BLM
Mount Lewis Field Office, Nevada

ENVIRONMENTAL ASSESSMENT

DOI-BLM-NV-B010-2015-0029-EA

Toiyabe Exploration Project

June 2015

U.S. Bureau of Land Management
Mount Lewis Field Office
Battle Mountain District
50 Bastian Road
Battle Mountain, Nevada 89820-2332

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-B010-2015-0029-EA

GOLDEN OASIS EXPLORATION
TOIYABE EXPLORATION PROJECT
LANDER COUNTY, NEVADA

Environmental Assessment
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LIST OF ACRONYMS AND ABBREVIATIONS

°	degrees
4WD	four-wheel drive
AML	Appropriate Management Level
amsl	above mean sea level
BAPC	Bureau of Air Pollution Control
BLM	Bureau of Land Management
BMP	best management practice
BMRR	Bureau of Mining Regulation and Reclamation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
CESA	cumulative effects study area
CFR	Code of Federal Regulations
CO	carbon monoxide
DETR	Department of Employment, Training, and Rehabilitation
EA	Environmental Assessment
EO	Executive Order
EPMs	Environmental Protection Measures
ESA	Endangered Species Act of 1973, as amended
F	Fahrenheit
FLPMA	Federal Land Policy and Management Act of 1976
GHG	greenhouse gas
GOE	Golden Oasis Exploration
HFRA	Healthy Forests Restoration Act of 2003
HMA	Herd Management Area
I-80	Interstate 80
IM	Instruction Memorandum
MBTA	Migratory Bird Treaty Act of 1918
Mining Law	General Mining Law of 1872, as amended
MLFO	Mount Lewis Field Office
MSHA	Mine Safety and Health Administration
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NDOA	Nevada Department of Agriculture
NDOT	Nevada Department of Transportation
NDEP	Nevada Division of Environmental Protection
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act of 1969
NNHP	Nevada Natural Heritage Program
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statute
NSAAQS	Nevada State Ambient Air Quality Standards
OHV	off-highway vehicle
P.L.	Public Law

Plan	Plan of Operations/Nevada Reclamation Permit Application
$PM_{2.5}$	particulate matter less than 2.5 microns in size
PM_{10}	particulate matter less than 10 microns in size
PGH	Preliminary General Habitat
PPH	Preliminary Priority Habitat
Project	Toiyabe Exploration Project
RC	reverse circulation
REA	Rapid Ecoregional Assessment
RFFA	reasonably foreseeable future actions
RMP	Resource Management Plan
ROW	right-of-way
SIP	State Implementation Plan
SO_2	sulfur dioxide
TCP	Traditional Cultural Property
US	United States
USFWS	United States Fish and Wildlife Service
VRM	visual resource management

1 INTRODUCTION / PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

Golden Oasis Exploration (GOE) proposes surface exploration activities at the Toiyabe Exploration Project (Project) located in north-central Nevada approximately 40 miles southeast of Battle Mountain, in Lander County, Nevada. The Project is located on public lands administered by the Bureau of Land Management (BLM), Mount Lewis Field Office (MLFO). The Project is located in all or parts of Sections 7 and 18, Township 25 North, Range 47 East (T25N, R47E), and Sections 12 and 13, T25N, R46E, Mount Diablo Base and Meridian (Project Area). Access to the site includes traveling approximately 28 miles east on Interstate 80 (I-80) from Battle Mountain to the Beowawe exit, then approximately 31 miles south to the Cortez Mine on Nevada State Route 306, and finally for approximately 23 miles south to the Old Toiyabe Mine on a dirt road. The Project Area can be accessed from either the west or the south. Figure 1.1.1 shows the Project location and access.

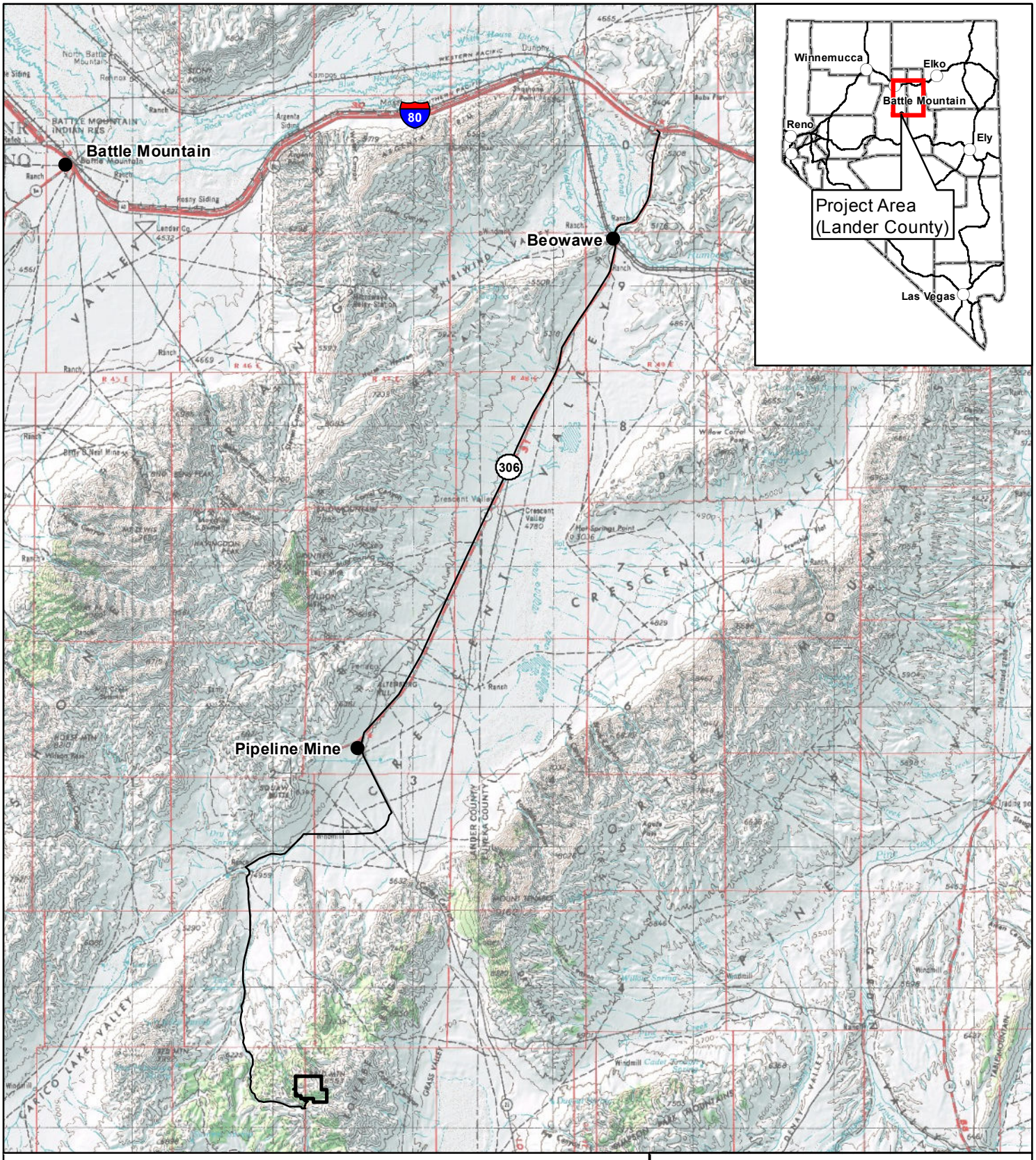
GOE has applied for a right-of-way (ROW) to use the existing access road, granted to Cortez Joint Venture (N-46805). An additional 25,982 linear feet of road access would be assigned to the ROW.

GOE proposes to expand existing/acknowledged Notice-level (NVN-087765) exploration activities within the 802-acre Project Area. Proposed activities consist of the following: exploration (reverse circulation [RC] and core) drilling; construction of roads, drill pads and sumps; trenching and bulk sampling; potential installation of groundwater monitoring and production wells, and a meteorological station; geophysical surveys; reclamation; and utilization and maintenance, as necessary, of existing roads used to access the exploration sites. GOE proposes to conduct exploration-related activities that would create approximately 89.9 acres of new surface disturbance for a total Project-related disturbance of approximately 100 acres.

Plan of Operations #NVN-091265/Nevada Reclamation Permit Application (Plan) was submitted to the BLM and the Nevada Division of Environmental Protection (NDEP) Bureau of Mining Regulation and Reclamation (BMRR) in February 2013 (revised April 2013), in accordance with BLM Surface Management Regulations 43 Code of Federal Regulations (CFR) 3809, as amended, and Nevada reclamation regulations at Nevada Administrative Code (NAC) 519A. A revised Plan is to be submitted to the BLM and BMRR to reflect the addition of approximately 84.7 acres of proposed disturbance.

1.2 Purpose of and Need for Action

On lands open to location under the General Mining Law of 1872, as amended (Mining Law), the BLM administers the surface of public land and federal subsurface mineral estate under the Mining Law and the Federal Land Policy and Management Act of 1976 (FLPMA). The FLPMA also governs BLM's administration of public land not open to location under the Mining Law.



Explanation

Project Area

Access Roads

BATTLE MOUNTAIN DISTRICT OFFICE
Mount Lewis Field Office LLNVB0100
50 Bastian Road
Battle Mountain, Nevada 89820

0 2 4 6 8 Miles

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TOIYABE EXPLORATION PROJECT

Project Location and Access

Figure 1.1.1

05/04/2015

The purpose of the Proposed Action is to authorize GOE's proposal to explore, locate, and delineate precious metal (gold) deposits on mining claims on public lands, as provided under the Mining Law. The need for the action is established by the BLM's responsibility under Section 302 of the FLPMA and the BLM Surface Management Regulations at 43 CFR 3809, to respond to an exploration plan of operations, and to take any action to prevent unnecessary or undue degradation of the public lands.

1.3 Decision to be Made

The decision the BLM would make is whether to approve GOE's Plan and authorize exploration activities, as proposed, approve the Plan with stipulations, or to not approve the Plan per 43 CFR 3809.411. The decision may include additional mitigation measures that are identified as a result of the analysis presented in this Environmental Assessment (EA), prepared in compliance with the National Environmental Policy Act of 1969 (NEPA), in order to prevent unnecessary or undue degradation of public lands, protect sensitive resource values, and provide for reclamation of disturbed areas. The BLM may deny approval of the Plan and not authorize the exploration activities if it is found that the proposal does not comply with the 3809 regulations and the FLPMA mandate to prevent unnecessary or undue degradation.

1.4 BLM Responsibilities and Relationship to Planning

The BLM is responsible for the preparation of this EA, which was prepared in conformance with NEPA, applicable laws and regulations passed subsequently, including the President's Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), U.S. Department of the Interior requirements, and the policy guidance provided in the BLM NEPA Handbook H-1790-1 (BLM 2008a). Under 43 CFR 3809.415, the operator of a plan of operations must prevent unnecessary or undue degradation to the public lands.

1.4.1 Conformance with Land Use Plans

The Proposed Action conforms with the BLM's Shoshone-Eureka Resource Management Plan, as amended (RMP) dated February 26, 1986 (BLM 1986a). Specifically, on page 29 in the RMP Record of Decision, under the heading "Minerals" subtitled "Objectives" number 1:

> "Make available and encourage development of mineral resources to meet national, regional, and local needs consistent with national objectives for an adequate supply of minerals."

Under "Management Decisions," "Locatable Materials," number 1:

> "All public lands in the planning areas will be open for mining and prospecting unless withdrawn or restricted from mineral entry."

Under "Management Decisions," "Current Mineral Production Areas," number 5:

> "Recognize these areas as having a highest and best use for mineral production and encourage mining with minimum environmental disturbance..."

1.4.2 Local Land Use Planning and Policy

The Lander County 2005 Policy Plan for Federally Administered Lands (originally developed between 1983 and 1984) was developed in response to Nevada Senate Bill 40 (1983), which directs counties to develop plans and strategies for resources that occur within lands managed by federal and state agencies. Policy 13-1 states: "Retain existing mining areas and promote the expansion of mining operations and areas."

1.5 Scoping and Issues

Internal scoping for the Project by the BLM interdisciplinary team occurred at a meeting held on June 11, 2013, at the BLM office in Battle Mountain. During this meeting, BLM personnel identified the elements associated with supplemental authorities and other resources and uses to be addressed in this document in Chapter 3. During the public comment period 3 responses were received and considered. These responses were incorporated into the final EA and can be seen in appendix A.

