck Creek Channel and Las Vegas Wash. The Las Vegas Wash discharges to Lake Mead and the Colorado River system. Portions of Reach 3 cross 100- year flood zones within the floodplain (Figure 3.3-1). The drainage pattern within Reach 3 is generally from north to south towards the Las Vegas Wash.

The U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into waters of the U.S. As applied to this particular project, waters of the U.S. by definition include interstate waters, tributaries of interstate waters, and wetlands adjacent to interstate waters and tributaries (33 Code of Federal Regulations [CFR] 328). The Las Vegas Wash is a tributary to the Colorado River (at Lake Mead), which is an interstate water.

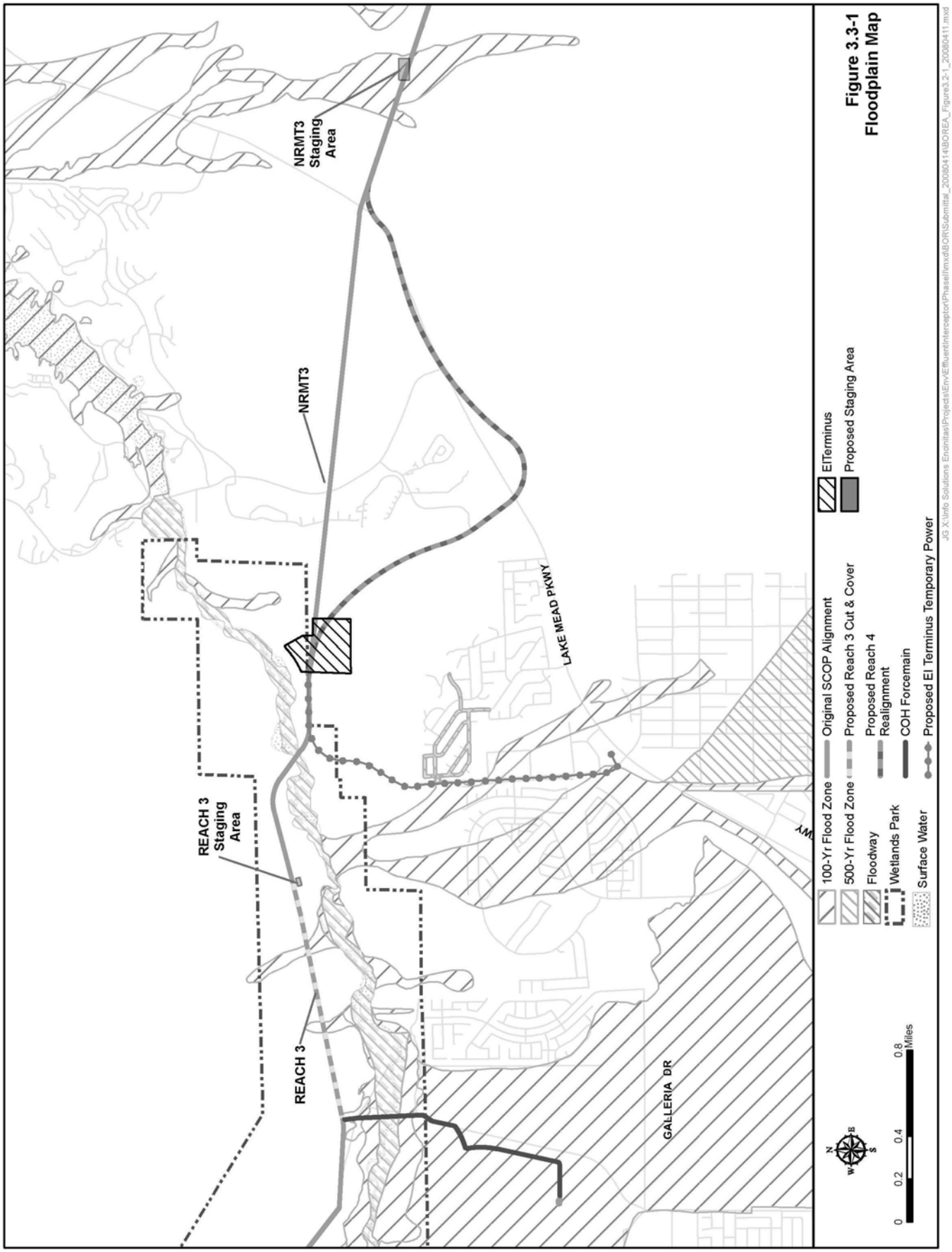

Figure 3.3-1
Floodplain Map

The drainage patterns in Reach 3 are similar to the patterns found for the cut-and-cover portions in Reach 2. A Jurisdictional Determination was conducted for the cut-and-cover portions of the EI analyzed in the SCOP EIS. The results of the jurisdictional determination were reported in the *Waters of the U.S. Jurisdictional Determination Report for the Systems Conveyance and Operations Program* (PBS&J 2006). The potential waters of the U.S. within the cut-and-cover portions were located in the field. Using the USACE's hydrology, geomorphology, and vegetation criteria, the washes identified in the field do not have a definable bed and bank and contain upland vegetation throughout. The washes were determined to be non-jurisdictional and the USACE concurred with the findings on July 17, 2006 (USACE 2007a).

As in Reach 2, most of Reach 3 is characterized by dry flat upland that conveys sheet flow during storm events. Although the area displays vegetation patterns on aerial photos that look similar to drainage patterns or channels, these areas are actually flat, unchannelized, and display characteristics of sheet flow. Several patterns identified on aerial photos are actually roads frequently used by off-road vehicles. Most of the small drainage patterns crossing the alignment are characterized as swales, which are generally not jurisdictional according to the *U.S. Army Corps of Engineers Jurisdictional Determination form and Instructional Guidebook* (2007).

No adjacent wetlands were identified along the proposed project alignment.

3.4 Biological Resources

The Biological Resource section provides a description of the native plants and wildlife, and the vegetative communities that are found within the project area. This section also includes information on the federally and state listed species that could potentially occur within the project area. The federally and state listed species that could occur in the project area was provided by the U.S. Fish and Wildlife Service (USFWS) (USFWS 2008), the Nevada Department of Wildlife (NDOW 2008), and the Nevada Natural Heritage Program (NNHP) (NNHP 2008) for the SCOP EIS project area and are included in Appendix B. A Biological Opinion was issued by the USFWS on June 12, 2007 for the SCOP project (USFWS 2007). This Biological Opinion was based on analyses and results from the SCOP Final EIS. Additional Biological surveys were conducted in 2007 to provide information on additional impacts, if any, that would result from construction of the Proposed Action. The results of biological surveys were provided to Reclamation to facilitate consultation with the USFWS for the proposed SCOP project changes (PBS&J 2008).

3.4.1 Vegetation

There are three plant communities, Mojave creosote bush scrub, desert saltbush scrub, and Mojave wash scrub identified within the project area. Ruderal vegetation is located throughout the project area and is comprised of previously disturbed lands (NPS and Reclamation 2007).

The Mojave creosote bush scrub is the most common vegetation community found in the project area. Creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) are the dominant shrubs in this community and a variety of annual grasses and forbs comprise the herbaceous understory.

The Mojave wash scrub occurs in the ephemeral washes in the project area. The common species associated with this community include catclaw acacia (*Acacia greggii*), cheesebush (*Hymenoclea salsola*), and tamarisk (*Tamarix ramosissima*).

The least dominant community of the project area is the desert saltbush scrub. This community includes littleleaf saltbush (*Atriplex polycarpa*) and four-wing saltbush (*Atriplex canescens*).

Lands in the project area that have been physically altered by prior and ongoing surface disturbance are barren or support ruderal vegetation, which are weedy and commonly introduced plants growing where the vegetation cover has been disturbed, and is composed primarily of invasive, non-native annual grasses and forbs, such as Russian thistle (*Salsola tragus*) and red brome (*Bromus rubens*).

No wetlands were identified in the proposed project alignment.

3.4.2 Wildlife

The wildlife species discussed in this section commonly occur in the Mojave Desert and have adapted to desert scrub habitats with little cover and xeric conditions. Species-specific surveys were not conducted for common wildlife within the project area. Assumptions can be made regarding the wildlife that use the area based on current vegetation, surrounding conditions, historical documents, and literature reviews.

The surrounding area supports numerous species of plant, mammals, reptiles, and birds. Species observed during the biological surveys were:

- Western whiptail lizard (*Cnemidophorous tigris*)
- Side-blotched lizard (*Uta stansburiana*)
- Golden Eagle (*Aquila chrysaetos*)
- Common raven (*Corvus corax*)
- Mourning dove (*Zenaida macroura*)
- House finch (*Carpodacus mexicanus*)
- Whitetail antelope squirrel (*Ammospermophilus leucurus*)
- Black-tailed jackrabbit (*Lepus californicus*)

Species that were determined to occur in the project area from literature reviews and historical documents, but were not observed are:

- Zebra-tailed lizard (*Callisaurus draconoides*)
- Desert iguana (*Dipsosaurus dorsalis*)
- Desert spiny lizard (*Sceloporus magister*)
- Gopher snake (*Pituophis melanoleucus deserticola*)
- Black-throated sparrow (*Amphisizia bilineata*)
- Gambel's quail (*Callipepla gambelii*)
- Turkey vulture (*Cathartes aura*)
- Desert pocket mouse (*Chaetodipus* spp.)
- Kangaroo rat (*Dipodomys* spp.)
- Desert woodrat (*Neotoma lepida*)
- Desert kit fox (*Vulpes macrotis arsipus*)
- Coyote (*Canis latrans*)

A formal bird census was not conducted for the proposed project or the SCOP EIS; however, several bird surveys have been conducted previously along the Las Vegas Wash and in portions of the project area. Approximately 150 migratory birds occur along the SCOP alignment, with the highest diversity found along the Las Vegas Wash.

3.4.3 Special Status Species

There were three special status species that were identified as potentially occurring within the project area; the Las Vegas Bearpoppy (*Arctomecon californica*), the Gila monster (*Heloderma suspectum*), and

the Desert Tortoise (*Gopherus agassizii*). Cacti are Nevada state-protected species under Nevada Revised Statutes (NRS) 527.060.120 and occur within the project area.

Cacti, Yucca, and Evergreen Trees
Native cacti, yucca, and evergreen trees are protected under NRS 527.060.120. This provision does not allow the removal or destruction of listed plant species on Nevada state land, county land, reserved or unreserved lands owned by the federal government, or from privately owned lands without written permission, permit and/or tag issued by the Nevada Division of Forestry.

The cacti encountered during the field investigation were low density. The cacti species encountered include the silver cholla (*Opuntia echinocarpa*), beavertail (*Opuntia basilaris*), cottontop (*Opuntia polycephalus*), and pencil cholla (*Opuntia ramosissima*). No yuccas or evergreen trees were encounter during the field investigations.

Las Vegas Bearpoppy
The Las Vegas bearpoppy is a federal species of concern and a Nevada state-protected species that occurs in Clark County, Nevada, and in Mohave County, Arizona near Lake Mead, at elevations ranging from 1,310 to 2,760 ft above mean sea level (msl) (Mozingo and Williams 1980). It is often found in highly gypsiferous soils on barren, gravelly desert flats, hummocks, and slopes. The Las Vegas bearpoppy is a perennial that produces several flower stalks bearing yellow flowers in April and May. The field surveys were conducted in November 2007. There were no Las Vegas bearpoppies located within the project area.

Mojave Desert Tortoise
The Mojave population of the desert tortoise, a federally listed as threatened and Nevada state-protected species, occurs throughout the Mojave Desert in California, Nevada, Arizona, and Utah. It is found most often on flats and bajadas characterized by sandy to sandy gravelly soils, but may also occur on slopes and in rocky soils, typically in association with desert creosote bush scrub communities. These communities are dominant below elevations of 5,000 ft and are characterized by creosote bush, white bursage, yuccas, cacti, grasses, and a wide variety of other perennial and annual plants. Preferred desert tortoise habitat includes scattered shrubs and a sufficient herbaceous understory, which provide a source of food, complementary hydration, and shelter. No designated critical habitat for the tortoise occurs in the project area.

Field surveys were conducted in November 2007. Mojave creosote bush scrub, Mojave wash scrub, desert saltbush scrub, and ruderal vegetation were identified in the project area as potentially suitable desert tortoise habitat. A total of four tortoise burrows and one carcass were recorded during the surveys. The approximate location of the tortoise burrows and carcass are shown on Figure 3.4-1.

Based on results of these field surveys and previous surveys conducted in the area (PBS&J 2002, SWCA 2000), the desert tortoise population density is estimated to be very low (0 to 10 animals per square mile).

Gila Monster
Gila monsters are not listed as either a threatened or endangered species under the Endangered Species Act. However, the Gila monster was designated as an Evaluation species under the MSHCP and are protected by Nevada State law (Nevada Administrative Code [NAC] 503.080) and (NAC 503.093).

