FINDING OF NO SIGNIFICANT IMPACT
AND DECISION RECORD

SPRING VALLEY MINE EXPANSION
GEO-NEVADA INCORPORATED
PLAN OF OPERATIONS N-83297
NEPA COMPLIANCE NO. DOI-BLM-NV-C020-2010-0007-EA

INTRODUCTION

The Bureau of Land Management (BLM) has prepared an Environmental Assessment (EA) that analyzes the affected environment, environmental impacts and proposed mitigation measures associated with the expansion of an existing hard rock precious metal mining operation (Spring Valley Mine Expansion) proposed by Geo-Nevada Incorporated (Geo-Nevada), of Reno, Nevada. The subject mine expansion would occur in Lyon County, Nevada, 2.5 miles west of the City of Dayton in parts of sections 20, 21 and 28, Township 16 North, Range 21 East, Mount Diablo Baseline & Meridian (Project Area). The Project Area is accessed by traveling west on United States Highway 50 from the City of Dayton for approximately 3.5 miles to State Route 341 (SR-341), then north on SR-341 for approximately 1.5 miles to the Project Area at the southern end of the Virginia Range. The Project Area of approximately 351-acres corresponds with Geo-Nevada's claim block which encompasses both patented (private) and unpatented mining claims. Unpatented claims within the Project Area reside on public land administered by the BLM Carson City District-Sierra Front Field Office (CCDO-SFFO).

Geo-Nevada has maintained mining and processing operations on their private land in accordance with a reclamation permit issued by the State of Nevada Division of Environmental Protection (NDEP), and a special use permit issued by Lyon County. Geo-Nevada has also conducted mineral exploration on their unpatented mining claims on the adjacent public land under a bonded Notice of Intent (NOI) number N-77527 administered by the BLM. Geo-Nevada now intends to expand their mining activities onto the public land (Proposed Action). The Proposed Action would increase the total permitted surface disturbance at the Spring Valley Mine from approximately 12 acres to just over 23 acres.

The Proposed Action is described in the Spring Valley Mine Plan of Operations, Reclamation Plan and Permit Application dated June 2007 (BLM Serial No. N-83297). The Spring Valley Mine consists of a small-scale mining operation including removal of waste rock and precious metal resources from open pits on public and private land, and processing precious metal resources on private land. Geo-Nevada would also continue exploring for mineral resources within the Project Area as part of the Proposed Action. The estimated life of the Proposed Action is three to six years, or more depending on the identification of additional resources.

PLAN CONFORMANCE AND CONSISTENCY

The Proposed Action is consistent with Federal law, BLM regulations and policy, and the BLM CCDO Consolidated Resource Management Plan (2001). The U.S. Department of the Interior's surface management regulations at Title 43 Code of Federal Regulations Subparts 3715 and 3809 (43 CFR 3715 and 3809) and BLM policy contain provisions that permit mineral exploration and extraction on public land, and occupancy reasonably incident thereto, if such activities do not

cause unnecessary or undue degradation of public resources. The Proposed Action, with mitigation measures proposed by Geo-Nevada and accepted by the BLM, as well as additional measures stipulated by the BLM, will not cause undue or unnecessary degradation of public lands.

FINDING OF NO SIGNIFICANT IMPACT DETERMINATION

Based on the analysis of the Spring Valley Mine Expansion EA (DOI-BLM-NV-C020-2010-0007-EA), I have determined that the action will not have a significant effect on the human environment and an environmental impact statement (EIS) will not be prepared. This finding is based on the context and intensity of the project as described:

Context:

The Proposed Action is to expand currently permitted operations associated with the Spring Valley Mine from 12.19 acres to 23.12 acres over a six-year period. The Spring Valley Mine is situated on public and private land in extreme northwest Lyon County, Nevada. The nearest communities are Moundhouse, Nevada (0.75 miles to the southwest), Silver City, Nevada (1.6 miles to the north), and Dayton, Nevada (2.5 miles to the east). The Proposed Action includes: (1) expanding two open pits; (2) further development of existing waste rock dumps; (3) dewatering and constructing rapid infiltration basins; (4) improving existing access routes; and, (5) conducting exploration drilling. Reclamation of surface disturbance will be conducted as soon as is practicable once the disturbance is considered inactive, complete, or without potential.

Intensity:

The Council on Environmental Quality (CEQ) regulations include the following ten considerations for evaluating intensity:

1) *Impacts that may be both beneficial and adverse.* None of the environmental effects discussed in detail in the EA are considered significant, nor do the effects exceed any known threshold of significance, either beneficial or adverse. The Proposed Action is mineral resource exploration and mining consisting of ripping and/or blasting mineralized material from two small approximate four-acre open pits, loading the material into haul trucks, hauling the material to a gravity separation mill on private land and processing. Associated activities include the loading and hauling waste rock to one of two waste rock stockpiles, constructing and maintaining roads, constructing drill sites, conducting exploration drilling, and reclaiming up to 25 acres of public and private land within the Project Area.

2) The degree to which the selected alternative will affect public health or safety.

The Proposed Action would not result in any impacts to public health or safety, surface disturbing activities operations would be conducted in conformance with all federal and state health and safety requirements to protect public health and safety and reclamation of disturbed areas would be conducted as soon as practicable. Engineering controls such as berms and fencing would be employed to keep the public away from active exploration and mining operations. Mine site personnel would also be on-site to keep the public away from operations. All trash would be contained and hauled to an approved disposal facility. Dust from traffic associated with project activities would be minimized by observance of prudent speed limits and strategic watering of access roads when conditions warrant.

3) Unique characteristics of the geographic area such as proximity to historic or cultural resources. park lands, prime farm lands, wetlands, Wilderness, wild and scenic rivers, or ecologically critical areas.

There are no park lands, prime farm lands, wild and scenic rivers or ecologically critical areas in or near the Project Area analyzed in the EA. A cultural resources inventory[1] of the area of potential effect (APE) within the Project Area identified four archaeological sites, two historic, and two having both historic and prehistoric components. The APE in this case is defined as that portion of the Project Area within which surface disturbance is likely to occur in association the Proposed Action. Of the four historic archaeological sites identified, two are newly recorded. One newly recorded site is a segment of the Carson and Colorado Railroad that occurs outside the APE. The eligibility of that site for the National Register of Historic Places (NRHP) has not been evaluated. The prehistoric component of one archaeological site does fall within the APE and is considered eligible for the NRHP. Both of these sites would be avoided by the operator. If any cultural or paleontological resources that may be altered or destroyed by operations are discovered the discovery will be left intact and reported to the authorized BLM officer.

4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

The Proposed Action would not have highly controversial effects on the quality of the human or natural environment. The parameters of exploration drilling, mining, gravity processing and associated reclamation are well established. The Project Area is located in the extreme northwest corner of Lyon County, Nevada, near the communities of Moundhouse, Silver City and Dayton, Nevada. Because the Proposed Action constitutes a small (less than 11-acre) expansion of an existing mining operation, the effects on the quality of life of the human environment would be consistent with past activities in this area which were not considered to be highly controversial.

5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The Proposed Action is not unique or unusual. The action described in the EA is mineral resource exploration and mining consisting of exploration drilling, ripping and/or blasting mineralized material from two small open pits comprising less than 4 acres each, loading and hauling material to a gravity separation mill for processing and reclaiming the associated surface disturbance. There are no predicted effects on the human environment that are considered highly uncertain or involve unique or unknown risks.

6) The degree to which the action may establish a precedent for future actions with Significant effects or presents a decision in principle about a future consideration.

The Proposed Action will not establish a precedent for future actions with significant effects or represent a decision about a future consideration. This EA does not establish a precedent for other assessments or authorization of other exploration and mining projects. Any future projects within the Project Area or in surrounding areas will be analyzed on their own merits and implemented, or not, independent of the acceptance of the subject EA.

---

[1] Obermyer. (2008). *Class III Cultural Resource Inventory of Geo-Nevada Spring Valley Mine, Lyon County, Neada.* Carson City: MACTEC.

7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.
Past, present and reasonably foreseeable future actions have been considered in the cumulative impacts analysis within Chapter 5 of the EA. The cumulative impacts analysis examined all of the other appropriate actions and determined that the Proposed Action would not incrementally contribute to significant impacts on any of the resources that are present and may be affected by the Proposed Action.

8) The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
The entire APE from the Proposed Action has been inventoried at an intensive level for the presence/absence of cultural resources. Four archaeological sites were identified, two historic and two having both historic and prehistoric components. All of the NRHP eligible or potentially eligible sites identified within or adjacent to the APE would be avoided by the operator. Hence, no significant scientific, cultural, or historical resources will be lost or destroyed as a result of the Proposed Action. If any cultural or paleontological resources that may be altered or destroyed by operations are discovered the discovery will be left intact and reported to the authorized BLM officer.

9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under ESA of1973.
As described in the EA, no known threatened or endangered species or critical habitat has been identified within the Project Area. There are a number of BLM sensitive species with potential habitat in or adjacent to the Project Area as indicated in Appendix D of the EA. Because disturbances associated with the Proposed Action would be of limited extent, dispersed throughout the Project Area and subsequently reclaimed, it has been determined that the Proposed Action would not result in substantial net loss of potential habitat and would not contribute to a loss of viability for any one special status species.

10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.
As described in the EA, the Proposed Action does not violate any known Federal, State, or local law or requirement imposed for the protection of the environment. An interdisciplinary team of specialists from the BLM were involved in preparation of the EA and officials from Lyon County, the State of Nevada, the Washoe Tribe of Nevada and California, and the Yerington Paiute Tribe were notified of the proposal.

DECISION RECORD
As a result of the analysis presented in the EA, it is my decision to approve the Spring Valley Mine Expansion and concur with the associated occupancy with mitigation measures presented in the EA and listed below. This management decision for the Spring Valley Mine Expansion and the associated occupancy is issued under 43 CFR 3809 and 3715, respectively, and is effective immediately upon signing of this Decision Record (DR).

The preceding rationale for the Finding of No Significant Impact (FONSI) supports this decision. The Proposed Action coupled with operating, environmental mitigation and reclamation measures detailed in the EA and listed in this document have led to my decision that all practicable means to avoid or minimize environmental harm have been adopted and that unnecessary or undue degradation of the public lands would not result. This decision is consistent with the BLM CCDO Consolidated Resource Management Plan (2001) and Record of Decision.

All resource values impacted by the Proposed Action have been evaluated for cumulative impacts. It has been determined that cumulative impacts would be negligible for all resources.

Public Outreach/Involvement

Prior to preparing the EA, BLM solicited initial public comment during a 30-day scoping period beginning in early November 2007. Public comment was also solicited in conjunction with a Lyon County public hearing held on November 13, 2007. The issues identified during this scoping period were incorporated into the planning effort, along with discussions with other agencies, and input from an interdisciplinary team of BLM resource specialists.

Upon completion of the EA, an electronic copy was posted on the BLM Carson City District Office web page for a 30-day public review period. A hard copy of the EA was also made available for review at the public room in the BLM Carson City District Office. A letter soliciting public review of the EA was posted at the Silver City, Nevada, Post Office. No comments or comment letters were received during the public comment period from either the public or the coordinating State and Federal agencies.

Rationale for Full Force and Effect Decision

The reasons for issuing the decision for the Spring Valley Mine Expansion under 43 CFR 3809 are as follows: The Proposed Action, as mitigated, meets the criteria described in the Federal Land Policy and Management Act of 1976 to prevent undue and unnecessary degradation of public land and the 43 CFR §3809. The Proposed Action is in conformance with the BLM CCDO Consolidated Resource Management Plan (2001) which states that the BLM desired outcome is to *encourage development of energy and mineral resources in a timely manner to meet national, regional and local needs consistent with the objectives for other public land uses* (page MIN 1). The Proposed Action is also in conformance with the President's National Energy Policy as put forth in Executive Order 13212 and will not have an adverse impact on energy development, production, supply and/or distribution. The action must also comply with applicable rules and regulations of other local, State, and Federal agencies.

Mitigation Measures/Environmental Protection Measures/Monitoring

The BLM approval of the Plan of Operations (Plan) is subject to operating, mitigation, reclamation and monitoring measures proposed by Geo-Nevada in the Plan and additional BLM stipulations set forth in the EA and restated in this FONSI/DR. These measures and stipulations, in addition to the conditions of approval associated with Geo-Nevada's respective State and local agency permits are included below.

The following section describes the conditions of approval stated in Geo-Nevada's Special Use Permit for the Spring Valley Mine approved by Lyon County on November 13, 2007:

1. That the Conditions of Approval of the Special Use Permit approved on May 7, 1999 continue unless modified below.

2. That the operation be conducted in accordance with the Plan of Operations dated June 2007 submitted as part of the Special Use Permit application.

3. That reclamation activities be conducted in accordance with the Reclamation Plan dated June 2007 submitted as part of the Special Use Permit application.

4. The applicant shall comply with all applicable fire and building code requirements.

5. The applicant shall meet all traffic control requirements placed on the property by the Nevada Department of Transportation, the County Engineer, Lyon County Road Manager, special purpose districts, and any other jurisdictions with approval authority.

6. The applicant shall comply with the off-street parking regulations and requirements set forth in 10.04.01(C) of the Lyon County Code including, but not limited to, the following:

    a. All parking areas, driveways and entry areas shall be surfaced with the same type of material and in the same manner as the adjoining public street used for access.

    b. If lighting is provided, it shall be so arranged to reflect away from residential areas, any public street or highway.

7. The applicant shall comply with Central Lyon County Fire Protection District requirements. The site's access and circulation shall comply with the County and CLCFPD access and turning radius standards.

8. The applicant shall comply with Lyon County's 1996 drainage guidelines, as revised.

9. All of the requirements placed on the special use permit by the County Building Official, Central Lyon County Fire Protection District, Planning Director, and other agencies with jurisdiction shall be met prior to the applicant commencing use of the site.

10. No change in the terms and conditions of the special use permit, as approved shall be undertaken without first submitting the changes to Lyon County and having them modified through a public hearing process.

11. The substantial failure to comply with any conditions imposed on the issuance of a special use permit or the operation of a special use in a manner that endangers the health, safety or welfare of Lyon County or its residents or the violation of ordinances,

regulations or laws in the special use or the non use of the permit for a year may result in the institution of revocation proceedings.

12. The special use permit is subject to annual review by Lyon County.

13. The applicant shall comply with all conditions of the BLM record of decision when it is made available.

14. The applicant shall notify the Nevada Department of Transportation for any comments or requirements they wish to include since the haul routes and access to the project is via State roads.

15. All access must comply with the NDOT "Access Management System and Standards", July 1999.

16. The Nevada Department of Transportation requires the use of only legal, permitted accesses on State roadways. A change or an increase in the function of this property served by an existing access or street may require a new right-of-way occupancy permit application and approval. The Nevada Department of Transportation requires an occupancy permit should any work be performed within the State's right-of way.

<u>The following section describes the operating, mitigation, reclamation and monitoring measures required by the BLM or recommended by Nevada State agencies. Some of these measures duplicate those committed to by Geo-Nevada in their Plan but are included below for completeness. The measures are listed by resource:</u>

Air Quality-1: All project-related traffic would observe prudent speed limits to enhance public safety, protect wildlife, and minimize dust emissions.

Air Quality-2: A roadway maintenance program including watering, blading, graveling and/or the application of an approved dust control additive would be implemented to control fugitive emission and soil/sediment runoff.

Cultural Resources-1: The APE shall be clearly flagged, and all Geo-Nevada employees and contractors shall be informed before commencement of project operations to stay within the APE.

Cultural Resources-2: Geo-Nevada shall conduct employee briefings to inform personnel of critical elements of compliance with the Archaeological Resources Protection Act (ARPA) and the National Historic Preservation Act (NHPA). Any effects on, defacement of, or removal and/or disturbance of archaeological, historical, or sacred material shall not be permitted, and violation of the laws that protect these resources shall be subject to law enforcement and/or administrative disciplinary action.

Cultural Resources-3: The BLM shall be notified immediately if human remains or artifacts or any other items of cultural significance are encountered on public land during project operations, and all work within 300 feet of their location shall cease. Per Nevada Revised Statute 383.170, burial remains on non-federal lands will require contact of the Nevada State Historic Preservation Office.

Cultural Resources-4: Future exploration activities or operations proposed on the public land within the Project Area but outside any APE shall be surveyed to identify the potential for cultural resource occurrence prior to approval of any surface disturbing activities.

Weeds – 1: Project proponent shall conduct a weed survey during the appropriate season to identify existing conditions and develop an invasive, nonnative species control program in consultation with BLM.

Weeds – 2: The operator shall implement an invasive, nonnative species control program consisting of monitoring and eradication for species listed on the Nevada Designated Noxious Weed List. All weed treatments on federal land are required to be in conformance with BLM manual 9011 and the Vegetation Treatments Using Herbicides in 17 Western States Programmatic Environmental Impact Statement (BLM, 2007).

Weeds – 3: All vehicles and heavy equipment entering the Project Area from off-site shall be washed free of soil and dust which may contain invasive, non-native or noxious weed seeds.

Weeds – 4: Restoration shall include a BLM-approved native seed mix. Seed mixtures used to re-vegetate disturbed areas shall be designated "weed free."

Birds – 1: Prior to disturbance of any old berms and dirt piles from May through July, inspection should be made to determine if Burrowing Owl nesting was occurring. Occupied nest sites <u>should</u> be avoided until October 1.

Wastes-1: In the event that a hazardous or regulated material is spilled, the operator shall take measures to control the spill and immediately notify BLM and NDEP.

Wastes–2: Petroleum products and other common hazardous materials/wastes shall be stored in impermeable, sealed and secured containers and stored in burmed lined containment structures designed to contain 110 percent of the largest tank's capacity.

Water Quality-1: The operator shall employ appropriate State of Nevada Best Management Practices during construction, operation and reclamation to minimize sedimentation from disturbed areas.

Water Quality-2: All exploration drill holes that will not be mined out under the Proposed Action would be plugged in accordance with applicable regulations.

Water-Quality-3: Low water crossings or sediment traps shall be constructed at drainage crossings as needed to inhibit soil erosion runoff and down-gradient sediment deposition. Construction of low water crossings or sediment traps will be coordinated with the BLM and NDEP.

Visual-1: All lights within the Project Area will be directed downward to minimize visual impacts at night to traffic or residences (Lyon County SUP requirement).

Geology-1: The operator shall prepare a Topsoil Salvage and Handling Plan for BLM approval prior to initiating operations on the public land. That plan shall insure that all available topsoil is salvaged ahead of extraction operations.

Geology-2: Topsoil stockpiles shall be located outside of natural drainage courses and seeded to promote revegetation and minimize erosion for the duration of operations.

APPEAL AND PETITION FOR STAY

If you do not agree and are adversely affected by this decision, in accordance with 43 CFR 3809.804, you may have the BLM State Director in Nevada review this decision. If you request a State Director review, the request must be received in the BLM Nevada State Office, 1340 Financial Blvd. 89502, P.O. Box 12000, Reno, Nevada 89520-0006, no later than 30 calendar days after you receive this decision. A copy of the request must also be sent to this office. The request must be in accordance with the provisions provided in 43 CFR 3809.805. If a State Director review is requested, this decision will remain in effect while the State Director review is pending, unless a stay is granted by the State Director.