The following specific issues were identified:

- Migratory Birds;
- Native American Cultural or Traditional Concerns;
- Noxious Weeds, Invasive and Non-native Species;
- Soils;
- Special Status Species (Animals);
- Vegetation;
- Water Quality (Surface);
- Wild Horses; and
- Wildlife (General)

2 DESCRIPTIONS OF THE PROPOSED ACTION AND ALTERNATIVES

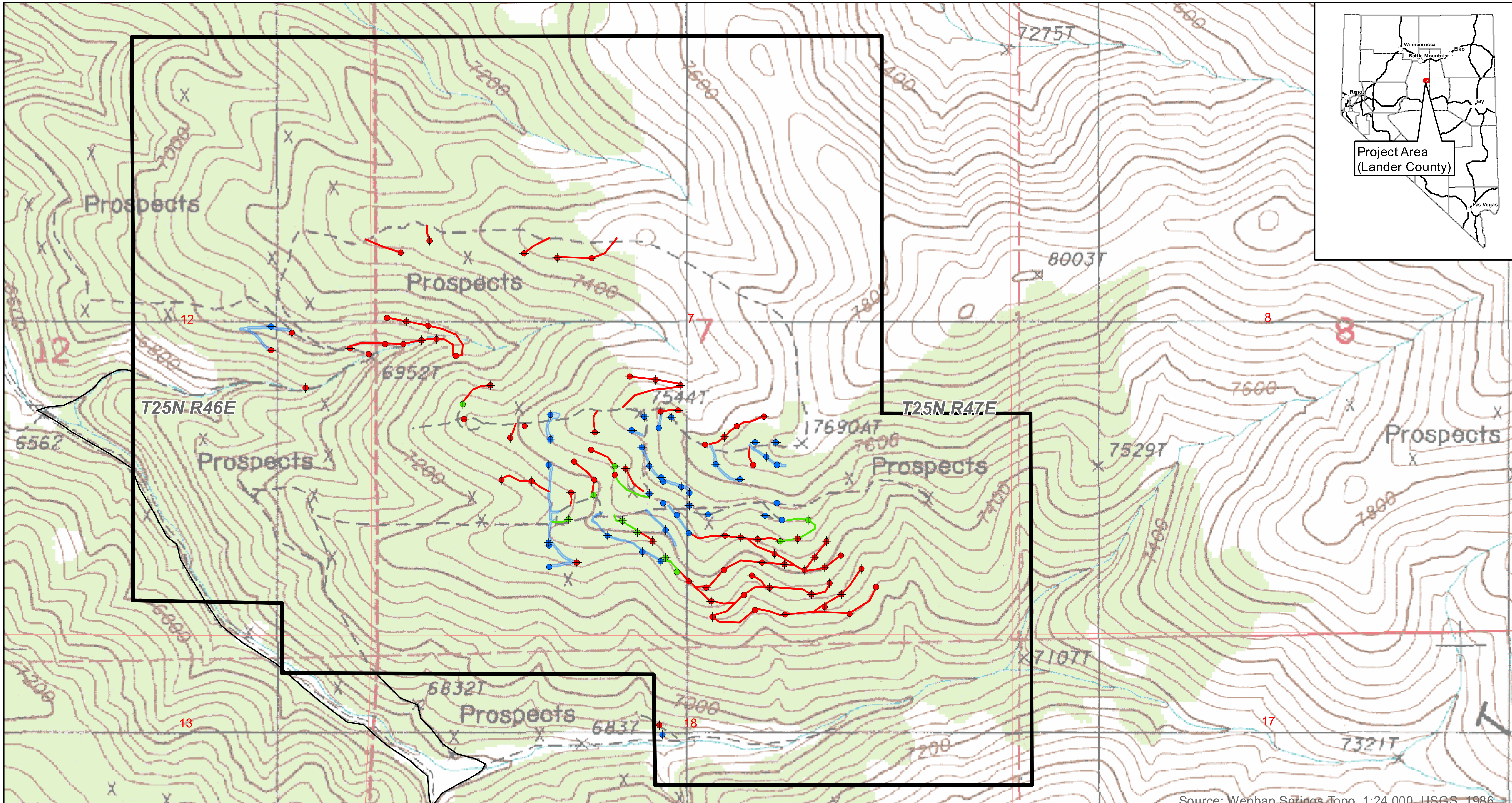
2.1 Proposed Action

The Proposed Action consists of expanding existing/acknowledged Notice-level exploration activities on public land within the 802-acre Project Area. Project activities consist of the following: exploration drilling; construction of roads, drill pads and sumps; trenching and bulk sampling; potential installation of groundwater monitoring and production wells, and a meteorological station; geophysical surveys; reclamation; and utilization and maintenance, as necessary, of existing roads used to access the exploration sites. GOE proposes to conduct exploration-related activities that would create approximately 95.1 acres of new surface disturbance, which includes approximately 5.2 acres of proposed Phase I disturbance. In addition, there are approximately 4.9 acres of existing/acknowledged disturbance for a total Project-related disturbance of approximately 100 acres. GOE has disturbed approximately 4.2 acres out of their acknowledged 4.9 acres of Notice-level surface disturbance. Table 2.1-1 displays the disturbance details. Existing/acknowledged and proposed Phase I surface disturbance are shown on Figure 2.1.1.

Table 2.1-1: Existing/Acknowledged and Proposed Project Surface Disturbance

Exploration Activity	Surface Disturbance (acres)			
	Existing/Acknowledged	Proposed Phase I	Subsequent Phases	Total
Constructed Roads	1.9	3.7	57.5	63.1
Constructed Drill Sites (including sumps)	3.0	1.5	24.0	28.5
Trenching and Bulk Sampling	0	0	3.0	3.0
Groundwater Monitoring Well Sites	0	0	4.3	4.3
Groundwater Production Well Site	0	0	1.0	1.0
Meteorological Station	0	0	0.1	0.1
Total Disturbance	**4.9**	**5.2**	**89.9**	**100.0**

As outlined in Table 2.1-1, GOE has projected the total existing/acknowledged, proposed, and subsequent surface disturbance would be approximately 100 acres. By using a phased approach to drilling, GOE would assess the expansion needs of the Project based on current drill results. In order to provide the BLM with relevant information concerning the location and types of surface disturbance and to avoid sensitive resources under each phase, GOE would provide documentation (i.e., work plans and maps) for the areas of planned exploration prior to commencing the subsequent phases of the proposed exploration activities. The BLM would provide a review and approval of each submittal prior to the initiation of activities under each work plan.



Explanation

- Project Area
- Proposed Phase 1 Drill Sites
- Acknowledged Notice-Level Drill Sites
- Existing Notice-Level Drill Sites
- Proposed Phase 1 Roads
- Acknowledged Notice-Level Roads
- Access Road
- Existing Pre-1981 Roads
- Existing Notice-Level Road Disturbance
- Ephemeral Drainage

Data Source: Golden Oasis Exploration 2012

Land Status: all BLM

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 be updated without notification.

BATTLE MOUNTAIN DISTRICT OFFICE
Mount Lewis Field Office LLNVB0100
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Battle Mountain, Nevada 89820

0 500 1,000 1,500 Feet

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TOIYABE EXPLORATION PROJECT

Existing and Proposed Phase 1 Surface Disturbance

Figure 2.1.1

05/22/2015

In addition, GOE would provide to the BLM and NDEP an annual report on, or before, April 15th of each year that documents surface disturbance locations, types of surface disturbance, and any completed concurrent reclamation.

2.1.1 Equipment

GOE anticipates that the following types of equipment would be used at the Project:

- One 1,000-gallon water truck;
- Up to two drill rigs (RC and core);
- Up to two mud mixing tanks and pumps;
- One circulation tank;
- Up to two pipe trucks;
- One casing truck;
- One booster truck;
- One dump truck;
- One backhoe;
- One auxiliary air compressor;
- One portable light plant/generator;
- One Caterpillar D8 bulldozer;
- One grader or equivalent; and
- One excavator.

2.1.2 Work Force

Standard drill rig crews usually consist of one drill operator and one to two helpers. The helpers remove and box the recovered core or rotary samples and cuttings from RC and core rigs, mix drilling fluids in the portable mud tank, operate the water truck, assist with drilling operations, and conduct maintenance as necessary. The crew would be transported to and from the drill site in four-wheel drive (4WD) vehicles. GOE would take steps to prevent fires by ensuring that each field vehicle carries hand tools and a fire extinguisher. Over the life of the Project, up to two drill rigs (RC and core) are expected to be in operation at the Project site at any given time. Up to a total of eight individuals would be working at the Project site at a given time, including two geologists and up to six drill operators and helpers. Drilling activities would generally be limited to daylight hours but could continue up to 24 hours per day for some drill rigs. During non-daylight drilling, artificial lighting would be directed downward to address the "dark sky initiative," subject to the Mine Safety and Health Administration (MSHA) or other safety concerns.

2.1.3 Road Construction

Due to the steep topography in the Project Area, overland travel would not be practical throughout most of the area; therefore, access throughout the Project Area would primarily be conducted via existing pre-1981 roads, existing roads constructed under acknowledged Notice-level activities, and proposed constructed roads (Figure 2.1.1). When new road construction is necessary, roads would be built with a 12-foot running surface including safety

berm as necessary. Approximately 13,275 linear feet (approximately 3.7 acres) of new roads would be constructed for the Project under Phase I.

Exploration roads that require earth-moving would be contoured using typical construction practices for temporary mineral exploration roads to minimize surface disturbance, erosion, and visual contrast, as well as to facilitate reclamation. Road construction would be implemented using a Caterpillar motor grader, backhoe, or equivalent equipment. Road grades would be no steeper than ten percent, except for short drill spurs, in order to be consistent with the BLM roads manual. Storm water BMPs would be used at the construction sites to minimize water erosion due to overland flow.

Balanced cut and fill construction would be used to the extent practicable to minimize the exposed cut slopes and the volume of fill material. Since the depth of cut would be kept to a minimum, growth media removed during construction would be stockpiled as the fill slope to be used during reclamation. Trees removed during the construction of drill roads would be stockpiled and used during reclamation of the roads for slope stabilization and to act as water bars. Road construction within drainages would be avoided whenever possible. When drainages must be crossed with a road, Best Management Practices (BMPs) established in the Nevada Contractors Field Guide for Construction Site Best Management Practices (2008) would be followed to minimize the surface disturbance and erosion potential. Culverts would generally not be installed on exploration roads. However, if a culvert is necessary, the placement and size would be approved by the BLM and BMRR.

Maintenance of existing roads would include minor seasonal regrading and reestablishment of water bars as necessary, as outlined in BLM Manual 9113. Erosion control would be monitored in the spring and fall, or after any significant precipitation event. Maintenance of existing roads would not increase the surface disturbance within the Project Area and would consist of smoothing rutted surfaces and holes on existing access and drill roads. Maintenance of existing pre-1981 roads would be conducted only on an as-needed basis and would include minor seasonal regrading and maintenance of drainage features as necessary. If road gravel is necessary to improve some of the roads in the area, the gravel would be obtained from a BLM approved source. The gravel would be placed on the road by a dump truck and smoothed by a road grader.

2.1.4 Drill Sites and Drilling Procedures

New drill site disturbance would be kept to the minimum size necessary to ensure safe access and a safe working area for the crew and equipment. Sumps would be constructed as necessary within the drill site disturbance to collect drill cuttings and manage drilling fluids. Drill site construction within perennial and intermittent drainages would be avoided. Drill sites would be located at least 200 feet from any drainage. During Phase I activities, GOE would conduct exploration drilling from 73 drill sites utilizing two drill rigs (truck-mounted RC rig and/or one core rig or equivalent).

Drill sites would each measure approximately 46 feet long by 20 feet wide (approximately 0.02 acre). The total proposed disturbance associated with the construction of 73 drill sites under Phase I would total approximately 1.5 acres, including sump disturbance. Surface disturbance would vary based on the slope of the terrain where the sites are constructed. All drill sites would be constructed on existing/acknowledged Notice-level constructed roads and proposed

constructed roads. All drill sites would be completely reclaimed. Sump disturbance would be constructed within the drill site disturbance and would measure approximately 12 feet long by six feet wide by two feet deep. The drill sites and sumps would be constructed in areas with varying topography. Sumps associated with drill sites would be built with an incline on one end so entrapped animals or humans could easily exit the sump. Upon completion of drilling activities, sumps would remain fenced until fluids have infiltrated or evaporated then would be reclaimed.

Drill holes would average approximately 300 feet in depth, with the shallowest hole approximately 150 feet in depth and the deepest hole approximately 1,500 feet in depth. Under Phase I, up to four pre-collar holes would be drilled with a RC rig then completed with a core rig. Cuttings not bagged and removed during sample collection would be used as a source of backfill and placed back down the borehole. All drill holes, except the four pre-collar holes, would be plugged prior to the drill rig moving from the drill site in accordance with the regulations at NAC 534.425 through 534.428.

Only water or nontoxic drilling fluids would be utilized, as necessary, during drilling. Under a verbal agreement, GOE would obtain water at the Cortez Mine located approximately 23 miles from the Project site. GOE would access the water source by transporting water from the Cortez Mine to the Project site by one 1,000-gallon water truck.

Standard drilling procedures usually require a geologist to be on site throughout Project-related drilling activities. The duties of the geologist generally include logging each hole according to the geologic features encountered, determining the maximum depth of each hole, and advising the drill operator as needed. The geologist usually travels to and from the drill site in a separate 4WD vehicle.

2.1.5 Trenching and Bulk Sampling

Trenches would be constructed for geologic mapping, collection of bulk samples, and the collection of ground condition data. The sampling would consist of developing surface excavations or trenching. The sizes and locations of the bulk sampling sites have not yet been identified and would vary based on exploratory drilling results, but it is anticipated that approximately three acres of disturbance would be created. The trenches would be excavated using a small bulldozer or excavator and would have a temporary 1 horizontal:1 vertical slope ratio. Excavated material would be stockpiled along the sides or at the end of the trench.

Growth media (e.g., topsoil and alluvium) would be salvaged and placed in a separate stockpile from the remainder of the excavated material. The growth media would be redistributed after the trench has been refilled to provide enhanced revegetation potential. To prevent access by humans or animals, GOE would erect and maintain an orange barrier fence surrounding open trenches until they are filled and reclaimed.

2.1.6 Other Disturbance

Other surface disturbance associated with the Project includes groundwater monitoring wells, piezometer surface casing, a groundwater production well, a meteorological station, and

associated access roads. Each disturbance site would measure approximately 50 feet long by 50 feet wide. Any groundwater monitoring wells would be plugged in accordance to NAC 534.420 once they are no longer needed. GOE would obtain the appropriate permits or waivers from the Nevada Division of Water Resources (NDWR). GOE would obtain a Monitor Well Waiver for any monitoring wells installed. GOE would obtain a Water Rights Permit and place of use for any production well installed.

2.1.7 Water Management Plan

Water would be used for dust suppression and during drilling to cool the drill bit and remove drill cuttings. Water with or without nontoxic drilling fluid additives may be utilized. Drill fluids would be managed with the use of sumps at each drill site. Proposed construction and drilling activities would avoid springs and seeps, if present. In order to facilitate proper drainage and prevent erosion, all bladed roads would have waterbars constructed, as needed, at BLM-recommended spacings.

BMPs for sediment control would be utilized during construction, operation, and reclamation to minimize sedimentation from disturbed areas (Kennedy/Jenks Consultants 2008). The management of drill cuttings would be conducted in a manner that is consistent with BMPs and includes the use of one or all of the following: sediment traps or sumps located at drill sites; straw bales (certified weed free); and/or silt fences. If needed, a sand separation system would be used in conjunction with the sediment sumps so that the recirculation of drilling fluids can be maximized. None of the drilling fluids to be used at the Project site contain hazardous substances.