The Gila monster is a large, venomous reptile that ranges throughout the Mojave and Sonoran deserts. The Gila monster is commonly found below 5, 000 feet in the lower slopes of rocky canyons, mesic areas, and flat lands with a grass cover. The species uses old burrows and rocks for cover and spends a majority of its life underground (Clark County 2000). Gila monsters also seem to prefer rocky foothills and usually avoid open flats. Gila monsters breed in May and June and lay their eggs in June and August of the

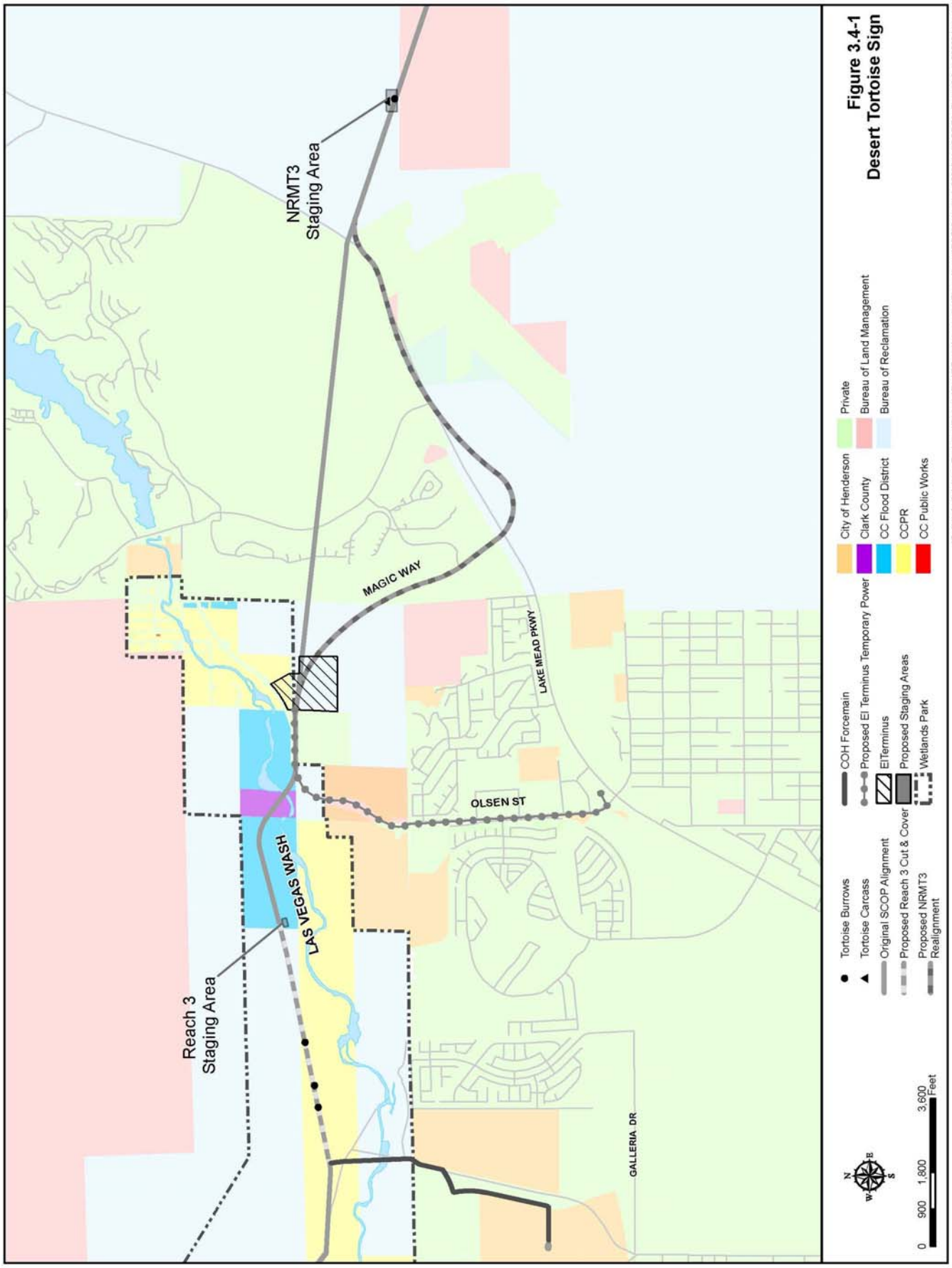

Figure 3.4-1
Desert Tortoise Sign

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following year. These eggs then incubate in burrows and develop from fall to the early spring, and young appear in April and June. Gila monsters are mainly terrestrial but infrequently climb into vegetation. Refuges include spaces under rock, dense shrubs, burrows, or woodrat nests (NatureServe 2007). No individuals of this species were observed during surveys; however, potential habitat for the Gila monster does exist.

3.4.4 Noxious Weeds

Federal agencies are directed by EO 13112, Invasive Species, to expand and coordinate efforts to prevent the introduction and spread of invasive plant species (noxious weeds) and to minimize the economic, ecological, and human health impacts that invasive species may cause. According to NRS 555.005, noxious weeds are defined as "any species of plant that is or is likely to be, detrimental or destructive and difficult to control or eradicate." Noxious weeds are a concern in most parts of the U.S. and in southern Nevada, as they are opportunistic, and can exclude native plants from an area if left unchecked.

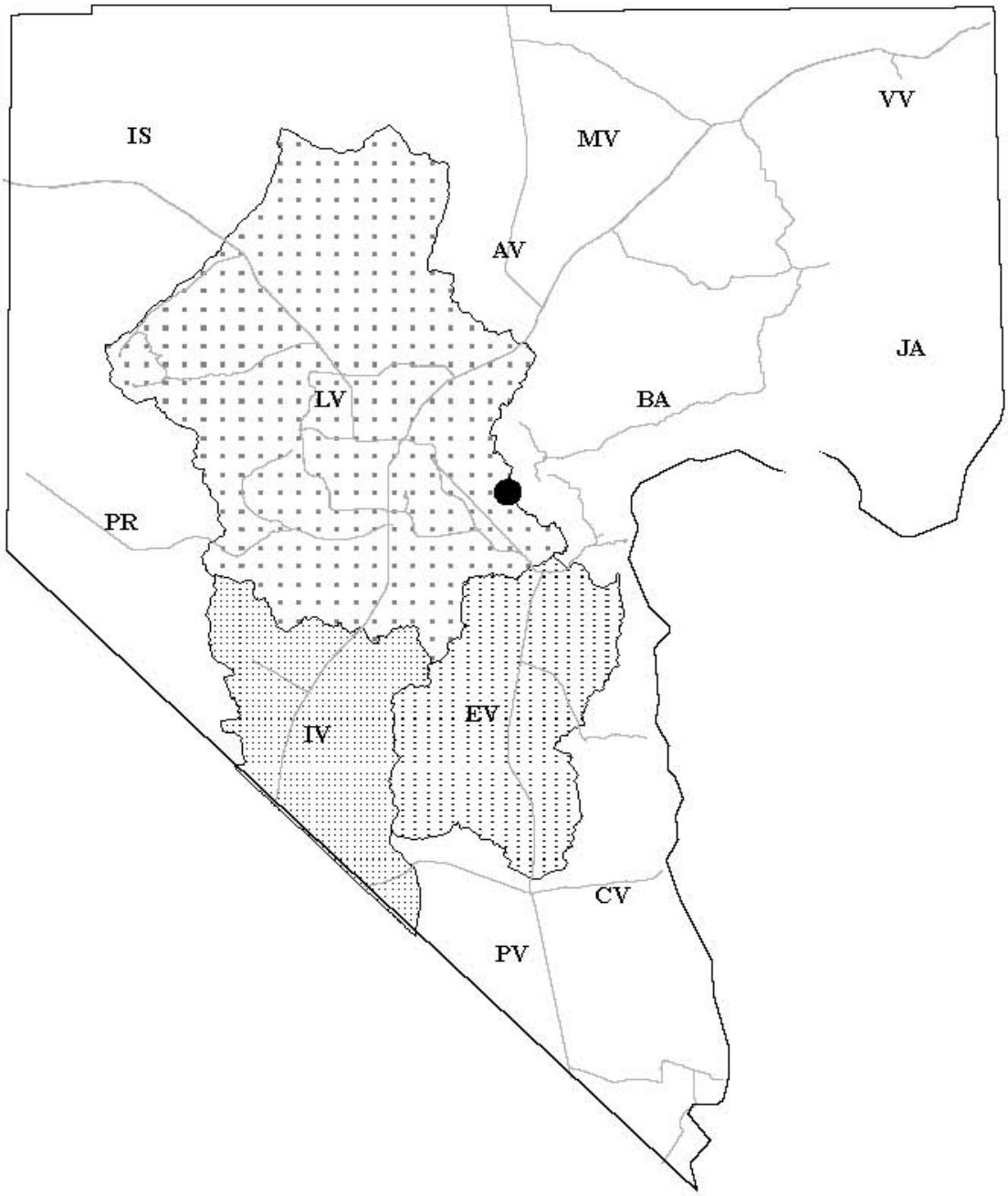
A noxious weed is generally destructive and difficult to control or eradicate. One state-regulated noxious weed, salt cedar, is present in the project area. Salt cedar is a Category C noxious weed as defined by the Nevada Department of Agriculture (Bartz 2006). Category C weeds are “weeds generally established and widespread in many counties of the state. Current and ongoing efforts by Clark County and the Las Vegas Wash Coordination Committee (LVWCC) are underway to eradicate noxious weeds from the Las Vegas Wash (LVWCC and Las Vegas Wash Weed Partnership 2003). Red brome and Russian thistle are two species of non-native, invasive plants that are not state-regulated, but also occur in the project area.

3.5 Air Quality

In 1990, the federal government passed the Clean Air Act amendments, a set of environmental laws establishing primary and secondary standards for National Ambient Air Quality Standards (NAAQS) for six criteria pollutants. These six criteria pollutants are carbon monoxide (CO), nitrogen dioxide, (NO_2), sulfur dioxide, (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), lead, and ozone. Of these six pollutants, only ozone is not emitted directly from sources, but is formed in the atmosphere by the reaction of nitrogen oxides, volatile organic compounds (VOCs), and sunlight (Environmental Protection Agency [EPA] 2007a). Air quality in a given location is described by the concentrations of these pollutants in the atmosphere. An area that violates the NAAQS for one or more of the criteria pollutants is classified by the (EPA) as being in non-attainment of the standard. Non-attainment areas are further classified based on the magnitude of the air quality problem. These standards (or limits) are concentrations of the pollutant in the ambient air that is presumed to be protective of human health and the environment.

The Proposed Action is within the Las Vegas Valley and Black Mountain airsheds (see Figure 3.5-1). The Las Vegas Valley is classified by the EPA (2007b) as being in “attainment” for NO_2 and SO_2; in “basic nonattainment” for ozone; and in “serious nonattainment” for CO and PM_{10}. However, on May 20, 2005, the EPA made a final decision that Las Vegas, Nevada, and the surrounding area meets the federal public health air quality standards for CO (EPA 2007a). The CO standard has not been exceeded since 1998. On May 3, 2004 the EPA approved the Clark County PM_{10} plan in which the county adopted a series of rules to control fugitive dust sources (EPA 2007c). The Black Mountain airshed is classified as being in attainment or is unclassified for all criteria pollutants.

The PM_{10} state implementation plan (SIP) for the Las Vegas Valley includes strict monitoring and regulation of construction activities because construction activities are the largest contributor to PM_{10}



Airsheds are depicted using their two-letter code

Project Area

PM_{10} and CO Non-attainment Area

PM_{10} and CO Management Area

VOC and NO_X Management Area

0 4.5 9 18 Miles

Figure 3.5-1
Clark County Airsheds

emissions. The PM_{10} emissions result from mechanical activities that disturb soil surfaces, wind erosion of those disturbed areas, and tracking of material onto paved surfaces of access roads by vehicles leaving these sites. New regulations, adopted to support the SIP, include the requirement to apply for and obtain a dust control permit prior to commencing construction that involves soil disturbances. A dust control plan must be prepared as part of the submittal for the dust control permit. The dust control plan identifies the measures that would be implemented during construction to minimize fugitive dust emissions.

The Clark County Air Quality Regulations stipulate that the maximum threshold values within the Las Vegas Valley for the six criteria pollutants are as listed in Table 3.5-1. These regulations are taken from Section 12 of the Clark County Air Regulations and apply on a project specific basis.

Table 3.5-1 Maximum Threshold Values for the Las Vegas Valley

Pollutant	Management Area & Serious Nonattainment Area (tons per calendar year)	Prevention of Significant Deterioration (PSD) Area (tons per calendar year)
PM_{10}	15	15
CO	10	70
VOC	20	40
NO_2	20	40
SO_2	Not Applicable	40
Pb	Not Applicable	0.3
HAP*	Not Applicable	10
TCS**	Not Applicable	1.0

*Hazardous air pollutants are any pollutant listed pursuant to section 112(b) of the Clean Air Act.
**Volatile organic compounds are any compound, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions.
Source: Clark County 2004

Effective July 1, 2005, the EPA determined that the Las Vegas Valley "serious" nonattainment area has attained the NAAQS for CO by the applicable attainment date. This finding relieves the State of Nevada from the obligation under section 187(g) of the Clean Air Act to prepare and submit a SIP revision providing for a reduction of CO emissions within the Las Vegas Valley by at least 5 percent per year in each year after approval of the SIP revision until the CO NAAQS is attained. However, this action does not redesignate this area from "nonattainment" to "attainment". Under section 107(d)(3)(E), the Clean Air Act requires that, for an area to be redesignated from nonattainment to attainment, five criteria must be satisfied including the submittal by the State (and approval by EPA) of a maintenance plan as a SIP revision. Therefore, the designation status of Las Vegas Valley in 40 CFR part 81 is unaffected by this action, and the Las Vegas Valley will remain a "serious" nonattainment area for CO until such time as EPA finds that the State of Nevada has met the Clean Air Act requirements for redesignation to attainment (70 Federal Register 31353).

3.6 Noise

Noise is defined as any unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive, stationary, or transient. The human ear can detect sounds that range in frequency from about 20 hertz (Hz) to 20,000 Hz and are most sensitive to ranges from 1,000 to 4,000 Hz, which are described in terms of A-weighted decibels (dBA). The "A-weighted scale" is normally used to describe noise from transportation and other human activities. Table 3.6-1 provides a range of noise conditions.

Table 3.6-1 Typical Sound Pressure Levels Associated with Common Noise Sources

Sound Pressure Level (dBA)	Subjective Evaluation	Outdoor Environment	Indoor Environment
140	Deafening	Jet aircraft at 75 ft	
130	Threshold of pain	Jet aircraft during takeoff at a distance of 300 ft	
120	Threshold of feeling	Elevated train	Hard rock band
110		Jet flyover at 1,000 ft	Inside propeller plane
100	Very loud	Power mower, motorcycle at 25 ft, auto horn at 10 ft, crowd noise at football game	
90		Propeller plane flyover at 1,000 ft, noisy urban street	Full symphony or band, food blender, noisy factory
80	Moderately loud	Diesel truck (40 miles per hour) or heavy construction equipment at 50 ft	Inside auto at high speed, garbage disposal, dishwasher
70	Loud	B-757 cabin during flight	Close conversation, vacuum cleaner, electric typewriter
60	Moderate	Air-conditioner condenser at 15 ft, near highway traffic	General office
50	Quiet		Private office
40		Farm field with light breeze, birdcalls	Soft stereo music in residence
30	Very quiet	Quiet residential neighborhood	Bedroom, average residence (without T.V. and stereo)
20		Rustling leaves	Quiet theater, whisper
10	Just audible		Human breathing
0	Threshold of hearing		
Source: Black & Veatch 2003.			