If the Nevada State Director does not make a decision on whether to accept your request for review of this decision within 21 days of receipt of the request, you should consider the request declined and you may appeal this decision to the Interior Board of Land Appeals (IBLA). You then have 30 days in which to file your notice of appeal with the IBLA (see procedures below). If you wish to bypass the State Director review, this decision may be appealed directly to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4 and the enclosed Form 1842-1. If an appeal is taken, your notice of appeal must be filed in this office (Sierra Front Field Office, 5665 Morgan Mill Road, Carson City, Nevada 89701) within 30 days from receipt of this decision. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition pursuant to regulations 43 CFR 4.21 for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of this notice of appeal and petition for a stay must also be submitted to each party named in the decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied,
2. The likelihood of the appellant's success on the merits,
3. The likelihood of immediate and irreparable harm if the stay is not granted, and
4. Whether the public interest favors granting the stay.

Linda J. Kelly
Field Manager,
Sierra Front Field Office

2.16.10
Date

Enclosure: Form 1842-1

Form 1842-1
(September 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

INFORMATION ON TAKING APPEALS TO THE INTERIOR BOARD OF LAND APPEALS

DO NOT APPEAL UNLESS
1. This decision is adverse to you,
AND
2. You believe it is incorrect

IF YOU APPEAL, THE FOLLOWING PROCEDURES MUST BE FOLLOWED

1. NOTICE OF APPEAL..... A person served with the decision being appealed must transmit the notice of appeal in time for it to be filed in the office where it is required to be filed within 30 days after the date of service. If a decision is published in the FEDERAL REGISTER, a person not served with the decision must transmit a notice of appeal in time for it to be filed within 30 days after the date of publication (43 CFR 4.411 and 4.413).

2. WHERE TO FILE
NOTICE OF APPEAL..... Bureau of Land Management
5665 Morgan Mill Road, Carson City, NV 89701

WITH COPY TO SOLICITOR... Regional Solicitor, Pacific Southwest Region, U.S. Department of the Interior
2800 Cottage Way, Suite E2753, Sacramento, CA 95825

3. STATEMENT OF REASONS Within 30 days after filing the Notice of Appeal, File a complete statement of the reasons why you are appealing. This must be filed with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. If you fully stated your reasons for appealing when filing the Notice of Appeal, no additional statement is necessary (43 CFR 4.412 and 4.413).

WITH COPY TO SOLICITOR..... Regional Solicitor, Pacific Southwest Region, U.S. Department of the Interior
2800 Cottage Way, Suite E2753, Sacramento, CA 95825

4. ADVERSE PARTIES..... Within 15 days after each document is filed, each adverse party named in the decision and the Regional Solicitor or Field Solicitor having jurisdiction over the State in which the appeal arose must be served with a copy of: (a) the Notice of Appeal, (b) the Statement of Reasons, and (c) any other documents filed (43 CFR 4.413). If the decision concerns the use and disposition of public lands, including land selections under the Alaska Native Claims Settlement Act, as amended, service will be made upon the Associated Solicitor, Division of Land and Water Resources, Office of the Solicitor, U.S. Department of the Interior, Washington, D.C. 20240. If the decision concerns the use and disposition of mineral resources, service will made upon the Associated Solicitor, Division of Mineral Resources, Office of the Solicitor, U.S. Department of the Interior, Washington, D.C. 20240.

5. PROOF OF SERVICE..... Within 15 days after any document is served on an adverse party, file proof of that service with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. This may consist of a certified or registered mail "Return Receipt Card" signed by the adverse party (43 CFR 4.401(c)).

6. REQUEST FOR STAY..... Except where program-specific regulations place this decision in full force and effect or provide for an automatic stay, the decision becomes effective upon the expiration of the time allowed for filing an appeal unless a petition for a stay is timely filed together with a *Notice of Appeal* (43 CFR 4.21). If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Interior Board of Land Appeals, the petition for a stay must accompany your notice of appeal (43 CFR 4.21 or 43 CFR 2804.1). A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the *Notice of Appeal* and Petition for a Stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay. Except as other provided by law or other pertinent regulations, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards: (1) the relative harm to the parties if the stay is granted or denied, (2) the likelihood of the appellant's success on the merits, (3) the likelihood of immediate and irreparable harm if the stay is not granted, and (4) whether the public interest favors granting the stay.

Unless these procedures are followed your appeal will be subject to dismissal (43 CFR 4.402). Be certain that all communications are identified by serial number of the case being appealed.

NOTE: A document is not filed until it is actually received in the proper office (43 CFR 4.401(a)). See 43 CFR Part 4, subpart b for general rules relating to procedures and practice involving appeals.

(Continued on page 2)

43 CFR SUBPART 1821--GENERAL INFORMATION

Sec. 1821.10 Where are BLM offices located? (a) In addition to the Headquarters Office in Washington, D.C. and seven national level support and service centers, BLM operates 12 State Offices each having several subsidiary offices called Field Offices. The addresses of the State Offices can be found in the most recent edition of 43 CFR 1821.10. The State Office geographical areas of jurisdiction are as follows:

STATE OFFICES AND AREAS OF JURISDICTION:

Alaska State Office ---------- Alaska
Arizona State Office --------- Arizona
California State Office ------- California
Colorado State Office -------- Colorado
Eastern States Office --------- Arkansas, Iowa, Louisiana, Minnesota, Missouri
and, all States east of the Mississippi River
Idaho State Office ---------- Idaho
Montana State Office --------- Montana, North Dakota and South Dakota
Nevada State Office ---------- Nevada
New Mexico State Office ---- New Mexico, Kansas, Oklahoma and Texas
Oregon State Office ---------- Oregon and Washington
Utah State Office ---------- Utah
Wyoming State Office -------- Wyoming and Nebraska

(b) A list of the names, addresses, and geographical areas of jurisdiction of all Field Offices of the Bureau of Land Management can be obtained at the above addresses or any office of the Bureau of Land Management, including the Washington Office, Bureau of Land Management, 1849 C Street, NW, Washington, DC 20240.

(Form 1842-1, September 2005)

ENVIRONMENTAL ASSESSMENT

SPRING VALLEY MINE EXPANSION

DOI-BLM-NV-C020-2010-0007-EA

Lyon County, Nevada

December 2009

BLM

Sierra Front Field Office, Nevada

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

DOI-BLM-NV-C020-2010-0007-EA

Table of Contents

1 INTRODUCTION/PURPOSE & NEED 1
1.1 Introduction 1
1.2 Purpose & Need 1
1.3 Land Use Plan Conformance Statement 2
2 PROPOSED ACTION AND ALTERNATIVES 3
2.1 Proposed Action 3
2.1.1 Background and Location 3
2.1.2 Exploration 3
2.1.3 Mining 9
2.1.4 Processing 10
2.1.5 Reclamation 10
2.2 No Action Alternative 10
3 AFFECTED ENVIRONMENT 12
3.1 Scoping and Issue Identification 12
3.2 Proposed Action 12
3.2.1 General Setting 12
3.2.2 Supplemental Authorities 12
3.2.3 Resources or Uses Other Than Supplemental Authorities 13
3.3 RESOURCES PRESENT AND BROUGHT FORWARD FOR ANALYSIS 15
3.3.1 Air Quality 15
3.3.2 Cultural Resources 16
3.3.3 Invasive, Non-native Species 18
3.3.4 Migratory Birds 18
3.3.5 Native American Religious Concerns 19
3.3.6 Wastes, Hazardous or Solid 19
3.3.7 Water Quality (Ground/Surface) 19
3.3.8 Visual Resources 23
3.3.9 Noise 27
3.3.10 Soils/Geology/Minerals 28
3.3.11 Wildlife – General 29
3.3.12 Special Status Species – BLM Sensitive Species 29
3.4 Alternatives 30
4 ENVIRONMENTAL CONSEQUENCES 31
4.1 Proposed Action 31
4.1.1 Air Quality 31
4.1.2 Cultural Resources 31
4.1.3 Invasive, Non-native Species 32
4.1.4 Migratory Birds 32
4.1.5 Native American Religious Concerns 33
4.1.6 Wastes, Hazardous or Solid 33
4.1.7 Water Quality (Ground/Surface) 34
4.1.8 Visual Resources 35
4.1.9 Noise 36
4.1.10 Soils/Geology/Minerals 36
4.1.11 Wildlife – General 37
4.1.12 Special Status Species – BLM Sensitive Species 37
4.2 Alternatives 37
4.3 Mitigation Measures 37
4.4 Residual Impacts 39
4.5 Cumulative Impacts 39
4.6 Monitoring 40
5 CONSULTATION, COORDINATION AND PREPARATION 42
5.1 List of Preparers 42
5.2 Persons, Groups, or Agencies Consulted 42
6 REFERENCES 43

List of Tables

Table 2.1: Existing and Proposed Spring Valley Mine Components 8
Table 2.2: Production Schedule....9
Table 3.1: Supplemental Authorities in the Project Area 13
Table 3.2: Resources or Uses Other Than Supplemental Authorities in the Project Area....14
Table 3.3: 2001 EPA Emissions Report, Lyon County, Nevada 16
Table 3.4: Visual Resource Management Classes 23

List of Figures

Figure 1 - Location/Vicinity Map....4
Figure 2 - Project Area and Land Status....5
Figure 3 - Existing Disturbance and Facilities Map 6
Figure 4 - Final Disturbance Extents 7
Figure 5 - Well Sites and Numbers....11
Figure 6 - Area of Potential Effect....17
Figure 7 - Surface Water and Flow....21
Figure 8 - Project Area Fault Locations....22
Figure 9 - Land Use and Transportation Corridors....25
Figure 10 - Key Observation Points 26
Figure 11 – Cumulative Effect Study Area....41

List of Appendices

Appendix A – Migratory Birds – Species of Concern – USFWS Response to Species List Request
Appendix B – Visual Resource Worksheets
Appendix C – Wildlife Habitat Types
Appendix B – BLM Sensitive Species

CHAPTER 1

INTRODUCTION/PURPOSE & NEED

1.1 INTRODUCTION

Geo-Nevada, Inc. (Geo-Nevada) is proposing to expand their Spring Valley Mine (Proposed Action) on to public land administered by the Bureau of Land Management (BLM), Sierra Front Field Office. Geo-Nevada has maintained mining and processing operations on their patented mining claims (private land) in accordance with the State of Nevada Division of Environmental Protection (NDEP). Geo-Nevada has also conducted exploration on un-patented mining claims on the adjacent public land under a bonded Notice of Intent (NOI) number N-77527 administered by the BLM. Geo-Nevada now intends to expand their mining activities onto the public lands.

The Proposed Action is described in the Spring Valley Mine Plan of Operations (BLM Serial No. N-83297), Reclamation Plan and Permit Application dated June 2007. The Spring Valley Mine consists of a small-scale mining operation including removal of waste rock and precious metal resources from open pits on public and private land, and processing precious metal resources solely on their own private land. The estimated life of the Proposed Action is three to six years, or more depending on the identification of additional resources. The Proposed Action would increase the total permitted surface disturbance at the Spring Valley Mine from approximately 12 acres to just over 23 acres.

Authorizing actions by the BLM must comply with requirements of the National Environmental Policy Act (NEPA) of 1969. The BLM has determined that an Environmental Assessment (EA) would be prepared to analyze potential effects of the Proposed Action, in compliance with NEPA. The EA follows regulations promulgated by the Council on Environmental Quality for implementing the procedural provisions of NEPA (40 CRF 1500-1508) and the BLM NEPA Handbook (H-1790-1).

1.2 PURPOSE & NEED

The Proposed Action would allow Geo-Nevada to expand mining operations at the Spring Valley Mine on to public land administered by the BLM. The Proposed Action includes: 1) expanding two open pits; 2) further development of existing waste rock dumps; 3) constructing rapid infiltration basins; 4) improving existing access routes; and, 5) conducting exploration drilling. The need for the Proposed Action is to facilitate the exploration, development and mining of locatable mineral resources from patented and un-patented mining claims on private and public land, respectively.

1.3 LAND USE PLAN CONFORMANCE STATEMENT

The Proposed Action and alternatives described below are consistent with the Carson City Field Office (CCFO) Consolidated Resource Management Plan (CRMP) page MIN-1 (BLM, 2001). The CRMP guides management of the BLM managed public lands under the jurisdiction of the Carson City Field Office. The CRMP provides the BLM with the authority over the subsurface mineral rights on these lands. Surface management regulations at 43 CFR §3809 require operators to submit a Plan of Operations and obtain BLM's approval before beginning operations greater than casual use on the public land.

It is the policy of the Department of the Interior, consistent with Section 2 of the Mining and Mineral Policy Act of 1970 (MMPA) and Sections 102(a) (7), (8) and (12) of Federal Land Policy Management Act (FLPMA), to encourage the development of mineral resources on federally managed lands. Under the mining laws a person has a statutory right, consistent with Departmental regulations, to go upon the open (unappropriated and unreserved) federal lands for the purpose of mineral prospecting, exploration, development, extraction and other uses reasonably incident thereto. This statutory right carries with it the responsibility that operations include adequate and responsible measures to prevent unnecessary or undue degradation of the federal lands and to provide for reasonable reclamation.

Mineral exploration and production occurring all or in part on the public land under authorization from BLM, are subject to terms and stipulations to comply with all applicable Federal, state and local laws pertaining to various considerations for sanitation, water quality, wildlife, safety, and reclamation. Stipulations may be site specific and are derived from the environmental analysis process. Plans of operation will be examined for conformance with the land use plan and analyzed as required by NEPA as part of the approval process.

CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

2.1.1 BACKGROUND AND LOCATION

Geo-Nevada proposes to expand current mining operations at the existing Spring Valley Mine (Figure 1). The Spring Valley Mine is located approximately 1.5 miles north of U.S. Highway 50 (US 50) along State Route 341 (SR 341) in the historic Spring Valley Mining District (also referred to as the South Comstock/Devil's Gate/Chinatown Mining District) within Sections 20, 21 and 28, Township 16 N., Range 21 E., Mount Diablo Baseline & Meridian (MDB&M). The Spring Valley Mining District, once an active lode and placer gold mining district, is located south of Silver City, in Lyon County, Nevada. The area has been extensively disturbed by mining, prospecting and exploration activities, which began in the late 1800's and continues to the present day. Geo-Nevada is currently permitted by NDEP to operate the existing mine and process facilities under Water Pollution Control Permit (No. NEV2003112) and Reclamation Permit (No. 0187).

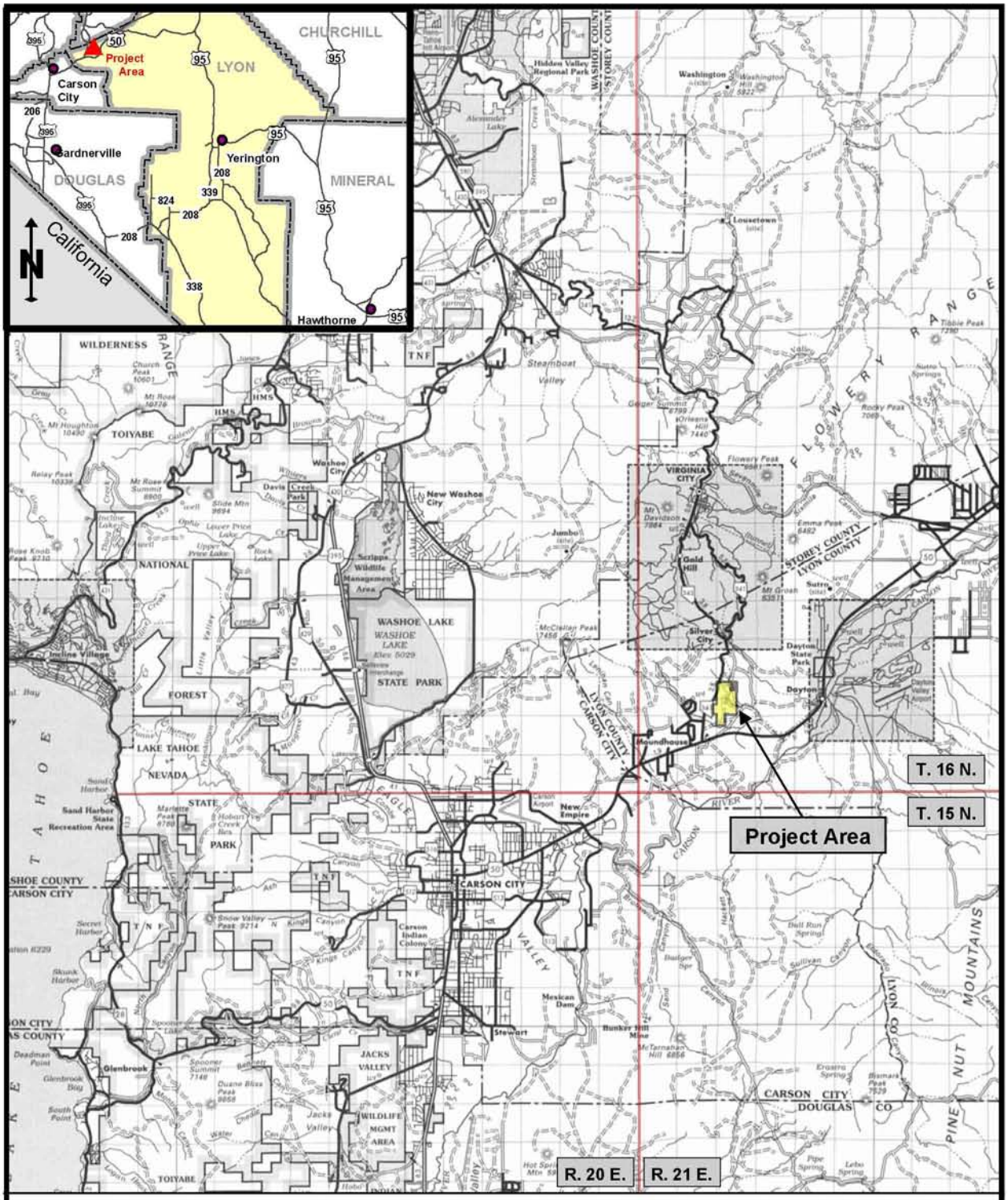
The Proposed Action would allow for the continuation of exploration, mining and processing related activities on two patented mining claims owned by Geo-Nevada and seventeen adjacent unpatented mining claims (claim block) on public lands administered by the BLM. Figure 2 illustrates the claim block (project area) boundary and land status. The primary objective of the Spring Valley Mine Expansion project is to expand the existing West and Lund Pits and to continue to explore adjacent claims to identify potential resource opportunities. The expected mine life is three to six years through reclamation depending on the outcome of future exploration. Total surface disturbance within the project area from the Proposed Action is expected to increase from approximately 12 acres to just over 23 acres, with approximately 10.4 acres on public (unpatented) and 12.7 acres on private (patented) land.