2.1.8 Surface Occupancy

Under 43 CFR 3710 Subpart 3715.0-5, occupancy is defined as full or part-time residences on the public lands. It also encompasses activities that involve residence; the construction, presence, or maintenance of temporary or permanent structures that may be used for such purposes; or the use of a watchman or caretaker for the purpose of monitoring activities. Residence or structures include, but are not limited to, barriers to access, fences, tents, motor homes, trailers, cabins, houses, buildings, and storage of equipment or supplies. No structures would be built as part of the Project. The Project would not require a laydown yard area or office trailer area.

Surface occupancy activities under this Plan, including those activities covered under 43 CFR 3710 Subpart 3715.0-5, may include the following:

- The development of groundwater monitoring wells, which would each have surface features including casing, well head cover, and protection posts as needed;
- The development of groundwater piezometers, which would each have surface features including casing, electrical connections, and protection posts as needed;
- The development of groundwater production wells, which would each have surface features including casing, well head covers, electrical connections, and protection posts as needed.

The development of a monitoring well system and exploration for potential water supplies are an integral aspect of evaluating the economic viability of any gold resources delineated during the exploration phase. The absence of water or poor water quality could negatively impact a future project.

The period of use would continue until either the exploration Project ends or the exploration project is converted into a mine development project. If the Project ends unsuccessfully then the drill holes would be abandoned at that time in accordance with state and federal regulations. If the Project developed into a Mine Plan of Operations, then the wells would continue to operate until the mining operation is closed, in which case their closure would be included in the mining plan of operations.

2.1.9 Solid and Hazardous Materials

Solid wastes would be managed through collection and disposal at a state, federal, or local designated site at the end of a drill shift. One portable chemical toilet per drill rig would also be used on the Project site for human waste disposal and would be supplied and maintained by a Nevada-based contractor on a weekly basis. No waste would be buried on site.

Hazardous materials utilized at the Project would include diesel fuel, gasoline, and lubricating grease. Approximately 500 gallons of diesel fuel and gasoline would be stored in fuel delivery systems on the drill rig and support vehicles. Approximately 100 gallons of gasoline would be stored in fuel delivery systems for light vehicles. Approximately ten pounds of lubricating grease would be stored on the drill rigs or transported by drill trucks. All containers of hazardous substances would be labeled, handled, and stored in accordance with the Nevada Department of Transportation (NDOT) and MSHA. In the event that hazardous or regulated materials are spilled, measures would be taken to control the spill, and the BLM and/or the NDEP would be notified as required. Any hazardous substance spills would be handled in accordance with the Spill Contingency Plan (Appendix D of the Plan), including an immediate clean up and any resulting waste transferred off site in accordance with all applicable local, state, and federal regulations. Contract drillers would maintain spill kits on site for use in case of a spill.

2.1.10 Reclamation Plan

Reclamation would be completed to the standards described in 43 CFR 3809.420 and NAC 519A. Reclamation would meet the reclamation objectives outlined in the U.S. Department of Interior Solid Minerals Reclamation Handbook #H-3042-1 (BLM 1992a), revegetation success standards per BLM/NDEP “Revised Guidelines for Successful Mining and Exploration Revegetation” (BLM 1999), and Surface Management Handbook H-3809-1 (BLM 2012a). Existing roads would be utilized as much as possible, minimizing the need for road construction. All GOE drill sites, sumps, and road construction would be recontoured, decompacted, and reseeded. Concurrent reclamation would be conducted when feasible.

Reclamation would be designed to achieve post-exploration land uses consistent with the BLM's land use management plans for the area. Reclamation is intended to return disturbed land to a level of productivity comparable to pre-exploration levels. Post-exploration land use includes wildlife habitat, livestock grazing, hunting, and dispersed recreation. The post-exploration land use is not expected to differ from the pre-exploration land use.

During exploration activities, reclamation would involve managing drilling to contain cuttings and manage drilling fluids, monitoring road conditions, and keeping sites clean and safe. During seasonal closure of the Project and periods of inactivity between drilling phases, reclamation would involve filling sumps, cleaning sites, and maintaining the overall safety of the Project Area. The BLM and BMRR would be notified prior to any periods of inactivity greater than 120 days.

After exploration activities are terminated, reclamation would involve regrading disturbed areas related to this Project to their approximate original contour and seeding using the anticipated reclamation seed mixture and application rates furnished by the BLM (Table 2.1-2). If any species in the seed mix is not available for purchase by GOE, then GOE would consult BLM on an acceptable seed mix with available species. Yearly visits to the site would be conducted to monitor the success of the revegetation for a period of up to three years or until revegetation success has been achieved.

Table 2.1-2: Anticipated BLM Seed Mix

Species	Common Name	PLS (lbs/acre)
Leymus cinereus	Great Basin wildrye	3.0
Pseudoroegeria spicata	Bluebunch wheatgrass	3.0
Achnatherum thurberianum	Thurber's needlegrass	3.0
Bromus marginatus	Mountain brome	2.0
Crepis acuminate	Tapertip hawksbeard	1.0
Balsamorhiza sagittata	Arrowleaf balsamroot	1.0
Artemesia tridentata wyomingensis	Wyoming big sagebrush	0.5
Amelanchier utahensis	Utah serviceberry	1.0
Symphoricarpos albus	Snowberry	1.0
Total		**15.5**

To prevent and control the introduction and spread of noxious weeds within the Project Area during reclamation activities, GOE would implement the following prevention and control practices:

- Soil (growth media) disturbance would be minimized to the extent practicable, consistent with Project objectives. Growth media would be stockpiled and used in reclamation;
- Disturbed sites would be revegetated as soon as practicable when exploration work is completed. Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching as necessary; and
- The seed mixture would be certified pure live seed and weed free. Straw bales used for erosion control would also be certified as weed free.

The post-exploration and post-reclamation topography would be essentially the same as the pre-exploration topography because only limited amounts of linear surface disturbance are planned.

Exploration activities would occur over approximately five years. All reclamation work, with the exception of revegetation monitoring, would be completed no later than two years after the completion of activities under this Project. GOE would conduct concurrent reclamation of

disturbed areas once it is determined that the disturbance is no longer required for Project activities.

Table 2.1-3 outlines the anticipated reclamation schedule on a monthly basis, which would be followed to achieve the reclamation goals set forth above. Regrading would occur between April and December and would be done within two years of Project completion. Revegetation activities (seeding) are limited by the time of year during which they could be effectively implemented. Seeding would be completed between October and December and would occur within two years of Project completion. Site conditions or yearly climatic variations could require that this schedule be modified to achieve revegetation success. Monitoring could occur between April and the end of September to determine revegetation success. In general, monitoring would be conducted within three years following regrading and reseeding. Additional reclamation activities include the removal of all equipment, supplies, and materials brought onto public land at the end of the Project life.

Table 2.1-3: Anticipated Reclamation Schedule

Techniques	Quarter				Year(s)
	1st Jan – Mar	2nd April – June	3rd July – Sept	4th Oct - Dec	
Regrading					Within two years of Project completion
Seeding					Within two years of Project completion
Monitoring					Three years beyond grading and reseeding

2.1.10.1 Drill Hole Plugging

All drill holes would be plugged in accordance with NAC 534.425 through NAC 534.428. If any drill hole produces artesian flow, the drill hole would be contained pursuant to Nevada Revised Statute (NRS) 534.060 and NAC 534.378 and would be sealed by the method described in Subsection 2 of NAC 534.4371. If casings are set in a drill hole, either the drill hole must be completed as a well and plugged pursuant to NAC 534.420, or the casings would be completely removed from the drill hole and then plugged. The upper portion of the borehole may be permanently cased if the annulus is completely sealed from the casing shoe to the surface pursuant to NAC 534.380. In the event that the upper portion of a borehole is permanently cased, the casing would be perforated, in accordance with NAC 534.420.

2.1.10.2 Regrading and Reshaping

Regrading and reshaping of all constructed drill sites, constructed exploration roads, and existing post-January 1, 1981, roads utilized for Project-related activities would be completed to approximate the original topography as much as practicable. Fill material, enhanced with growth media, would be pulled onto the roadbeds to fill the road cuts and restore the slope to natural dimension, pattern, and profile. Sumps would be backfilled with the stockpiled spoil pile. Reclamation work would be completed with an excavator or dozer, as necessary.

Disturbed drainages would be re-shaped to approximate the pre-construction contours. The resulting channels would have the same capacity as up and downstream reaches and would be made non-erosive by use of surface stabilization techniques (rip-rap) where necessary, and

ultimately revegetated. Following completion of earthwork, all disturbed areas would be broadcast seeded.

2.1.10.3 Handling of Topsoil

Soils capable of serving as growth media would be salvaged and stockpiled as part of the fill slope of roads and pads. In addition to the soils, as much of the organic matter as possible would be salvaged to minimize compaction and promote aeration. No independent growth media or soil stockpiles would be constructed as part of the Project. Soil amendments are not considered necessary in those areas where sufficient growth media are available.

2.1.10.4 Revegetation

Generally, seedbed preparation and seeding would take place in the fall after regrading of disturbed areas. All reclaimed areas would be broadcast seeded with a cyclone-type bucket spreader or a mechanical blower. Broadcast seed would be covered by harrowing, raking, or other site-specific appropriate methods, as necessary, to provide seed cover and enhance germination. Reclaimed surfaces would be left in a textured or rough condition (e.g., small humps, pits) to enhance moisture retention and revegetative success while minimizing erosion potential.

The seed list, provided by the BLM and shown in Table 2.1-2, is based on known soil and vegetative conditions and was selected to establish a plant community to support the post-exploration land use. The mix is designed to provide species that can exist in the environment of northeastern Nevada, are proven species for revegetation, and/or are native species found in the plant communities prior to disturbance. Broadcast seeding would be at a rate of 15.5 pounds of pure live seed (PLS) per acre. Changes and/or adjustments to the reclamation plant list and/or application rate would be completed in consultation with and approval by the BLM and BMRR.

Timing of revegetation activities is critically important to the overall success of the program. Seeding activities would be timed to take advantage of optimal climatic periods and would be coordinated with other reclamation activities. In general, earthwork and drainage control would be completed in the summer or early fall. Seedbed preparation would generally be completed in the fall, either concurrently with or immediately prior to seeding. Seeds would be sown in late fall to take advantage of winter and spring precipitation and optimum spring germination. Early spring seeding may be utilized for areas not seeded in the fall. In either case, seeding would not be completed when the ground is frozen or snow covered.

2.1.11 Monitoring

Monitoring of the drill sumps includes periodic visual inspections during drill operations to ensure that the drill cuttings are contained. Should the observed condition indicate sump containment is inadequate, additional sump capacity would be built and/or incorporated into the drilling fluid management system. Monitoring associated with reclamation activities is addressed in the Reclamation Plan (Section 3).

The BLM and GOE would cooperate to inventory and monitor noxious weeds within areas of disturbance related to exploration activities within the Project Area. Noxious weed infestations within the Project Area resulting from GOE's ground disturbing activities would be promptly reported to the BLM. The extent of the infestation would be recorded and plotted on a map. GOE would treat any noxious weed infestations that result from ground disturbing activities within the Project Area for at least a three-year period following the completion of the Project. Treatments would be applied and recorded per BLM policy. The BLM and GOE would cooperate to monitor the effectiveness of treatments on noxious weeds.

Monitoring of drill roads and water bars would include visual inspections, primarily after storm events. If erosion has occurred, or seems likely to occur, the water bars and roads would be repaired using a Caterpillar 325 excavator, or equivalent.

2.1.12 Applicant-Committed Environmental Protection Measures

GOE would commit to the following environmental protection measures (EPMs) to prevent unnecessary or undue degradation during construction, operation, and reclamation of the Project. The measures are derived from the general requirements established in BLM's Surface Management Regulations at 43 CFR 3809 and BMRR mining reclamation regulations, as well as other water and air quality regulations.

Air Quality

- Emissions of fugitive dust from disturbed surfaces would be minimized by utilizing appropriate control measures. Surface application of water from a water truck and reduced speed limits on dirt access roads are the current methods of dust control. A Surface Area Disturbance Permit and Dust Control Plan have been obtained since the Project exceeds 20 acres in size.

Cultural Resources

- Pursuant to 43 CFR 10.4(g), GOE would notify the BLM-authorized officer, by telephone, and with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2). Further pursuant to 43 CFR 10.4 (c) and (d), the operator would immediately stop all activities in the vicinity of the discovery and not commence again for a maximum of 30 days or when notified to proceed by the BLM-authorized officer.

- GOE would not knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, or object. If GOE discovers any cultural resource that might be altered or destroyed by operations, the discovery would be left intact and reported to the authorized BLM officer.

- In order to prevent impacts to cultural resources, GOE would avoid eligible or unevaluated cultural sites within the Project Area. GOE would ensure that eligible or unevaluated cultural sites within the Project Area are mapped and flagged by a qualified cultural resource specialist with a global positioning system unit prior to surface disturbance.

Erosion and Sediment Control

- Reseeding would be consistent with all BLM recommendations for seed mix constituents, application rate, and seeding methods.
- Final reclamation of constructed roads, sumps, and drill pads would consist of fully recontouring disturbances to their original grade and reseeding in the fall season immediately following completion of exploration activities.
- Drill pads and sumps would be reclaimed as soon as practicable after completion of data logging and sampling.

Fire Management

- All applicable state and federal fire laws and regulations would be complied with and all reasonable measures would be taken to prevent and suppress fires in the Project Area.
- In the event that the Project should start a fire, GOE would be responsible for all the costs associated with the suppression. The following precautionary measures would be taken to prevent and report wildland fires:
    - All vehicles would carry fire extinguishers and a minimum of ten gallons of water;
    - Adequate fire-fighting equipment (i.e., shovel, Pulaski, extinguishers), and a minimum ten gallons of water would be kept at each drill site;
    - Vehicle catalytic converters would be inspected often and cleaned of brush and grass debris;
    - Welding operations would be conducted in an area free from or mostly free from vegetation. A minimum of ten gallons of water and a shovel would be on hand to extinguish any fires created from the sparks. Extra personnel would be at the welding site to watch for fires created by welding sparks. Welding aprons would be used when conditioned warrent (ie during red flag warnings);
    - Wildland fires would immediately be reported to the BLM Central Nevada Interagency Dispatch Center (CNIDC) at (775) 623-3444. Information reported would include the location (latitude and longitude if possible), fuels involved, time started, who or what is near the fire, and the direction of fire spread; and
    - When conducting operations during the months of May through September, the BLM Battle Mountain District Office, Division of Fire and Aviation would be contacted at (775) 635-4000 to determine if any fire restrictions are in place for the Project and to provide approximate beginning and ending dates for Project activities.