The region of influence for noise includes those areas associated with construction and maintenance of the Proposed Action and those areas (e.g., neighborhoods, parks, wildlife) that could be adversely impacted from exposure to related activities. Noise conditions in the vicinity of the Proposed Action are generated by residential activities, outdoor recreational activities, aircraft, vehicle traffic, and construction-related disturbances. Ambient noise conditions were not measured along the alignment for this proposed action.

The project area is located in Clark County, Nevada. However, the requirements of the County noise code do not apply to construction or demolition activities when conducted during daytime hours (generally, 6:00 am to 6:00 pm.). Clark County noise regulations are included in the *Site Environmental Standards*, *Title 30 of the Clark County Unified Development Code* (Part 68.20).

Residences, motels and hotels, schools, libraries, religious institutions, hospitals, nursing homes, auditoriums, parks and outdoor recreation areas are generally more affected by noise than commercial and industrial areas and are considered to be sensitive receptor sites. Parks and Residential Properties within the vicinity of the proposed project include the Wetlands Park and trail; and Calico Ridge, Tuscany, and Weston Hills homes. The environment of the Wetlands Park is generally quiet, characterized by open marshland and desert accessed by local or unpaved roads (Reclamation and Clark County Parks and

Recreation 1998). The habitats of listed threatened and endangered animals and water fowl are also considered sensitive receptor sites.

3.7 Cultural Resources

Cultural resources are the tangible remains of past human activities. Cultural resources are prehistoric and historic archaeological sites, districts, structures, or locations considered significant to a culture, a subculture, or a community for scientific, traditional, religious, or other reasons. To be eligible for the National Register of Historic Places (NRHP), an archaeological site or other property must satisfy at least one of the National Register criteria as set forth at 36 CFR 60.4. The site or property must:

A. be associated with events that have made a significant contribution to the broad patterns of our history; or
B. be associated with the lives of persons significant in our past; or
C. embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. have yielded, or may be likely to yield, information in prehistory or history.

HRA, Inc. conducted a literature search and surveys for the presence of cultural resources in the area of the EI for the SCOP EIS in December 2002 and January 2003 (HRA 2004). Additional surveys were conducted in January 2008 in support of geotechnical exploration for the SCOP (HRA 2008a) and in Febraury 2008 in order to examine the project changes that comprise the Proposed Action (HRA 2008b). The investigations included a review of the existing data inventory for portions of the project area that had already been surveyed for cultural resources and Class III inventory of portions of the project area that had not been previously examined. The investigations were conducted in compliance with NEPA, the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Act (ARPA), and their respective implementing regulations and guidelines. Under Section 106 of the NHPA, federal agencies are required to consider the effects of their undertakings on cultural resources found eligible for listing on the NRHP and provide the Advisory Council on Historic Preservation an opportunity to comment on the action if such a property will be adversely affected.

A total of six archaeological sites were previously identified within the EI area (Table 3.7-1). Of these six sites, four were determined to be eligible for nomination to the NRHP. One additional site (26CK7870) was located during the January 2008 survey (HRA 2008a). This site has been recommended for nomination to the NRHP. No new archaeological sites were discovered during the February 2008 surveys (HRA 2008b). However, one previously recorded site was determined to be located within the proposed location for the EI Terminus temporary power line (site 26CK1279). Site 26CK1279 is the historic Henderson Landfill site. The site is approximately 95 acres and contains metal, concrete, wood, and glass items, including household and construction debris. However, this site has experienced a high degree of disturbance from bladed roads, off-road vehicle use, modern trash dumping, and erosion. It was determined that this site is not eligible for the NRHP due to its poor integrity and lack of information potential.

Sites 26CK1300, 26CK1301, and 26CK1303 include rock shelter, rock rings, and a rock alignment located near Reach 3 of the EI. These sites were determined to be eligible for NRHP as part of the Las Vegas Wash Archaeological District.

The COH Forcemain crosses Site 26CK6150, which is the Hoover Dam to Pioche Powerline. Telephone Line Road has been determined to be a non-contributing element to the overall NRHP eligibility of the site. The existing powerline and associated poles are considered contributing elements.

Site 26CK7870 is a masonry foundation and a scatter of trash that dates to the early 1900s when the land was owned by the Bishop brothers. The southern edge of the foundation is less than 3 ft from the edge of the Las Vegas Wash cutbank, but otherwise, appears to be in good condition (HRA 2008). The foundation likely dates to the same period as the well, concrete foundation, and irrigation ditch at site 26CK6001. This site is recommended eligible for nomination to the NRHP under criterion D, because the site is likely to contain features, artifacts, and intact deposits that could provide information on early ranching history in the Wetlands Park. The site is approximately 75 ft from the NRMT3 realignment segment, and the site is located outside of the project area.

Table 3.7-1 Archaeological Sites Identified within the Proposed Action Area

Site No.	Period	Site Type	Ownership	NRHP Eligibility	NRHP Criterion
26CK1279	Historic	Landfill	Reclamation	Not eligible	--
26CK1300	Prehistoric	Rock Rings	Clark County	Eligible contributing element	D
26CK1301	Ceramic	Rock Shelter	Clark County	Eligible Contributing element	D
26CK1303	Historic	Rock Alignment	Clark County	Eligible contributing element	D
26CK6150	Historic	Power Line	Clark County/Private/ Reclamation	Eligible	A
26CK6150	Historic	Power Line Road	Clark County/Private/ Reclamation	Non-contributing element	--
26CK7870	Historic	Masonry Foundation	Clark County	Recommended Eligible	D
Source: HRA 2004, HRA 2008a, and HRA 2008b					

3.8 Visual Resources

Visual resources include the physical (natural and artificial) and biological features of the landscape that contribute to the scenic quality of an area. Scenic quality is a measure of the visual appeal of the landscape perhaps best described as the overall impression retained after passing through an area. Although relative values can be used to evaluate scenic quality, visual appeal is subjective and can vary among observers (BLM 1986a).

The visual resources evaluation for this project is being conducted in accordance with the objectives and methods described in the BLM *Visual Resource Management (VRM) Guidelines* (BLM 1986a) and the BLM *Manual Handbook - Visual Resource Contrast Rating* (BLM 1986b). The BLM VRM guidelines were used for visual resource assessment because Reclamation does not have any formalized guidance procedures for assessing visual resources. The objective of the VRM Guidelines is to manage federal lands in a manner that would protect the quality of the scenic or visual values of those lands.

The baseline inventory consists of the evaluation of the scenic quality, sensitivity level, and delineation of distance zones. Based on these three factors, federally administered lands are placed into one of four visual resource inventory classes. Classes I and II are the most valued, Class III represents a moderate value, and Class IV is of least value. The baseline inventory consists of the evaluation of the following three factors:

1) Scenic quality evaluation: The scenic quality of an area is determined by completing a visual resource inventory process based on seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. The scenic quality is then classified as follows:
   - Class A: High scenic quality (totals of 19 or more),
   - Class B: Medium scenic quality (totals between 12 and 18),
   - Class C: Low scenic quality (totals lower than 11).
2) Sensitivity level analysis: Sensitivity levels are a measure of public concern for scenic quality. Visual sensitivity is dependent upon user (or viewer) attitudes, the amount of use, and the types of activities in which people are engaged when viewing an object. Overall, higher degrees of visual sensitivity are correlated with areas where people live and with people who are engaged in recreational outdoor pursuits or participate in scenic or pleasure driving. Conversely, areas of industrial or commercial use are considered to have low to moderate visual sensitivity because the activities conducted in these areas are not significantly affected by the quality of the environment.
3) Delineation of distance zones. Landscapes are subdivided into three distance zones based on relative visibility from travel routes or observation points. The three zones are foreground-middleground (F/M), background, and seldom seen. The foreground-middleground zone includes areas seen from highways, rivers, or other viewing locations that are less than 3 to 5 miles away. The background zone includes areas that are visible beyond the foreground-middleground zone but are less than 15 miles away. Other areas are in the seldom-seen zone.

The area is characterized by a flat basin with rugged mountain ranges to the east and north of the Las Vegas Wash with sparse vegetation located throughout the landscape. The stream banks of the Las Vegas Wash in this area are heavily eroded due to the velocity of runoff during storm events. High flows during storm events have created islands of vegetation and patches of reeds within the Wash. The thicker vegetation adds a variety of different heights and shades of green and brown to the banks of the Las Vegas Wash. The upland vegetation is brownish grey and blends in with the soil.

Key observation points (KOPs) were established in the SCOP EIS for the Proposed Action area. These KOPs (KOPs 3, 4, and 5) are shown on Figure 3.8-1. Key observation points 1 and 2 were included in the SCOP EIS, but are not relevant for this EA and thus are not included. The KOPs selected for the SCOP EIS were based on the major, potentially sensitive viewer groups that may be affected by the Proposed Action; the types of planned improvements that would have varied visual impact consequences; and the orientation of the viewers toward the project areas.

For the SCOP EIS, an analysis of the scenic quality, sensitivity level, and distance zone delineations was completed for each segment of the EI alignment that had not been previously assigned a VRM classification by the BLM. The scenic quality rating for the EI and EI Terminus is category C, low scenic quality. Generally, the sensitivity level in the areas of the EI and ancillary facilities is low. However, the Wetlands Park and Rainbow Garden/Lava Butte Roads have a medium sensitivity. The viewing areas along the EI are mostly within the foreground-middleground (F/M) distance zones from travel routes or

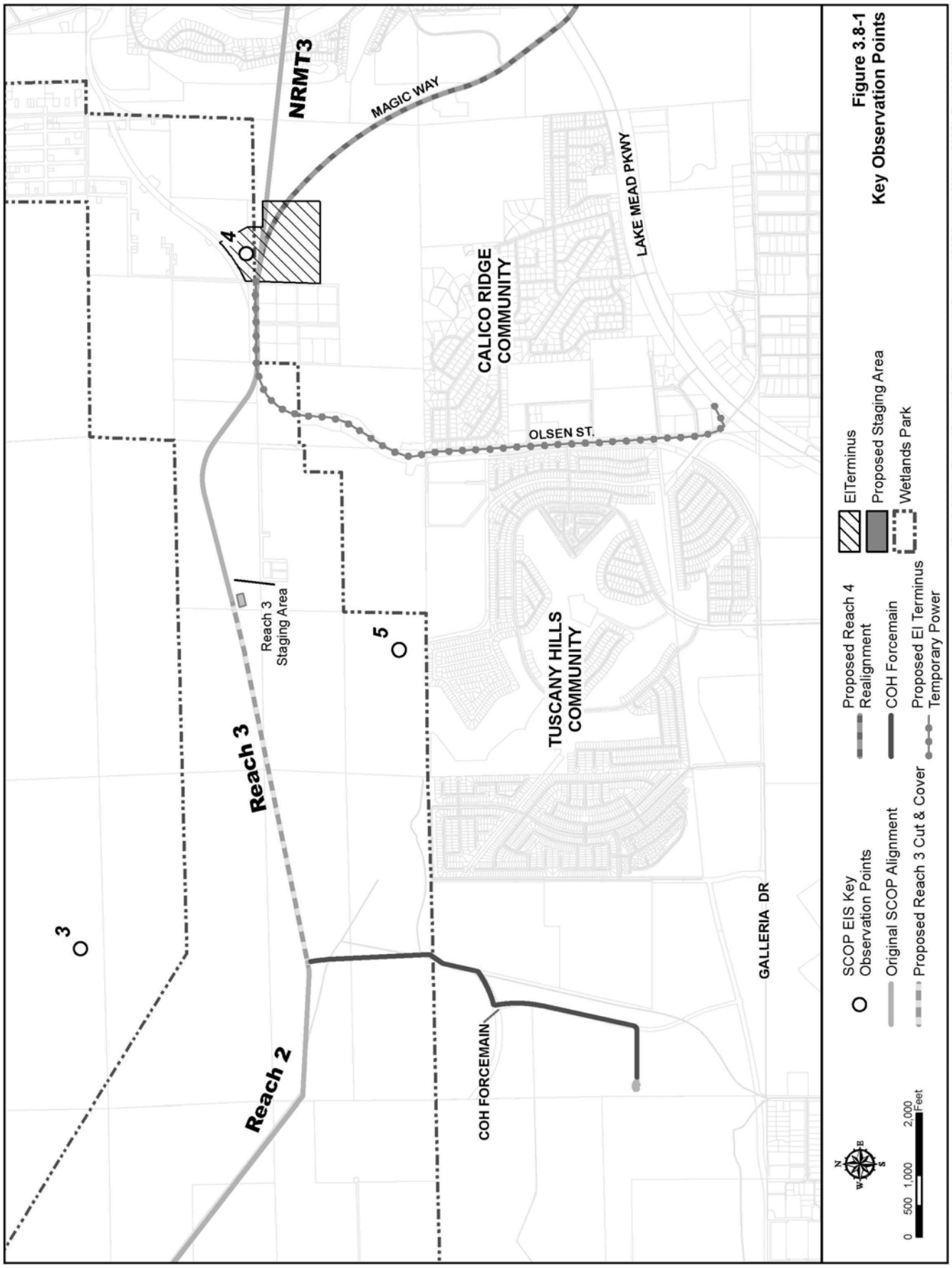


Figure 3.8-1
Key Observation Points

observation points. Based on the analysis of the scenic quality, sensitivity level, and distance zones, all of the EI segments and ancillary facilities' settings were designated as Class IV.

COH Forcemain
Much of the area proposed for the COH Forcemain is on previously disturbed land. The color variety is minimal and consists mainly of shades of brown. The calico colored hills to the east provide a colorful panoramic view and add texture to the overall sparsely vegetated area.