The existing and proposed mine components for the Spring Valley Mine are identified in Table 2.1. Figure 3 illustrates the existing facilities. Figure 4 illustrates the relationship between the existing facilities, the proposed Lund and West Pit expansions, and exploration target areas.

2.1.2 EXPLORATION

Geo-Nevada intends to continue exploring for economic mineral resources within the project area concurrent with mining and processing operations. Geo-Nevada has identified five exploration targets within areas of known mineralization between or adjacent to the existing ore bodies. Existing access roads within the project area would be used for exploration to the extent possible.

The majority of the exploration activities under the Proposed Action would be completed using cross-country travel to minimize new road construction and associated surface disturbance. Cross-country routes used on a repetitive basis would be considered disturbed and are included in disturbance estimates. Disturbance associated with repetitive use would include vegetation



NATIONAL SYSTEM OF PUBLIC LANDS

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may by updated without notification.

SCALE

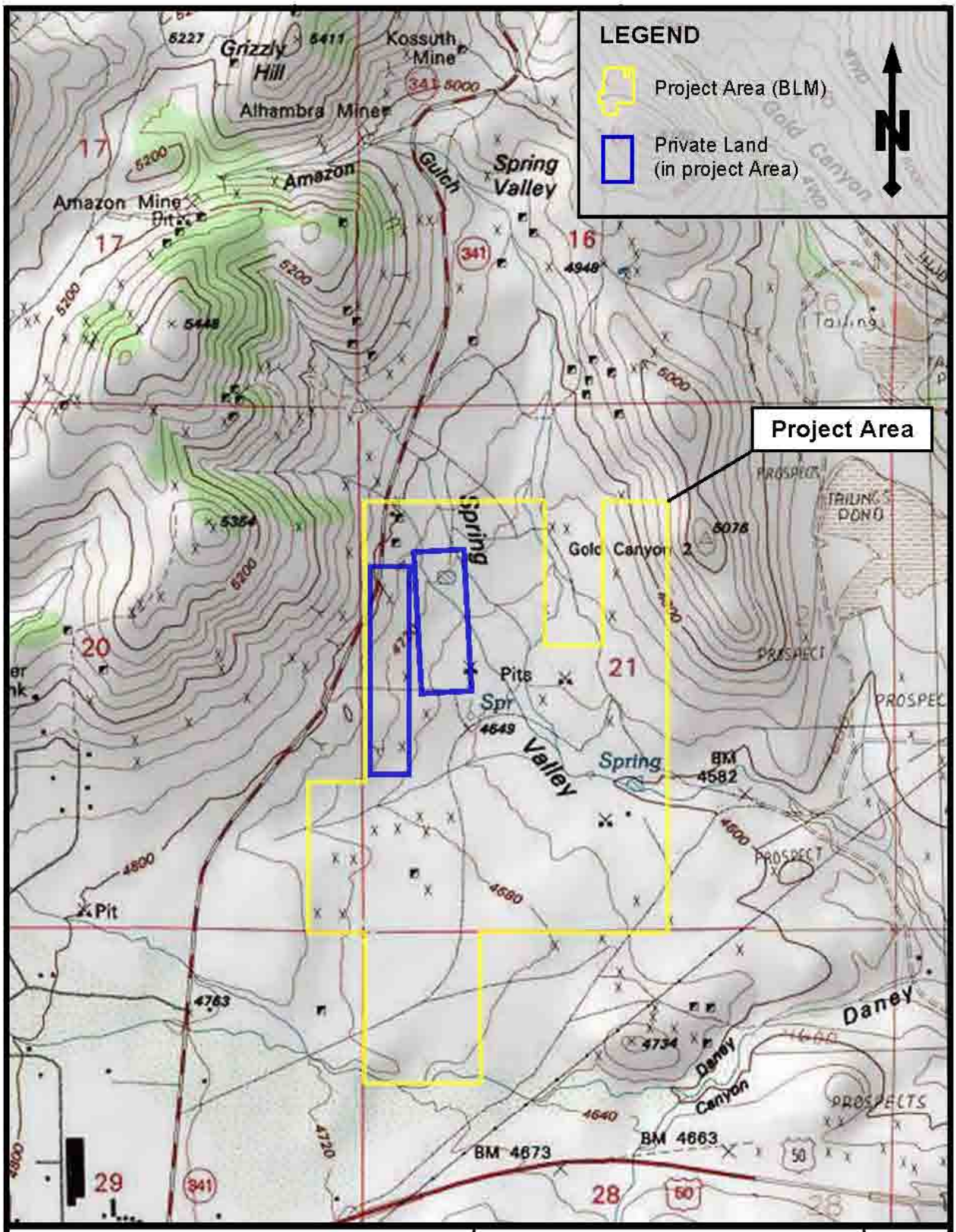
2 0 2 Miles

CARSON CITY DISTRICT OFFICE
Sierra Front Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701

LOCATION/VICINITY MAP
SPRING VALLEY MINE EXPANSION
Lyon County, Nevada

Figure 1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED
NAS	N-83297	DBE	5/03/07	12/01/09



SCALE	PROJECT AREA AND LAND STATUS SPRING VALLEY MINE PROJECT Lyon County, Nevada	Figure 2
0.25 0 0.25 Mile		

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED
NAS	N-83297	DBE	6/6/08	11/18/09

Legend

- Existing Private Disturbance
- Existing Public Disturbance
- Patented Claims (private)
- Unpatented Claims

Scale

0 125 250 500 Feet

1:4,800

Base: USGS DOQQ, 2006

N

NATIONAL SYSTEM OF PUBLIC LANDS

CARSON CITY DISTRICT OFFICE
Sierra Front Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may by updated without notification.

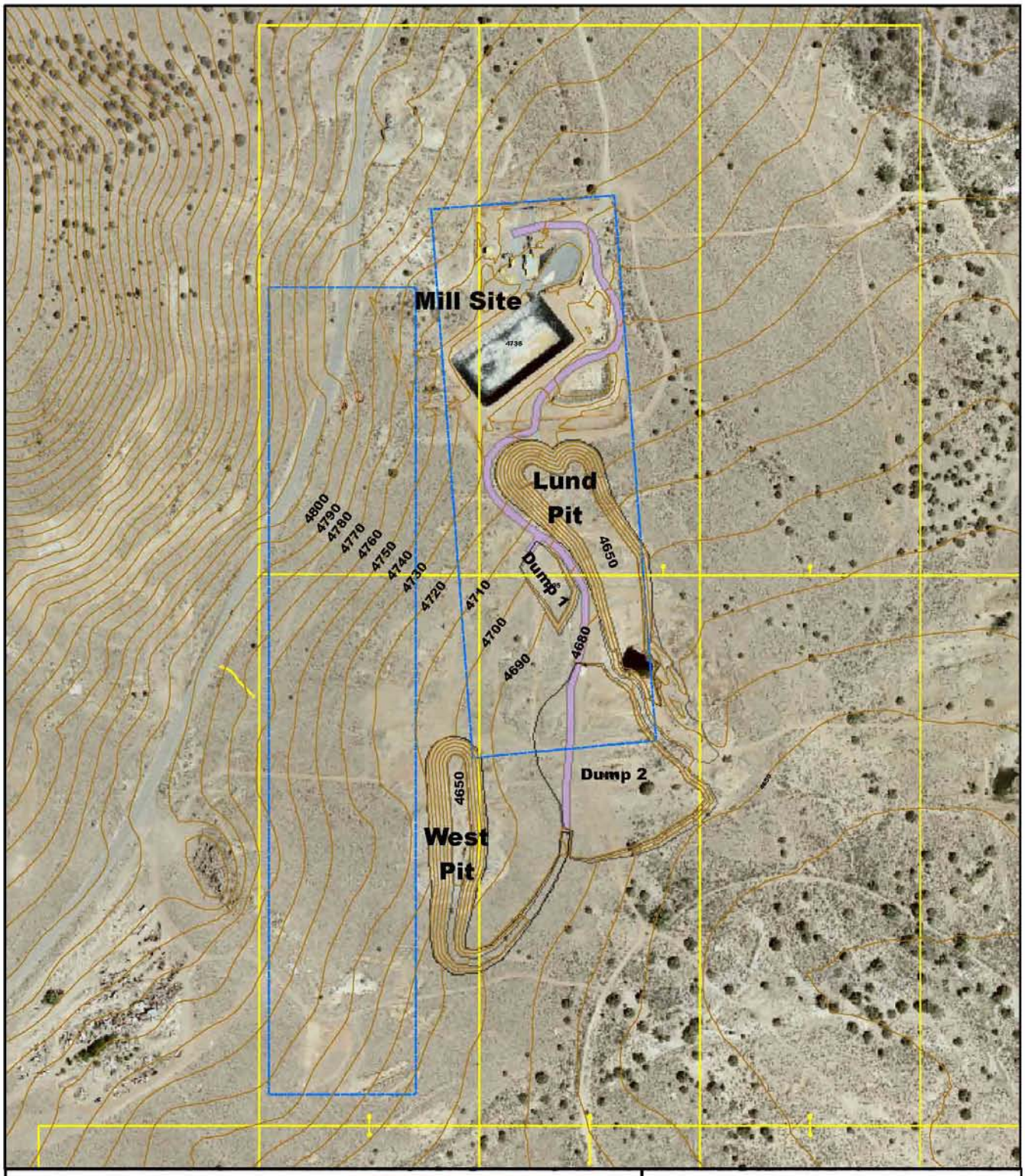
BUREAU OF LAND MANAGEMENT

SPRING VALLEY MINE EXPANSION
LYON COUNTY, NEVADA

EXISTING DISTURBANCE AND FACILITY MAP

Figure 3

11/20/2009



Legend

- Patented Claims (private)
- Unpatented Claims
- Final Haulroad
- Contour Line (10' interval)

Scale

0 125 250 500 Feet

1:4,800

Base: USGS DOQQ, 2006

N

NATIONAL SYSTEM OF PUBLIC LANDS

CARSON CITY DISTRICT OFFICE
Sierra Front Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may by updated without notification.

BUREAU OF LAND MANAGEMENT

SPRING VALLEY MINE EXPANSION
LYON COUNTY, NEVADA

FINAL DISTURBANCE EXTENTS

Figure 4

11/20/2009

removal and creation of surface disturbance through the creation of "two-track access routes". Table 2.1 shows the proposed acres of disturbance by exploration target block.

Table 2.1: Existing and Proposed Spring Valley Mine Components

Existing Facilities Description	Private Land Acres	Public Land Acres	Total Acreage
Lund Pit	1.14	0.65	1.79
Lund Pit Extension	0.43	-	0.43
West Pit	-	1.49	1.49
Dump 1	0.07	-	0.07
Exploration	0.62	-	0.62
Existing Haulroad	0.53	0.03	0.56
Topsoil Stockpile 1	-	0.34	0.34
Mill Site*	6.56	0.33	6.89
Total Existing Disturbance	**9.35**	**2.84**	**12.19**
Proposed Facilities Description	**Private Land Acres**	**Public Land Acres**	**Total Acreage**
Lund Pit	3.00	0.71	3.71
West Pit	-	2.93	2.93
Dump1	0.50	-	0.50
Dump2	1.23	2.53	3.76
Exploration	1.05	-	1.05
Final Haulroad	0.37	-	0.37
Topsoil Stockpile 1	-	0.22	0.22
Topsoil Stockpile 2	-	0.87	0.87
Mill Site*	6.56	0.33	6.89
Southern Exploration Areas			
Geophysical (Target Area)	-	0.53	0.53
Norex (Target Area)	-	0.56	0.56
S. West Pit (Extension Area)	-	0.56	0.56
S. Lund Pit (Extension Area)	-	0.46	0.46
Sheridan (Outcrop Area)	-	0.71	0.71
Total Final Disturbance	**12.71**	**10.41**	**23.12**

* The Mill Site includes the ore stockpile, water tank, water well, crusher, gravity concentration plant, mill building, and office/lab components.

New exploration road construction disturbance under the Proposed Action would be minor dozer blading (preferred construction improvement technique). Cut and fill road construction techniques are not anticipated. Culverts would not be required in drainage areas due to the shallow grades. Low water crossings or sediment traps would be constructed at drainage crossings as needed to inhibit soil erosion runoff and down-gradient sediment deposition. Construction of low water crossings or sediment traps would be coordinated with the BLM and NDEP.

2.1.3 MINING

Mining operations under the Proposed Action are expected to operate year-round for approximately three to six years based on existing resource estimates. Mining activities would occur during daylight hours, five days a week (Monday thru Friday) for the duration of a single ten-hour shift. The processing facility would operate on the same schedule. Additional activities include a 24-hour on-site security guard, and access restrictions around open mine pits and haul routes. Table 2.2 presents the annual anticipated production schedule.

Table 2.2: Production Schedule

Year	Ore Produced (tons)*
2010	3,000
2011	11,000
2012	11,000
2013	11,000

*Current exploration indicates a probability that project life could be extended

Conventional open pit mining methods of ripping, loading and truck hauling would be used. If required, ore would be conventionally drilled and blasted on 10-foot benches. The ore would be loaded with a front-end loader into end dump trucks for hauling to the crushing plant. Geo-Nevada's equipment would consist of one each Cat 930 front-end loader, Case 580 backhoe, Cat D-8 bulldozer, and a Hitachi EX150 excavator; and three each 10-ton end dump style haul trucks and two half-ton pick-up trucks.

Under the Proposed Action, the Lund Pit would expand from 2.2 acres to approximately 3.7 acres in size, with approximately 3.0 acres on private land and 0.7 acres would be on public land. The West Pit, situated entirely on public land, would expand from 1.5 acres to approximately 2.9 acres in size. Geo-Nevada would continue to maintain the existing haul routes which connect the Lund and West Pits to the existing gravity concentration plant on private land.

Current estimates indicate that approximately 100,000 tons of waste rock would be generated from the Lund and West Pits under the Proposed Action. Geo-Nevada proposes to add that material to the two existing waste rock dumps adjacent to the Lund and West Pits, respectively. Geo-Nevada estimates that the total area occupied by the Lund and West Pit waste rock dumps would increase to approximately 4.3 acres.

The Lund Pit currently encounters ground water in the central area of the pit. The pit water has been monitored and found to be of excellent quality. Ground water is also expected in the West Pit. Ground water encountered during mining would be pumped to rapid infiltration basins (RIBs) to minimize impacts to regional ground-water levels. The proposed use of RIBs for handling effluent from the anticipated dewatering in both mine pits is currently under review by NDEP.

2.1.4 PROCESSING

Current plans call for the processing of 6,000 to 10,000 tons of stockpiled run-of-mine ore as well as approximately 40,000 tons of new mined ore from the Lund and West Pit expansions. Under the Proposed Action the process facilities generally would remain as currently permitted and approved by NDEP. The current 60 ton-per-day processing facility uses a gravity separation process to beneficiate the ore. No chemical processing is planned.

An existing well would provide make-up water for the gravity processing facility. That well is located on private land approximately 150 feet west of the processing facility (see Figure 5) and is operated under State of Nevada permits 39844 and 43065. The well has a depth of approximately 200 feet and a current static water-level of 107 feet below ground surface (4,650 above mean-sea-level).

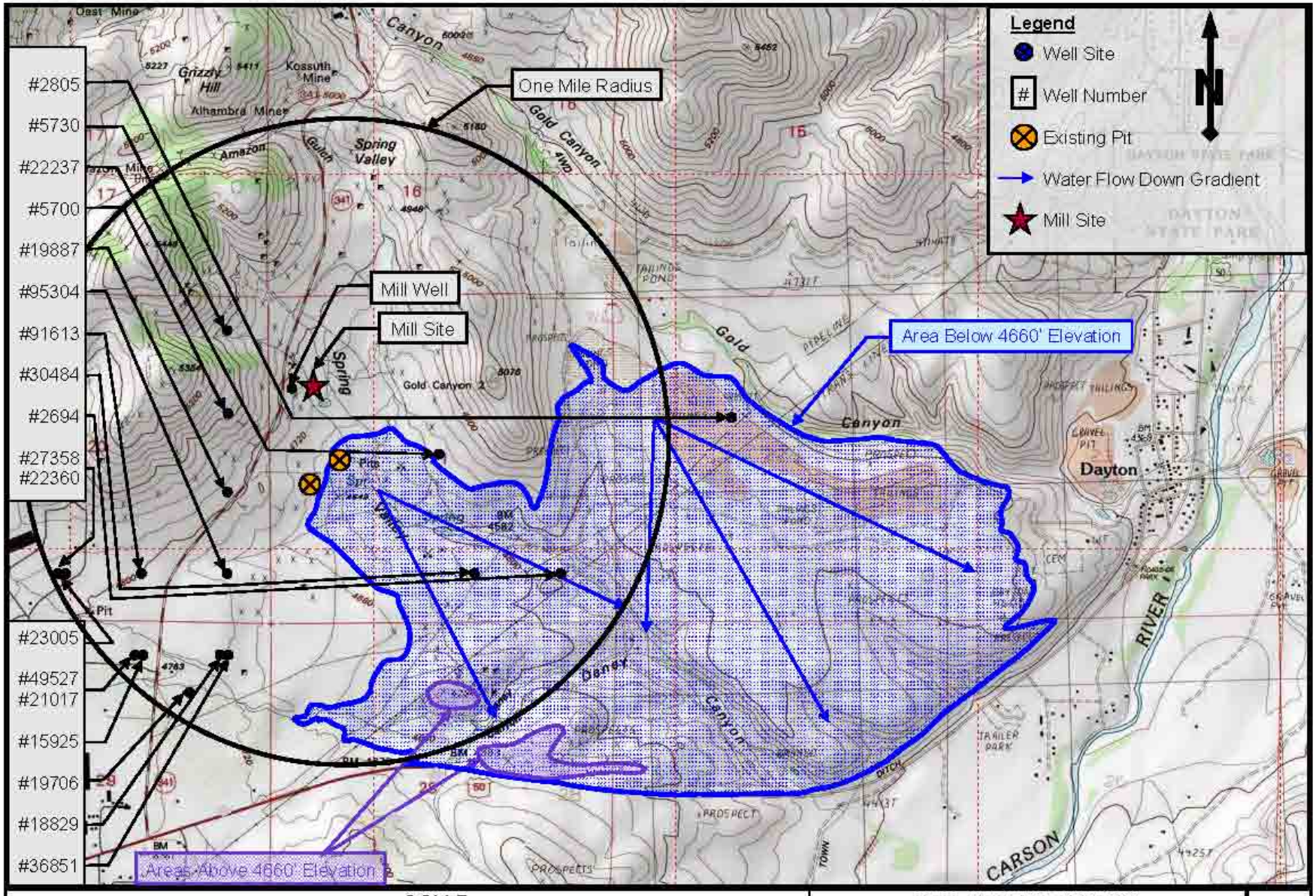
2.1.5 RECLAMATION

Concurrent reclamation will begin as mining progresses from the Lund pit to the West pit. At that time, waste rock from the West pit would be placed into the Lund pit to raise the floor to a level higher than the level of standing water in the pit. Similarly, if ground water is encountered in the process of advancing the West pit, stockpiled waste rock would be placed in the West pit as backfill to raise the floor of that pit above standing water. The advantages of partial pit backfilling include minimizing post mine visual impacts, and increasing public safety as well as post-mining land productivity.