Hazardous or Solid Wastes

- Pursuant to 43 CFR 8365.1-1(b)(3), no sewage, petroleum products, or refuse would be dumped from any trailer or vehicle.

- Only nontoxic fluids would be used in the drilling process.

- Regulated wastes would be removed from the Project Area and disposed of in a state, federal, or local designated area.

- If a spill of a petroleum constituent is considered to meet the reportable quantity per the NDEP's guidelines (greater than 25 gallons or greater than three cubic yards of impacted material or any quantity if a water body is impacted), or a reportable quantity for hazardous waste is released based on the Federal Environmental Protection Agency guidelines established under Title III List of Lists (40 CFR Part 302), the NDEP would be notified within 24 hours, and the appropriate remedial actions and confirmation sampling would be conducted under direction of the NDEP.

Migratory Birds

- In order to avoid potential impacts to breeding migratory birds (including golden eagles [*Aquila chrysaetos*]), a nest survey would be conducted by a BLM-approved biologist prior to any surface disturbance associated with exploration activities during the avian breeding season (March 1 through July 31 for raptors, and April 1 through July 31 for other avian species). Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within 14 days of the survey, another survey would be needed. If active nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) would be delineated after consultation with the BLM resource specialist, and the buffer area avoided to prevent destruction or disturbance to nests or birds until they are no longer actively breeding or rearing young. The site characteristics to be used to determine the size of the buffer area are as follows: a) topographic screening; b) distance from disturbance to nest; c) the size and quality of foraging habitat surrounding the nest; d) sensitivity of the species to nest disturbances; and e) the protection status of the species. Seasonal disturbance restrictions surrounding occupied nests would remain in place until the young have fledged or the nest fails.

- In order to avoid potential impacts to the northern goshawk (*Accipiter gentilis*) nest identified in the Project Area, GOE would ensure that an annual nest survey is conducted by a BLM- approved biologist prior to any drilling, road construction, or vehicular travel that is planned to occur between March 1 and August 15. If the nest is found to be active than GOE would implement the following:

    - Inform the BLM of the nest status;
    - Not conduct drilling or road construction activities within a 0.5-mile buffer around the active nest during the northern goshawk breeding season of March 1 through August 15;

- Only allow vehicles to travel along the access road to the east of the active nest (Figure 2.1.2) within the 0.5-mile buffer between March 1 and August 15 provided the vehicles do not stop; and
- Not allow vehicles to travel along the access road directly west of the active nest (Figure 2.1.2) between March 1 and August 15.

If the annual nest check determines that the nest is not active, these restrictions would not apply.

Noxious Weeds, Invasive and Non-native Species

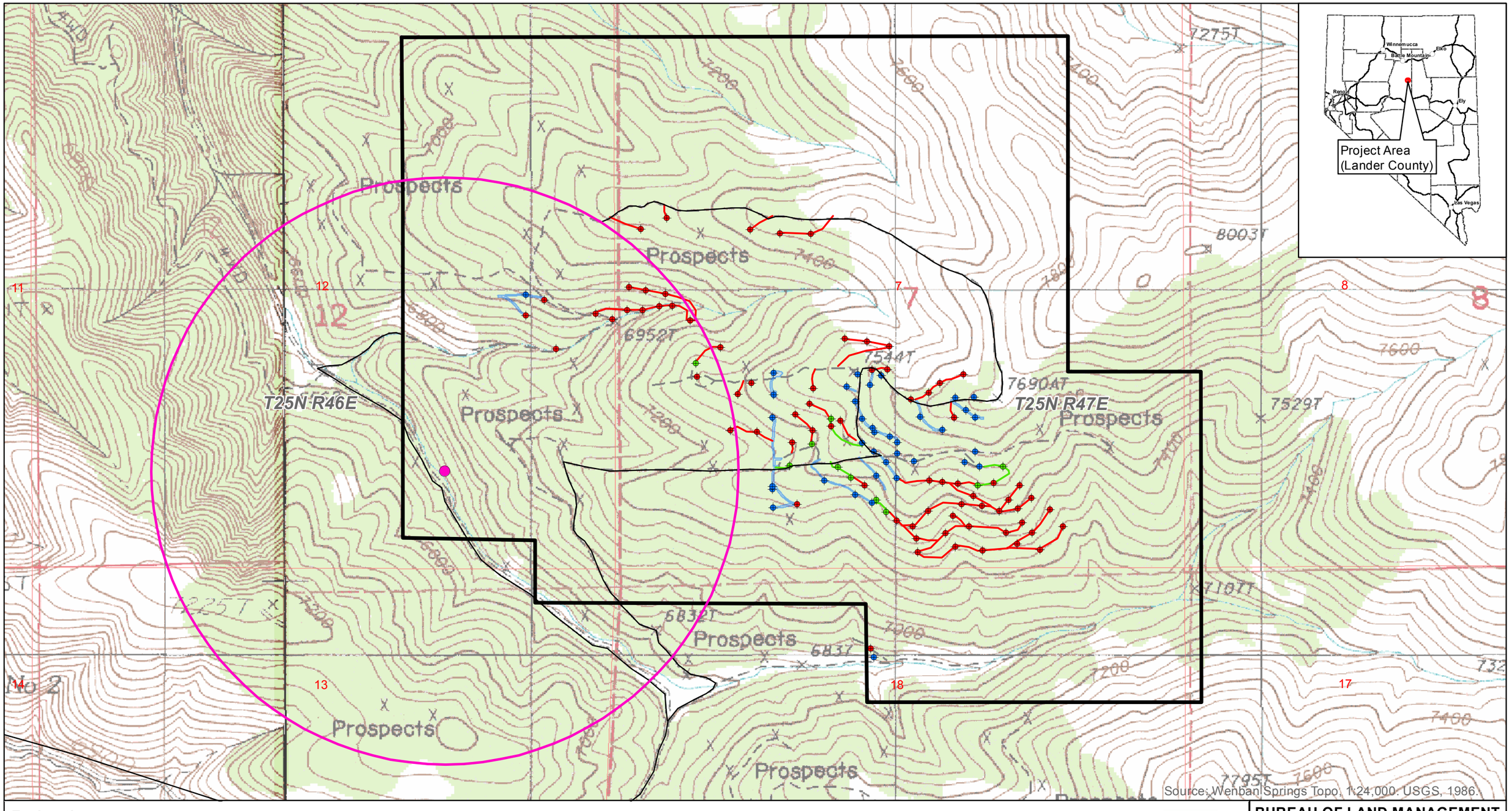
- Noxious weeds would be controlled through implementation of the following BMPs: concurrent reclamation efforts; schedule weed management activities to maximize the effectiveness of control efforts on reclaimed areas; washing heavy equipment prior to entering the Project Area; and avoiding areas of known invasive, non-native, and noxious weeds during periods when the weeds could be spread by vehicles.

- Noxious weeds can readily invade disturbed areas associated with exploration projects. GOE would be responsible for the following: 1) identifying noxious weeds in the Project Area (noxious weed information would be provided by the BLM); 2) excluding noxious weeds from disturbed areas until reclamation has been accepted and released; and 3) ensuring that all equipment is "weed free" before traveling to and from the Project Area so that noxious weeds are not spread to new locations. All vehicles originating from outside northern Nevada would be cleaned in a powerwash in Battle Mountain. When noxious weeds are encountered in the Project Area, documentation of their location and extent would be provided to the BLM as soon as possible. GOE would obtain approval from the BLM-authorized officer prior to any herbicide application. GOE would contact the BLM's noxious weed program lead regarding any issues concerning noxious weeds.

- To minimize the introduction of noxious weeds into the Project Area, the following preventative measures would be implemented by GOE: 1) stay on existing roads to and from the Project Area and in the Project Area; 2) use a certified weed-free seed mix during reclamation; 3) conduct concurrent reclamation when feasible; and 4) implement a weed monitoring and control program. The BLM would provide GOE with a color brochure, "Nevada Noxious Weed Field Guide," a publication by the University of Nevada Cooperative Extension. Through Early Detection/Rapid Response, GOE would survey the Project Area annually to reduce the risk that invasive species become established. Control method(s) would be determined by a range of factors, even for small infestations. For more intensive infestations, GOE would consult with the BLM on containment or eradication measures.

Paleontological Resources

- Pursuant to 43 CFR 3809.420(b)(8)(ii), GOE would notify the BLM-authorized officer, by telephone, and with written confirmation, immediately upon the discovery of paleontological resources that are discovered as a result of surface disturbing activities, the item(s) or condition(s) would be left intact and immediately brought to the attention of the BLM. Further pursuant to 43 CFR 10.4(c) and (d), the operator would immediately stop all activities in the vicinity of the discovery and not commence again for 30 days of



Source: Wenban Springs Topo, 1:24,000. USGS, 1986.

Explanation

- Project Area
- Proposed Phase 1 Drill Sites
- Acknowledged Notice-Level Drill Sites
- Existing Notice-Level Drill Sites
- Proposed Phase 1 Roads
- Acknowledged Notice-Level Roads
- Access Road
- Existing Pre-1981 Roads
- Existing Notice-Level Road Disturbance
- Ephemeral Drainage
- Northern Goshawk Nest
- 0.5-mile buffer of goshawk nest

Data Source: Golden Oasis Exploration 2012

Land Status: all BLM

BATTLE MOUNTAIN DISTRICT OFFICE
Mount Lewis Field Office LLNVB0100
50 Bastian Road
Battle Mountain, Nevada 89820

0 500 1,000 1,500 Feet

N

BUREAU OF LAND MANAGEMENT

TOIYABE EXPLORATION PROJECT

Northern Goshawk Nest Buffer and Surface Disturbance

Figure 2.1.2

05/22/2015

when notified to proceed by the BLM-authorized officer. If significant paleontological resources are found, avoidance, recordation, and data recovery would be required.

Public Safety

- Public safety would be maintained throughout the life of the Project. All equipment and other facilities would be maintained in a safe and orderly manner.
- Activities would be restricted to frozen or dry ground conditions where feasible. Operations would be curtailed when saturated and soft soil conditions exist.
- In the event that any existing roads are severely damaged as a result of GOE activities, GOE would return them to their original condition.

Survey Monuments

- Any survey monuments, witness corners, or reference monuments would be protected to the extent economically and technically feasible.

Vegetation

- Reseeding would be consistent with all BLM recommendations for seed mix constituents, application rate, and seeding methods.

Water Quality

- All drill holes would be plugged in accordance with Nevada Revised Statute (NRS) 534, NAC 534.4369 and NAC 534.4371. If any drill hole produces artesian flow, the drill hole would be contained pursuant to NRS 534.060 and NAC 534.378 and would be sealed by the method described in NAC 534.4371. If casings are set in a drill hole, either the drill hole must be completed as a well and plugged pursuant to NAC 534.420, or the casings would be completely removed from the drill hole and then plugged in accordance with NAC 534.4369 and NAC 534.4371.
- Storm water BMPs would be used at the construction sites to minimize storm water erosion.
- GOE would follow the Spill Contingency Plan in Appendix D of the Plan.
- Drill cuttings and fluids would be contained on site utilizing appropriate control measures. Sediment traps would be used as necessary and filled at the end of the drill program.
- Only nontoxic fluids would be used in the drilling process.

Wild Horses

- No activities would block access to water, and human presence near water sources would be minimized to the extent possible.

- If operations cause a water source to become unavailable to wild horses, the Authorized Officer may require another water development to be constructed in the general area to provide adequate water for the wild horses. Additional measures for the protection of wild horses may be required, such as timing/seasonal restrictions and access route restrictions during the peak foaling period within the concentrated use areas identified in the HMA.

- GOE would immediately report any conflicts with or concerns about wild horses in the Project Area to the Field Office Wild Horse and Burro Specialist.

Wildlife

- All sumps and other small excavations that pose a hazard or nuisance to the public, wildlife, or livestock would be adequately fenced to preclude access, or constructed with a sloped end for easy egress.

2.2 No Action Alternative

In accordance with BLM NEPA guidelines H-1790-1, Chapter V (BLM 2008a), this EA evaluates the No Action Alternative, which is a reasonable alternative to the Proposed Action. The objective of the No Action Alternative is to describe the environmental consequences that would result if the Proposed Action were not implemented. The No Action Alternative forms the baseline for which the impacts of all other alternatives can be measured.

Under the No Action Alternative, the Proposed Action would not be approved by the BLM; however, the area would remain available for other multiple use activities as approved by the BLM and BMRR. GOE would continue exploration activities in the Project Area on public land. Disturbance limits for the approved Notice totals approximately 4.9 acres on public land. This acreage could be reclaimed and released by the BLM, based on compliance with the revegetation success criteria, thereby allowing GOE to create sequential acreage of disturbance with BLM approval. Activities associated with this total of approximately 4.9 acres of surface disturbance on public land include construction of exploration roads and drill pads, and utilization of existing roads.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

2.3.1 Cross County/Overland Travel Only Alternative

This alternative would utilize only overland travel or cross-country travel and would not allow for construction of new roads. Utilization of cross-country travel exclusively for the Project would eliminate portions of the exploration area due to steepness of the terrain, thick layers of soft sediment, or the presence of mountain big sagebrush (*Artemisia tridentata* spp. *vaseyana*), which would not permit the overland passage of Project-related equipment.