Reach 3
The terrain along Reach 3 includes unpaved roads and illegally dumped trash and debris. The topography in this area consists of rolling hills with sparse vegetation located throughout the landscape. The Las Vegas Wash in the vicinity of Reach 3 is approximately 300-ft wide with banks as high as 50- to 60-ft. The stream banks of the Las Vegas Wash in this area are heavily eroded due to the velocity of runoff during storm events. High flows during storm events have created islands of vegetation and patches of reeds within the Las Vegas Wash. The thicker vegetation adds a variety of different heights and shades of green and brown to the banks of the Las Vegas Wash and is conspicuous against the surrounding brownish-gray landscape. The upland vegetation is brownish grey, blends in with the soil, and does not distinctly stand out against Rainbow Gardens, which is located in the background to the north of the Reach 3 alignment.

EI Terminus
The EI Terminus site is highly disturbed from both vegetation removal and numerous dirt roads. These roads are used mainly by maintenance/construction crews for access to the Las Vegas Wash and flood control facilities. Visually, this area appears drab and limited in contrast, with a minimal variety of vegetative shades of green, gray, and brown. Large rocks from previous earth-moving activities and adjacent man-made slopes characterize the area, and vegetation is sparse. Man-made slopes are prominent to the west, south, and east. The Las Vegas Wash is located to the north, where tamarisk is the dominant species. Small portions of the Lake Las Vegas development can be seen from the EI Terminus site. Large power lines influence the line of vision to the east. The area is surrounded by steep slopes, which add variety to the overall line of sight; however, disturbed land dominates the panoramic view.

3.9 Land Use and Access

Land Use includes land ownership, existing land use, land use plans, and zoning. The Proposed Action would be located on approximately 22.8 acres (permanent right of way) of lands owned by Reclamation and Clark County Parks and Recreation.

Portions of the Proposed Action are located within the Wetlands Park (Figure 2.1-1). Existing land uses within the Wetlands Park include undeveloped land and recreation. The Wetlands Park currently has a 130-acre Nature Preserve, a Visitor and Education Center, and pedestrian and equestrian trail systems. Residential communities in the vicinity of the alignment include Calico Ridge and Tuscany Hills. The location of these residential communities is shown on Figure 3.7-1. In addition, utilities and public facilities within the project area include the water main (SNWA – Las Vegas Lateral) and CCWRD. The CCWRD is located to the east and west of the Las Vegas Wash near Flamingo Road and Hollywood Boulevard.

Some major roads in the vicinity of the project area include South Hollywood Boulevard, Telephone Line Road, and Pabco Road. South Hollywood Boulevard is an open public road that would provide access to the proposed project (Figure 2.1-1). This road is currently unpaved and under construction. Hollywood

Boulevard turns into Telephone line Road just southeast of the CCWRD's Wastewater Treatment Plant and runs into Pabco Road just south of the project area. Before any activities occur within the Wetlands Park, coordination with CC Parks and Recreation would occur to determine a designated access route. Land-use plans relevant to the project area include the COH Comprehensive Plan. The plan covers 96 square miles (61,440 acres) of land in the southeast portion of the Las Vegas Valley. The Tuscany Hills residential/golf course development is depicted as the Tuscany Hills Redevelopment Area in the COH Future Development Plan, which is located south of the project area (COH 2002a). Another master planned community in COH within the project area is Calico Ridge (COH 2002b). Planned land use within the project area includes business/industry, public/semi-public, and low and medium residential.

Zoning classifications define the use or development standards of a parcel of land to be compatible with the surrounding and planned land use. Zoning designations are intended to implement the policies of a land use plan within a specific planning area. The COH zoning designations in the vicinity of the project include low and medium density residential, public/semipublic use, and a small portion of mixed commercial (COH 2002b). A portion of the project area within the COH maintains a base, or original zoning classification called general industrial. This classification serves to protect existing industrial sites and allow for continued operation of existing general industry, manufacturing, extraction, salvage, and related activities. However, these land-use areas are subject to requirements that minimize potential environmental impacts.

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4.0 ENVIRONMENTAL CONSEQUENCES

This chapter presents the environmental consequences, direct and indirect effects, of implementing the Proposed Action and No Action Alternative. Resources are detailed based on the environmental setting specific to the described resource (Chapter 3) as they are potentially impacted. Environmental consequences are detailed in the order of presentation of the resources described in Chapter 3. Short-term and long-term effects, direct and indirect effects, cumulative effects, and the potential for each alternative to affect the resources are included in each section. Interpretation of impacts in terms of their duration, intensity (or magnitude), and context (local, regional, or national effects) are provided where possible.

This section also addresses potential cumulative impacts to the environment that could be associated with the implementation of the Proposed Action in conjunction with one or more past, present, or reasonably foreseeable future actions or projects. Cumulative impacts can result from individually minor, but collectively adverse, actions taking place over a period of time.

Cumulative impacts are most likely to arise when a relationship exists between a proposed alternative and other actions that have, or are expected, to occur in a similar location, time period, or involving similar actions. Projects in close proximity to the proposed alternatives would be expected to have more potential for cumulative impacts than those more geographically separated.

4.1 Geology, Topography, and Soils

This section describes the potential environmental impacts involving geology, topography, and soil resources that may result from implementation of the Proposed Action and the No Action Alternatives. Mitigation measures are provided for any adverse impacts.

An impact would be considered adverse if it would:

- Expose people or property to hazards involving seismic events, landslides, or subsidence;
- Result in substantial soil erosion or loss of topsoil;
- Substantially alter the topography or ground surface relief beyond that resulting from natural erosion and deposition;
- Be located on expansive soils, creating a risk to people or property; or
- Result in the loss of availability of a known mineral resource.

4.1.1 Impacts (Proposed Action)

The Proposed Action area may experience low to moderate levels of seismic activity due to the presence of several faults. Current design practices, as defined in the Uniform Building Code for this seismic area, would be required. Therefore, impacts to the pipeline resulting from seismic activity would not be expected.

The use of cut-and-cover construction techniques for installation of the Reach 3 pipeline would be optimal based on the geologic conditions and fault locations in the area. Additionally, in the event there is movement along the fault, any damage to the pipeline can be repaired more easily in a shallow trench than in a tunnel.

Generally, the soils in the areas that would be affected by the Proposed Action have low to moderate potential for water erosion and moderate to high potential for wind erosion. Disturbances to these soils during construction would create the potential for inducing soil erosion from storm runoff and wind.

These impacts would be reduced substantially through implementation of best management practices (BMPs) that would be required as part of compliance with local dust control ordinances, Clark County air quality permit requirements, and stormwater pollution prevention plans.

The topography and natural ground surface would be restored to its preconstruction condition following installation of the COH Forcemain and Reach 3 pipeline. During operation, manholes will be accessed by vehicle using only existing roads or by foot where there is no existing road for nearby access. Therefore, no impacts to topography would occur.

The Proposed Action would not have adverse impacts involving geology, topography, and soils. Development and construction from other projects in the area, and associated disturbance to soil, increases the potential for erosion. However, once construction is completed, developed areas typically experience less soil erosion than undeveloped areas. Compliance with erosion, stormwater, and water quality BMPs, and air quality requirements during construction, is required throughout Clark County, and would minimize the impacts.

4.1.2 Impacts (No Action Alternative)

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative as described in the SCOP Final EIS and the Reclamation ROD. Therefore, the impacts to geology, topography, and soils documented in the SCOP Final EIS are incorporated by reference (NPS and Reclamation 2006).

The Reach 3 pipeline would be installed using tunneling construction techniques. Although surface disturbance would be minimal, the geologic conditions are not optimal for tunneling activities. Therefore, the use of tunneling construction techniques under the No Action Alternative would require additional geotechnical considerations and funding.

4.1.3 Mitigation

No adverse impacts to geology, topography, or soils would occur. Restoration of the project site would be completed in accordance with a project-specific Reclamation approved restoration plan. The restoration plan will address salvage of topsoil for reseeding purposes, recontouring the natural land surface, blending colors and textures, treating weeds, and revegetating the disturbed areas.

4.2 Hazardous Materials

This section provides an analysis of the impacts that the Proposed Action and No Action Alternatives would encounter from hazardous materials and items of concern as well as the potential impacts relating to hazardous materials that may result from the proposed project. For the purposes of this EA, impacts from hazardous materials would be considered adverse if they resulted in:

- Creation of a potential health hazard or the use, production, or disposal of materials that pose a hazard to people or animal populations in the area affected;
- Interference with emergency response plans or emergency evacuation plans; or
- Activation of requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)(42 USC 103)/Superfund Amendments & Reauthorization Act (SARA) Public Law [PL] 99-499 and materials are not properly contained, stored, used, or transported.

4.2.1 Impacts (Proposed Action)

Depending on groundwater elevations in a given area, the existing groundwater perchlorate plume may be encountered during construction of the Reach 3 pipeline and the EI Terminus temporary power line underground alternative. The EI Terminus temporary power line would be installed at a depth where contaminated groundwater is not expected to be encountered. Changing a portion of Reach 3 from tunnel to cut and cover is proposed to reduce the likelihood of encountering perchlorate-contaminated groundwater.

The impacts from the COH Forcemain, Reach 3 Staging Area, and NRMT3 Staging Area would not impact groundwater because these components consist of surface disturbance only. This would not result in an increase in the potential to encounter contaminated groundwater.

Portions of the EI Terminus temporary power line would be constructed along the Henderson Landfill. There is the potential to encounter metal-contaminated soils here. Soil sampling and analyses would be conducted as directed by NDEP in accordance with NDEP requirements and guidance during the construction phases.

Construction activities may create the potential for hazardous material spills or require disposal of hazardous materials. Potentially hazardous materials used for construction include diesel fuel, gasoline, lubricants, and coolants. Accidental dropping of equipment or equipment malfunctions could create ruptures resulting in hazardous materials being released to the environment. Impacts from hazardous materials during construction of the proposed project would not be adverse because the contractor would be required to adhere to OSHA, CERCLA, SARA, EPA, and NDEP guidelines for the handling and disposal of hazardous materials.

The Proposed Action would not block the use of paved roadways and is not expected to interfere with adopted emergency response plans.

4.2.2 Impacts (No Action Alternative)

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative as described in the SCOP Final EIS and the Reclamation ROD. Therefore, the impacts to hazardous materials documented in the SCOP Final EIS are incorporated by reference (NPS and Reclamation 2006).

4.2.3 Mitigation

The handling, discharge, and disposal of contaminated groundwater would be conducted in accordance with NDEP requirements and guidance. Requirements for release of perchlorate-contaminated groundwater may include treatment, onsite filtration of groundwater prior to discharge, or construction of temporary infiltration ponds in the vicinity of the proposed project.

Metal-contaminated soils encountered during construction would be handled and disposed of at a Resource Conservation and Recovery Act (RCRA) - permitted facility in accordance with EPA standards.

The contractor would be responsible for clean up of any hazardous spills that may occur, and disposal of potentially contaminated soils in accordance with EPA standards.

4.3 Water Resources

The potential impacts to water resources that may result from the construction and operation of the Proposed Action and No Action Alternatives are described in this section. Water quality impacts due to effluent was analyzed in the SCOP EIS. The Proposed Action would not change the effluent flows or quality and therefore are not analyzed in this EA.

The project would have a adverse impact on water resources if the project:

- Violates any water-quality standards or waste discharge requirements;
- Substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantially alters the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;
- Substantially alters the existing drainage pattern of the site or area, including substantially increasing the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Creates or contributes runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
- Substantially degrades water quality.

4.3.1 Impacts (Proposed Action)

The construction of the Proposed Action involves trenching of a 6,050 ft segment of Reach 3, widening of the temporary construction easement of the COH forcemain, installation of a temporary power line along Olson Drive to the EI terminus, and realignment of 16,000 ft of the NRMT3. The tunneling portions of the construction would have no impact on surface water drainage since this construction is located underground. The impacts of the other construction components to surface water are mainly associated with construction activities, and would be temporary. Impacts to surface water that may occur are described in the following paragraphs.

Disturbance of surface soils by construction activities can increase the potential for erosion and transport of soil (sediment) during rainfall/runoff events where surface water runoff crosses the construction areas. Spills of construction materials and/or erosion of disturbed soils with subsequent transport by surface water runoff to the Las Vegas Wash or other areas outside the construction limits could create adverse impacts to water quality.

Open trenches would require that the easement area be cleared from all vegetation and debris, and a substantial amount of soil be removed or relocated. Construction sites along the alignment would act as a potential source for non-point source pollution because as land is exposed and disturbed, soil erosion rates are dramatically increased. Erosion and sediment transport would be increased as surface water passes over the areas disturbed by the open trench construction. However, this increase in erosion and sediment transport would be relatively insignificant and similar to surface water passing over unpaved roads that exist throughout the project area.

The open trench portions of construction is located adjacent to the Las Vegas Wash in areas where many ephemeral washes cross the alignment. Open trenching, and the associated disturbance of existing desert

soil and vegetation, may impact surface-water drainage during construction if a major rainfall/runoff event occurs. The pipeline would be installed at depths that render them unsusceptible to erosion from a 100-year flood event.

The tunneling portions of the construction for the NRMT3 would have no impact on surface water drainage since this construction is located underground. During tunneling of the NRMT3, much of the displaced soil excavated from the working shaft would be hauled by truck to a designated disposal area. The disposal area is located in an area that would prevent sediments from reaching waterways where they can alter the physical and biological characteristics of surface water features. Other surface water impacts associated with the construction of the NRMT3 would include disturbance that would occur from the installation of the underground powerlines along Olsen Street and the temporary staging areas. These components could increase erosion and transport of soil during rainfall/runoff events. However, the proposed locations for the temporary power line and staging areas are not in places where ephemeral washes exist. Therefore, any impacts to surface water would be minor and temporary.

4.3.2 Impacts (No Action Alternative)

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative as described in the SCOP Final EIS and the Reclamation ROD. Therefore, the impacts to water resources documented in the SCOP Final EIS are incorporated by reference (NPS and Reclamation 2006).