Final reclamation would consist of removing and disposing of buildings and equipment, removing and recontouring ponds and impoundments, recontouring waste rock dumps and the mine roads between the mine pits and processing area. These activities would be followed up with replacing the available stockpiled topsoil where appropriate and seeding all reclaimed areas with a diverse perennial seed mix.

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the BLM would not approve a Plan of Operations for the proposed mining project. As a result, Geo-Nevada would be unable to conduct further mining and exploration activities on the public land as outlined in the Proposed Action. Potential impacts predicted to result from the Proposed Action would not be realized. Geo-Nevada could continue to conduct mining and processing operations on their private (patented) land as authorized with Reclamation Permit No. 0187, and because exploration disturbance and reclamation on the adjacent public land as acknowledged under NOI number N-77527.



SCALE

0.5 0 0.5 Miles

WELL SITES AND NUMBERS
SPRING VALLEY MINE PROJECT
Lyon County, Nevada

Figure **5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NAS	N-83297	DBE	05/21/2007	12/03/2009

CHAPTER 3

AFFECTED ENVIRONMENT

This chapter identifies and describes the current condition and trend of elements or resources in the human environment which may be affected by the Proposed Action or Alternatives.

3.1 SCOPING AND ISSUE IDENTIFICATION

Internal scoping was conducted on April 23, 2007 with the Carson City Field Office Interdisciplinary Team. At that time, no issues were identified.

External (Public) scoping was conducted during the 30-day public scoping period which commenced on November 2, 2007. In addition, public comment was solicited on November 13, 2007, during a Lyon County Public Hearing on the Spring Valley Mine Expansion Special Use Permit (SUP). Issues of concern identified during public scoping include: Ground-water impacts, hours of operation, and public notification requirements associated with the NEPA process.

3.2 PROPOSED ACTION

3.2.1 GENERAL SETTING

The project area for the Proposed Action is located midway between the head of Spring Valley and its confluence with Daney Canyon, approximately one mile to the southeast (Figure 2). The terrain consists of shallow valley bottoms bound to the east and west by moderate hillside slopes. Elevations within the project area range from 4,920-4,640 feet above mean sea level. Both pinyon-juniper and sagebrush vegetation communities are observed in the project area. At the location of current operations, Spring Valley is approximately 350-600 feet deep and 0.5 mi wide. It lies between a hilly ridgeline, extending south from Grizzly Hill to the east, and a prominent, steep hill forming the divide between Spring Valley and Gold Canyon. The Spring Valley and Daney Creek drainages are tributaries of the Carson River, and empty into the Carson River approximately two miles southeast of the project area. Climate is semi-arid with an average annual precipitation of approximately 10 inches per year.

3.2.2 SUPPLEMENTAL AUTHORITIES

Appendix 1 of BLM's NEPA Handbook (H-1790-1) identifies Supplemental Authorities that are subject to requirements specified by statute or executive order and must be considered in all BLM environmental documents. Table 3.1 lists the Supplemental Authorities and their status in the project area. Supplemental Authorities that may be affected by the Proposed Action are further described in this EA.

Table 3.1: Supplemental Authorities in the Project Area

Supplemental Authority	Not Present *	Present/Not Affected *	Present/May Be Affected**	The following rationale was used to determine that Supplemental Authorities present in the area would not be affected as a result of implementation of the Proposed Action.
Air Quality			√	Carried through EA.
Areas of Critical Environmental Concern	√			
Cultural Resources			√	Carried through EA.
Environmental Justice	√			
Farm Lands (prime or unique)	√			
Fish Habitat	√			
Floodplains	√			
Invasive, Nonnative Species			√	Carried through EA.
Migratory Birds			√	Carried through EA.
Native American Religious Concerns			√	Carried through EA.
Threatened or Endangered Species	√			There are no federally listed species on the project site per USFWS (2008) letter in Appendix A.
Wastes, Hazardous or Solid			√	Carried through EA.
Water Quality (Surface/Ground)			√	Carried through EA.
Wetlands/Riparian Zones	√			
Wild and Scenic Rivers	√			
Wilderness	√			

**Supplemental Authorities determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.*
***Supplemental Authorities determined to be Present/May Be Affected must be carried forward in the document.*

3.2.3 RESOURCES OR USES OTHER THAN SUPPLEMENTAL AUTHORITIES

The following resources or uses, which are not Supplemental Authorities as defined by BLM's Handbook H-1790-1, are present in the area. BLM specialists have evaluated the potential impact of the Proposed Action on these resources and documented their findings in Table 3.2 below. Resources or uses that may be affected by the Proposed Action are further described in this EA.

Table 3.2: Resources or Uses Other Than Supplemental Authorities in the Project Area

Resource or Issue	Not Present *	Present/Not Affected*	Present/May Be Affected**	The following rationale was used to determine that resources present in the area would not be affected as a result of implementation of the Proposed Action or Alternatives.
Recreation		√		No designated BLM recreation areas reside within the project area. Active mine areas associated with the Proposed Action would be closed to the public for safety reasons. Alternative access routes currently exist and would remain to facilitate access to the public land surrounding the active mining operation.
Socio-Economics		√		Impacts to area communities from the Spring Valley Mine Expansion are expected to be minimal and positive in nature with no negative impacts expected. The expansion of the Spring Valley Mine would not alter the adjacent community's socio-economics in a significant manner.
Wild Horses		√		Wild horses occur throughout Lyon County and could occur within or adjacent to the Proposed Action. The Proposed Action would not affect wild horses that occur in the area, these animals are accustomed to area residents, and activities associated with human presence including mining and traffic.
Traffic		√		Hauling of ore and waste rock would occur on haul roads closed to public use. No hauling would occur on public roads. Increase in traffic on public roads from deliveries or employees traveling to and from the mine would be minimal.
Visual Resources			√	Carried through EA.
Noise			√	Carried through EA.
Soils/Geology/Minerals			√	Carried through EA.
Wildlife - General			√	Carried through EA.
Wildlife – Game Sp		√		No game species habitat occurs in or near the project area due to the long-term high level of human activity and disturbance. An occasional bear or mountain lion could be seen traveling through. Mule deer may access the Carson River through Spring Valley.
Special Status Species– BLM Sensitive Species			√	Carried through EA.

**Resources or uses determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.*
***Resources or uses determined to be Present/May Be Affected must be carried forward in the document.*

3.3 RESOURCES PRESENT AND BROUGHT FORWARD FOR ANALYSIS

The following resources are present in the area and may be affected by the Proposed Action.

Air Quality

Cultural Resources

Invasive, Non-native Species

Migratory Birds

Native American Religious Concerns

Wastes, Hazardous or Solid

Water Quality (Ground/Surface)

Visual Resources

Noise

Soils/Geology/Minerals

Wildlife – General Wildlife Species

Special Status Species – BLM Sensitive Species

3.3.1 AIR QUALITY

Climate

The project area is located at the southern end of the Virginia Range in Lyon County, Nevada. Winter average temperatures range from a low of 25 degrees Fahrenheit (F) to a high of 42 degrees F. Summer average temperatures range from a low of 56 degrees F to a high of 80 degrees F. The average diurnal temperature variation is about 20 degrees F, but daily average variations of up to 25 degrees F are not uncommon in the late summer months (DRI, 2008). Average annual precipitation is approximately 10 inches.

Air Quality

The NDEP operates a network of air quality monitors throughout Nevada. The station closest to the project area is located in Carson City, approximately 10 miles west of the project area. Lyon County meets the Nevada air quality standards and has no non-attainment criteria pollutants (NDEP, 2003).

The arid climate allows for the development of dust storms. The US EPA report on Lyon County (EPA, 2001) finds carbon monoxide (CO) and fine particulate matter (PM10) to be the emissions with the highest concentrations in the county although none are in non-attainment. Table 3.3 summarizes the EPA information report. The highest carbon monoxide (CO) is from vehicles and the fine particulate matter (PM10) is primarily fugitive dust.

Table 3.3: 2001 EPA Emissions Report, Lyon County, Nevada

Source Category	Annual (tpy)					OSD (tpd)	
	VOC	NO_x	CO	SO_2	PM_{10}	VOC	NO_x
Electrical Utility Fuel Combustion	42	2,471	516	74	3	0	0
Industrial Fuel Combustion	1	27	5	85	2	0	0
Other Fuel Combustion	137	63	731	11	87	0	0
Metals Processing	0	0	0	0	379	0	0
Other Industrial Processes	0	3,213	0	317	1,949	0	10
Solvent Utilization	590	0	0	0	0	2	0
Storage and Transport	92	0	0	0	4	0	0
Waste Disposal and Recycling	47	8	218	1	34	0	0
Highway Vehicles	1,161	1,878	11,304	71	82	4	5
Off-Highway	263	736	1,790	94	55	1	3
Natural Sources	0	0	0	0	0	0	0
Miscellaneous	8	5	145	0	8,424	0	0
Total Emissions	**2,341**	**8,401**	**14,710**	**652**	**11,019**	**8**	**26**

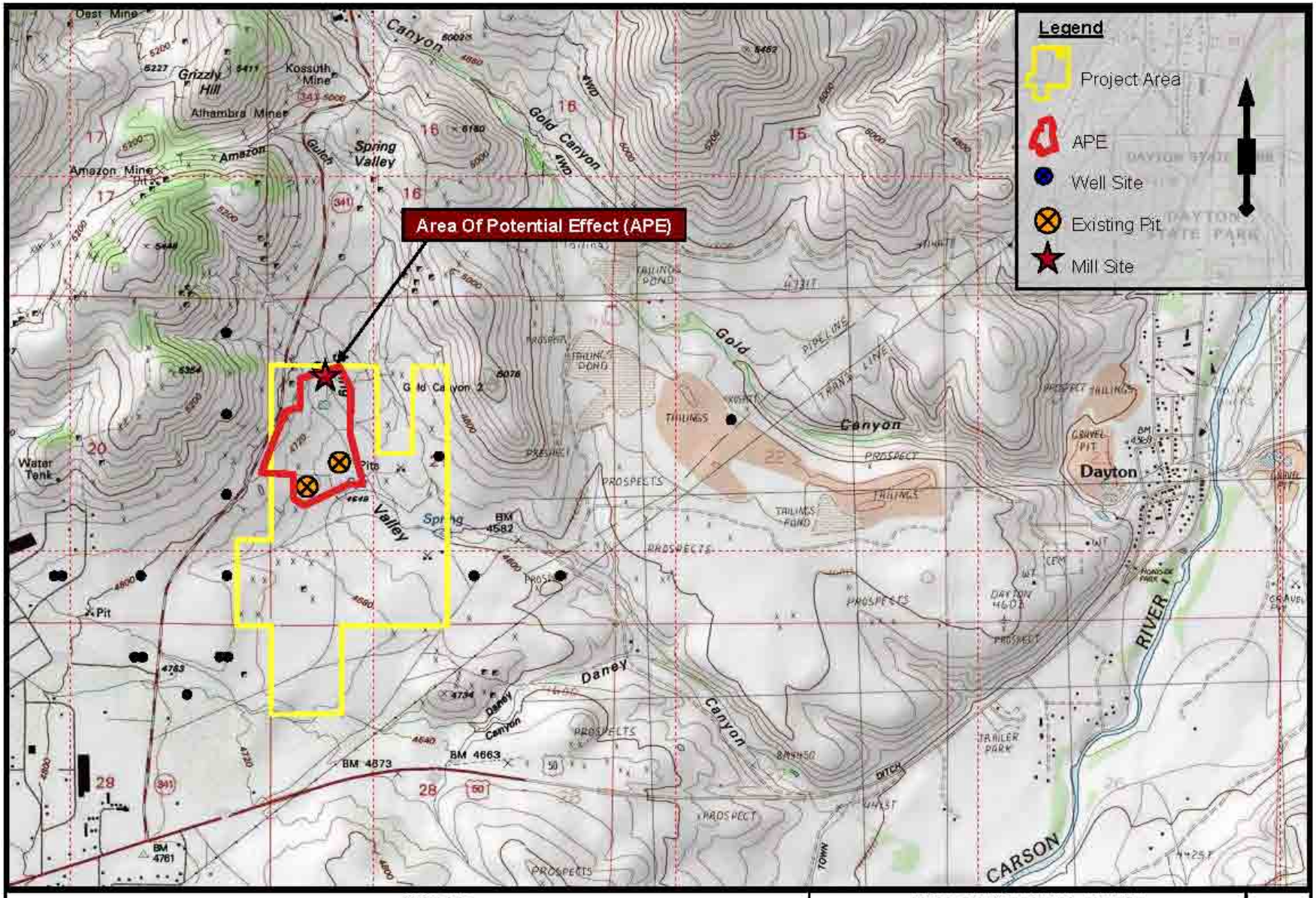
Definitions
OSD: Ozone season day ***Tpy:*** Tons per year ***Tpd:*** Tons per day ***VOC:*** Volatile organic compounds
NO_x: Oxides of nitrogen ***CO:*** Carbon monoxide ***SO_2:*** Sulfur dioxide ***PM_{10}:*** Particulate matter $\leq$ ten micrometers

Source: EPA Report, Lyon, County, 2001

3.3.2 CULTURAL RESOURCES

Following BLM regulations (43 CFR Part 8100) and other federal laws including the National Historic Preservation Act (16 USC § 470f) and it's implementing regulations (36 CFR Part 800), as amended, BLM reviewed the area surrounding the Proposed Action for historic properties. By definition, an historic property is a "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places" and includes "artifacts, records, and remains that are related to and located within such properties" (36 CFR 800.16(l)(1)).

A Class I cultural resource inventory was conducted to identify known resources in and immediately adjacent to the project area for the Proposed Action (Obermyer, 2007). Class I inventories are generally limited to research of all relevant data sources (BLM, 1989). Files were researched at BLM Carson City District Office and on the Nevada Cultural Resource Information System (NVCRIS, 2007). Other archival research included online examination of maps and documents at the University of Nevada, Reno, Special Collections and the Ansari Map Library. Nevada Bureau of Mines and Geology Bulletins reporting on Comstock mines and geology were also examined, as were General Land Office cadastral surveys, BLM Master Title Plats, and Mineral Survey maps. The Class I inventory found that twenty cultural resource projects have been conducted, and twenty-one archaeological sites were identified within one mile of the project area for the Proposed Action.



SCALE

0.5 0 0.5 Miles

AREA OF POTENTIAL EFFECT
SPRING VALLEY MINE PROJECT
Lyon County, Nevada

Figure **6**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NAS	N-83297	DBE	06/08/2008	12/03/2009

A Class III cultural resource inventory was conducted in late 2007 over the Area of Potential Effect (APE) in association with the Proposed Action (Obermyer, 2008). A Class III inventory is more thorough than a Class I inventory in that the Class III inventory includes a professionally conducted foot survey over a series of close interval parallel transects to locate and record all cultural resources having exposed indications in the APE (BLM, 1989). The APE in this case is defined as that portion of the project area within which surface disturbance is likely to occur in association the Proposed Action. The APE is illustrated in Figure 6, and excludes areas of potential future exploration causing disturbance on the public land within the project area for the Proposed Action. Those areas will be surveyed at a later date when exploration targets are known, and an amendment to the Plan of Operations is filed with BLM.

The Class III inventory identified four archaeological sites, two historic, and two having both historic and prehistoric components. Of the four historic archaeological sites identified, two are newly recorded. One newly recorded site is a segment of the Carson and Colorado Railroad that occurs outside the APE. The eligibility of that site for the National Register of Historic Places (NRHP) has not been evaluated. The prehistoric component of one archaeological site does fall within the APE and is considered eligible for the NRHP.

The Class III survey also identified 80 isolates. Isolates (either prehistoric or historic) consist of nine or less artifacts in a location that appears to reasonably reflect a single event, loci or activity. Seventy-nine of the isolates are historic and one is prehistoric.

3.3.3 INVASIVE, NON-NATIVE SPECIES

The proposed project area contains native plant species including pinyon and juniper trees, and sagebrush. Perennial plants remain the dominant vegetation where soils have not been disturbed. Invasive and non-native plant species are the dominant vegetation found in disturbed sites. Several young groves of wetland or phreatophyte trees -- cottonwoods and willows -- have grown in strongly in areas where earlier site disturbance (placer mining) had advanced close to the regional water table.

3.3.4 MIGRATORY BIRDS

On January 11, 2001, President Clinton signed Executive Order 13186 (Land Bird Strategic Project) placing emphasis on conservation and management of migratory birds. The species are not protected under the Endangered Species Act, but most are protected under the Migratory Bird Treaty Act of 1918. Management for these species is based on Instruction Memorandum – IM 2008-050 dated December 18, 2007. The species of concern that could occur in the general project area are shown in Appendix A.

There are no Important Bird Areas (IBA) associated with the general project area. There are no identified important wintering areas within the general project area (McIvor, 2005). Although the IBAs have no legal status, they do give an indication of concentrations of migratory birds.

The project site and general area has had vegetation disturbance since historic times. Intense human activity has been ongoing in the general area for many years. For this reason, existing bird habitat on the project site is low seral that would support only tolerant bird species. There are, however, stringers and pockets of pinyon/juniper and young cottonwoods along the Spring Valley drainage and the drainage on the south end of the project area. These areas with

developing cottonwoods are in the process of forming a quasi-riparian woodland association. As these sites develop, they will likely invite a greater number and diversity of bird species to the area. These areas are outside, but adjacent to the APE. In addition, the surrounding area contains natural vegetation in the form of shrubs, grasses and some small trees. Species associated with these habitat types could be seen on the site or might use the project site for certain activities.

3.3.5 NATIVE AMERICAN RELIGIOUS CONCERNS

In accordance with the NHPA, NEPA, FLPMA, the American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, and E.O. 13007, the BLM must provide affected tribes an opportunity to comment and consult on the Proposed Action. The BLM must attempt to limit, reduce, or possibly eliminate any negative impacts to Native American resources.

Native American resources are sites, areas, and materials important to Native Americans for religious, spiritual, or traditional reasons. These resources may include villages, burials, petroglyphs, rock features, or spring locations. Fundamental to Native American religions is the belief in the sacred character of physical places, such as mountain peaks, springs, or burials. Traditional rituals often prescribe the use of particular native plants, animals, or minerals. Activities that may affect sacred areas, their accessibility, or the availability of materials or natural resources used in traditional practices are also considered when evaluating these areas.

The following Tribes were notified of the proposed mine expansion project via certified letter on November 14, 2007: The Washoe Tribe of Nevada and California, and the Yerington Paiute Tribe. They were asked to identify traditional cultural places or any other areas of traditional cultural importance that need to be considered within the APE. This was followed by both telephone calls and face to face meetings from BLM staff. Comments or concerns regarding the proposed mine expansion were submitted to the BLM and documented during the consultation process which is ongoing.

3.3.6 WASTES, HAZARDOUS OR SOLID

Hazardous materials, hazardous waste, and solid waste are not normally considered to be part of the natural environment. These items are, rather, the result of human intrusion into the natural environment. This EA is concerned only with hazardous materials, hazardous waste, petroleum products, and solid waste used or generated by exploration, mining and processing activities resulting from the Proposed Action.