2.3.2 Use Only Existing Roads Alternative

Under this alternative, all exploration activities would use only existing roads and no new roads would be constructed. Utilization of existing roads only would eliminate portions of the exploration area. Exploration for lithologically-controlled deposits in this area is difficult and requires numerous drill holes in locations not on the existing roads in order to evaluate the geologic and mineral potential. An alternative that eliminates access to portions of the exploration area would deny the claimant the opportunity to fully evaluate and characterize the mineral potential.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

The purpose of this section of the EA is to describe the existing environment of the Project Area, as well as environmental consequences from implementation of the Proposed Action or any of the listed alternatives.

Supplemental Authorities that are subject to requirements specified by statute or Executive Order (EO) must be considered in all BLM environmental documents. The elements associated with the supplemental authorities listed in the NEPA Handbook (BLM 2008a, Appendix 1) and in the Nevada Instruction Memorandum (IM) 2009-030, Change 1, are listed in Table 3.1-1. The table lists the elements and the determination whether the element is present in the Project Area and whether the element would be affected by the Proposed Action.

Table 3.1-1: Elements Associated with Supplemental Authorities and Rationale for Detailed Analysis for the Proposed Action

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Air Quality		X		See Section 3.2.1.
Areas of Critical Environmental Concern (ACEC)	X			This element is not present within the Project Area or vicinity and is not further analyzed in this EA.
Bald and Golden Eagles		X		See Section 3.2.12 (Special Status Species).
Cultural Resources		X		See Section 3.2.2.
Environmental Justice	X			Based on a review of existing baseline data, no minority or low-income groups would be disproportionately affected by health or environmental effects as a result of implementation of the Proposed Action. This element is not present within the Project Area or vicinity and is not further analyzed in this EA.
Farm Lands (Prime or Unique)	X			This element is not present within the Project Area or vicinity and is not further analyzed in this EA.
Fish Habitat	X			Native fish habitat is not present within the Project Area or vicinity and is not further analyzed in this EA.
Floodplains	X			This element is not present within the Project Area or vicinity and is not further analyzed in this EA.
Forests and Rangelands (Healthy Forests Restoration Act [HFRA] projects only)	X			This project does not meet the requirements to qualify as an HFRA project.
Human Health and Safety (Herbicide Projects)	X			The Project may use herbicides to eradicate noxious weeds; however, EO 13045, "Protection of Children from Environmental Health Risks and Safety Risks", would not apply to this Project as there would be no children on the site.

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Migratory Birds			X	See Section 3.2.7.
Native American Cultural or Traditional Concerns			X	See Section 3.2.8.
Noxious Weeds, Invasive and Non-native Species			X	See Section 3.2.9.
Threatened or Endangered Species	X			Federally threatened and endangered species have been determined not to be present within the Project Area.
Wastes – Hazardous/Solid		X		See Section 3.2.17.
Water Quality, Surface and Ground			X	See Section 3.2.18.
Wetlands and Riparian Zones	X			This element is not present within the Project Area or vicinity and is not further analyzed in this EA.
Wild and Scenic Rivers	X			This element is not present within the Project Area or vicinity and is not further analyzed in this EA.
Wilderness/Wilderness Study Areas (WSAs)/Lands with Wilderness Characteristics	X			Wilderness or WSAs are not present within the Project Area or vicinity. The BLM conducted a lands with wilderness characteristics inventory of the Project Area in May 2015 and determined there are no lands with wilderness characteristics in the Project Area. These elements are not further analyzed in this EA.

Elements present are analyzed in Section 3.2, including justification for the elements present and determined not affected by the Proposed Action. Those elements listed under the supplemental authorities that do not occur in the Project Area and not affected are not evaluated further in this EA, based on the rationale provided in Table 3.1-1.

In addition to the elements listed under supplemental authorities, the BLM considers other resources and uses that occur on public lands and the issues that may result from the implementation of the Proposed Action. Other resources or uses of the human environment considered for this EA are listed in Table 3.1-2 below.

Table 3.1-2: Resources or Uses Not Associated with Supplemental Authorities

Other Resources or Uses	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Fire Management		X		See Section 3.2.3.
Forestry and Woodland Resources		X		See Section 3.2.4.
Geology and Mineral Resources		X		See Section 3.2.5.

Other Resources or Uses	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Lands and Realty		X		See Section 3.2.6.
Paleontological Resources	X			Based on the geology described in Section 3.2.4, significant vertebrate paleontological resources would not occur in the Project Area. In addition, Section 2.1.12 includes a protection measure for undiscovered paleontological resources.
Rangeland Management		X		See Section 3.2.10.
Recreation		X		See Section 3.2.11.
Socioeconomics			X	See Section 3.2.12.
Soils			X	See Section 3.2.13.
Special Status Species (Plants and Wildlife)			X	See Section 3.2.14.
Vegetation			X	See Section 3.2.15.
Visual Resources			X	See Section 3.2.16.
Wild Horses and Burros			X	See Section 3.2.19.
Wildlife			X	See Section 3.2.20.

Present resources or uses are discussed and analyzed in Section 3.2, including justification for the resources present and determined not affected by the Proposed Action. Those other resources listed that do not occur in the Project Area and would not be affected are not evaluated further in this EA, based on the rationale provided in Table 3.1-2.

The potential effects of the No Action Alternative on both supplemental authorities and other resources or uses are discussed in Section 3.3.

3.2 Effects of the Proposed Action

3.2.1 Air Quality

3.2.1.1 Affected Environment

Air Quality

The Federal Clean Air Act is the primary controlling legislation over air quality. Ambient air quality and the emission of air pollutants are regulated under both federal and state laws and regulations. Regulations potentially applicable to the Project include the following: National Ambient Air Quality Standards (NAAQS) and the Nevada State Ambient Air Quality Standards (NSAAQS).

The Bureau of Air Pollution Control (BAPC) is the agency in the State of Nevada delegated with the responsibility for implementing a State Implementation Plan (SIP) (excluding Washoe and

Clark Counties, which have their own SIP). Included in a SIP are the State of Nevada air quality permit programs (NAC 445B.001 through 445B.3791, inclusive). Also part of a SIP is the NSAAQS. The NSAAQS are generally identical to the NAAQS with the exception of the following: a) an additional standard for carbon monoxide (CO) in areas with an elevation in excess of 5,000 feet above mean sea level (amsl); b) a hydrogen sulfide standard; c) the revised NAAQS for particulate matter of aerodynamic diameter less than 2.5 microns ($PM_{2.5}$); d) the revised NAAQS for particulate matter of aerodynamic diameter less than ten microns (PM_{10}); e) the revised NAAQS for sulfur dioxide (SO_2) and nitrogen dioxide; f) ozone (Nevada has yet to adopt the new and revised federal standards); and g) a violation of state standards occurring with the first annual exceedance of an ambient standard, while federal standards are generally not violated until the second annual exceedance. In addition to establishing the NSAAQS, the BAPC is responsible for the Prevention of Significant Deterioration (PSD) program, enforcing the New Source Performance Standards, and implementing the Federal Operating Permit Program (Title V) throughout the State of Nevada. The Project operates under the Class II Air Quality Operating Permit Surface Area Disturbance AP 1041-3514.

Attainment status within the Project Area is determined by monitoring ambient levels of criteria pollutants. The attainment or unclassified designation means that no violations of NSAAQS or NAAQS have been documented in the region. The Project Area is located in the Crescent Valley Air Basin (54). This basin is considered in attainment relative to the NAAQS and is not a PSD-triggered basin for any pollutant. The existing air quality is typical of largely undeveloped regions of the western United States (US) with limited sources of pollutants.

Climate and Meteorology

The Project Area is located on the northern extent of the Toiyabe Range at elevations ranging from 6,800 feet amsl to 7,880 feet amsl. According to the Western Regional Climate Center (WRCC), the average maximum temperature at the Battle Mountain station, located approximately 15 miles northeast of the Project Area, is 96.1 degrees Fahrenheit (°F) in July, and the average minimum temperature is 15.7 °F in January. The average annual precipitation is approximately 6.3 inches and tends to peak in January in the form of snow that can accumulate up to approximately 3.8 inches in depth (WRCC 2013).

Climate Change

Climate represents the long-term statistical characterization of daily, seasonal, and annual weather conditions such as temperature, relative humidity, precipitation, cloud cover, solar radiation, and wind speed and direction. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. A region's climate is affected by latitude, terrain, and altitude, as well as nearby water bodies and their currents.

Current Conditions

The BLM published the final Rapid Ecoregional Assessment (REA) for the Central Basin and Range in June 2013 (Comer et al. 2013). REAs examine climate change and other widespread environmental influences that are affecting western landscapes. REAs look across an ecoregion to more fully understand ecological conditions and trends; natural and human influences; and

opportunities for resource conservation, restoration, and development. The REAs provide regional information that can inform local management efforts.

Over the past 100 years, the weather, vegetation cover, and wildfire regimes of the Central Basin and Range ecoregion have changed, suggesting a change in the ecoregion's climate regime. Changes in temperature and precipitation have resulted in changes to vegetation cover and wildfire regimes. Changes are expressed in species composition, changes in vegetation communities, and increasing quantities of invasive species. Many areas once dominated by sagebrush have piñon-juniper encroachment as well as downy brome (cheatgrass).

Greenhouse Gas Emissions

Greenhouse gases (GHGs) are those that allow short-wave solar radiation to enter the earth's atmosphere but absorb long-wave infrared radiation reemitted from the earth's surface. GHGs can affect climate patterns, which in turn can affect resource management.

Gases exhibiting greenhouse properties come from both natural and human sources. Water vapor, carbon dioxide, methane, and nitrous oxide are examples of GHGs that have both natural and man-made sources, while other GHGs, such as chlorofluorocarbons, are exclusively man-made.

Sources of GHG emissions in the Project Area include vehicle combustion emissions and fugitive dust from travel on unimproved roads and ranch activities, wildland fires, mining and reclamation, and recreational activities to the extent that these activities increase, GHG emissions are also likely to increase.

Trends

Warmer and more arid conditions, coupled with a shorter snow season, have led to limited water supplies and severe drought in parts of the State. By 2100, the average temperature in Nevada is predicted to increase by 3 °F to 4 °F in the spring and fall and by 5 °F to 6 °F in the summer and winter. El Niño also is predicted to increase in frequency and duration as a result of global climate change. These temperature changes would affect evaporation and precipitation in the state, likely resulting in the decreased availability of water (National Conference of State Legislatures 2008).

In the Central Basin and Range ecoregion, climate models suggest there is no strong trend toward either wetter or drier conditions either in the near future (through the 2020s) or in the long term (through the 2050s; Comer et al. 2013). However, models show significant increases in maximum monthly temperatures by 2020, primarily in the summer months (July, August, and September). The highest maximum temperature increase projected is 6 °F. These increases are predicted to occur mostly in the southern and northeastern edges of the ecoregion. Forecasts for 2060 predict substantial increases in maximum temperature for all months. Similar to forecasts for 2020, the greatest increases are predicted during the summer months and along the southern and northeastern edges of the ecoregion (Comer et al. 2013). Model forecasts for minimum temperatures show a considerable change in both rate and magnitude over most of the study area. July through September showed the greatest degree of change over most of the study area.

Data for precipitation suggest no strong trend toward either wetter or drier conditions in any month for the ecoregion. With the exception of a slight increase in summer monsoon rains toward the south and east, there were no significant forecasted trends in precipitation for any other months in either the near-term (2020s) or midcentury (2050s) projections (Comer et al. 2013).

Potential effects of these forecasts on the landscape could include increased fuel loads in higher elevations, increased frequency and duration of droughts, expansion of invasive species in higher elevations, increased wind erosion, and changes in wildfire regimes (Comer et al. 2013). As outlined, the effects of climate change are global in nature. As such, impacts both to and from climate change related to the Proposed Action within the Project Area greatly exceed the scope of this analysis and are not further analyzed in this EA.

3.2.1.2 Environmental Consequences

The Project has the potential to disturb approximately 100 acres. Travel on access roads and Project-related activities within the Project Area would create emissions, which would have a potential impact on air quality. Fugitive dust, in the form of PM_{10} and $PM_{2.5}$, would be caused by the operation of the following equipment: one water truck; up to two drill rigs; up to two pipe trucks; one casing truck; one booster truck; one backhoe; one bulldozer; one grader; and one excavator. Vehicle emissions, in the form of SO_2, oxides of nitrogen, CO, and volatile organic compounds, would occur any time the internal combustion engines on the vehicles were operating. In addition, due to the Project size being greater than 20 acres, a Surface Area Disturbance Permit, including Dust Control Plan have been obtained from the BAPC. To help reduce any air quality impacts, fugitive dust emissions would be minimized by reduced speed limits on dirt access roads and the surface application of water from a water truck onto the dirt roads. Based on the amount of proposed disturbance and the implementation of the EPMs, impacts to air quality are anticipated to be minimal. Therefore, this resource element is not carried forward in additional analysis.

3.2.2 Cultural Resources

3.2.2.1 Affected Environment

A Class III cultural resources inventory of approximately 802 acres was conducted by ASM Affiliates (Giambastiani et al. 2012), which identified six previously unrecorded archaeological sites and identified two previously recorded sites within the Project Area. The six newly identified sites and two updated sites were determined to have been previously impacted by mining activities, animal trampling, and/or erosion. All eight sites have been determined 'not eligible' for listing in the National Register of Historic Places (NRHP).

3.2.2.2 Environmental Consequences

Based on the results of the Class III cultural resources inventory conducted by ASM Affiliates (Giambastiani et al. 2012), there are no NRHP-eligible cultural resource sites within the Project Area. Inadvertent discoveries of previously undetected cultural resources would be treated as required under 43 CFR 10.4 and 43 CFR 3908.420(8)(b). Any such discovery would be

immediately reported to the authorized BLM officer. All operations within 100 meters of the discovery would be suspended and the site would be protected until the authorized officer issues a notice to proceed. Through implementation of EPMs outlined in Section 2.1.12, no appreciable impact is expected; therefore, this resource element is not carried forward in additional analysis.

3.2.3 Fire Management

3.2.3.1 Affected Environment

No fuel reduction or habitat enhancement projects have been conducted or are proposed within the Project Area; however, the BLM has ongoing hazardous fuels reduction and habitat enhancement projects in the Project Area vicinity.