The impacts from construction of the No Action Alternative would be similar to the Proposed Action except there would be less impact to surface water due to less cut-and-cover activities. The impacts of the No Action Alternative on surface water are mainly associated with construction activities, and would be temporary.

4.3.3 Mitigation

The mitigation measures that would be implemented during construction and operation of the SCOP are the same as described in the SCOP EIS Section 4.1.6.1 Surface Water (NPS and Reclamation 2006).

During a major rainfall runoff event, the open trench could collect runoff from one wash and discharge it to a different wash (acting as a diversion channel) instead of allowing the runoff to cross perpendicular to the alignment as it would have prior to construction. Open-trench excavation will be conducted with caution and attention to any major ephemeral washes that are crossed to ensure that the open trench does not cross two major ephemeral washes at any one time. In addition, the sequencing of excavation would minimize the amount of time the trench will remain open. This is especially critical during the monsoon season in the summer months when the risk of major rainfall runoff events is highest.

4.4 Biological Resources

This section discusses the potential impacts from the construction, operation, and maintenance of the Proposed Action and the No Action Alternative related to vegetation, wildlife, and special status species.

The impacts would be considered adverse if construction, operation, or maintenance of the Proposed Action or No Action Alternative would:

- Adversely affect a federally listed or state protected species of plant, or wildlife;
- Adversely change the existing abundance, diversity, or habitat value of plants, or wildlife, or the distribution of existing plant communities; or

- Substantially interfere with the movement of native resident or migratory wildlife species, established native resident or migratory corridors, or the use of native wildlife nursery sites.

4.4.1 Impacts (Proposed Action)

4.4.1.1 Vegetation

Construction activities would affect vegetation communities and impacts to communities would include the loss of or damage to individual plants and the seed bank, grading and compacting native soil, and permanent loss of habitat. Approximately 48 acres of vegetation communities would be impacted during construction activities (temporary and permanent construction ROWs). This does not include disturbance from construction activities that would occur in existing ROWs and previously disturbed areas. Of these 48 acres, approximately 20 acres of vegetation would be permanently impacted (permanent ROW). Ground-clearing activities could introduce new species or spread non-native, invasive weeds that would compete with native plants for resources. Portions of the project area are previously disturbed from existing roads, previous clearing, and off highway vehicle usage.

Maintenance activities would affect vegetation during periodic access to the project area for routine inspection, repairs, structure replacement, and other maintenance related activities. However, maintenance activities would occur infrequently and predominantly in areas of existing disturbance, therefore impacts from these activities would be insignificant.

Temporary surface disturbances associated with construction and maintenance of the project may result in the introduction or spreading of noxious weed species. Plant seeds may be transported to the project area by construction vehicles and equipment that has operated in areas where noxious weeds are present. In areas where ground disturbance is substantial, aggressive, non-native weed species may become established. Once established, aggressive weed species can invade adjacent habitats and degrade the condition of the surrounding area.

4.4.1.2 Wildlife

Construction activities associated with this alternative would cause temporary and permanent disturbance to wildlife and wildlife habitat in the area. Clearing and grading activities would result in the destruction of wildlife habitat and injury, mortality, or temporary displacement of wildlife, particularly to small mammals and reptiles that are not mobile enough to avoid construction operations. Larger, more mobile wildlife species would avoid the initial clearing activity and move into adjacent areas.

Wildlife found in the construction zones would be dispersed to areas outside of the project area during the construction phase. During the displacement, wildlife populations would see a decrease in population due to the disruption of breeding and the increase in mortality rates. Increased noise, dust levels, and human activity during construction would potentially disrupt normal foraging and breeding behavior of wildlife species adjacent to the construction area. However, these impacts would be localized and temporary. Project-related noise would differ from the existing conditions during construction. Therefore, noise impacts to wildlife would be minor and temporary.

Much of the project area is already disturbed from previous unrelated activities or public use. Following project construction and site restoration, wildlife would likely reoccupy restored portions of the project area. Implementation of the Proposed Action would not eliminate wildlife populations or substantially reduce wildlife population densities in the region. Impacts to wildlife would be temporary and minor.

4.4.1.3 Special Status Species

The cactus density in the project area is low in the upland, undisturbed sections of the project area. These cacti could potentially be impacted by construction activities.

Impacts to the Mojave desert tortoise resulting from project construction and maintenance activities would include removal of habitat, loss of habitat features such as cover and forage sites, and injury or loss of animals. Table 4.4-1 illustrates acres of disturbance to potential desert tortoise habitat from implementation of the Proposed Action. Desert tortoises may be harassed by removal or displacement from the project area during construction. Construction activities may result in injury or loss of desert tortoises that enter the access roads or construction areas. Construction of the facilities would potentially result in degradation of desert tortoise habitat due to soil and vegetation disturbance, introduction of non-native plant species, habitat fragmentation, and increased noise, traffic, equipment movement, and human presence. Water application to unpaved access roads for dust suppression during construction activities may attract tortoises and subsequently increase potential for injury or mortality from vehicle collision.

Table 4.4-1 Acres of Disturbance to Desert Tortoise Habitat Associated with the Proposed Action

Proposed Action	Temporary Right of Way (acres)*	Permanent Right of Way (acres)*	Total Disturbance (acres)
COH Forcemain	14.86	5.04	19.91
EI Terminus Temporary Power Line	0	0	0
Reach 3 Pipeline	9	15.3	24.3
Reach 3 Staging Area	0.50	0	0.50
NRMT3 Staging Area	3.00	0	3.00
Total Disturbance	**27.36**	**20.34**	**47.71**
*Note: Acres of disturbance to desert tortoise habitat does not include distubance from construction activities that would occur in existing rights-of way and previously disturbed areas.			

Additional impacts to desert tortoises could occur during routine operations and maintenance activities. Personnel would need to periodically access the project site for routine inspection, repairs, structure replacement, and other activities. Tortoises may be injured or killed by equipment or vehicles during these activities and the tortoise habitat may be disturbed. However, maintenance would occur infrequently and predominantly in areas of existing disturbance.

Impacts to the Mojave desert tortoise within the project area would be minimal. There were three deteriorated possible tortoise burrows located within the project area (Figure 3.4-1) during field surveys conducted in November 2007. It is not likely that the proposed construction corridor supports a population of desert tortoises. However, tortoises are known to occur in nearby areas, and could feasibly wander onto the project site.

There is potential habitat for the Yuma clapper rail and the Southwestern willow flycatcher along the Las Vegas wash, which is located next to the project site. The breeding and nesting seasons for the southwestern willow flycatcher and Yuma clapper rail are May through September and March through August, respectively. Disturbance near the Las Vegas Wash during these periods may result in impacts to nesting or foraging birds.

If the above-ground alternative is selected for the EI Terminus temporary power line, there could be additional impacts to migratory birds. Utility poles may be a benefit to raptors by providing perching or nesting structures in places where few natural perches and nest sites exist. This would result in an increase in indirect affects to desert tortoises by increasing the predation rate for hatchlings and juveniles. In open spaces, such as deserts, raptors are often attracted to power poles as roosting, nesting, or hunting perches. Conversely, utility poles may also be harmful to migratory bird populations by increasing the mortality rates through electrocutions or collisions. Electrocutions most commonly occur on medium voltage lines (4 to 34.5 kVs) because the spacing between the conductors is small enough to be bridged by some birds (Edison Electric Institute and USFWS 2005). Bird censuses are ongoing at the Las Vegas Wash, and to date, 159 different species have been documented at the Las Vegas Wash (Las Vegas Wash Coordination Committee 2008). The project area supports a higher density of bird populations due to the perennial source of water that is nearby.

4.4.2 Impacts (No Action Alternative)

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative as described in the SCOP Final EIS and the Reclamation ROD. Therefore, the impacts to vegetation, wildlife, and special status species documented in the SCOP Final EIS are incorporated by reference (NPS and Reclamation 2006).

Under the No Action Alternative there would be fewer disturbances to habitat. Construction impacts to vegetation, wildlife, and special status species would be minimal and temporary.

4.4.3 Mitigation

The mitigation measures that would be implemented during construction and operation of the SCOP are the same as described in the SCOP EIS Section 4.2.6 Biological Resources, Mitigation (NPS and Reclamation 2006).

Under the Proposed Action and No Action Alternative, mitigation measures to protect vegetation, wildlife, and special status species will be implemented. An approved restoration plan will be developed as part of the temporary and permanent ROW easement grant. The restoration plan will describe the reclamation of temporarily disturbed areas to pre-construction conditions. This plan will outline revegetation, wildlife habitat reclamation, and soil stabilization measures. Reclamation of the disturbed vegetation will restore wildlife habitat that was temporarily disturbed during construction. Due to the regionally arid climate, vegetation recovers slowly over several years. Therefore, implementation, monitoring, and success criteria will be established to ensure the successful reclamation of the project area. Implementation of these mitigation measures will reduce any adverse impacts on vegetation communities to less than significant. Erosion and sediment control devices will be used to prevent impacts to the Las Vegas Wash.

Section 7 consultation with the USFWS was conducted for the original SCOP EIS and a Biological Opinion (BO) was issued (File No. 1-5-07-F-433) (USFWS 2007). The terms and conditions as presented in the BO will apply to the Proposed Action. Consultation with the USFWS has been reinitiated to address the proposed changes to SCOP that comprise the Proposed Action. The terms and conditions included in the new BO will also apply to the Proposed Action.

Several measures will be taken to avoid, minimize, monitor, and mitigate adverse impacts to the desert tortoise, including:

- A desert tortoise worker education program will be presented to all personnel who will be on site. Personnel will be able to locate sign indicating the presence of desert tortoises.
- A qualified biologist will conduct a tortoise survey immediately prior to commencement of construction. A qualified biologist will also monitor for desert tortoises during all construction activities.
- Tortoise exclusionary fencing will be installed around the construction area within the EI terminus site after the pre-construction survey.
- A litter-control program will be enforced to avoid attracting predators.
- A 20-mile-per-hour speed limit for construction vehicles will be enforced.
- Post-construction habitat restoration will be conducted.
- Remuneration fees will be paid for each acre of surface disturbance.

A pre-construction survey will be conducted for migratory birds during the nesting and breeding season (March through August). If active nests are located, buffer zones will be established and construction activities will not be allowed to occur within these zones.

The chances of spreading noxious weeds into the project area will be greatly reduced by implementing the following mitigation measures. These measures include mechanical or herbicidal methods to control and remove noxious weeds from all areas to be disturbed prior to construction.

- The undercarriages of construction vehicles will be washed prior to working on the project at designated wash stations located off the project site.
- The disturbed areas will be restored to resemble the previous natural setting, including weed treatment as may be prescribed. The area will be monitored for restoration success, and for noxious weeds and exotic plants to ensure that establishment of these species do not occur.

4.5 Air Quality

The proposed project would not emit air pollutants under normal operations. As a result, local and federal requirements that regulate air pollution sources do not apply to the operation of the EI, COH Forcemain, and NRMT3. Local air-permitting requirements of Clark County apply to air emission sources that emit air pollutants as part of their normal operations. Therefore, only impacts from construction are analyzed in this EA.

For the purposes of this EA, impacts to air quality are considered adverse if:

- Emissions of any non-attainment pollutant exceed conformity thresholds and generate the need for a conformity determination, or
- Emissions are not in conformance with any Clark County SIP (i.e., cause or contribute to a new violation of any ambient air quality standard, aggravate existing violations of any ambient air quality standards, or delay attainment of air quality standards.).

Fugitive dust emissions (PM_{10}) and exhaust emissions were calculated using the same methods as described in the SCOP EIS (Reclamation and NPS 2006). Therefore, the methodology documented in the SCOP Final EIS for air quality is incorporated by reference.

Fugitive dust emissions (PM_{10}) are generated during construction from disturbance of soils and movement of construction equipment and motor-vehicle traffic on paved and unpaved surfaces. Soils located in the project area are classified by the Soil Conservation Service as having a high to moderate chance of releasing fugitive dust if the surface is disturbed (Soil Conservation Service 1985). Fugitive dust emissions from soil disturbances and movement of construction equipment were estimated using the amount of soil to be disturbed, air quality control requirements of Clark County for active construction sites, implementation of mitigation measures required by Clark County, and emission factors based on Section 13.2.3 of AP-42 (EPA 1995).

The annual emissions from construction equipment exhaust were compared to major source-threshold ambient air levels. Major source-threshold levels set the value at which exhaust emissions from a stationary source must undergo more in-depth review to determine if exhaust emissions would result in deterioration of the air quality. The same activities and equipment used in the SCOP EIS were used for this analysis. The conformity threshold is the annual aggregate total of emissions that authorized activities shall not equal or exceed.

4.5.1 Impacts (Proposed Action)

For the Proposed Action, the construction activities required for the NRMT3 would remain the same as with the No Action Alternative except for the addition of the 3-acre staging area that would be used for a temporary access shaft during construction. Therefore, impacts from the re-alignment of the NRMT3 were not analyzed. The potential impacts to air quality from the Proposed Action would be due to the cut-and-cover portion of Reach 3, installation of temporary power lines to the EI Terminus site, construction staging areas, and the increased construction easement for the COH Forcemain.

Air pollutant emissions would be generated by implementation of the Proposed Action during construction. Potential air pollutants resulting from construction of the Proposed Action include CO, NOx, SO_2, VOCs, PM_{10}, $PM_{2.5}$, and hazardous air pollutants (HAPs). Air pollutant emissions arise from combustion of fuels in construction and maintenance equipment, fugitive dust (PM_{10}) emissions from vehicular traffic on paved and unpaved areas, and dust emissions from soil and rock disturbances. Table 4.5-1 shows the potential fugitive dust emissions from construction of the Proposed Action.