3.3.7 WATER QUALITY (GROUND/SURFACE)

Surface Waters

The project area is located in the Dayton Valley Hydrographic Area of the Carson River Basin. The major perennial drainage in the project vicinity is the Carson River which is located approximately two miles to the southeast.

Surface flow in the project area is generally southeast toward the floor of DaytonValley. The south slope of the Virginia Range, where the project is located, is cut by intermittent/ephemeral drainages. These drainages only carry surface flows during major precipitation events or

seasonal snow melt, with flows diminishing downslope on the alluvial apron due to infiltration and evaporation. Figure 7 illustrates surface water and flow.

There are some springs within the general project vicinity however there are no natural perennial surface water bodies located within the vicinity (one mile down gradient) of the project area. The Lund pit, located at the southeast corner of the APE, is the closest above ground water source within one-half mile of the mine site. It is approximately 45 feet deep and water depth in the pit fluctuates between 18 feet and 20 feet on a seasonal basis.

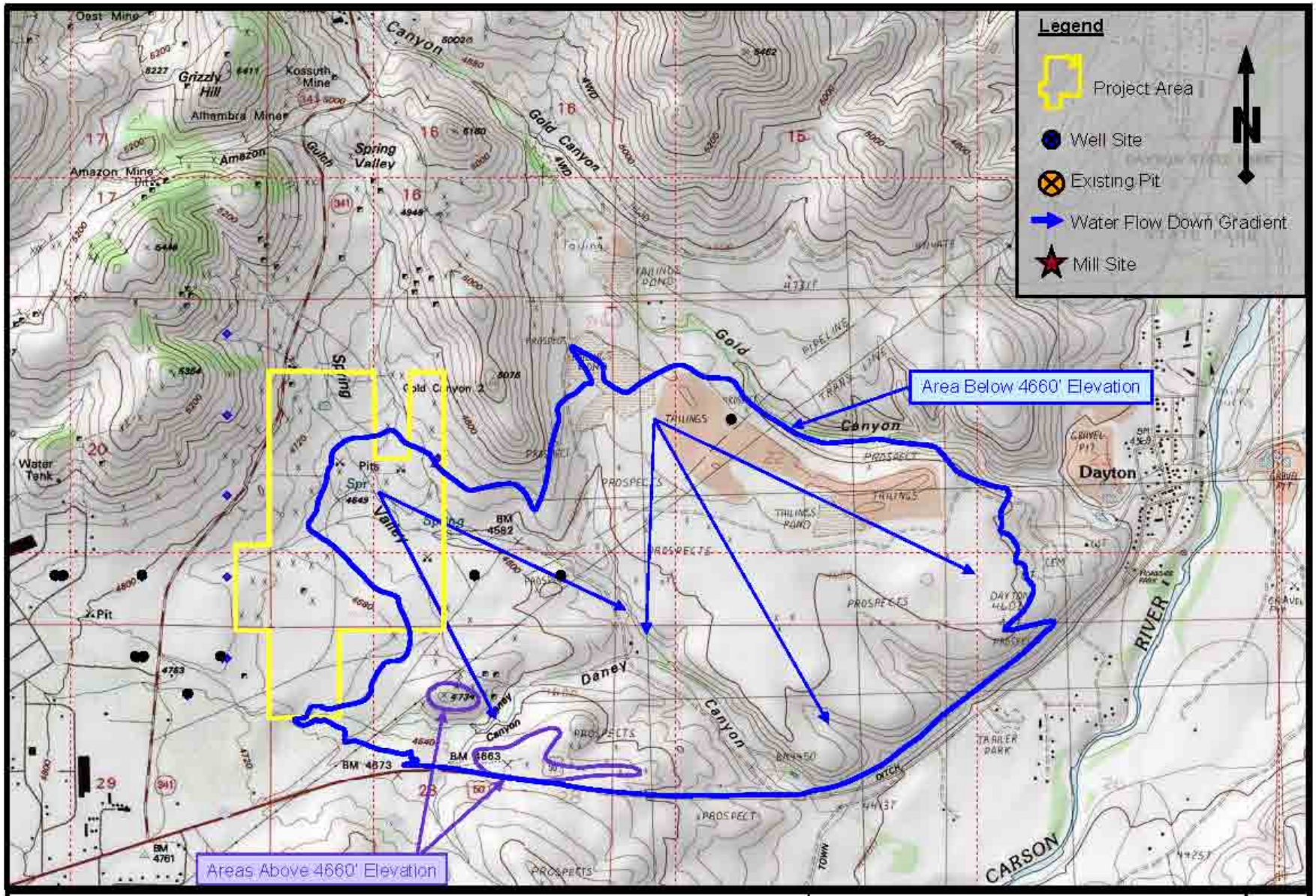
Ground water

Ground-Water Sources
Principal ground-water aquifers in Nevada are basin-fill aquifers, carbonate-rock aquifers, volcanic rock aquifers, and sedimentary rock aquifers. The most common are basin-fill aquifers, which are composed primarily of alluvial, colluvial, and lacustrine deposits. Virtually all major ground-water development in the state has been in the upper 500 feet of basin-fill aquifers. Aquifer recharge is provided by precipitation in the mountain ranges. Water infiltrates alluvial slopes and underflows in poorly sorted, unconsolidated sediments (Glancy & Katzer, 1975).

Ground-Water Use
During previous mining operations, the Lund pit was excavated to the 4,632-foot level (elevation above mean sea level [amsl]) and intercepted ground water. Records indicate that dewatering was conducted at an approximate rate of 50 gallons per minute (gpm). Routine monitoring required by Geo-Nevada's Water Pollution Control Permit indicated the Lund pit water was of good quality. As a result, the pit water was land applied with the approval of the NDEP. In addition, monitoring indicated the static water level in the mine site water well 2,030 feet north of the Lund pit (Figure 5) did not fluctuate. As illustrated by Figure 8, several faults are located between the Lund pit and the mill site water well. These faults serve as a control for ground-water flow between the Lund pit and up-gradient water wells. Pit dewatering did not impact up-gradient wells due to the presence of the faults.

Quarterly monitoring as required by NDEP indicates the static water level and depth in the pit has fluctuated in the past on a seasonal basis. As of the spring of 2007, the surface water elevation in the Lund pit was 4,650 feet amsl, which equates to a current pit water depth of 18 feet based on the current pit bottom elevation of 4,632 feet amsl. In addition, the static water level in the mill site water well in the spring of 2007 was 4,650 feet amsl. The static well water level, which is the same elevation as the Lund pit water is assumed to be an anomaly, as the fault structures illustrated by Figure 8 likely control ground-water flows between up-gradient water wells and the pit.

Ground-Water Quality
The US EPA has delegated to the state of Nevada the responsibility for regulating the quality of water within its borders. In Nevada, the State Environmental Commission (SEC) and the NDEP regulate water quality. The state also has anti-degradation policies that stipulate that water bodies having quality that is better than the standards must generally maintain its higher quality. Section 303(d) of the Clean Water Act directs states to compile a list of those waters that need additional measures beyond existing controls to achieve or maintain water quality to the standards (NDEP, 2002).



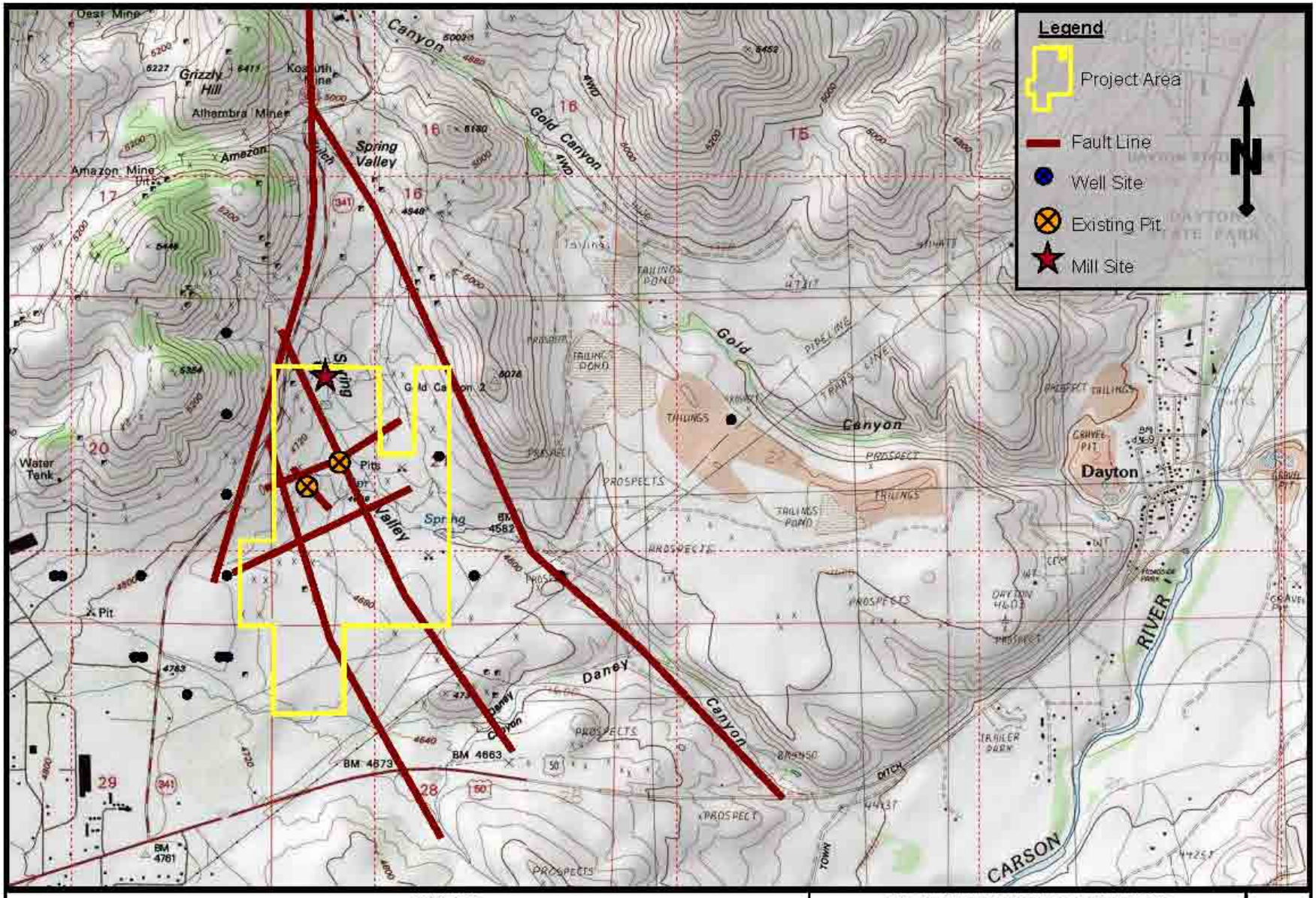
SCALE

0.5 0 0.5 Miles

SURFACE WATER AND FLOW
SPRING VALLEY MINE PROJECT
Lyon County, Nevada

Figure **7**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NAS	N-83297	DBE	5/21/08	12/03/2009



SCALE

0.5 0 0.5 Miles

PROJECT AREA FAULT LOCATIONS
SPRING VALLEY MINE PROJECT
Lyon County, Nevada

Figure **8**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NAS	N-83297	DBE	5/21/07	12/03/2009

Quarterly ground-water monitoring has been conducted at the Lund pit and the mill site water well, respectively, between March 1999 and April 2007 as required by NDEP. The analytical results indicate that the Lund pit water and the mill site well water generally exceed standards for aluminum, and occasionally exceed standards for arsenic (4 times); iron (3 times); manganese (4 times); and nitrate (2 times). The pH measurements for both the pit water and the mill site water well are generally in the normal range of 6.5 to 8.5 standard units.

The mill site water well is located 2,030 feet up-gradient from the Lund pit, and its water bearing zone is separated from the pit by several fault structures. However, review of the water quality analyses discussed above indicates that Lund pit water and water from the mine site well exhibit similar geochemical characteristics. This suggests that the regional ground water may exhibit similar geochemical characteristics to both the Lund pit water and water from the mine site well.

3.3.8 VISUAL RESOURCES

The BLM initiated visual resources management (VRM) by establishing class designations during planning processes to manage the quality of the landscape and minimize potential impacts to visual resources resulting from development activities. In determining VRM class designations, the inventory process considers the scenic value of the landscape, viewer sensitivity to the scenery, and the distance of the viewer to the subject landscape. These management classes identify various permissible levels of landscape alteration, while protecting the overall visual quality of the region. Management classes are divided into four levels (Classes I, II, III, and IV), with Class I designated as most protective of the visual resources. The objectives of these classes vary from very limited management activity to activity that allows major landscape modifications. Table 3.4 describes the four VRM classes in detail.

Table 3.4: Visual Resource Management Classes

Class	Description
I	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
II	The objective of this class 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 attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
III	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV	The objective of this class is to provide for management activities which require major modification 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 landscape elements.

Management classes are utilized to identify minimum levels to the visual resource when a proposed development action is analyzed using the BLM's Visual Contrast Rating System outlined in BLM Visual Resource Management Inventory and Contrast Rating Manuals 8410-1 and 5432-1.1. By using this system, the impact magnitude to visual resources can be measured

by separating the landscape into its major features (landform, vegetation and structures) and predicting the magnitude of change to each of the basic visual elements (line, form, color and texture) within each of the features. Visual analyses for proposed projects are conducted using Key Observation Points, which are locations from which a proposed project can be seen.

Once potential impacts to visual resources have been identified for each location, visual design considerations are incorporated into the proposed surface-disturbing projects on a case-by-case basis. Mitigation measures, using the following design techniques, are developed for each site to minimize adverse impacts to visual resources and to maintain the appropriate VRM class:

- Site locations to minimize adverse affects.
- Minimize disturbance during construction.
- Repeat form, line, texture and color in the design elements.
- Utilize appropriate color selection for exterior building materials.
- Implement sensitive grading methods to minimize variations in natural topography.
- Apply appropriate reclamation and restoration methods during project closure.
- Emphasize linear alignment in design.

Regional Setting

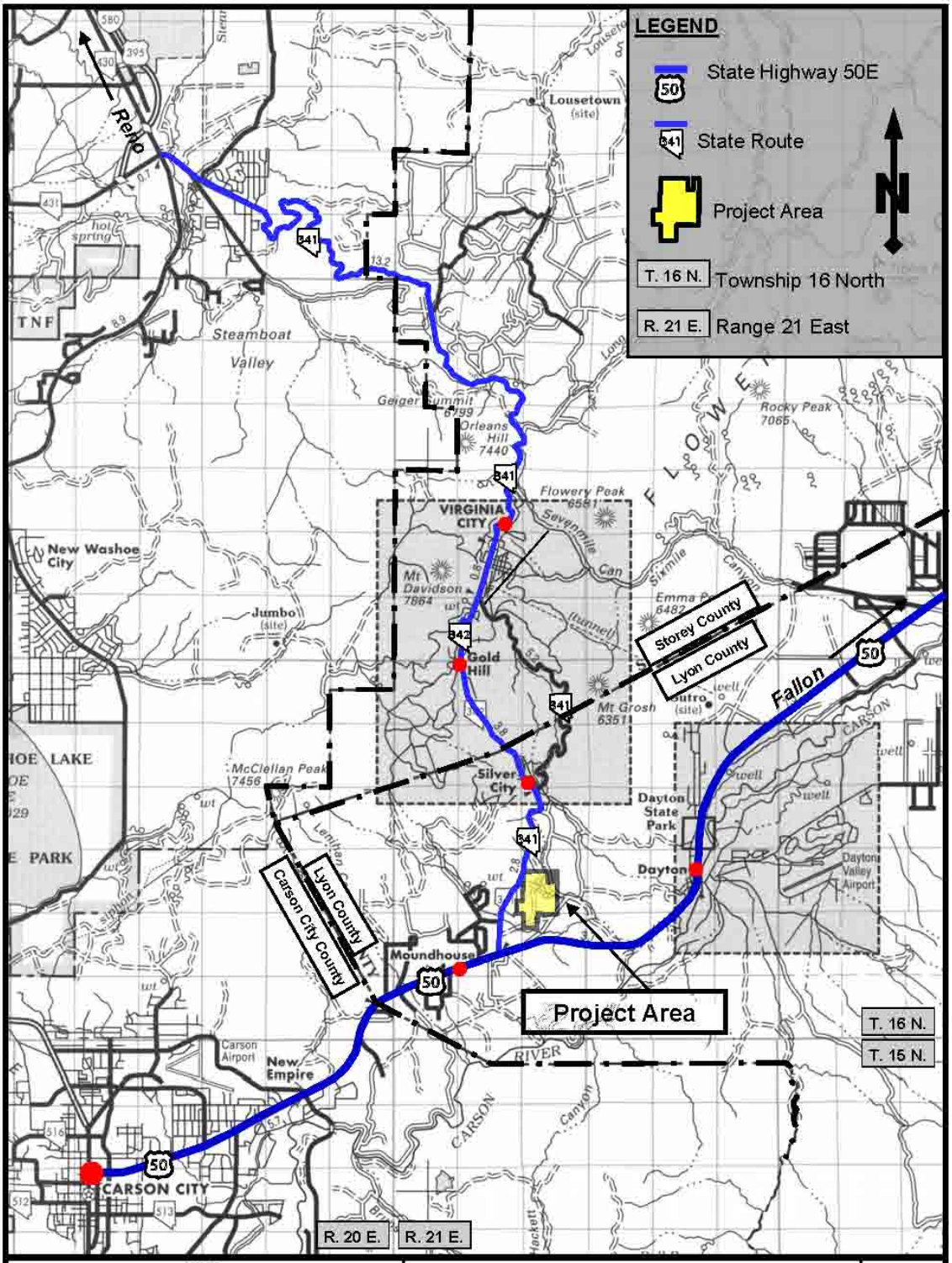
The project area is located on public and private lands in Lyon County, Nevada. Spring Valley is approximately six miles northeast of the nearest urban area, Carson City, Nevada (Figure 1 and Figure 9). The area is historically a mining area and mining activities continue today. The area is characteristic of the Great Basin environment and supports higher elevation vegetation communities and support sagebrush, juniper, and Pinyon pine.

The form, line, color, and texture of the Great Basin landscape are influenced by the arid climate. The hills are gold and brown, and the blue sky can be dotted with fluffy clouds and thunder clouds at times. Sunlight is a dominating element in the area.