3.2.3.2 Environmental Consequences

Implementation of the Proposed Action would be coordinated with the BLM's MLFO Manager in order to ensure the safety of GOE personnel during all periods of prescribed fire activity in the area. Based on the EPMs outlined in Section 2.1.12, and the fact that the Project Area would continue to be accessible, impacts to fire management are not anticipated. In addition, reclamation measures include seeding with vegetation types that may be more favorable than other vegetation types to fire avoidance and suppression in the long term.

No impacts to fire management from the Proposed Action are anticipated; therefore, this resource element is not carried forward in additional analysis.

3.2.4 Forestry and Woodland Resources

3.2.4.1 Affected Environment

The Project Area includes approximately 640 acres dominated by singleleaf piñon and Utah juniper. This number does not include a specific determination of singleleaf piñon and Utah juniper encroachment into the sagebrush communities for the Project because a quantitative assessment was not completed during the field survey. Noncommercial harvest of live, as well as dead and downed piñon or juniper for use as fuel wood, fence posts or Christmas trees, is permitted throughout the MLFO under the current Land Use Plan.

3.2.4.2 Environmental Consequences

Trees cut in association with the proposed Project would be available for personal harvest. Due to this reason, the Project's effects on forestry resources would be very limited; therefore, this resource element is not carried forward for additional analysis.

3.2.5 Geology and Mineral Resources

3.2.5.1 Affected Environment

The Project Area is located in north-central Nevada, which is underlain by Paleozoic, Mesozoic and Cenozoic sedimentary and igneous rocks. Two distinct depositional environments are

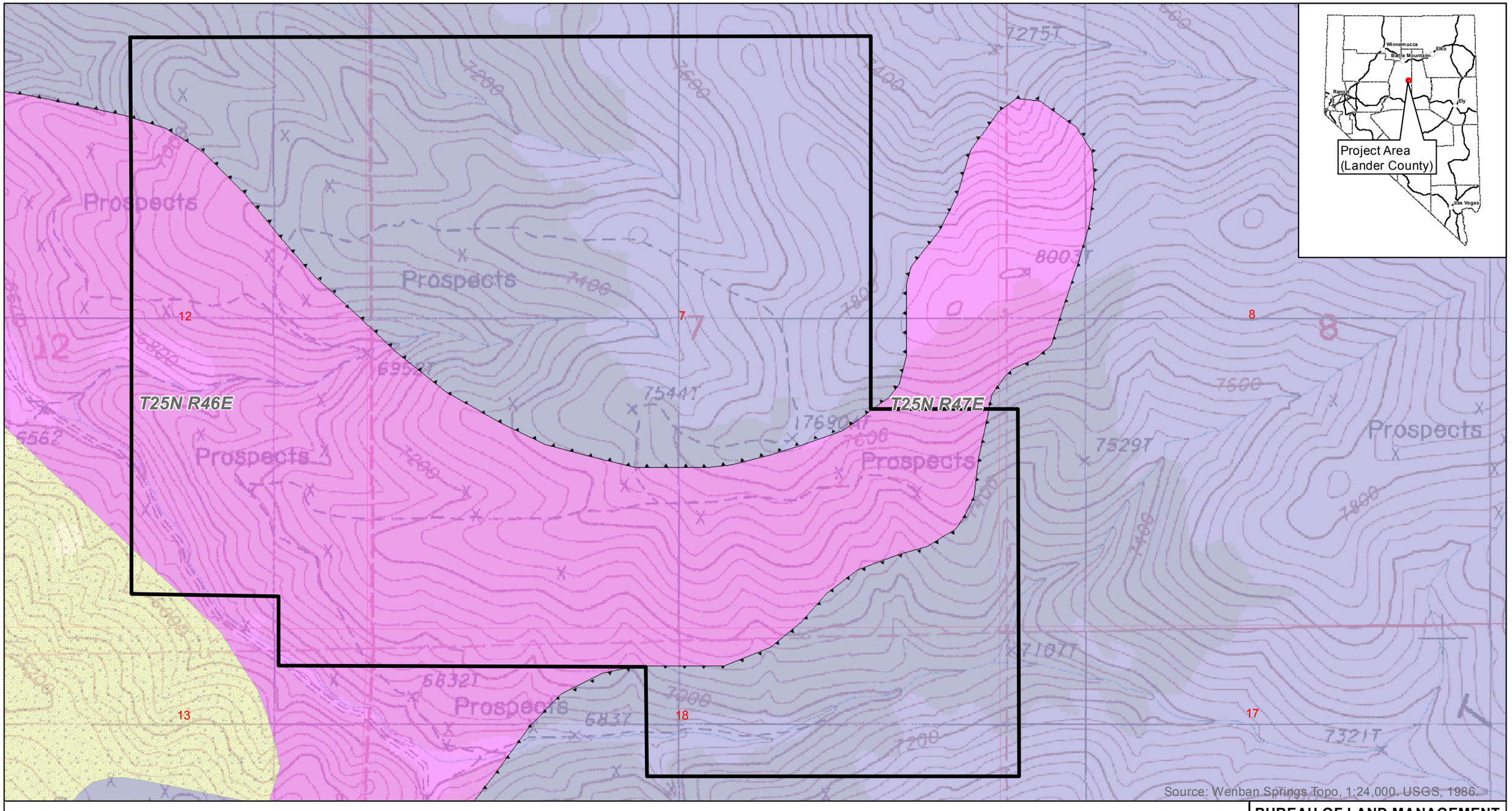
evident in the Paleozoic units. These are known as the upper and lower plate assemblages that represent the upper and lower plates of the Roberts Mountain Thrust, a major structural feature. In Nevada, the upper plate assemblage consists of deep water siliceous sedimentary and minor volcanic rocks. The lower plate of the Roberts Mountain Thrust is almost entirely composed of shallow marine carbonates (Figure 3.2.5).

During the Antler orogeny, the upper plate assemblage was transported over the lower plate units along the Roberts Mountain Thrust. The thrust was also folded and upwarped during this time. Intrusion of granitic rocks during the Mesozoic caused localized doming throughout the region. This doming accentuated the Shoshone Fold Belt, a series of northeast trending broad amplitude folds with widths up to seven miles. Tertiary events included the intrusion of quartz porphyry dikes, quartz latite, and rhyolite tuffs (Caetano tuffs), extensive basaltic volcanism, and subsequent deep erosion, which favored paleo-highs along the apex of regional fold structures. This resulted in structural "windows" in the upper plate units through which lower plate rocks are exposed. A later extensional tectonic period resulted in extensive north-west trending normal faults throughout Central Nevada. The Cortez fault, which can be traced southeast from the Cortez mine, is one of the most prominent of these features in the Basin and Range Province.

Formations in the Cortez Hills-Toiyabe area, which belong to the upper plate assemblage, include the following: the Elder Creek Formation, comprised of feldspathic sandstones, chert, and limestone beds; the Slaven Chert, a bedded black chert of varying thickness that contains argillites and thick-bedded carbonaceous quartzites; the Valmy Formation, consisting mainly of dolomitic sandstone, quartzite and chert with minor amounts of siltstone, shale limestone, and mafic volcanic rock; and the Vinini Formation, comprised of carbonaceous argillites and thin-bedded limestones with some chert intermixed with quartzite, greenstones, and limestones.

The lower plate rocks present in the Toiyabe area are dominantly shallow marine carbonate units with some shale beds. Four formations belonging to the lower plate are present in the Project Area: the Horse Canyon Formation, containing limestone, mudstone, siltstone, and chert; the Wenban Limestones, which contain dolomite, limestone, and minor amounts of sandstone and quartzite; the Roberts Mountain Formation, encompassing laminated, calcareous to dolomitic siltstones and thick bedded carbonaceous limestones; and the Hanson Creek Formation, which is comprised of dolomites, limestones, and clastic dolomites.

Gold mineralization in the Toiyabe mine area occurs in the lower plate carbonates and in the upper plate siliceous sediments above the Roberts Mountain thrust fault. The Project Area is located within close proximity to the Toiyabe mine so the possibility of similar mineralization in the Project Area is likely. Gold in the Toiyabe mine area is also associated with Oligocene rhyolitic-latitic dikes. In several areas of the mine, gold is found in quartz veins or siliceous flooding of igneous dikes, a common phenomenon in other mines in the Battle Mountain and Carlin gold belts. Mapping within the Project Area has identified similar dikes to the Toiyabe mine. However, the dikes have been thoroughly argillized by hydrothermal fluids; therefore, a definitive determination of composition has not been made.



Source: Wenban Springs Topo, 1:24,000. USGS, 1986.

Explanation

- Project Area
- QTg - Older gravels (Pleistocene and Pliocene)
- Dc - Limestone and minor dolomite (Upper and Middle Devonian)
- MDst - Shale, graywacke, siltstone, chert, conglomerate, and limestone (Lower Mississippian and Devonian)
- Boundary
- Known contact
- Known thrust fault

Geology: Crafford, A.E.J., 2007, Geologic Map of Nevada: U.S. Geological Survey Data Series 249, 1 CD-ROM, 46 p., 1 plate.

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Geologic Map of the Project Area

Figure 3.2.5

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3.2.5.2 Environmental Consequences

The Proposed Action would not involve the removal of large volumes of earth that could potentially lead to structural instability. Only a small amount of material would be removed from drill holes and would not affect potential mineral resources in the ground. These activities are not anticipated to result in negative impacts to geology and mineral resources. Therefore, this resource element is not carried forward in additional analysis.

3.2.6 Land Use, Realty, and Access

3.2.6.1 Affected Environment

The entire Project Area is located on public lands administered by the BLM MLFO, consisting of unpatented claims controlled by Minquest, Inc. There is no private land in the Project Area. Figure 1.1.1 shows the Project Area location and access. The current land uses in the Project Area and vicinity consist primarily of mineral exploration, wildlife habitat, and recreational use. An authorized ROW within the Project Area includes a portion of one underground water pipeline (NVN-046806). A portion of this ROW is located in Section 13, T25N, R46E.

3.2.6.2 Environmental Consequences

Roads constructed as part of the Proposed Action could change land use in the Project Area; however, any road disturbance resulting from the Proposed Action would be temporary and subject to reclamation. No real estate transactions are proposed in the Project Area. In addition, the portion of the one ROW would not be impacted by Project activities. Therefore, there would be no appreciable impacts to lands and realty from the Proposed Action. This resource element is not carried forward in additional analysis.

3.2.7 Migratory Birds

3.2.7.1 Affected Environment

"Migratory bird" means any bird listed in 50 CFR 10.13. All native birds found commonly in the US, with the exception of native resident game birds that do not migrate, are protected under the Migratory Bird Treaty Act of 1918 (MBTA). The MBTA prohibits taking of migratory birds, their parts, nests, eggs, and nestlings. EO 13186, signed January 10, 2001, directs federal agencies to protect migratory birds by integrating bird conservation principles, measures, and practices into projects.

Additional direction comes from a Memorandum of Understanding (MOU) between the BLM and United States Fish and Wildlife Service (USFWS), signed January 17, 2010. The purpose of this MOU is to strengthen migratory bird conservation through enhanced collaboration between the BLM and USFWS, in coordination with state, tribal, and local governments. The MOU identifies management practices that impact populations of high priority migratory bird species, including nesting, migration, or over-wintering habitats, on public lands, and develops management objectives or recommendations that avoid or minimize these impacts.

Enviroscientists conducted baseline surveys for wildlife species, including migratory birds and raptors, in June 2011 and July 2012 for the Project Area (Enviroscientists 2013). Table 3.2-1 lists the non-special status migratory bird species observed within the Project Area during the surveys.

Table 3.2-1: Migratory Bird Species Detected in the Project Area

Common Name	Scientific Name
American kestrel	*Falco sparverius*
American robin	*Turdus migratorius*
Black-throated gray warbler	*Dendroica nigrescens*
Black-throated sparrow	*Amphispiza bilineata*
Broad-tailed hummingbird	*Selasphorus platycercus*
Bushtit	*Psaltriparus minimus*
Chipping sparrow	*Spizella passerina*
Clark's nutcracker	*Nucifraga columbiana*
Cooper's hawk	*Accipiter cooperii*
Common nighthawk	*Chordeiles minor*
Common poorwill	*Phalaenoptilus nuttallii*
Common raven	*Corvus corax*
Dark-eyed junco	*Junco hyemalis*
Gray flycatcher	*Empidonax wrightii*
Great horned owl	*Bubo virginianus*
Green-tailed towhee	*Pipilo chlorurus*
Horned lark	*Eremophila alpestris*
Juniper titmouse	*Baeolophus ridgwayi*
Lark sparrow	*Chondestes grammacus*
Mountain chickadee	*Poecile gambeli*
Rock wren	*Salpinctes obsoletus*
Scrub jay	*Aphelocoma californica*
Turkey vulture	*Cathartes aura*
Western tanager	*Piranga ludoviciana*

In addition, the Nevada Department of Wildlife (NDOW), Nevada Natural Heritage Program (NNHP), and the USFWS were contacted to request information regarding wildlife use and nesting raptors in the area. In a response letter provided by the NDOW on June 27, 2011, for the proposed Project, the NDOW identified the following additional migratory birds as being known to reside in the vicinity (three-mile buffer) of the Project Area: barn owl (*Tyto alba*); Cooper's hawk (*Accipiter cooperii*); golden eagle (*Aquila chrysaetos*); merlin (*Falco columbarius*); northern harrier (*Circus cyaneus*); northern saw-whet owl (*Aegolius acadicus*); osprey (*Pandion haliaetus*); prairie falcon (*Falco mexicanus*); rough-legged hawk (*Buteo lagopus*); sharp-shinned hawk (*Accipiter striatus*); short-eared owl (*Asio flammeus*); Swainson's hawk (*Buteo swainsoni*);

and western screech-owl (*Megascops kennicottii*). The NDOW has identified the short-eared owl and Swainson's hawk as NDOW species of special concern and are target species for conservation. No raptor nest sites have been identified by the NDOW in the vicinity of the Project Area. Two golden eagle nests occur within ten miles of the Project Area in Section 25, T26N, R45E, and Section 8, T26N, R47E (NDOW 2011). No bald eagle nests occur within ten miles of the Project Area.