Table 4.5-1 Fugitive Dust Emissions Estimated for the Proposed Action

Source	Construction Disturbance (feet^2)	Uncontrolled PM_{10} Emissions[1] (tons)	PM_{10} Emissions after Controls[3] (tons)
Reach 3 Pipeline	1,058,750	10.21	5.10
Reach 3 Staging Area	21,780	0.21	0.11
COH Forcemain	1,309,283	12.62	6.31
NRMT3 Staging Area	130,680	1.26	0.63
EI Terminus Temporary Power Line	395,394	3.81	1.91
Total	2,915,887	28.11	14.06
Conformity Threshold (tons/year)			70

[1] Uncontrolled PM_{10} emissions were calculated using a factor of 0.42 tons PM_{10} per acre of soil disturbance. The value of 0.42 tons PM_{10} per acre comes from the PM_{10} SIP for Clark County (Clark County 2001).
[2] Controls include those required in the Clark County SIP for construction activities (Clark County 2001).
[3] Controlled PM_{10} emissions were calculated using an emission factor of 0.21 tons PM_{10} per acre.

Compliance with Clark County dust control requirements would limit the potential air quality impacts on nearby properties. The Proposed Action does not equal or exceed the conformity threshold for PM_{10} emissions after mitigation controls are implemented. Therefore, impacts to air quality from fugitive dust emissions would be minor.

Short-term impacts to air quality resources are anticipated as a result of construction equipment exhaust emissions. The construction equipment and techniques used for the Reach 3 cut-and-cover portion would be the same as that used for other cut-and-cover portions of the EI as described in the SCOP Final EIS (Reclamation and NPS 2006). The amount and duration of construction equipment use would be similar to the No Action Alternative. There would be a temporary, but detectable change in ambient air pollutant concentrations. However, the change is not expected to cause or contribute to an exceedance of the NAAQS, does not produce objectionable odors, or exceed recommended exposure standards. The impact would be temporary and occur only during construction activities. The project must comply with Clark County requirements regarding dust control and other measures designed to reduce pollutant emissions during construction. Compliance with existing regulatory requirements would minimize adverse air quality impacts from construction activities. Therefore, impacts to air quality would be insignificant and minor.

4.5.2 Impacts (No Action Alternative)

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative as described in the SCOP Final EIS and the Reclamation ROD. Therefore, the impacts to air quality documented in the SCOP Final EIS are incorporated by reference (NPS and Reclamation 2006).

The fugitive dust emissions shown in Table 4.5-2 represent the amount of dust generated by the various construction activities for the SCOP components relevant to this EA.

Table 4.5-2 Fugitive Dust Emissions Estimated for the No Action Alternative

Source	Construction Disturbance (ft^2)	Uncontrolled PM_{10} Emissions[2] (tons)	PM_{10} Emissions after Controls (tons)
Reach 3 Pipeline	161,172	1.6	0.8
COH Forcemain	812,500	7.83	3.92
Total	1,235,032	9.43	4.72
Conformity Threshold (tons/year)			70

[1] Uncontrolled PM_{10} emissions were calculated using a factor of 0.42 tons PM_{10} per acre of soil disturbance. The value of 0.42 tons PM_{10} per acre comes from the PM_{10} SIP for Clark County (Clark County 2001).
[2] Controls include those required in the Clark County SIP for construction activities (Clark County 2001). Controlled PM_{10} emissions were calculated using an emission factor of 0.21 tons PM_{10} per acre.

4.5.3 Mitigation

This project is subject to Clark County air quality regulations, which require a number of specific actions by construction contractors, to reduce emissions of criteria pollutants during construction. The EPA has established new air quality standards for diesel engines for the year 2007. The 2007 diesel engines will reduce PM by 90 percent, and reduce sulfur to 15 parts per million, which will reduce NOx by 50 percent (EPA 2001). The use of engines that meet the newer emission standard would result in a predicted impact from this project plus background concentration that is less than the NAAQS.

Compliance with these measures will substantially limit the magnitude of potential air quality impacts associated with the three action alternatives. Additional measures that can be incorporated into the required dust control plan would include:

- Using wind breaks,
- Regulating vehicle speeds, and
- Reducing vehicle volume by providing perimeter parking and shuttle service to the construction areas.

4.6 Noise

The implementation of the Proposed Action or No Action Alternative could affect the noise environments of lands under the jurisdiction of the COH, CLV, or Clark County. Sensitive receptors exist as mentioned in Section 3.6 within the Wetlands Park boundaries and residential developments along the SCOP alignment. Each government entity regulates noise and vibration through the establishment of ordinances and policies that are identified in Section 3.6 and the following subsections.

Impacts involving noise would be considered adverse if an alternative would result in:

- A substantial permanent increase in ambient noise levels,
- Exposure of people to noise levels in excess of local standards,
- Exposure of people to excessive ground-borne vibrations, or
- A substantial temporary or periodic increase in ambient noise levels in excess of local standards.

The noise and vibration impacts from the proposed project are presented in the following subsections. Potential noise and vibration impacts to biological resources are presented in Section 4.4.1.2. Impacts from operation of the SCOP was analyzed in the SCOP EIS. The Proposed Action will not change the operation of the SCOP therefore impacts to noise due to operations were not analyzed in this EA.

4.6.1 Impacts (Proposed Action)

Major construction phases would consist of site preparation, installation (either cut-and-cover or tunneling), and site cleanup. Noise emissions would vary with each phase of construction depending on the construction activity and the associated equipment. Site preparation would require the use of combustion-engine powered earth-moving equipment. Equipment would include: backhoes, scrapers, dump trucks, graders, and front-end loaders. Vehicle-engine noise, vehicle movement, and rock and debris removal would dominate noise emissions during site preparation. The pipeline installation would involve the use of trenchers, tunnel-boring machines, mobile cranes, earth-moving equipment, equipment and materials delivery vehicles, welders, air compressors, and dewatering pumps, that all emit substantial noise.

Construction activities would be subject to Clark County statutes, which prohibit disturbing the peace. It is anticipated that short-term sound levels from construction activities would be less than 45 dBA at the nearest residences. Based on EPA guidelines, 45 dBA is consistent with “normal suburban residential” areas (EPA 1971). Therefore, construction noise is not expected to adversely impact residential communities near the proposed project.

The noise and vibration impacts to wildlife and biological resources within the Wetlands Park are discussed in Section 4.4. Any impacts from noise to Wetlands Park visitors would be minimal and short-term. Construction activities would be temporary and at a distance such that visitor experiences would not be adversely impacted by noise

Heavy earth-moving equipment, such as bulldozers and other heavy-tracked equipment, produces typical peak vibration velocities of less than 0.20 inches-per-second at distances of 25 to 50 ft while operating in various stages of construction. At distances of 100 to 200 ft the peak vibration velocities are typically below 0.04 inches-per-second. This is below the recommended criterion for building damage at 25 to 50 ft and below the human annoyance criterion at distances over 100 ft. During construction, it is not anticipated that heavy earth-moving equipment would operate within 100 ft of residential or industrial structures. Therefore, vibration impacts resulting from construction activities are not expected.

4.6.2 Impacts (No Action Alternative)

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative as described in the SCOP Final EIS and the Reclamation ROD. Therefore, the impacts to noise documented in the SCOP Final EIS are incorporated by reference (NPS and Reclamation 2006).

The potential impacts resulting from the No Action Alternative would be similar to those described for the Proposed Action.

4.6.3 Mitigation

The following measures would be implemented as standard operating procedures and considered BMPs. The measures include:

- Locating stationary construction equipment as far from nearby noise receptors as possible;
- Shutting off idling equipment;
- Scheduling construction operations to avoid periods of noise annoyance, as determined through consultation with the NPS and Reclamation and defined in special provisions;
- Notifying nearby affected parties in the event extremely noisy work occurs; and
- Installing temporary or portable acoustic barriers around stationary construction noise sources.

The following noise control measures would be implemented to avoid noise disturbances when construction activities come within 600 ft of noise-sensitive lands.

- Normally scheduled construction activities would be limited to daytime hours, 6 a.m. to 6 p.m. Night-time or late evening construction would not be allowed. Construction would not begin before noon on Saturdays, Sundays, and recognized legal holidays.
- All construction equipment would be equipped with manufacturer's standard noise control devices (e.g., mufflers, acoustical lagging, and/or engine closure), which would normally achieve compliance with the recommended noise limits. The operator would take special care not to throttle the engine excessively and would keep engine speed as low as possible. Also, the operator would not leave the equipment running or idling needlessly, especially when near noise-sensitive areas.
- Newer equipment would be requested and used, whenever possible. Newer equipment is generally quieter in operation than older models.
- The distance between noisy construction-related activities and noise-sensitive land uses would be maximized. For example, stationary noisy equipment would be located away from construction boundaries that are near noise-sensitive lands.
- Heavy-truck routes would be selected if available to avoid noise-sensitive lands.

- Concrete trucks would perform mixing and other activities that require revving of the truck engine a minimum of 600 ft from noise-sensitive lands. Engine revolutions per minute would be kept as low as possible.
- Electric hand-tools would be used instead of gas-powered tools, whenever possible.
- If dewatering pumps and generators are required to operate between the hours of 6 p.m. and 7 a.m. at any city or county location, they would be treated with acoustical noise control measures (e.g. mufflers, shrouding, and/or enclosures) so as not to exceed 56 dBA at 50 ft.
- Temporary noise barriers may be required to protect against excessive noise levels if construction activities (including contractor staging areas) occur in an area closer than 100 ft of noise-sensitive lands. Noise barriers may be made of plywood, heavy vinyl curtain material, natural or temporary earth berms, or stockpiles of construction material, if available. The amount of noise reduction achievable by the use of barriers is dependent mainly on their height. The objective is to attempt to block the line-of-sight between the noise-creating sources and the observer locations on nearby noise sensitive lands. Typically, a barrier would provide 5 to 10 dBA of noise reduction.
- A noise-monitoring plan would help determine specific areas where noise barriers would be used to reduce the noise when construction is expected to continue for several weeks or months near noise-sensitive lands.

4.7 Cultural Resources

This section describes environmental impacts to cultural resources of the Proposed Action and the No Action Alternative.

Various federal laws and regulations, including the NHPA, ensure consideration of cultural resources. For the purposes of this EA, impacts to cultural resources would be considered adverse if the Proposed Action resulted in an adverse effect to any characteristic of a resource eligible for listing on the NRHP including relevant features of its environment or use. Impacts to cultural resources are assessed through various measures. Four criteria were used in identifying the potential impacts to cultural resources.

- Identifying the nature and location of all elements of the alternatives,
- Comparing those locations with identified cultural resources,
- Determining the known or potential significance of cultural resources that may be affected, and
- Assessing the extent and intensity of the effects.

Sites 26CK1300, 26CK1301, and 26CK1303 have been determined eligible for the listing on the NRHP as contributing elements to the Las Vegas Wash Archaeological District. Site 26CK6150 has been determined to be eligible on its own. Site 26CK7870 has been recommended eligible on its own.

4.7.1 Impacts (Proposed Action)

The proposed Reach 3 pipeline and staging area would not be located in the vicinity of the following identified sites:

- Site 26CK1300 (southern edge): This site is approximately 1,000 ft from the Reach 3 tunnel shaft and consists of 15 rock-ring features, three rock clusters, and a number of artifacts including a quartzite bifacial core, a battered cobble, a retouched flake, and a few flakes distributed over an area that measures approximately 1,050 ft by 820 ft . This site does not contain features that may be susceptible to vibration damage from tunneling. Direct and indirect impacts to the site are not expected to occur as a result of the proposed EI construction.

- Site 26CK1301: This site is approximately 200 ft from the Reach 3 tunnel shaft and consists of a rock shelter formed by the erosion of unconsolidated Horse Springs sediments from beneath the Basal Muddy Creek conglomerate. Various artifacts have been recorded at this site including a knife/scraper, a projectile point base, and waste flakes of chert. There is a slight possibility that vibrations from tunneling could have an effect on the structural integrity of the rock shelter (HRA 2004). However, the SNWA pipeline was recently tunneled through the area and did not result in impacts to the site.
- Site 26CK1303: This site is approximately 600 ft from the Reach 3 tunnel shaft and is a historic camp. This site does not contain features that may be susceptible to vibration damage from tunneling. Direct and indirect impacts to the site are not expected to occur as a result of the proposed EI construction.

The proposed Reach 3 pipeline would end west of these cultural sites and therefore would not directly impact them. The Reach 3 segment near these sites would remain a tunnel andthe Reach 3 staging area will be fenced. As a result, there would be no direct effect to these sites.

Additionally, since HRA completed the Cultural Resources Inventory for the SCOP Final EIS, numerous buried cultural features have been discovered at two sites to the west of the proposed cut-and-cover segment of Reach 2. These discoveries indicate that, although surface artifacts were not observed in the vicinity of the Proposed Action, subsurface artifacts may be present and may be affected by construction activities.

Impacts to site 26CK1301 are not expected to occur. Vibration monitors will be placed at the site to determine if the increase in heavy equipment traffic and construction activities has the potential to impact the integrity of the structure from vibration. However, tunneling activities conducted recently by SNWA did not result in damage to this site from vibration. Therefore, impacts to this site are not expected to be adverse.

Impacts to site 26CK7870 are not expected to occur. This site consists of a masonry foundation and a scatter of trash that likely dates back to the time when the land was owned by the Bishop brothers. The site is located approximately 75 ft south of the proposed Reach 3 tunnel alignment. This portion of the Proposed Action consists of tunelling at a depth of 120 ft, which is not expected to harm the integrity of the foundation.

Indirect impacts to cultural resources within the Las Vegas Wash Archaeological District could also occur. Indirect impacts would result from increasing public accessibilty to the area. Construction of the Proposed Action will require that temporary access roads be created. These access roads would provide the public with additional means to access cultural resources that were previously very difficult to get to. Properties eligible or already listed on the NRHP are present in the Proposed Action area. The indirect impacts that may result from increasing public access to the project area include the physical destruction, damage of, or alteration to all or part of a property.

4.7.2 Impacts (No Action Alternative)

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative as described in the SCOP Final EIS and the Reclamation ROD. Therefore, the impacts to cultural resources documented in the SCOP Final EIS are incorporated by reference (NPS and Reclamation 2006).

Impacts under the No Action Alternative would be the same as the Proposed Action. Reach 3 would be installed using tunneling beneath the location of the sensitive cultural resources. As a result, there would be no direct effect to these sites. The only potential indirect effect could be vibration damage from the tunneling. Impacts from construction of the COH Forcemain would be the same as under the Proposed Action.