Local Setting

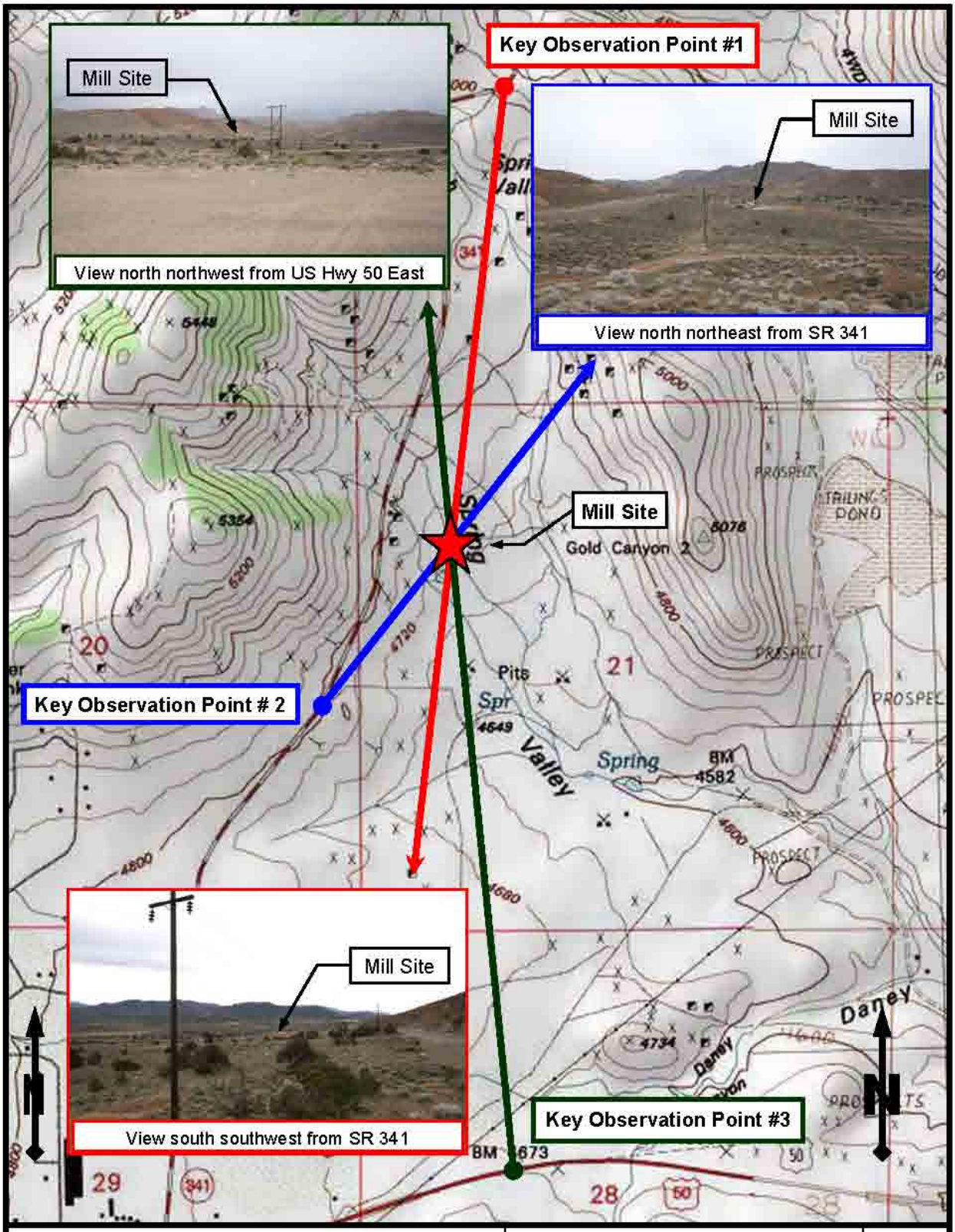
The Spring Valley Mine is located between Mound House on US 50 to the southeast and Silver City on SR 341 to the north. SR 341 is a steep and winding road between Spring Valley and Virginia City, with Silver City and Gold Hill upslope between the Spring Valley mine site and Virginia City (Figure 9). Three Key Observation Points (KOPs) were selected to assist in determining potential impacts of the Proposed Action on visual resources. The mine site extends predominately north and south along the east side of SR 341 just above the junction of SR 341 and US 50. Vegetation in the valley is sagebrush with a patchy component of Pinyon pine and Juniper trees at higher elevations. However, the land is predominately disturbed by mining activities and invasive and populations of non-native plant species have been developed in the area. In addition, the surface is scattered with disturbed piles of soil and rocks as a result of decades of ground disturbance from mining activities.

Figure 10 illustrates the location of the three KOPs in relation to the mine site. A photo of the mine site from each KOP is included. Visual Resource Worksheets describing the landscape are located in Appendix B.



LAND USE AND TRANSPORTATION CORRIDORS **SPRING VALLEY MINE PROJECT** Lyon County, Nevada		Figure 9

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED
NAS	N-83279	DBE	5/06/08	12/03/2009



SCALE	KEY OBSERVATION POINTS SPRING VALLEY MINE PROJECT Lyon County, Nevada	Figure 10
0.25 0 0.25 Mile		

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED
NAS	N-83297	DBE	5/1/08	12/03/2009

KOP #1
Silver City lies just to the north and upslope of the project area (Figure 9). Traveling downslope (south) on SR 341 towards the Spring Valley Mine, the site is not visible until the last turn before reaching the mine on a steep winding road. KOP #1 is located at this location on a pull-out above the turn on the south side of SR 341 overlooking Spring Valley (Figure 10).

KOP #2
Traveling upslope (north) on SR 341 from US 50 the Spring Valley Mine is not visible until just below the bottom of the project area (Figure 9). KOP #2 is located at this point on the eastside of SR 341 (Figure 10). The mine facilities are the first thing the traveler would see but only briefly as the vehicle would continue up SR 341 leaving the project area behind them on a moderately steep and winding road.

KOP #3
The town of Mound House lies approximately 1.0 miles to the southwest of the project area (Figure 9). The existing Spring Valley Mine is not visible to Mound House area residents or visitors. However traveling east or west on US 50 the landscape opens and a view up Spring Valley is visible. KOP #3 is located on the north side of US 50 at the bottom of Spring Valley (Figure 10). The project area is visible as a different color and cover type than the surrounding landscape from the roadside standing still. It is unlikely the average traveler or commuter moving at 50 plus miles/hour would notice the area as visually different from the surrounding area.

Sensitive Receptors
Sensitive receptors in the project area include drivers (tourists/local residents on their way to or from the Virginia City area) looking north from US HWY 50 and west from SR 341. The closest sensitive receptors are the residents of the local communities and businesses, and visitors to the area during the summer months.

Visual Resource Management Classification
BLM lands within the project area for the Proposed Action have been designated in applicable land use plans (BLM, 2001) as VRM Class III. The management objective for this visual resource class supports a moderate level of change to the characteristic landscape (see Table 3.4 above).

3.3.9 NOISE
Noise from the Proposed Action would remain as it has during past operations at the Spring Valley Mine site. The noise duration could increase as a result of increased mineral exploration activities, however the decibels are not expected to increase. Mining activities would continue as in the past and only occur during daylight hours of a normal workweek (Monday to Friday). Those residents currently outside the zone of influence will remain outside of the zone of influence with the expansion of the mine.

3.3.10 SOILS/GEOLOGY/MINERALS

Soils

The soils within the proposed Spring Valley Mine Expansion area range from bare rock outcrops to alluvial fan deposits and vary in physical, chemical, and biological characteristics. The floor of Spring Valley is mapped as Reno Cobbly Sandy Loam, with areas of Reno Gravelly Sandy Loam and Ackley-Ackley Variant complex. These moderately to very deep, well drained alluvial fan soils have very slow to moderately rapid permeability, very slow to medium run-off, very low to moderate available water capacity and slight hazards of water erosion and soil blowing (SCS, 1984).

The slopes surrounding Spring Valley are mapped as the Olac-Rock outcrop complex and the Oppio-Nosrac association. The Oppio-Nosrac association is found at the northern end of the valley and is derived predominantly from andesite. It is a moderately deep, well drained soil with slow to moderately slow water permeability, low to moderate available water capacity, rapid run-off, and high hazard from water erosion and slight hazard from soil blowing. In contrast, the Olac-Rock outcrop complex is lower on the southern slopes and is composed of residuum derived dominantly from rhyolitic tuff. It is a very shallow, well drained soil with moderate water permeability, very low available water capacity, medium run-off and slight hazard of water erosion and soil blowing (SCS, 1984).

Portions of the project area slope up to 10 degrees to the east, although the slope is considerably less in the lower, southeastern corner. There are considerable areas of bare, rocky ground, marked by shallow washes. Soils are mapped as Olac Rock Outcrop Complex on the slope along the western side of the Project APE. This soil type is very stony loam comprised of residuum and colluvium derived from volcanic rocks. Reno Cobbly Sandy Loam comprises the soil unit mapped on the alluvial fans in the remainder of the Project Area (NRCS, 2007). Low dunes are found in the valley bottom at the southeastern corner of the project area.

Geology

The project area for the Proposed Action is located in the historic Spring Valley Mining District (also referred to as the South Comstock/Devil's Gate/Chinatown Mining District). The Spring Valley Mining District, once an active lode and placer gold mining district, is located south of Silver City, Lyon County, Nevada. Spring Valley is situated at the southern end of the Virginia Range near the western edge of the Basin and Range Province. The Basin and Range Province covers much of the southwestern United States and is typified by elongate north-south trending arid valleys bounded by mountain ranges that also bound adjacent valleys.

The Spring Valley Mining District is underlain by two Tertiary volcanic rock formations; the Santiago Canyon Tuff and the Alta Andesite (Stewart, 1999). The hills and ridges bounding Spring Valley on the east and west are Santiago Canyon ash-flow tuff, with older alluvium, pediment deposits on the lower portion of the hill east of the project area. The lower portion of the ridge to the west is Alta Formation, a Quaternary or younger andesite (Bell and Bonham, 1987).

Minerals
The two small pits located on the property were evidently dug on northerly striking and steeply dipping silicified structural zones hosted by the felsic units of the Santiago Canyon Tuff (MACTEC, 2007). The east hanging wall of the larger and most easterly Lund pit is reported to be made up of Alta Andesite. In a southwesterly direction from the Lund pit, the West pit deposit evidently displays the Santiago Canyon Tuff both on the hanging wall and the footwall of a structural zone. The gold is reported to occur as coarse particles within quartz-veined structural zones between the Santiago and Alta and is typical of a volcanic hosted quartz vein – type gold/silver deposit (MACTEC, 2007).

3.3.11 WILDLIFE – GENERAL

The project area has a low diversity and low density of general wildlife species as a result of having relatively limited habitat diversity and a long-term high level of human activity and disturbance within the general area. The general setting of the project area is typical Intermountain Cold Desert Scrub and low sagebrush. There are stringers and pockets of pinyon/juniper and young cottonwoods along the Spring Valley drainage, and a drainage on the south end of the project area. These areas with developing cottonwoods are in the process of forming a quasi-riparian woodland association. As these sites develop, they will likely invite a greater number and diversity of wildlife species to the area. These areas are outside, but adjacent to the APE. Some small, widely scattered pinyon and juniper exist throughout the project area. Wildlife species that could occur in the project area include such common species as the coyote, sagebrush vole, black-tailed jackrabbits, horned lizards, gopher snakes and a limited number of resident bird species. The pockets and stringers of tree species provide habitat that would not ordinarily be available in this scrubland community. At the present time, there are two primary terrestrial wildlife habitats within the project area (Nevada Wildlife Action Plan, 2006). These are described in Appendix C.

3.3.12 SPECIAL STATUS SPECIES – BLM SENSITIVE SPECIES

BLM Manual 6840 defines sensitive species as native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or

2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

The list of BLM sensitive species that occur or are likely to occur in the project area is shown in Appendix D (BLM, 2003).

With the exception of burrowing owl and the bats that might be associated with the project site, BLM sensitive species that might be associated with the site would be occasional visitors. Burrowing owls might actually nest in the area because this species uses disturbed berms with abandoned holes for nesting. This owl adapts readily to human disturbance.

Additionally, abandoned mines and structures in the surrounding area could provide habitat for roosting and/or for maternal colonies of bats in general. Thus, the project area may provide suitable foraging or roosting habitat for several species. However, since active mining has taken place for quite awhile, only those species tolerant of human activity might be expected.

3.4 ALTERNATIVES

The description of the Affected Environment for the No Action Alternative would be the same as that for the Proposed Action.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

This chapter describes the expected environmental effects of the Proposed Action. The discussion focuses on those effects that could potentially be significant. This section also includes any necessary mitigation measures to lessen adverse impacts on the environmental resource of concern.

4.1 PROPOSED ACTION

4.1.1 AIR QUALITY

The primary pollutant of concern during activities for the Proposed Action (i.e., the pit expansions, vehicle traffic from the pits to the mill, waste rock dumps and ore stockpiles) would be fine particulate matter in the form of fugitive dust, and carbon monoxide. Exploration activities would also produce pollutants but at a lesser amount than the milling activities.

Fugitive Dust

Air quality impacts from the mine expansion activities would be localized and limited to the duration of the project. All project-related traffic would observe prudent speed limits to enhance public safety, protect wildlife, and minimize dust emissions. To control fugitive emission and soil/sediment runoff, a roadway maintenance program including watering, blading, graveling or the application of an approved dust control additive would be implemented. The above measures would minimize fugitive dust emissions.

Combustion Emissions

Combustion emissions of criteria air pollutants would be released from diesel engines during pit expansion, ore and waste rock transportation, milling operations, and exploration drilling activities. Given the low background concentrations of criteria pollutants in the project area and the limited emissions anticipated from the proposed project, federal or state air quality standards are not likely to be exceeded.

Air Conformity

The project is not located within any non-attainment areas and would not exceed any conformity requirements as dictated in the Environmental Protection Agency's (EPA's) rule "Determining Conformity of General Federal Actions to State or Federal Implementation Plans" (40 CFR 93, Subpart B). The project is not expected to contribute to any violation of federal ambient air quality standards.

4.1.2 CULTURAL RESOURCES

Known Cultural Resources

The project could have the potential to disturb cultural resources through off road travel by operations vehicles and trucks.

Undiscovered Cultural Resources
The project has a high potential to affect undiscovered or subsurface resources. The project would involve excavation that could disturb unknown sites. A number of resources were found within the APE. It is important that vehicles and traffic stay within the clearly delineated and flagged APE during all project operations, because undiscovered resources likely exist outside this area. The APE would be clearly flagged and Geo-Nevada staff would be informed, prior to project implementation, to stay within the APE and that any effects on, defacement of, or removal and/or disturbance of archaeological, historical, or sacred material is prohibited and subject to disciplinary action.

A portion of the project area for the Proposed Action lies outside the APE. This area was delineated by the operator as the portion of their claim block where future exploration targets may lie (see Figure 6). Future exploration activities proposed on the public land in this area would be permitted by BLM and NDEP when the specific exploration targets are known through an amendment to the Plan of Operations and Reclamation Permit, respectively. At that time, a supplemental APE would be delineated around the proposed exploration site(s). That APE would then be surveyed to identify the potential for cultural resource occurrence prior to approval of any surface disturbing activities.

Similarly, Geo-Nevada proposes to construct two Rapid Infiltration Basins (RIBs) to manage and dispose of the water pumped from the pits. The RIBs would be constructed within the project area but the exact location has not yet been determined. In the event that soil testing results dictate the RIBs be constructed outside the APE (Figure 6), Geo-Nevada would file an amendment to the Plan of Operations with BLM, thus prompting establishment of another supplemental APE and the associated cultural survey of that area.

If subsurface cultural resources are found during proposed or potential future operations, all work in the vicinity of the resource would cease and Geo-Nevada would notify the BLM immediately. The implementation of appropriate measures requested by the BLM would begin immediately. The risk of damaging or destroying unknown cultural resources is significant. Implementation of mitigation would avoid significant effects.

4.1.3 INVASIVE, NON-NATIVE SPECIES
Project activities could contribute to the spread of invasive, nonnative species within the project area through surface disturbing activities and the number of construction and drilling vehicles involved. BLM records do not show any weed occurrences in this area, however, this area has not been surveyed. Hence, the project proponent will need to conduct a weed survey. Geo-Nevada has committed to comply with special seed mixtures used to re-vegetate disturbed areas be "weed free;" that an invasive, nonnative species control program consisting of monitoring and eradication for species listed on the Nevada Designated Noxious Weed List be implemented; and that all vehicles, heavy equipment, and the boots of operators and other persons working in the areas be cleaned by water before entering the project area to do work.

4.1.4 MIGRATORY BIRDS
Of the species listed in Appendix A, the most likely occupants of the project area are Burrowing Owls and Loggerhead Shrikes, although, the habitat is marginal for Loggerhead Shrikes. Burrowing owls may presently nest on the project site since these owls generally appropriate

rodent digs in dirt mounds. Proposed operations could potentially disturb or destroy nesting burrows. Proposed operations will also likely create additional mounds and berms that could provide future burrow nesting opportunities. Burrowing Owl populations in Nevada are relatively stable. Burrowing Owls are very tolerant of human activity. Even if nesting burrows were disturbed or destroyed as a result of this proposal, the effects on local populations would be minimal. There would be no effect on regional populations.

Loggerhead Shrikes might be temporarily displaced during operations. The likelihood of shrikes nesting within the APE is low. It is more likely that they would nest in the stringers and pockets of pinyon/juniper and young cottonwoods that are outside of the APE. Even if a nest was destroyed on the site, only that year's reproduction would be lost. Shrikes would nest successfully in adjacent land in other years. Shrikes are relatively unbothered by human activity or structures (www.natureserve.com). The proposed project would not affect local or regional populations.

Other species on the list in Appendix A could use the area for foraging or perching. The pockets and stringers of pinyon/juniper and young cottonwoods are outside the APE and could be used by any of the species on the list. Within those stringers and pockets, they would be subject mostly to noise disturbance. The current proposal does not include physical disturbance of these areas. Individuals may be displaced while operations are on going and are in close proximity to those areas. Local and regional populations would not be affected.

4.1.5 NATIVE AMERICAN RELIGIOUS CONCERNS

Native American comments or concerns regarding the proposed mine expansion were submitted to the BLM and documented during the consultation process which is ongoing. At present all areas of concern identified through that process would be avoided by the operator. Any future proposed surface disturbing activities within the project area but outside the APE would be surveyed by a qualified archeologist. At that time, BLM will provide affected tribes an opportunity to comment and consult on site specific activities proposed outside the APE. Additional mitigation would be developed and implemented in the case of discovery of previously undiscovered resources or human remains. Continued consultation with affected tribes throughout this process should reduce or eliminate impacts to Native American Religious Concerns.

4.1.6 WASTES, HAZARDOUS OR SOLID

Potential hazardous or solid waste impacts during exploration, mining, and processing activities could result from equipment leaks, or drilling fluid releases from improperly constructed drill sumps. Some of the involved materials could be hydraulic fluid, gasoline, oil, antifreeze, grease, or drilling fluid which could impact water quality or contaminate soils.

All regulated wastes would be managed in accordance with applicable Federal, state and local requirements. Petroleum products and other common hazardous materials/wastes would be stored in impermeable, sealed and secured containers. In the event a hazardous or regulated material is spilled, measures would be taken to control the spill and the BLM and NDEP would be notified.