Special status bird species are discussed in Section 3.2.12, "Special Status Species."

3.2.7.2 Environmental Consequences

The Proposed Action would create surface disturbance and associated removal of vegetation, which could potentially result in the destruction of active nests or disturb the breeding behavior of migratory bird species. Vegetation removal and ground disturbance would result in a temporary reduction of 100 acres of foraging and breeding habitat for migratory birds and foraging habitat for raptors within the Project Area. This acreage would not be disturbed all at one time due to the phased nature of the exploration activities associated with the Proposed Action. All surface disturbance associated with Project-related activities would be reclaimed, and post-exploration land use is expected to return disturbed land to a level of productivity comparable to pre-exploration levels. As outlined in EPM under Section 2.1.12, GOE has committed to providing a qualified biologist to conduct nest surveys prior to any surface disturbing activities associated with exploration activities during the avian breeding season. This measure would ensure that no direct impacts to migratory birds are likely to occur under the Proposed Action. Indirect impacts, as a result of the Project, and vegetation removal could lead to temporary spatial redistribution of individuals or habitat-use patterns during the life of the Project. Such redistribution would not have a long-term effect because undisturbed and suitable habitat exists outside of the Project Area. It is unlikely that implementing the Proposed Action would result in a decline in local or regional migratory bird populations.

3.2.8 Native American Cultural or Traditional Concerns

3.2.8.1 Affected Environment

Located within the traditional territory of the Western Shoshone, the MLFO administrative boundary contains spiritual, traditional, and cultural resources, and sites to engage in social practices that aid in maintaining and strengthening the social, cultural, and spiritual integrity of the Tribes. Recognized Tribes with known interests near the Project Area include the Battle Mountain Band Council of the Te-Moak Tribe of Western Shoshone, the Duckwater Shoshone Tribe, and the Yomba Shoshone Tribe. In addition, various other community members and individuals are known to have interests in the general area of the Toiyabe Range.

Social activities of Native Americans continue to define places of cultural importance across lands currently administered by the BLM. Some Western Shoshone maintain cultural, spiritual, and traditional activities, visit their sacred sites, hunt game, and gather available medicinal and edible plants. Through oral history (the practice of handing down knowledge from the elders to the younger generations), some Western Shoshone continue to maintain a world view similar to that of their ancestors.

Cultural, traditional, and spiritual sites and activities of importance to Tribes include, but are not limited to the following:

- Existing animal traps;
- Certain mountain tops used for vision questing and prayer;
- Medicinal and edible plant gathering locations;
- Prehistoric and historic village sites and gravesites;
- Sites associated with creation stories;
- Hot and cold springs;
- Collection of materials used for basketry and cradle board making;
- Locations of stone tools such as points and grinding stones (mano and matate);
- Chert and obsidian quarries;
- Hunting sites;
- Sweat lodge locations;
- Locations of pine nut ceremonies, traditional gathering, and camping;
- Rock collecting for use in offerings and medicine gathering;
- Tribally identified Traditional Cultural Properties (TCPs);
- TCPs found eligible to the NRHP;
- Rock shelters;
- Rock art locations;
- Lands or resources that are near, within, or bordering current reservation boundaries; and
- Actions that conflict with tribal land acquisition efforts.

In accordance with the National Historic Preservation Act of 1966 (Public Law [P.L.] 89-665), the NEPA, the FLPMA (P.L. 94-579), the American Indian Religious Freedom Act of 1978 (P.L. 95-341), the Native American Graves Protection and Repatriation Act (NAGPRA) (P.L. 101-601) and EO 13007, the BLM must provide affected Tribes an opportunity to comment and consult on the proposed Project. The BLM must attempt to limit, reduce, or possibly eliminate any negative impacts to Native American traditional/cultural/spiritual sites, activities, and resources.

On June 28, 2012, consultation initiation/invitation letters were mailed for the Project from the BLM MLFO to the following: Battle Mountain Band Council of the Te-Moak Tribe of Western Shoshone; Yomba Shoshone Tribe; and Duckwater Shoshone Tribe.

3.2.8.2 Environmental Consequences

Various Tribes and bands of the Western Shoshone have stated that federal projects and land actions can have widespread effects to their culture and religion as they consider the landscape as sacred and as a provider. Various locations throughout the BLM MLFO Battle Mountain administrative area host certain traditional, spiritual, and cultural use activities today, as in the past. TCPs, designated by the Tribes, are not known to exist within the vicinity of the Project Area. The BLM continues to solicit input from local tribal entities.

For this Proposed Action, the BLM has committed to avoiding any eligible and unevaluated archaeological sites discovered and documented during cultural resources inventories. The BLM continues to coordinate with the Tribes to identify any other sites or artifacts, or cultural, traditional, and spiritual use resources and activities that might experience an impact.

If any TCPs, tribal resources, sacred sites, etc. are identified within or in close proximity to the Project boundary, a protective "buffer zone" may be acceptable, if doing so satisfies the needs of the BLM, the proponent, and affected Tribe. The size of any "buffer zone" would be determined through coordination and communication between all participating entities.

The designated BLM representative, accompanied by designated tribal observers, may periodically visit identified cultural resources sites within or near the mining activity boundary. Native American Consultation and monitoring by the BLM and Tribal Cultural Resource Specialists may occur throughout the life of a project to ensure that any identified TCPs are not deteriorating.

If a subsequent development plan or amendment to the Plan is submitted to the BLM, as a result of an approval of this specific mining proposal, the BLM would again initiate consultation with the local Tribes and utilize any data collected during this mining proposal.

During the Project's activities, if any cultural properties, items, or artifacts (i.e., stone tools, projectile points, etc.) are encountered, it must be stressed to those involved in the proposed Project activities that such items are not to be collected. The environmental protection measure in Section 2.1.12 states that all activities would be halted immediately in the event of a discovery of a cultural resource. Cultural and archaeological resources are protected under the Archaeological Resources Protection Act (16 US Code 470ii) and the FLPMA.

Though the possibility of disturbing Native American gravesites within most project areas is extremely low, inadvertent discovery procedures must be noted. Under the NAGPRA, section (3)(d)(1), the discovering individual must notify the authorized officer in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation.

At this time, no impacts related to Native American Cultural or Traditional Concerns have been identified and are not anticipated from the Proposed Action. Tribal relations and coordination does not terminate with the land use decision itself, but rather continues to engage Tribes regarding treatments, mitigation, reclamation, and disposition of artifacts and deports.

3.2.9 Noxious Weeds, Invasive and Non-native Species

3.2.9.1 Affected Environment

Noxious weeds, invasive and non-native species are species that are highly competitive, aggressive, and spread easily. They typically establish and infest disturbed sites, along roadsides and waterways. Changes in plant community composition from non-native plants into areas of native plant communities can change fire regimes, negatively affect habitat quality, biodiversity, and ecosystem structure and function.

Noxious weeds and invasive plant species have been defined as pests by law or regulation. The BLM defines a noxious weed as, "a plant that interferes with management objectives for a given area of land at a given point in time." The BLM Battle Mountain District recognizes the current noxious weed list designated by the State of Nevada Department of Agriculture (NDOA) statute,

found in NAC 555.010. Currently the list contains 47 noxious weed species. When considering whether to add a species to the list, the NDOA makes a recommendation after consulting with outside experts and a panel comprising Nevada Weed Action Committee members. Per NAC 555.055, if a species is found probable to be "detrimental or destructive and difficult to control or eradicate," the NDOA, with approval of the Board of Agriculture, designates the species as a noxious weed. The species is then added to the noxious weed list in NAC 555.010. Upon listing, the NDOA would also assign a rating of "A," "B," or "C" to the species. The rating reflects the NDOA's view of the statewide importance of the noxious weed, the likelihood that eradication or control efforts would be successful, and the present distribution of noxious weeds within the state.

An "invasive species" is defined as a species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (EO 13112, signed February 3, 1999).

The BLM's policy relating to the management and coordination of noxious weed and invasive plant species is set forth in the BLM Manual 9015 – Integrated Weed Management (BLM 1992b). The BLM's primary focus is "providing adequate capability to detect and treat smaller weed infestations in high-risk areas before they have a chance to spread." Noxious weed control would be based on a program of "…prevention, early detection, and rapid response" (BLM 2013a).

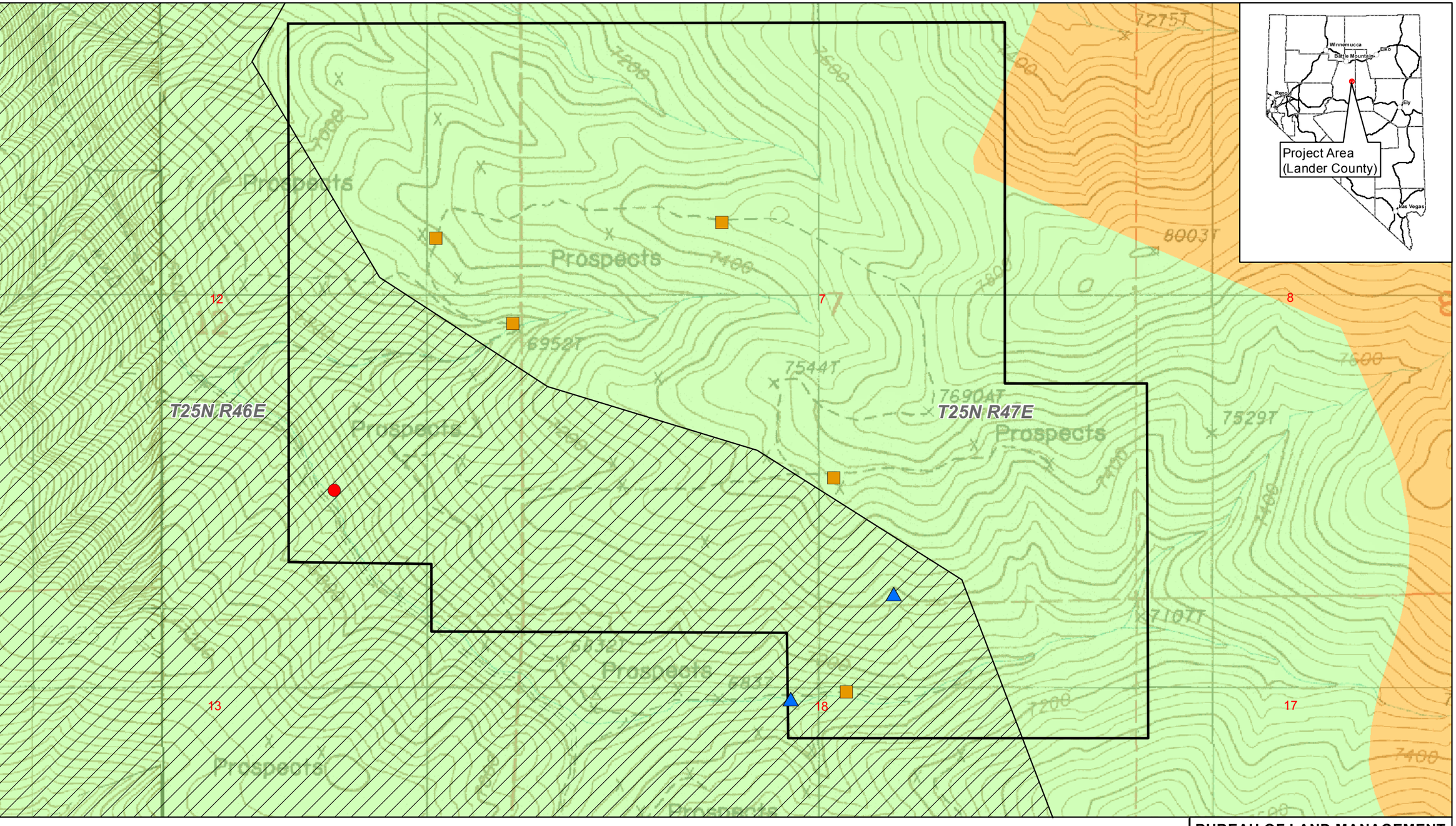
In 1997, the *Cooperative Agreement for Noxious Weed Management in Lander County* was developed, which recognized the existence and threat of noxious weeds in Lander County, as well as served as an agreement to work together and share information. The agreement involved the NDOT, the NDOA, the Battle Mountain and Elko districts of the BLM, the U.S. Forest Service, the University of Nevada Cooperative Extension, Lander County, and the Lander County Conservation District.

According to the 2011 field surveys and the baseline report prepared for the Project (Enviroscientists 2013), the only noxious weed species detected within the Project Area was musk thistle (*Carduus nutans*) (Table 3.2-2) (Figure 3.2.9). This weed was found in the previously disturbed areas that had been reclaimed. Invasive, non-native species observed in the reclaimed and disturbed portions of the Project Area include common sheep sorrel (*Rumex acetosella*), prickly lettuce (*Lactuca seriola*), and cheatgrass (*Bromus tectorum*). These species were primarily observed in previously disturbed areas intermixed with native species and no large populations or monocultures of these species were noted in the Project Area (Enviroscientists 2013).

Table 3.2-2: Noxious Weeds Observed in the Project Area

Noxious Weed	NDOA Category	NDOA Category Description	Date Observed in the Project Area
Musk thistle	B	Weeds that are generally established in scattered populations in some counties of the State.	July 2011

Source: NDOA 2014



Explanation

- Project Boundary
- Ephemeral Drainage
- Northern Goshawk Nest
- Musk Thistle
- Bats Detected
- Crucial Winter Mule Deer Habitat

Greater Sage-Grouse Habitat

- Low
- Non-Habitat

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Biological Survey Results

Figure 3.2.9

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3.2.9.2 Environmental Consequences

New surface disturbance within the Project Area, as a result of the implementation of the Proposed Action, could increase the potential for the spread and establishment of noxious weeds, invasive and non-native species. Indirect impacts include a decrease in native plant communities with the potential increase in competition from noxious weeds, invasive and non-native species. These impacts would be mitigated based on implementation of the EPMs outlined in Section 2.1.12. In addition, should a new population of noxious weeds be detected, GOE would implement noxious weed control measures in accordance with existing regulations and BLM requirements.