4.7.3 Mitigation

Although impacts to sites 26CK1300, 26CK1301, 26CK1303, and 26CK7870 are not expected to occur as a result of the proposed project, construction crews will be advised of their presence, and directed to use existing roads for access to project construction sites. In addition, pre- and post-construction conditions assessments will be conducted for these sites. Although not expected to be used, blasting would be prohibited in the vicinity of Site 26CK1301 and 26CK7870. If damage to these sites occurs as a result of the construction activities, consultation will be reopened with the Nevada SHPO to determine appropriate mitigation measures.

There is the potential for encountering previously unknown cultural resources during ground-disturbing activities associated with construction. A qualified construction monitor will be present during construction activities. The archeological monitor will be a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards. If cultural resources are found during construction, all work shall cease and Reclamation shall be contacted immediately to coordinate assessment of the find.

A Memorandum of Agreement (MOA) between the CWC and SHPO was issued for the SCOP Final EIS (SHPO 2007). The MOA will be amended to address the project changes that are analyzed in this EA. The Treatment Plan presented within the MOA will be adhered to during construction and operation of the Proposed Action or No Action Alternative. Recommended mitigation measures outlined in the MOA Treatment Plan are as follows:

- An archaeological monitor will be present to assess site 26CK1301 prior to and after construction.
- An archaological monitor will be present during trenching activities.
- Work will cease immediately if new cultural features or artifacts are discovered during construction activities and SHPO will be contacted to determine an appropriate course of action.
- All artifacts recovered during construction operations will become the property of Clark County and will be prepared for curation in accordance the with procedures used by the Clark County Museum.

4.8 Visual Resources

The BLM *VRM Guidelines* (BLM 1986a) and the BLM *Manual Handbook - Visual Resource Contrast Rating* (BLM 1986b) were used to analyze impacts associated with implementation of the Proposed Action and No Action Alternative as mentioned in section 3.8.

The visual resource classes that have been assigned based on scenic quality, sensitivity level, and delineation of distance zones to the various areas within the project vicinity are Class II, Class III, and Class IV. Inventory classes provide the basis for considering visual values and are informational in nature (BLM 1986a).

- Class II: The objective of Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic element of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

- Class III: The objective of Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape can be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. As in Class II, changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- Class IV: The objective of Class IV is to provide management activities that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

For purposes of this EA, impacts to visual resources would be adverse if the action being considered would:

- Cause inconsistencies related to the management objectives of the associated applicable VRM class;
- Result in a strong degree of contrast;
- Substantially change the overall visual character of the project region; or
- Substantially alter the view from a scenic point, vista, corridor, or other sensitive area.

The impacts to visual resources that may result from the construction and operation of the Proposed Action and No Action Alternative are described in the following sections.

4.8.1 Impacts (Proposed Action)

Potential visual resource impacts during construction, operation, and maintenance of the Proposed Action would be similar to those described for the Environmentally Preferred Alternative in Section 4.3.7.1 of the SCOP Final EIS. Any different or additional impacts are described in the following paragraphs.

The view from KOP 5 (Figure 3.8-1) toward the proposed alignment has been classified as Class III. The objective of Class III is to partially retain the existing character of the landscape. Views from KOP 3 and the Wetland Parks Trail will be temporarily impacted due to the use of cut-and-cover construction techniques (Figure 3.8-1). Construction of the Reach 3 cut-and-cover pipeline would entail the removal of vegetation when digging the trench. This removal would create a contrasting straight line of brown against the surrounding gray-green Mojave Desert scrub vegetation community. This line would provide a temporary rise in the degree of contrast, and possibly attract the attention of the casual observer.

The EI Terminus temporary power line would follow already existing improved and unimproved roads. If the above-ground alternative is selected for the EI Terminus temporary power line, there would be additional impacts to visual resources. The powerline poles would be visible from KOP 4 and KOP 5. The power poles would be relatively short (approximately 15 ft height) and would be colored brown to blend with the natural landscape. These power poles would only be present for the duration of construction activities. Once SCOP construction is complete, the poles would be dismantled and removed from the site. Therefore, impacts to visual resources from thepower poles and line woul be minor and temporary.

Impacts to visual resources would occur during the construction phase of the project. Foreground and middleground views would be disrupted by large construction equipment that would be visible from KOP 5 and surrounding communities. Impacts to views along all areas of the Proposed Action would occur as a result of blowing dust caused by construction activities. Dust control BMPs would be implemented during construction. Impacts from dust would be minor.

Once installed, the pipeline would be below grade and would not affect the visual contrast to any areas. There would be no impacts to the overall visual character, scenic points, vistas, corridors, or other

sensitive areas following completion of the construction activities. The intended uses and purposes of the Wetlands Park and nearby residential communities would not be affected by the Proposed Action.

4.8.2 Impacts (No Action Alternative)

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative as described in the SCOP Final EIS and the Reclamation ROD. Therefore, the impacts to visual resources documented in the SCOP Final EIS are incorporated by reference (NPS and Reclamation 2006).

Impacts from implementation of the No Action Alternative to visual resources would be similar to those described in Section 4.8.1. These impacts would be temporary and would occur during the construction phase of the project. There would be no long-term impacts to visual resources.

4.8.3 Mitigation

Although no adverse impacts to visual resources would occur from the Proposed Action or No Action Alternative, steps would be taken to further minimize the potential for impacts to visual resources. Restoration of the project site will be completed in accordance with a project-specific Reclamation-approved restoration plan. The restoration plan will address salvage of topsoil for reseeding purposes, recontouring the natural land surface, blending colors and textures, treating weeds, and revegetating the disturbed areas. Coordination with Clark County Department of Parks and Recreation will occur, to the extent required by Reclamation, during restoration activities within the Wetlands Park**.** The restoration and revegetation of the alignment will reduce the visual impact of the pipeline scar.

4.9 Land Use and Access

Community development land-use plans were reviewed to determine impacts and compatible uses. For purposes of this EA an impact to land use would be considered adverse if the action were to:

- Substantially conflict with land use plans and community goals,
- Substantially conflict with currently established uses of the area
- Disrupt or divide the physical arrangement of an established community,
- Substantially conflict with existing utilities and public ROWs,
- Substantially conflict with mining claims or patents, or
- Create a long-term loss of access to public facilities, businesses, or residences.

4.9.1 Impacts (Proposed Action)

Overall, the potential impacts to land use that may result from the construction and operation of the Proposed Action would be the same as described for the Environmentally Preferred Alternative in the SCOP Final EIS. Impacts resulting from the use of cut-and-cover techniques and widening of the construction corridor would cause temporary impacts.

Portions of Reach 3 and the COH Forcemain would traverse the Wetlands Park. Access to the construction area within the Wetlands Park would be temporarily restricted during construction activities. Following installation of the Reach 3 pipeline, trails may be constructed on the segments of Reach 3 that are located within the Wetlands Park. The trails are compatible with planned land uses described in the Wetlands Park Master Plan. Short-term impacts that would occur during construction activities include a

reduction in land dominated be open space, and restrictions on land use for recreational purposes within the construction zone.

4.9.2 Impacts (No Action Alternative)

The No Action Alternative would be the construction and implementation of the Environmentally Preferred Alternative as described in the SCOP Final EIS and the Reclamation ROD. Therefore, the impacts to land use and access documented in the SCOP Final EIS are incorporated by reference (NPS and Reclamation 2006).

4.9.3 Mitigation

Long-term impacts would not occur from the Proposed Action or No Action Alternatives. Following installation of the pipeline, trails may be constructed on the segments of the EI alignment that are located within the Wetlands Park. The trails are compatible with planned land uses described in the Wetlands Park Master Plan.

4.10 Cumulative Impacts

Cumulative impacts can result from individually minor, but collectively adverse, actions taking place over a period of time. Cumulative impacts are most likely to arise when a relationship exists between a proposed alternative and other actions that have, or are expected, to occur in a similar location, time period, or involving similar actions. Projects in close proximity to the proposed alternatives would be expected to have more potential for cumulative impacts than those more geographically separated.

The cumulative effects assessment in this EA focuses on addressing two fundamental questions:

- Does a relationship exist so the impacts from the Proposed Action might affect or be affected by the impacts of the other actions?
- If such a relationship exists, does this assessment reveal any potentially adverse impacts not identified when the Proposed Action is considered alone?

The following activities have been identified, in combination with the Proposed Action, to have the potential for contributing to cumulative impacts on resources within the vicinity of the Proposed Action.

4.10.1 Past, Present, and Reasonably Foreseeable Future Actions

Actions considered to be "past" are projects that are currently ongoing, but that would be completed before construction of the Proposed Action begins in mid to late 2008. Actions considered to be "present actions" are defined as projects/activities occurring at the time of this evaluation that would continue during construction and operation of the Proposed Action. Future actions are projects/activities that are currently in the planning stages. It is unknown whether these actions will become "real" projects, and only tentative schedules are available. The NEPA process is in progress for the future action.

Past Actions

SNWA East Valley Lateral
The SNWA constructed and completed the East Valley Lateral Pipeline in 2000. This pipeline was constructed to transport raw water from the AMSWTF to the River Mountains Treatment Facility. The East Valley Lateral is a 78-inch-diameter pipeline that crosses below the Las Vegas Wash. Its alignment is approximately 2,000 ft north of the SCOP pipeline alignment within the proposed project area. The East Valley Lateral project resulted in long-term, adverse, minor impacts to biological resources and cultural resources. These impacts were the result of increases in surface disturbance resulting in loss of

available habitat and vegetation cover, and disturbance to cultural sites. The construction of the East Valley Lateral Pipeline also included the installation of a new, permanent access road along the alignment. This access road provides the public with additional means to enter the Proposed Action area.

Present Actions

The Wetlands Park

Construction activities at the Wetlands Park are estimated to be complete by 2015. The *Clark County Wetlands Park Master Plan* (Clark County 1995) defines strategies for creating a system of trails, interpretive exhibits, and picnic areas along the Las Vegas Wash. It also includes a visitor center (i.e., Nature Center) with educational information and specific site improvements such as landscape design, building concepts, and roadway and parking concepts. The planned Wetlands Park trails and facilities would potentially disturb approximately 384 acres of land within the Wetlands Park boundary (Clark County Parks and Community Services 2002). Approximately 11 acres of trails have been completed and currently 15 acres are under construction for facilities. The completed trails are located in the Nature Preserve and the Duck Creek trail system. There would be temporary and localized noise, air quality, access, and visual impacts during construction. Impacts to biological resources and cultural resources may also occur during construction.

City of Henderson Water Reclamation Facility (WRF) Expansion

The WRF expansion is currently under development on lands adjacent to the existing COH treatment facilities. The expansion is located on 101.3 acres of vacant land to the east of the existing COH WRF (COH 2003). The WRF expansion includes the construction of new facilities and improvements to current infrastructure. New facilities include a northeast reclaimed water pumping station, chemical building, contact basins, and additional distribution piping. Construction of the WRF expansion has started and is scheduled to be completed in 2009. There would be temporary and localized noise, air quality, access, and visual impacts during construction.

SNWA ECSs

Eleven of 26 planned ECSs in the Las Vegas Wash have been built by SNWA and the NPS. Construction of the additional ECSs will continue through 2015. The ECSs are designed and constructed to manage and reduce the impacts of storm flows on the Las Vegas Wash. Bank stabilization activities are also occurring in the Las Vegas Wash. The ECSs have reduced erosion by aiding in the stabilization of the Las Vegas Wash. Additional ECSs are planned and will further reduce the impacts of erosion in the Las Vegas Wash and Inner Las Vegas Bay (SNWA 2005).

Reasonably Foreseeable Future Actions

Sunrise Tap Transmission Line Project

Nevada Power is proposing to construct, operate, upgrade, and maintain transmission lines and substations in the vicinity of the SCOP project. The Transmission Line Project has the following multiple components:

- Construction of a new double-circuit 500kV transmission line: The 500kV transmission line would be 7-miles long and require a 200-ft wide ROW. There would be 42, 150- to 200-ft tall lattice towers placed every 100 ft, and 4 steel poles. Approximately 8 to 16 acres would be disturbed by new or upgraded road construction.
- Upgrade the existing Las Vegas #3 69kV transmission line to a quad-circuit 230kV/lower voltage line.
- Construct a new quad-circuit 230kV/lower voltage transmission line: The 230kV transmission line would be 16-miles long and require a 100-ft wide ROW. There would be 176 structures along the alignment. Approximately 5.4 acres would be disturbed by new or upgraded road construction.

- Upgrade the existing transmission lines between the Sunrise Substation and the Winterwood Substation to double circuit 138kV and quad-circuit 138/69kV.
- Upgrade four existing substations (Sunrise, Winterwood, Clark, and Equestrian) to support the new 500kV and 230kV transmission lines.

Construction of the Sunrise Tap Transmission Line Project would begin in fall 2008 and end June 1, 2010. There are no proposed substations in the vicinity of the SCOP, but the proposed route alternatives for the transmission lines are located north and east of the EI alignment. There would be temporary and localized noise, air quality, access, and visual impacts during construction and long term visual impacts.

The acres of disturbance from the past, present, and reasonably foreseeable future actions are shown on Table 4.10-1.

Table 4.10-1 Estimated Acres of Disturbance from Past, Present, and Future Actions

Project	Surface Disturbance (acres)	Estimated Construction Duration (years)	Surface Disturbance (acres per year)
Past			
SNWA East Valley Lateral	190	3	63
Wetlands Park	11	5	2.2
COH WRF Expansion	23	2	11.5
SNWA ECSs	2	2	1
Past Total	**226**	**---**	**77.7**
Present			
Wetlands Park	373	5	75
COH WRF Expansion	78	3	26
SNWA ECSs	52	5	10
Present Total	**503**	**---**	**111**
Future			
Sunrise Tap Transmission Line Project	22	2	11
Future Total	**22**	**---**	**11**
SCOP Project Changes on Reclamation Land			
Proposed Action	67	3	22
No Action	28	2	14

4.10.2 Potential Cumulative Impacts

Geology, Topography, and Soils

Ground-disturbing activities required for various projects in the vicinity of the Proposed Action would both temporarily and permanently affect topography and soils. The impacts to topography and soil would occur during construction. Construction activities would increase the potential for soil erosion by wind and water. Dependent on the construction project, some of the projects would have the topography restored to preconstruction conditions.