No aboveground storage tanks (ASTs) are currently used for dispensing petroleum products or chemicals on site. ASTs may be utilized in conjunction with the Proposed Action on a temporary or permanent basis in the future. If ASTs are proposed for use in conjunction with the Proposed Action in the future, they would be duly permitted with the BLM and NDEP, and stored in burmed lined containment structures designed to contain 110% of the largest tank's capacity.

4.1.7 WATER QUALITY (GROUND/SURFACE)

Surface Water

During operations the operator would convey upstream surface runoff through the project area in a manner which would prevent degradation of downstream water quality. The operator would construct low water crossings or sediment traps at the intersections of access roads and surface water drainages as needed to inhibit soil erosion runoff and down-gradient sediment deposition. Construction of low water crossings or sediment traps would be coordinated with the BLM, and the NDEP.

All upslope drainage diversions and sediment control structures installed at access road intersections with drainages would be opened up and re-defined during re-grading. The resulting channels would be of the same capacity as up and downstream reaches and would be made non-erosive by the use of surface stabilization techniques (rip-rap) where necessary, and ultimately revegetated. Best Management Practices (NDEP, 2008) would be followed during construction, operation and reclamation to minimize sedimentation from disturbed areas.

Ground water

The Spring Valley Mine Plan of Operations (MACTEC, 2007) proposes to expand the Lund and West pits. The Lund pit, with a current pit water depth of 18 feet, has intercepted ground water. Based on the geology of the project area, existing exploration drill-hole data, and the close proximity of the two pits, it is expected that the West deposit would also intercept ground water at a similar level as the Lund pit. Both pits would be dewatered as needed to allow for mining operations. However, both the BLM and the NDEP would require re-infiltration of the pit water versus a land application process to encourage recharge rather than evaporation of mine pit effluent.

Geo-Nevada proposes to construct two Rapid Infiltration Basins (RIBs) to manage and dispose of the water pumped from the pits. The RIBs would be constructed within the project area but the exact location has not yet been determined. The final siting of the RIBs would be based on infiltration and permeability test results, hydraulic loading rates, and the actual design criteria. In the event that soil testing results dictate the RIBs be constructed outside the APE (Figure 6), Geo-Nevada would file an amendment to the Plan of Operations with BLM for approval prior to construction.

Assuming regional water quality is somewhat similar, it is not likely that water pumped from the Lund and West pits to the RIBs would affect regional water quality. Due to the presence of the faults between the mill site and the proposed pits, impacts to up-gradient water wells are not anticipated. However, Geo-Nevada would install one monitor well upgradient of the RIB's and two monitor wells in suitable locations below the RIBs to monitor for any potential ground water impacts.

As mining progresses from the Lund pit to the West pit, waste rock from the West pit would be placed into the previously mined-out Lund pit where practical. This partial backfilling is necessary to raise the floor of the Lund pit to a level higher than the level of standing water in the pit bottom. Similarly, if ground water is encountered in the process of advancing the West pit, stockpiled waste rock would be placed in the West pit as backfill to raise the floor of that pit to a level higher than the level of standing water in the pit bottom. The advantages of partial pit backfilling include minimizing post mine visual impacts, and increasing public safety along with post-mining land productivity.

All exploration drill holes that will not be mined out under the Proposed Action would be plugged in accordance with applicable state regulations.

4.1.8 VISUAL RESOURCES

Overview
The visual impacts of the Proposed Action would result from:

- Expansion of Lund and West pits
- Fugitive dust from mining and hauling activities
- Views of mining equipment and facilities
- Views of the 30-foot-tall drill rig during exploration activities.

Views and View Sheds
The below grade pit and expansion activities would not impact the area visual resources. However piles of waste rock and ore stockpiles, drill pads, and mill facility structures would be visible to sensitive viewing receptors such as vehicular travelers on SR 341 for a brief period right adjacent to the mine site. Drill rigs would also be visible in that same window of opportunity. Exploration drill pads tend to blend into the surrounding desert landscape and no pads would be located on any prominent ridges or hilltops that would increase visibility. Activity from the proposed project would not likely be visible from US 50.

The post mining reclamation topography for the Proposed Action was designed, in part, to minimize the visual impacts of unnatural lines and forms and therefore be compatible with VRM class III objectives. Slopes would be regraded to blend with the surrounding topography, interrupt straight line features and facilitate revegetation. Constructed topographic features, such as waste rock dumps would have a rounded crest and variable slope angles to resemble natural landforms. Therefore, the level of discernable change to the character of the landscape would be moderate.

Light and Glare
No additional lighting is proposed for the pit expansion or exploration activities. Lighting at this time is minimal. Proposed project activities are scheduled for daylight hours. Adverse impacts would be less than significant. Any lights employed for nighttime use in security of the operations will be directed downward to minimize visual impacts at night to traffic or residences.

4.1.9 NOISE

Current land use designations would provide at least a 0.25 mile buffer zone between active mine areas within the proposed project area and the nearest residence. Noise associated with the Proposed Action would be the same as currently approved operations. However, the amount or duration of noise would likely increase periodically over that of existing operations. Periodic increases in noise would be result from the initial road and facility construction activities, intermittent exploration drilling operations, occasional blasting (rare) and during final reclamation. Expanding the scope of mining activities under the Proposed Action would also increase the life of the project, and hence the overall time in years that noise from daily operations would occur. Increased noise over that of existing operations would not be significant.

4.1.10 SOILS/GEOLOGY/MINERALS

Soils

The natural soils would be disturbed in the project area. Impacts include the disturbance and/or removal of approximately 11 acres of additional vegetation and topsoil over the life of the project. This would bring the total for past and proposed surface disturbance to approximately 23 acres. Environmental protection measures to reduce impacts would include stockpiling topsoil for use as growth media during reclamation, minimizing areas of disturbance as much as practical, concurrent reclamation where feasible, and the use of BMPs including but not limited to: Installing berms, silt fences, fiber rolls or sediment traps as needed, and seeding topsoil stockpiles for the duration of operations to minimize wind erosion.

Geology/Topography

The area of the Proposed Action contains shallow to moderate sloping terrain with elevations ranging from approximately 4,600-feet to 5,200-feet amsl. The primary changes in topography resulting from the Proposed Action would be evident in the further advancement of the two existing mine pits and the creation of waste rock stockpiles.

The Lund Pit would expand by 1.5 acres to 3.7 acres in size, and would be advanced in depth from the current bottom elevation of 4,632-feet amsl to approximately 4,600-feet amsl. The West Pit would expand by 1.4 acres to 2.9 acres in size, and would be advanced to a bottom elevation of approximately 4,625-feet amsl. Both mine pits would be partially backfilled above the elevation of ground water which currently stands at about 4,650-feet amsl.

The waste rock stockpile material remaining subsequent to pit backfilling will be recontoured to stable undulating surfaces, covered with growth medium and seeded. The resultant mounds would occupy approximately 4.3 acres and rise to between 10 and 30 feet above the surrounding land surface. The remainder of the disturbances over the project area would be returned to their approximate original contour.

Minerals

Based on current estimates for the Proposed Action, Geo-Nevada intends on removing approximately 100,000 tons of waste rock and 36,000 tons of mineralized material to be processed. A portion of the waste rock material would be used to partially backfill both mine pits while the remainder of the waste rock would remain stockpiled at the end of the mine life. Tailings derived from processing mineralized material would be used to backfill the tailings

pond at closure. In all cases the waste rock and tailings material would have the potential to interact with surface water and precipitation that percolates through them.

Representative samples from the mineralized zones and waste rock within the two mine areas were collected to determine the potential for these materials to generate acid or release metals into the environment. The results of analytical testing on these samples indicate that the potential for the rock produced from both mine areas to introduce acid or release metals into the environment is low.

4.1.11 WILDLIFE – GENERAL

Some general wildlife habitat would be lost during this project, but the overall habitat quality is already low due to substantial disturbance over the years. Most individuals would simply move away from the area. Some may return when activity ceased. Mule deer may use the Spring Valley drainage to access the Carson River to the south. This particular access may be disrupted during operations, in which case, alternate access or times of access would be used.

The proposed project would have a minimal effect on local wildlife populations and would have no effect on regional populations.

4.1.12 SPECIAL STATUS SPECIES – BLM SENSITIVE SPECIES

Affects on Burrowing Owls and Loggerhead Shrikes were addressed under migratory birds.

Habitat for the remaining BLM sensitive bird species listed in Appendix D is marginal within the project area. Most would be infrequent visitors. Therefore, the proposed project would have no affect on local or regional populations.

There are several bat species listed in Appendix D that use structures, buildings and adits as habitat. There are no structures, buildings or adits currently located on public lands within the project area and none are proposed. Therefore, the proposal will have little to no impact on bat species in this area.

4.2 ALTERNATIVES

The No Action Alternative would result in no action being taken. There would be no additional impacts from those already realized by the currently approved mining and processing operations on the private land. The primary difference between the Proposed Action and No Action Alternatives that could be anticipated is that the duration of impacts may be less with the No Action Alternative.

4.3 MITIGATION MEASURES

The following mitigation measures would be employed by the operator throughout the course of operations to insure that impacts resulting from the proposed action are minimized to appropriate levels:

> *Air Quality-1:* All project-related traffic would observe prudent speed limits to enhance public safety, protect wildlife, and minimize dust emissions.

Air Quality-2: A roadway maintenance program including watering, blading, graveling and/or the application of an approved dust control additive would be implemented to control fugitive emission and soil/sediment runoff.

Cultural Resources-1: The APE shall be clearly flagged, and all Geo-Nevada employees and contractors shall be informed before commencement of project operations to stay within the APE.

Cultural Resources-2: Geo-Nevada shall conduct employee briefings to inform personnel of critical elements of compliance with the Archaeological Resources Protection Act (ARPA) and the National Historic Preservation Act (NHPA). Any effects on, defacement of, or removal and/or disturbance of archaeological, historical, or sacred material shall not be permitted, and violation of the laws that protect these resources shall be subject to law enforcement and/or administrative disciplinary action.

Cultural Resources-3: The BLM shall be notified immediately if human remains or artifacts or any other items of cultural significance are encountered on public land during project operations, and all work within 300 feet of their location shall cease. Per Nevada Revised Statute NRS 383.170, burial remains on non-federal lands will require contact of the Nevada State Historic Preservation Office.

Cultural Resources-4: Future exploration activities or operations proposed on the public land within the project area but outside any APE shall be surveyed to identify the potential for cultural resource occurrence prior to approval of any surface disturbing activities.

Weeds – 1: Project proponent shall conduct a weed survey during the appropriate season to identify existing conditions and develop an invasive, nonnative species control program in consultation with BLM.

Weeds – 2: The operator shall implement an invasive, nonnative species control program consisting of monitoring and eradication for species listed on the Nevada Designated Noxious Weed List. All weed treatments on federal land are required to be in conformance with BLM manual 9011 and the Vegetation Treatments Using Herbicides in 17 Western States Programmatic Environmental Impact Statement (BLM, 2007).

Weeds – 3: All vehicles and heavy equipment entering the project area from off-site shall be washed free of soil and dust which may contain invasive, non-native or noxious weed seeds.

Weeds – 4: Restoration shall include a BLM-approved native seed mix. Seed mixtures used to re-vegetate disturbed areas shall be designated "weed free."

Birds – 1: Prior to disturbance of any old berms and dirt piles from May through July, inspection should be made to determine if Burrowing Owl nesting was occurring. Occupied nest sites <u>should</u> be avoided until October 1.

Wastes-1: In the event that a hazardous or regulated material is spilled, the operator shall take measures to control the spill and immediately notify BLM and NDEP.

Wastes–2: Petroleum products and other common hazardous materials/wastes shall be stored in impermeable, sealed and secured containers and stored in burmed lined containment structures designed to contain 110 percent of the largest tank's capacity.

Water Quality-1: The operator shall employ appropriate State of Nevada Best Management Practices during construction, operation and reclamation to minimize sedimentation from disturbed areas.

Water Quality-2: All exploration drill holes that will not be mined out under the Proposed Action would be plugged in accordance with applicable regulations.

Visual-1: All lights within the project area will be directed downward to minimize visual impacts at night to traffic or residences (Lyon County SUP requirement).

Geology-1: The operator shall prepare a Topsoil Salvage and Handling Plan for BLM approval prior to initiating operations on the public land. That plan shall insure that all available topsoil is salvaged ahead of extraction operations.

Geology-2: Topsoil stockpiles shall be located outside of natural drainage courses and seeded to promote revegetation and minimize erosion for the duration of operations.

4.4 RESIDUAL IMPACTS

Residual impacts are comprised of the direct or indirect impacts that remain after the application of all mitigation measures. Residual impacts from the Proposed Action would be associated with the creation of two post-mine depressions. Subsequent to final reclamation the Lund Pit would constitute a 3.7 acre depression, with sidewalls up to 20-feet-high, while the West Pit would constitute a 3 acre depression, with sidewalls up to 50-feet high. These depressions may contain standing water after significant storm or snowmelt events but would be designed to allow standing water to infiltrate into the regional ground-water system. The only foreseeable post mine land use for these features would be in controlling stormwater if the area becomes developed for either residential or commercial use in the future.

4.5 CUMULATIVE IMPACTS

A Cumulative Effects Study Area (CESA) for the Proposed Action was established using a combination of topographic divides and transportation corridors (segments of SR 341 and US50) which surround the project area. Figure 11 illustrates the CESA. This area includes both BLM administered public lands and private lands within the vicinity of the project site. The CESA is comprised of a portion of the south end of the Virginia Range and includes portions of Sections 16, 17, 20, 21, 27, 27 28, and 29, Township 16 North, Range 21 East, MDB&M.

As defined in 40 CFR 1508.7 (regulations for implementing NEPA) a cumulative impact is an impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

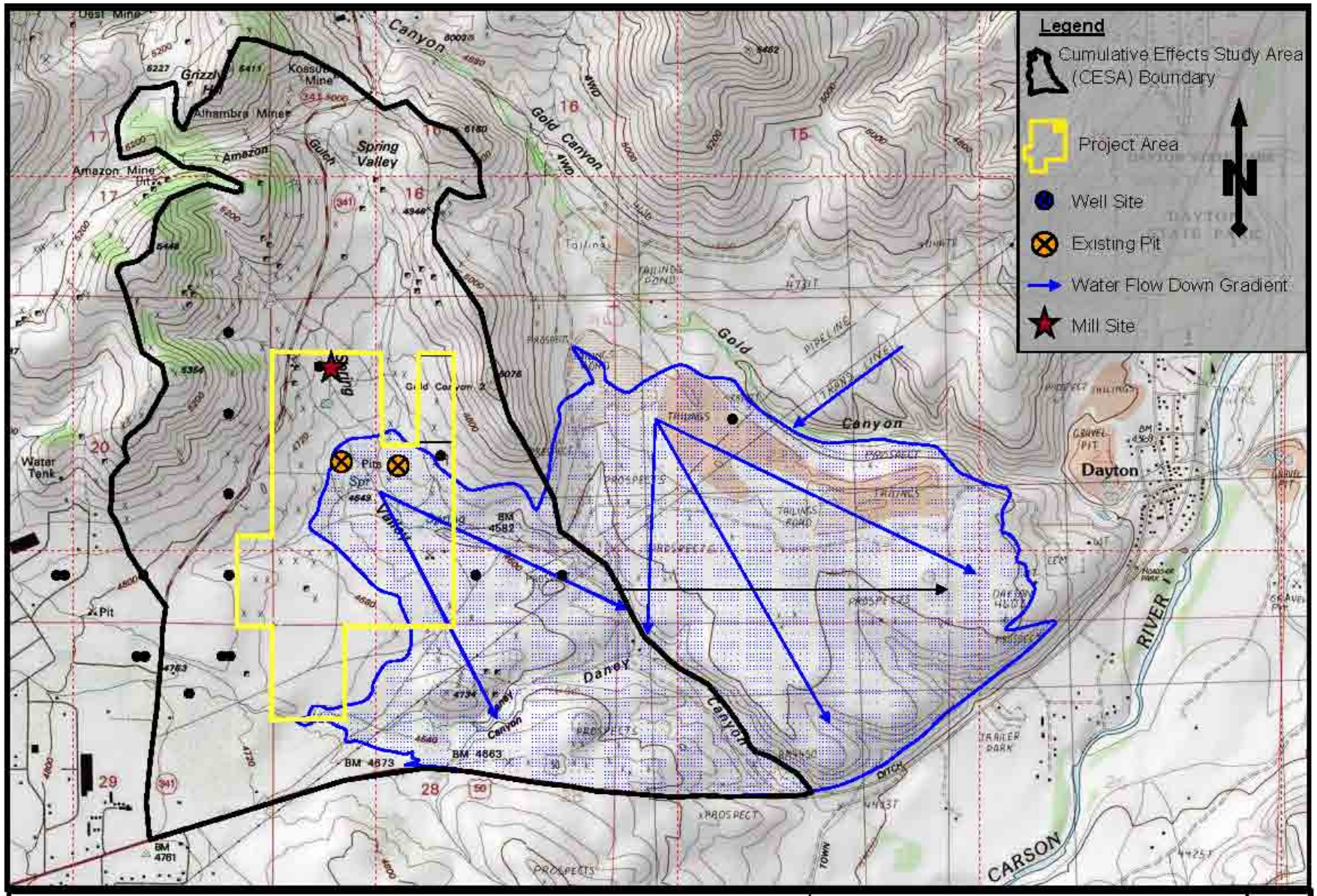
Past and present actions in the CESA include mineral exploration, mining at two existing pits; several reclaimed and un-reclaimed placer mines; construction, upgrade and maintenance of primary and secondary roadways; construction and maintenance of electric transmission lines, underground utility corridors and associated right-of-ways; dispersed recreation; commercial construction and operations; and limited residential development including roads and houses.

Reasonably Foreseeable Future Actions (RFFAs) within the CESA would include continued mining, increased residential and commercial development on private lands, improvements to primary and secondary roads, and expansion or installation of new utility corridors.

All resource values for the Proposed Action have been evaluated for cumulative impacts. It has been determined that cumulative impacts would be minimal as a result of the Proposed Action or the No Action Alternative.

4.6 MONITORING

The proposed action would be monitored to insure that facilities are properly constructed and stabilized and do not pose an erosion hazard, and that operations are conducted in compliance with all applicable permits and authorizations. Monitoring would be conducted annually by Federal, state and local agency personnel familiar with the terms and conditions of the applicable permits and authorizations. Monitoring would continue subsequent to completion of operations to confirm that reclamation goals are achieved.



SCALE

0.5 0 0.5 Miles

CUMULATIVE EFFECTS STUDY AREA
SPRING VALLEY MINE PROJECT
Lyon County, Nevada

Figure **11**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NAS	N-83297	DBE	5/21/08	12/03/2009

CHAPTER 5

CONSULTATION, COORDINATION AND PREPARATION

This EA was prepared at the direction of the BLM, Carson City, Nevada, by MACTEC Engineering and Consulting, under a contract with Geo-Nevada. The following is a list of individuals responsible for preparation of the EA.