The construction of the Wetlands Park trails system, the WRF expansion, the SNWA ECSs, and the Proposed Sunrise Tap Transmission Line project would have a combined disturbance of 525 acres (Table 4.10-1). The impacts that would result are the changing of the topography and the disturbance of soils during construction. However, mitigation measures would be implemented to minimize the impacts from erosion, and the land would be recontoured and restored to preconstruction conditions following

completion of construction activities. Therefore, cumulative impacts to soils and topography would be short-term.

Hazardous Materials
Impacts from hazardous materials may result from multiple projects occurring in the area. These impacts would result from an increase in heavy equipment and machinery use in the vicinity of the Proposed Action. The increase in construction activity increases the potential for an accident. However, compliance with OSHA, CERCLA, SARA, and EPA guidelines for the handling and disposal of hazardous materials would minimize potential cumulative impacts. Mitigation measures would be implemented when necessary and sampling and analysis of groundwater and soils would be conducted in accordance with NDEP guidelines.

The construction of the Wetlands Park trails system, the WRF expansion, the SNWA ECSs, and the proposed Sunrise Tap Transmission Line Project may have short-term impacts. During the construction phase of the projects, there would be an increase in construction traffic and activities, and the likelihood of spills. As stated above, all regulations and guidelines would be followed during construction.

Water Resources
The construction of the Wetlands Park trails system, the WRF expansion, the SNWA ECSs, and the proposed Sunrise Tap Transmission Line Project would result in impacts to surface water flows. These impacts would result from construction activities that occur in washes that drain into the Las Vegas Wash. This would result in the potential for increased sediment flow to the Las Vegas Wash. However, impacts to water resources are mitigated through compliance with required construction permits and the use of BMPs. These permit requirements would also be applicable to other construction activities in the vicinity of the Proposed Action.

Biological Resources
The duration of the Proposed Action would likely overlap in schedule with other planned projects in the vicinity. Construction of each project would disturb vegetation, disperse wildlife from construction areas, increase disturbance to soils creating suitable environs for noxious weeds, and increase disturbance to desert tortoise habitat. The Wetlands Park trails system, the SNWA ECSs, and the Proposed Sunrise Tap Transmission line project would have both temporary and permanent disturbance of 448 acres (table 4.10-1) of potential desert tortoise habitat. The completed East Valley Lateral project resulted in approximately 190 acres of permanent disturbance of desert tortoise habitat, and the WRF Expansion project is located on a previously disturbed lot that is not desert tortoise habitat.

Mitigation measures have been proposed, including construction-site restrictions, land-reclamation plans, removal and storage of top soils and vegetation, noxious-weed management, preconstruction surveys for sensitive species, and seasonal restrictions on construction. These measures would serve to minimize the magnitude of construction impacts, which would be short-term. The other projects considered in this cumulative analysis would have similar short-term construction impacts.

Air Quality
The construction of the Wetlands Park trail system, WRF, SNWA ECSs, and Proposed Sunrise Tap Transmission Line Project would have several elements that would overlap in time with the Proposed Action. Cumulative impacts to air quality are anticipated due to the close proximity of the various construction projects. These impacts would result from an increase in PM_{10} generation in disturbed areas and during excavations, and increased emissions from construction equipment and construction traffic. Local air pollution permitting requirements, supplemented by mitigation measures, would minimize impacts from fugitive dust. Potential air quality impacts from the Proposed Action were used to analyze the potential air quality impacts from past, present, and future actions. Potential air emissions that may be

generated from the construction of these projects were based upon the same general methodology used to calculate potential impacts to air quality for the SCOP EIS. The potential air quality impacts (presented in Section 4.7 and Appendix G of the SCOP EIS) from the proposed alternatives were used to extrapolate and calculate the potential air quality impacts from the past, present, and future actions. The same equipment and parameters as the SCOP EIS were also used.

Table 4.10-2 presents an estimate of the construction equipment exhaust that may be generated during construction of the projects discussed in Section 4.10.1. Table 4.10-3 presents an estimate of the fugitive dust that may be generated during construction of the projects discussed in Section 4.10.1.

Table 4.10-2 Estimated Equipment Exhaust for Past, Present, and Future Projects

Project	Surface Disturbance (acres)	Estimated Construction Duration (years)	Construction Equipment Exhaust Emissions			
			CO Emissions (tons/yr)	NOx + VOC Emissions (tons/yr)	PM_{10} Emissions (tons/yr)	SO_2 Emissions (tons/yr)
Past						
SNWA East Valley Lateral	190	3	29	95	17	1
Wetlands Park	11	5	1	3	1	0
COH WRF Expansion	23	2	5	17	3	0
SNWA Erosion Control Structures	2	2	0	1	0	0
Past Total	**226**	**---**	**36**	**117**	**21**	**2**
Present						
Wetlands Park	373	5	34	111	20	2
COH WRF Expansion	78	3	12	39	7	1
SNWA Erosion Control Structures	52	5	5	16	3	0
Present Total	**503**	**---**	**51**	**166**	**30**	**2**
Future						
Sunrise Tap Transmission Line Project	22	2	5.1	16.4	3.0	0.2
Future Total	**22**	**---**	**5.1**	**16.4**	**3.0**	**0.2**
SCOP Project Changes on Reclamation Land						
Proposed Action	67	3	10.3	33.4	6.0	0.5
No Action	28	2	6.5	20.9	3.8	0.3
Major Source Threshold-Valley Airshed			70	50	70	100
Major Source Threshold-Conformity Determinations			70	100	70	100

Table 4.10-3 Estimated Fugitive Dust Generated from Construction of Past, Present, and Future Projects

Project	Surface Disturbance (acres)	Estimated Construction Duration (years)	Uncontrolled Fugitive Dust Emissions [1] (tons)	Controlled Fugitive Dust Emissions [2] (tons)	Uncontrolled Fugitive Dust Emissions [1] (tons/year)	Controlled Fugitive Dust Emissions [2] (tons/year)
Past						
SNWA East Valley Lateral	190	3	738	369	246	123
Wetlands Park	11	5	43	21	9	4
COH WRF Expansion	23	2	89	45	45	22
SNWA Erosion Control Structures	2	2	8	4	4	2
Past Total	**192**	**---**	**878**	**439**	**303**	**152**
Present						
Wetlands Park	373	5	1,449	724	290	145
COH WRF Expansion	78	3	303	151	101	50
SNWA Erosion Control Structures	52	5	202	101	40	20
Present Total	**503**	**13**	**1,954**	**977**	**431**	**216**
Future						
Sunrise Tap Transmission Line Project	22	2	85	43	43	21
Future Total	**22**	**---**	**85**	**43**	**43**	**21**
SCOP Project Changes on Reclamation Land						
Proposed Action	67	3	260	130	87	43
No Action	28	2	109	54	54	27

Notes:

[1] Fugitive dust emissions reported only for dust with an aerodynamic diameter less than or equal to ≤ 10 µm. Uncontrolled PM_{10} emissions from earth disturbances were calculated using an emission factor of 0.42 tons PM_{10} per acre (i.e. 3,148,917.5 ft2 ÷ 4,3560 [ft2 per acre] = 72.3 acres x 0.42 [tons per acre] = 30.36 tons). The value of 0.42 tons PM_{10} per acre comes from the PM_{10} State Implementation Plan (SIP) for Clark County (Clark County 2001).

[2] The note for the Controlled Fugitive Dust Emissions is: Controls include those required in the Clark County SIP for construction activities (Clark County 2001). Controlled PM_{10} emissions were calculated using an emission factor of 0.21 tons PM_{10} per acre.

Past Actions: Based upon the estimated exhaust emissions, all of the past projects combined exceeded the Major Source Valley Airshed threshold for NOx + VOCs, and fugitive dust. However, since construction of the past actions is complete, no cumulative impacts to air quality would occur from the combined construction of those projects with the Proposed Action.

Present Actions: The Wetlands Park project is expected to exceed conformity thresholds for NOx + VOCs. Combined, the present actions would not exceed the thresholds for CO, PM_{10}, SO_2 from exhaust emissions. The Wetlands Park is expected to individually exceed thresholds for controlled fugitive dust emissions from construction activities.

Future Actions: Short-term impacts to air quality resources are anticipated as a result of construction equipment exhaust emissions under the Proposed Action. There would be a short-term, but detectable, change in ambient air pollutant concentrations. Because emissions from construction activities do not occur 24 hours per day, the concentrations estimated are conservative. It is not likely that the project would cause or contribute to an exceedance of the NAAQS. In addition, the use of diesel engines that meet calendar year 2007 emission standards or later would decrease nitrogen oxide emissions below major source threshold levels.

Projects planned to be constructed in the future are not expected (individually or combined) to exceed current air quality thresholds from construction equipment exhaust or fugitive dust.

Noise

The construction of the Wetlands Park trails system, WRF expansion, SNWA ECSs, and proposed Sunrise Tap Transmission Line Project would result in short-term impacts to noise. These projects in conjunction with the Proposed Action would generate noise and vibration impacts from the operation of heavy equipment and other construction-related activities. Mitigation measures have been proposed that would limit the potential effects of short-term construction noise on sensitive receptors. Some of the projects' construction schedules would overlap, but activities would occur over a large area. Adverse cumulative impacts resulting from noise and vibration increases are not expected to occur because construction activities would not be concentrated in one area and the activities would be short-term. Additionally, construction noise would be generated during daytime hours (generally, 6:00 am to 6:00 pm.), for which County noise codes do not apply.

Cultural Resources

The cumulative impacts of the Wetlands Park trails system, the WRF expansion, the SNWA ECSs, and the proposed Sunrise Tap Transmission Line Project in conjunction with the Proposed Action may have short- and long-term indirect and/or direct impacts to cultural resources. The increase in earth moving activities would increase the chances of uncovering a previously unknown cultural resource. In addition, the construction of additional access roads that were not historically present in the area would provide the public with additional means to access cultural resources that were previously very difficult to access. The cultural significance of the Las Vegas Wash area is very important to the history of the Las Vegas Valley. The increased number of access roads would make the area highly susceptible to additional disturbance. Properties eligible or already listed on the NRHP are present in the area of the projects listed in Section 4.10.1. The indirect impacts that may result from increasing public access to the project area include the physical destruction, damage of, or alteration to all or part of a property. Strict mitigation measures will be implemented to allow for the best protection of cultural sites located in the vicinity of construction areas.

Visual Resources

The construction of the Wetlands Park trails system, WRF expansion, SNWA ECSs, and proposed Sunrise Tap Transmission Line Project would result in short- and long-term, impacts to visual resources. The numerous projects in the project area would increase the amount of construction equipment in the vicinity, and their presence would temporarily disrupt views. After construction is completed and revegetation activities have begun, there would be a time when the scars from SCOP construction would be evident. However, the revegetation activities would slowly erase the pipeline scars. Native species would grow, and noxious weeds would be removed providing a more natural view.

The permanent impacts that result from the construction of the Wetlands Park Trails system would decrease the natural look of the Wetlands Park. However, overall, the trails system is considered to result in beneficial impacts to habitat and recreational opportunities.

The Proposed Sunrise Tap Transmission Line Project would have permanent impacts to visual resources. Power poles would be constructed, and would range in height from 150 ft to 200 ft. This would obstruct views of the surrounding mountain ranges and landscapes. However, these are direct impacts resulting from the proposed Sunrise Tap Transmission Line Project. The impacts to visual resources from the Proposed Action, WRF expansion, and SNWA ECS would be short-term.

Land Use and Access

Access to some areas in the vicinity of the various construction sites would be restricted for periods of time. Some areas within the Wetlands Park may not be accessible during specific times of the year and phases of construction. However, the temporary access restrictions would not change the land use in the area, and restrictions would be removed once construction is complete. Coordination among the CWC, SNWA, Clark County Parks and Recreation, and Nevada Power would occur for the duration of the projects. Therefore, cumulative impacts to access and land use would be short-term.

5.0 CONSULTATION AND COORDINATION

The ESA of 1973, as amended, directs the USFWS to protect listed plants and animals. It also directs all federal agencies to participate in endangered species conservation. Specifically, Section 7 of the ESA requires federal agencies to aid in the conservation of listed species and to ensure that their activities will not jeopardize the continued existence of listed species or adversely modify designated critical habitat. Consultation with the USFWS under Section 7 of the ESA was conducted for the Environmentally Preferred Alternative as described in the SCOP Final EIS and Reclamation ROD (NPS and Reclamation 2006). A BO was issued in June, 2007 by the USFWS (File No. 1-5-07-F-433). Due to changes identified during the final design phases, it was determined that formal consultation with the USFWS would be reinitiated. A Biological Assessment analyzing the impacts of the Proposed Action to federally listed species was submitted to the USFWS on April 14, 2008. The SCOP Final EIS BO was amended to include impacts resulting from the Proposed Action in a letter dated TBD.

A 22-day public scoping period occurred from November 4, 2007 through November 25, 2007. The public was notified of the scoping period through ads in the *Las Vegas Review Journal* and the *Henderson Home News*. Additionally, organizations and individuals that provided comments on the Draft SCOP EIS were sent letters notifying them that an EA is being prepared to analyze the potential impacts resulting from modifications to the SCOP.

Newspaper ads announcing the availability of this EA were published in the *Las Vegas Review Journal* and *Henderson Home News*. Comments may be submitted in writing to the address below. Additionally, individuals and organizations may request a copy of the EA in writing, by phone, or by e-mail. Comments on this EA must be submitted during the 30-day public review and comment period.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can request that Reclamation withhold your personal identifying information from public review, Reclamation cannot guarantee that it will be done.

Copies of the EA are available at area libraries, including: Boulder City Library, Clark County Library, Las Vegas Public Library, Sunrise Public Library (Las Vegas), and University of Nevada- Las Vegas James R. Dickinson Library.

A copy of the EA can be obtained by direct request to:

Bureau of Reclamation, Lower Colorado Region
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