5.1 LIST OF PREPARERS

Bureau of Land Management

Linda Kelly	Sierra Front Field Office Manager
Desna Young	Planning & Environmental Coordinator
Dan Erbes	EA Project Team Leader
Ken Nelson	Realty Specialist
Terry Neumann	HazMat Coordinator
Arthur Callan	Outdoor Recreation Planner
James Carter	Supervisory Archaeologist
Susan McCabe	Archaeologist
Jim Schroeder	Hydrologist
Jim deLaureal	Weed Spec./Soil Scientist
Steep Weiss	Forester
John Axtell	Wild Horse & Burro Specialist
Dean Tonenna	Botanist
Alan Bittner	Staff Supervisor/Biologist
Keith Barker	Fire Ecologist
Rita Suminski	Supervisory Wildlife Biologist
William Britton	Wildlife Biologist

MACTEC Engineering and Consulting

Nancy Santos	Biologist
Larry Gorell	Environmental Scientist
Vickie Clay	Archaeologist

5.2 PERSONS, GROUPS, OR AGENCIES CONSULTED

The following individuals, organizations, and agency representatives were contacted during the preparation of this EA.

State of Nevada Division of Environmental Protection
Lyon County Planning Commission
Washoe Tribe of Nevada and California
Yerington Paiute Tribe

CHAPTER 6

REFERENCES

Beidleman, C. (Ed.). (2000). Partners in Flight Land Bird Conservation Plan. *Version 1.0 Colorado Partners in Flight*. Estes Park, Coloradao, USA.

Bell, J. W., and Bonham H. F, Jr. 1987. Geologic map of the Vista Quadrangle, Nevada Bureau of Mines and Geology Map 4Hg, prepared in coordination with U.S.G.S COGEOMAP program.

BLM. (2007). Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html

BLM. (2001). *Consolidated Resource Management Plan Carson City Field Office.* Retrieved March 10, 2009, from Carson City District Office: http://www.blm.gov/style/medialib/blm/nv/field_offices/carson_city_field/planningenvironmental/carson_city_consolidated.Par.97250.File.dat/CONSOLIDATED.RMP.pdf

BLM. (1989). *Cultural Resources Inventory General Guidelines.* Reno: Bureau of Land Management, Nevada State Office.

BLM. (2003). Nevada BLM Sensitive Species List. Unpub. Doc. Signed 7-1-03. Reno, NV.

BLM. (2007). IM-2008-050 Migratory Bird Treaty Act – Interim Guidance. Dated December 18, 2007. Unpub. Doc. CCFO files.

DRI. (2008). Lyon County Climate Data from Desert Research Institute Database. Reno, Nevada, USA.

EPA. (2001). *US EPA Emissions Report, Lyon County, Nevada.* US EPA.

Glancy, P. A., & Katzer, T. L. (1975). Water Resources Appraisal of the Carson River Basin, Western Nevada. *Water Resources-Reconnaissance Series Report 59* . USGS for Nevada Division of Water Resources.

MACTEC. (2007, June). Plan of Operations, Reclamation Plan and Permit Application, Spring Valley Mine, Lyon County, Nevada. Reno, Nevada, USA: MACTEC Engineering and Consulting, Inc.

McIvor. (2005). Important Bird Areas of Nevada. Lahontan Audubon Society pub. Reno, Nv. 150 pp.

NDEP. (2008). Handbook of Best Management Practices. Carson City, Nevada, USA: Nevada Division of Environmental Protection.

NDEP. (2003). Nevada Air Quality Standards and Non-Attainment Criteria Pollutants. Lyon County, Nevada, USA.

NDEP. (2002, October). Nevada's 2002 303(d) Impaired Waters List. 65. Nevada Division of Environmental Protection, Bureau of Water Quality Planning.

Neel, L. (Ed.). (1999). Nevada Partners in Flight, Bird Conservation Plan. Reno, USA: Unpublished Doc. BLM Nevada State Office.

NNHP. (2008, January 15). Nevada Natural Heritage Program. *Database Search within five kilometers of Proposed Action* .

NRCS. (2007). Lyon County Area Soil Survey Maps. Nevada: Natural Resource and Conservation Service.

NVCRIS. (2007). Nevada Cultural Resource Information System.

Wildlife Action Plan Team. (2006). Nevada Wildlife Action Plan. Nevada Department of Wildlife, Reno.

Obermyer. (2007). *Class I Cultural Resource Inventory of the Geo-Nevada Spring Valley Mine, Lyon County, Nevada.* Carson City: MACTEC.

Obermyer. (2008). *Class III Cultural Resource Inventory of Geo-Nevada Spring Valley Mine, Lyon County, Neada.* Carson City: MACTEC.

SCS. (1984). Lyon County Area Soil Survey Maps. Soil Conservation Service.

Stewart, J. H. (1999). Geologic Map of the Carson City 30 x 60 Minute Quadrangle, Nevada, Map 118, scale 1:100000. Nevada, USA: Nevada Bureau of Mines and Geology.

APPENDIX A

Migratory Birds - Species of Concern

USFWS Response to Species List Request

Appendix A presents a list of migratory birds - Species of Concern that would be expected to occur on or near the project site (BLM 2007). The habitat type is included only for information. Although each species might use more than one habitat type, the primary one is where one or more life cycle functions would occur.

Salt Desert Habitat (Neel 1999)

Burrowing Owl	*Athene cunicularia*
Loggerhead Shrike	*Lanius ludovicianus*

Semidesert Shrublands (Beidleman 2000)

Sage Sparrow	*Amphispiza belli*
Brewer's sparrow	*Spizella breweri*
Ferruginous Hawk -	*Buteo regalis*
Prairie Falcon	*Falco mexicanus*
Mourning Dove	*Zenaida macroura*

Cliffs and Talus (Beidleman 2000)

Golden Eagle	*Aquila chrysaetos*

RECEIVED
FEB 11 2008
MACTEC, INC. (RENO)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Nevada Fish and Wildlife Office
1340 Financial Blvd., Suite 234
Reno, Nevada 89502
Ph: (775) 861-6300 ~ Fax: (775) 861-6301

February 6, 2008
File No. 2008-SL-0136

Ms. Nancy Santos
MACTEC Engineering and Consulting, Incorporated
961 Matley Lane, Suite 110
Reno, Nevada 89502

Dear Ms. Santos:

Subject: Species List Request for Proposed Spring Valley Mine Expansion Project, Lyon County, Nevada

This responds to your letter received on January 16, 2008, requesting a species list for the proposed Spring Valley Mine expansion project located in Lyon County, Nevada. To the best of our knowledge, no listed, proposed, or candidate species occur in the subject project areas. This response fulfills the requirement of the Fish and Wildlife Service (Service) to provide a list of species pursuant to section 7(c) of the Endangered Species Act of 1973, as amended (Act), for projects that are authorized, funded, or carried out by a Federal agency.

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

For a list of sensitive species by county, visit Heritage's website at www.heritage.nv.gov. For a specific list of sensitive species that may occur in the project area, you can obtain a data request form from the website or by contacting Heritage at 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701, 775-684-2900. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the Act. During your project

TAKE PRIDE IN AMERICA

analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address. Furthermore, certain species of fish and wildlife are classified as protected by the State of Nevada (see http://www.leg.state.nv.us/NAC/NAC-503.html). Before a person can hunt, take, or possess any parts of wildlife species classified as protected, they must first obtain the appropriate license, permit, or written authorization from the Nevada Department of Wildlife (visit http://www.ndow.org or call 775-688-1500).

We note that the project may impact the pygmy rabbit (*Brachylagus idahoensis*). On January 8, 2008, the Service published a substantial 90-day finding on a petition to list the pygmy rabbit as threatened or endangered under the Act, thus initiating a status review of the species. Draft survey guidelines have been developed for this species and are available upon request from the Nevada Fish and Wildlife Office. We encourage you to survey the proposed project area for pygmy rabbits prior to any ground disturbing activities and to consider the needs of this species as you complete project planning and implementation.

We are concerned that proposed project may impact the greater sage-grouse *(Centrocercus urophasianus*), a species listed as sensitive under the Heritage Program. The Western States Sage and Columbian Sharp-tailed Grouse Technical Committee, under direction of the Western Association of Fish and Wildlife Agencies, has developed and published guidelines to manage and protect sage grouse and their habitats in the Wildlife Society Bulletin (Connelly *et al.* 2000). We ask that you consider incorporating these guidelines (http://ndow.org/wild/sg) into the proposed project. On a more local level, the Sage Grouse Conservation Plan for Nevada and Portions of Eastern California was completed in June 2004. The Plan is available online at: http://www.ndow/org/wild/sg/plan/index.shtm. We encourage you to adopt all appropriate management guidance from this Plan as you implement your proposed action.

Because wetlands, springs, or streams are present in the vicinity of the project area, we ask that you be aware of potential impacts project activities may have on these habitats. Discharge of fill material into wetlands or waters of the United States is regulated by the U.S. Army Corps of Engineers (Corps) pursuant to section 404 of the Clean Water Act of 1972, as amended. We recommend you contact the Corps' Regulatory Section 300 Booth Street, Room 2103, Reno, Nevada 89509, (775) 784-5304 regarding the possible need for a permit.

Furthermore, the springs on or near the project area are sensitive to a wide variety of activities and may be occupied by rare aquatic organisms (macroinvertebrates) that may be affected by the proposed action(s). Recent studies have found approximately 100 species of aquatic macroinvertebrates in springs and springbrooks throughout the western United States, including springsnails, caddisflies, beetles, true bugs, and crustaceans. There is concern for these species because some are narrowly distributed and, in many cases, their habitats have become highly degraded. Many springs in Nevada have not yet been surveyed to determine if they are occupied by macroinvertebrates. For those which have been surveyed, gravel substrate, flowing high quality water, and minimal disturbance are believed to be important habitat components to maintain viable populations of these species. We ask that you include measures to protect the springs and macroinvertebrates during project planning and implementation.

Based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 et seq.), we are concerned about potential impacts the proposed project may have on migratory birds in the area. Given these concerns, we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of bird nests or young, or birds that breed in the area. Such destruction may be in violation of the MBTA. Under the MBTA, nests with eggs or young of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Please reference File No. 2008-SL-0136 in future correspondence concerning this species list. If you have any questions regarding this correspondence or require additional information, please contact me or Steve Abele at (775) 861-6300.

Sincerely,

Mary Haworth

for Robert D. Williams
Field Supervisor

APPENDIX B

Visual Resource Worksheets

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

no sun

Date 4/1/08

District Carson City F.O.

Resource Area

Activity (program) Mining

SECTION A. PROJECT INFORMATION

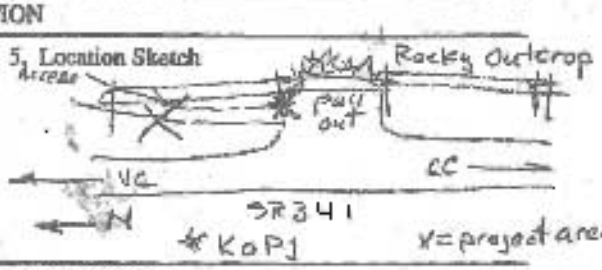
1. Project Name: Spring Valley Mine Expansion

2. Key Observation Point: KOP 1

3. VRM Class

4. Location
Township
Range
Section

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	flat to rolling terrain rough mining	linear / geometric smooth knoll / patch trees	tall/narrow poles prominent corrugated buildings/steel prominent rectangular pond
LINE	broken / complex smooth	smooth / jagged	geometric / bold straight
COLOR	brown white reddish brown	very light green + dk green grey	black, grey, yellow, white
TEXTURE	medium / random constrasty / clumped	uneven / random directional / matte	directional / matte clumped / coarse

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat to rolling (+ new roads) (IFB) expanded pits	linear / smooth was topsoil geometric ↑ from pits/tailings	— no new structures
LINE	broken / complex / smooth	smooth / jagged! (↑ pits) ... / strong lines (pits roads)	—
COLOR	brown (more) reddish/tan white (more) brown	very light green to dk green / grey	—
TEXTURE	medium / random ↑ contrasty / clumped	medium / random / uneven contrasty / ↑ clumped	—

SECTION D. CONTRAST RATING ☒ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form			X				X				X	
Line			X				X				X	
Color			X				X				X	
Texture			X				X				X	

2. Does project design meet visual resource management objectives? ☐ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended? ☐ Yes ☒ No (Explain on reverse side)

Evaluators' Names: Nancy Santos, Vickie Lang

Dates: 4/1/08

SECTION D. (Continued)

Comments from item 2. Assuming reclamation a success & structures removed:
landscape, veg & structures (gone)
will be a weak degree of contrast

Additional Mitigating Measures (See item 3)

*U.S. GOVERNMENT PRINTING OFFICE: 2002-773-001-48077

Form 8400-4
(September 1983)

Photos views

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: 4/1/08

District: Carson City F.O.

Resource Area:

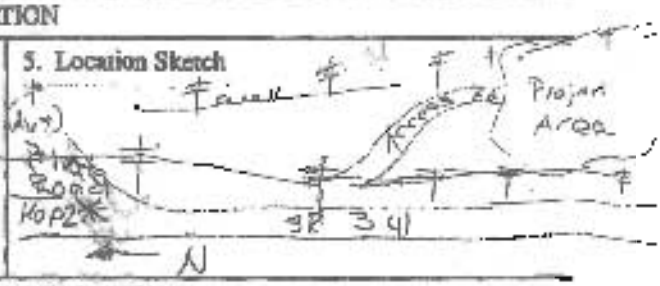
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name: Spring Valley
2. Key Observation Point: KOP #2
3. VRM Class:

4. Location
Township:
Range:
Section:

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	rolling / rounded, linear complex / medium	patchy irregular distribution	tall/narrow geometric/angular
LINE	Bold / irregular / hard / concave undulating	Bold / Complex	Bold / Straight / horizontal angular / vertical / geom
COLOR	yellow-gold ~~black~~ (pine plastic) brown, white	light green to dk green, gray yellow	gray / yellow brown / green t-posts
TEXTURE	coarse, rough, patchy ~~dense sag~~ smooth	dense sage random sparse trees	smooth / patchy / random subtle / matte

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	same as B1	same as B2	tall / narrow poles
LINE	↓	↓	no structures vertical poles
COLOR	↓	↓	brown poles / green posts
TEXTURE	↓	↓	smooth

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form			X			X						X
Line			X			X						X
Color			X			X						X
Texture			X			X						X

2. Does project design meet visual resource management objectives? ☐ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended? ☐ Yes ☒ No (Explain on reverse side)

Evaluators' Names: Nancy Santos, Vickie Clay

Dates: 4/1/08

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

★U.S. GOVERNMENT PRINTING OFFICE: 2002-773-001-49077

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: 4/1/08
District: Carson City F.O.
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name: Spring Valley Mine
2. Key Observation Point
3. VRM Class: KOP #3
4. Location
Township
Range
Section
5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

Including proposed Expansion

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Smooth / rolling / simple moderate grade (contrast incl veg) PA (Patch)	geometric (rectangular) patch few veg comp's	prominent / geometric rectangular / patch / vertical high
LINE	Bold dirt access road simple horizontal continuous, smooth	Broken / simple / soft weak (soil)	Broken, vertical complex smooth
COLOR	brown - predominant (soil) pale yellow veg / pale green	green / pale yellow	pale gray & pale yellow
TEXTURE	smooth / uniform (soil) sparse / matte	clumped sparse scattered	smooth / ~~random~~ / clumped dense / matte / scattered

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	smooth, rolling, simple moderate, contrast	smooth, rolling, regular contrast (veg type)	no buildings vertical narrow poles
LINE	flowing / continuous simple	flowing, simple soft, weak (veg)	no buildings broken / vertical pole line
COLOR	yellow green } veg	pale yellow / pale green	brown poles no buildings
TEXTURE	smooth / uniform (veg) dense	smooth / uniform (veg) dense	smooth / scattered poles no ~~other~~ buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form			X				X				X	
Line			X				X				X	
Color			X				X				X	
Texture			X				X				X	

2. Does project design meet visual resource management objectives? ☐ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended? ☐ Yes ☐ No (Explain on reverse side)

Evaluators' Names: Nancy Santos
Dates: 4/1/08

SECTION D. (Continued)

Comments from item 2 Degree of contrast within the weak category will vary depending on color/hue of veg species compared to surrounding sagebrush & forb species.

Additional Mitigating Measures (See item 3)

★US GOVERNMENT PRINTING OFFICE: 2002-773-001-40027

APPENDIX C

Wildlife Habitat Types

Appendix C describes the general wildlife habitat types found on the project site (Wildlife Action Plan Team 2006). The habitat types are informational only. These were included because most wildlife species use a variety of habitat types.

Intermountain Cold Desert Scrub – This is the most extensive habitat type in the state of Nevada. Distribution of this type generally follows valley bottoms that occur within the Great Basin physiographic region. Plant communities are generally characterized by the presence of a variety of salt-tolerant shrubs of the Goosefoot family (Chenopodiaceace) such as shadscale and greasewood. This type often gives way to sagebrush associations depending on soil characteristics. Historically, Indian ricegrass and needle-and-thread grass were prominent grass species. Wildlife species associated with this habitat type include kit fox, pale kangaroo mouse, dark kangaroo mouse, Burrowing owl, Loggerhead shrike, Brewer's sparrow, black-throated sparrow, Ferruginous hawk, long-nosed leopard lizard, Great Basin collared lizard and greater short-horned lizard.

Sagebrush – This highly variable type includes some 27 different species and subspecies of sagebrush in Nevada including basin sagebrush, mountain sagebrush, Wyoming sagebrush, low sagebrush, and black sagebrush. Other associated species include bitterbrush, rabbitbrush, winterfat, bluebunch wheatgrass, needle-and-thread grass, Idaho fescue, Indian ricegrass, Indian paintbrush, globemallow, and penstamon. Pinyon and juniper trees are often associated with this type. Typically, basin sagebrush occurs in valley floors or lower alluvial fans. Wyoming sagebrush is usually found at mid-elevations. Mountain sagebrush is usually found at higher elevations. Low sagebrush typically grows where claypan layers exist in the soil. Black sagebrush usually grows on soils where a hardpan layer limits root growth.

For Nevada, sagebrush dependent wildlife species include: pygmy rabbit, Great Basin pocket mouse, sagebrush vole, sagebrush lizard, Greater Sage-Grouse, Sage Thrasher, Brewer's Sparrow, and Sage Sparrow.

APPENDIX D

BLM Sensitive Species

Appendix D presents a list of the BLM Sensitive Species that could be associated with the project site (BLM 2003).

Golden Eagle – *Aquila chrysaetos*
Ferruginous Hawk - *Buteo regalis*
Burrowing owl - *Athene cunicularia*
Cooper's Hawk – *Accipiter cooperii*
Prairie Falcon – *Falco mexicanus*
Swainson's Hawk- *Buteo swainsoni*
Loggerhead shrike- *Lanius ludovicianus*
Pallid bat – *Antrozous pallidus*
Spotted bat – *Euderma maculatum*
Long-eared myotis – *Myotis evotis*
Fringed myotis – *Myotis thysanodes*
California myotis - *Myotis californicus*
Western pipistrelle bat - *Pipistrellus hesperus*
Brazilian free-tailed bat - *Tadarida braziliensis*