3.2.10 Rangeland Management

3.2.10.1 Affected Environment

The Project Area is located within the Carico Lake Grazing Allotment (10003). The allotment contains 599,304 acres and the permitted animal unit months (AUMs) on federal land are 24,954. The number of acres per AUM is 24. The Project Area contains 802 acres or 0.1 percent of the allotment. The current permittees for the Carico Lake Allotment include the following: Ellison Ranching Co.; C Ranches Inc.; ELLC Grazing Membership LLC; Julian Tomera Ranches, Inc.; Silver Creek Ranch, Inc.; and Filippini Ranching Co.

3.2.10.2 Environmental Consequences

The Project would disturb 100 acres or 0.02 percent of the entire allotment. This disturbance would equal approximately four AUMs or approximately 0.02 percent of the total AUMs in the allotment. The impacts associated with this Project are temporary. Disturbance would be created incrementally and dispersed throughout the Project Area and would be reclaimed and revegetated concurrently, when feasible. The loss of key grazing forage would be minimal. There would be no appreciable impacts to rangeland management as a result of the activities associated with the Proposed Action. Therefore, this resource element is not carried forward in additional analysis.

3.2.11 Recreation

3.2.11.1 Affected Environment

Recreational uses of the public land in the vicinity of the Project Area consist primarily of dispersed recreation activities including motorcycle and OHV riding, horseback riding, mountain bicycling, camping, hiking, hunting (specifically for antelope and mule deer in NDOW Hunt Unit 154), rockhounding, photography, rock climbing, nature study, wildlife/wild horse/burro viewing, snowmobiling, and four wheel driving.

3.2.11.2 Environmental Consequences

The Proposed Action would result in up to 100 acres of surface disturbance, which would reduce opportunities for motorcycle and OHV riding, horseback riding, mountain bicycling, camping, hiking, hunting, rockhounding, photography, rock climbing, nature study, wildlife/wild

horse/burro viewing, snowmobiling, and four wheel driving within the Project Area. However, no impacts are anticipated as a result of the Proposed Action, since there is other similar land available to dispersed recreational visitors in the vicinity of the Project Area. In addition, all roads would remain open during Project activities, and there would be no fencing to preclude use, except for fences around sumps to protect wildlife and humans.

3.2.12 Socioeconomics

3.2.12.1 Affected Environment

The Project Area is located in Lander County approximately 40 miles southeast of the town of Battle Mountain, Nevada. Lander County is located in north central Nevada and encompasses approximately 5,621 square miles. Lander County is the analysis area for Social Values and Economics. The federal government administers over 85 percent of the land in the County. I-80 traverses the county in an east-west direction on the northern end, as does US Highway 50 on the southern end.

The total population of Lander County in 2012 was estimated to be 5,941 (U.S. Census Bureau 2013). The median household income in 2011 was $64,392, with mining being identified as a major employment sector (Department of Employment, Training, and Rehabilitation [DETR] 2012).

3.2.12.2 Environmental Consequences

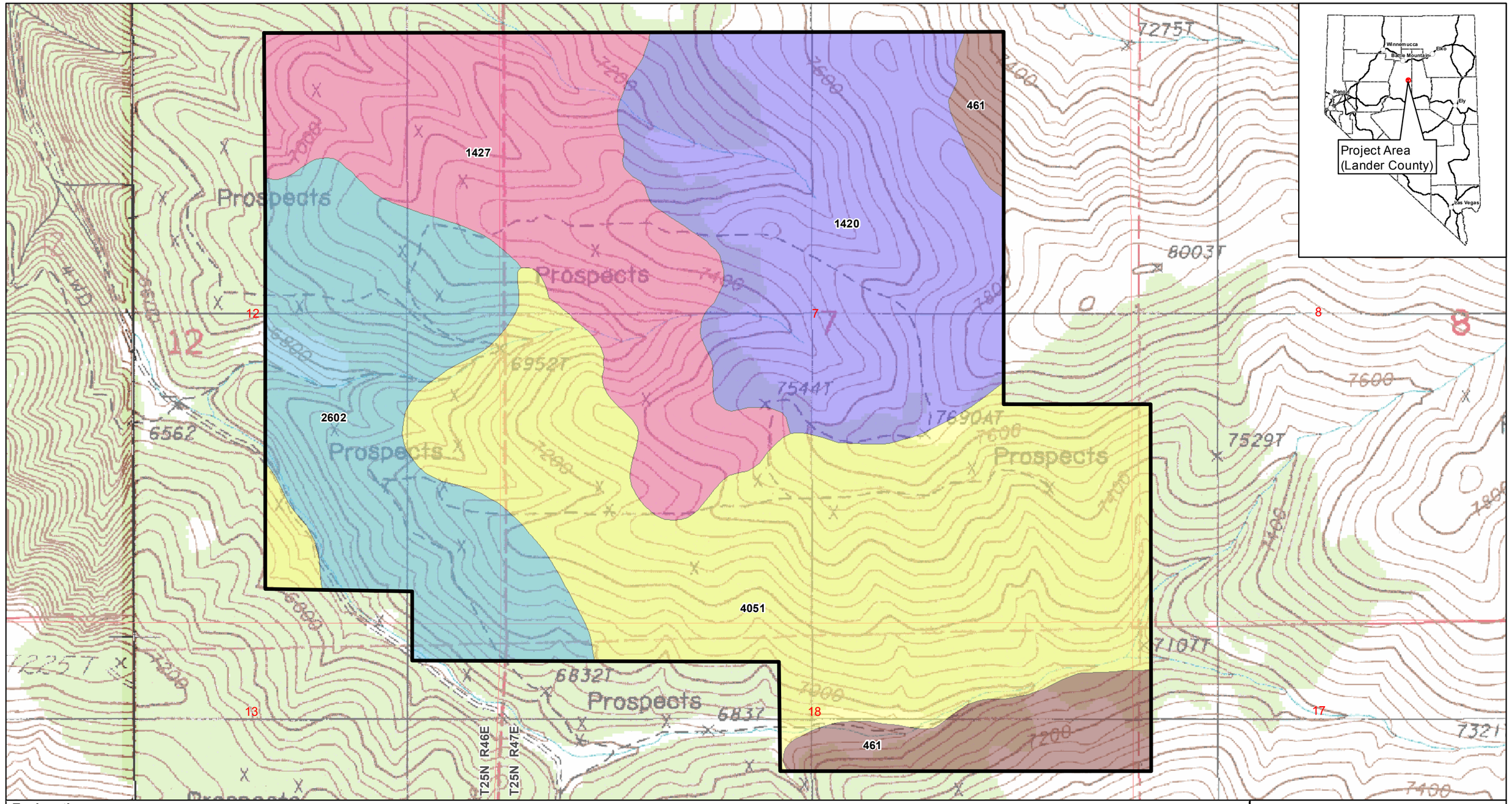
A temporary workforce of up to eight employees or contractors could be in the Project Area at any given time. Such personnel would be temporary and should not create a demand for additional public or private services and would not impact public schools, the permanent housing market, or other services associated with permanent workers.

The crews would help to support local economies through the purchase of fuel, groceries, tools and equipment. This spending activity associated with the proposed Project would have a small but positive effect on local businesses in Lander County but would not measurably contribute to the economic benefits described from the exploration activities.

3.2.13 Soils

3.2.13.1 Affected Environment

Information regarding soils within the Project Area was obtained from the US Department of Agriculture Natural Resources Conservation Service (NRCS). The soils within the Project Area consist of the following associations: Attella-Xine-Kram (4051); Sumine-Reluctan-Cleavage (1420); Sumine-Itca-Softscrabble (1427); Grina-Grina, eroded-Caniwe (2602); and Hapgood-Packer-Layview (461) (Figure 3.2.13).



Explanation

- Project Area
- Ephemeral Drainage

NRCS Soil Survey nv775

- 1420, Sumine-Reluctan-Cleavage association
- 1427, Sumine-Itca-Softscrabble association
- 2602, Grina-Grina, eroded-Caniwe association
- 4051, Attella-Xine-Kram association
- 461, Hapgood-Packer-Layview association

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TOIYABE EXPLORATION PROJECT

Soil Associations within the Project Area

Figure 3.2.13

09/11/2013

The Attella-Xine-Kram association is comprised of 45 percent Attella very gravelly loam, 30 percent Xine gravelly loam, and 15 percent Kram very cobbly loam. This association occurs in approximately 273.4 acres of the Project Area. The Attella series consists of very shallow, well-drained soils formed in residuum and colluvium derived from dolostone, dolomite, and calcareous shalces with additions of loess. The Xine series consists of moderately deep, well-drained soils formed in residuum derived from limestone and calcareous shale. The Kram series consists of very shallow, somewhat excessively drained soils formed in residuum derived from limestone (NRCS 1992).

The Sumine-Reluctan-Cleavage association is comprised of 40 percent Sumine very gravelly loam, 30 percent Reluctan very gravelly loam, and 15 percent Cleavage very cobbly loam. This association occurs in approximately 184.1 acres of the Project Area. The Sumine series consists of moderately deep, well-drained soils formed in residuum and colluvium derived from quartzite, breccia, and sandstone. The Reluctan series consists of moderately deep, well-drained soils formed in residuum and colluvium weathered from rhyolite and other intrusive rocks. The Cleavage series consists of shallow, well-drained soils formed in residuum or colluvium derived from rhyolite, welded tuff, chert, shale, quartzite, sandstone, or conglomerate and other igneous or sedimentary rocks (NRCS 1992).

The Sumine-Itca-Softscrabble association is comprised of 50 percent Sumine very gravelly loam, 20 percent Itca very cobbly loam, and 15 percent Softscrabble gravelly loam. This association occurs in approximately 155.9 acres of the Project Area. The Sumine series consists of moderately deep, well-drained soils formed in residuum and colluvium derived from quartzite, breccia, and sandstone. The Itca series consists of shallow, well-drained soils formed in residuum derived from extrusive volcanic and pyroclastic rock. The Softscrabble series consists of very deep, well-drained soils formed in residuum and colluvium derived from some chert, quartzite, and shale but mainly of volcanic rocks (NRCS 1992).

The Grina-Grina, eroded-Caniwe association is comprised of 50 percent Grina gravelly loam, 20 percent Grina, eroded very gravelly loam, and 15 percent Caniwe silt loam. This association occurs in approximately 141.3 acres of the Project Area. The Grina association consists of shallow, well-drained soils formed in residuum weathered from soft sedimentary bedrock. The Caniwe series consists of very deep, well-drained soils formed in loess and alluvium derived from mixed rock sources (NRCS 1992).

The Hapgood-Packer-Layview association is comprised of 40 percent Hapgood very gravelly loam, 25 percent Packer extremely gravelly loam, and 15 percent Layview very gravelly sandy loam. This association occurs in approximately 47.1 acres of the Project Area. The Hapgood series consists of very deep, well-drained soils formed mainly in colluvium derived from volcanic rocks and in loess and volcanic ash. The Packer series consists of very deep, well-drained soils formed in some loess and volcanic ash but mainly in residuum weathered from chert, shale, quartzite, and extrusive volcanic rocks. The Layview series consists of shallow, well-drained soils formed in residuum and colluviums derived from andesite, rhyolite, and tuff (NRCS 1992).

Soil associations within the Project Area are shown on Figure 3.2.13 and listed in Table 3.2-3. Wind erosion hazard is slight for all soil classifications. Erosion hazard from water ranges from slight to severe.

Table 3.2-3: Summary of Soil Mapping Units and Characteristics

Association	Soil Series	Range in Depth to Restrictive Surface	Landscape position/ % Slope	Profile Soil Texture	Permeability	Erosion Hazard by Water	Erosion Hazard by Wind
Attella-Xine-Kram (4051)	Attella	6 to 10 inches (lithic bedrock)	East-, west-, and upper south-facing side slopes of mountains; 30 to 50%	Very gravelly loam	Moderate	Severe	Slight
	Xine	20 to 39 inches (paralithic bedrock)	North-facing side slopes of mountains; 30 to 50%	Gravelly loam	Moderately rapid	Severe	Slight
	Kram	8 to 14 (lithic bedrock)	South-facing, lower side slopes of mountains; 15 to 30%	Very cobbly loam	Moderate	Moderate	Slight
Sumine-Reluctan-Cleavage (1420)	Sumine	20 to 39 inches (lithic bedrock)	South-facing side slopes of mountains; 30 to 50%	Very gravelly loam	Moderate	Moderate	Slight
	Reluctan	20 to 39 inches (lithic bedrock)	North-facing side slopes of mountains; 30 to 50%	Very gravelly loam	Moderately slow	Moderate	Slight
	Cleavage	14 to 20 inches (lithic bedrock)	Crests, shoulders, and upper side slopes of mountains; 15 to 30%	Very cobbly loam	Moderately slow	Slight	Slight
Sumine-Itca-Softscrabble (1427)	Sumine	20 to 39 inches (lithic bedrock)	South- and west-facing side slopes of mountains; 30 to 50%	Very gravelly loam	Moderate	Moderate	Slight
	Itca	10 to 20 inches (lithic bedrock)	Shoulders and upper sideslopes of mountains; 20 to 50%	Very cobbly loam	Slow	Moderate	Slight

Association	Soil Series	Range in Depth to Restrictive Surface	Landscape position/ % Slope	Profile Soil Texture	Permeability	Erosion Hazard by Water	Erosion Hazard by Wind
	Softscrabble	> 80 (seasonal high water table)	North- and east-facing side slopes of mountains; 15 to 50%	Gravelly loam	Slow	Severe	Slight
Grina-Grina, eroded-Caniwe (2602)	Grina	14 to 20 (paralithic bedrock)	Summits and north-, east-, and west-facing side slopes of rolling hills; 15 to 30%	Gravelly loam	Moderately slow	Moderate	Slight
	Grina, Eroded	14 to 20 (paralithic bedrock)	South-facing side slopes of hills; 15 to 30%	Very gravelly loam	Moderately slow	Moderate	Slight
	Caniwe	>80 inches (seasonal high water table)	Inset fans on interhill remnants; 2 to 4 %	Silt loam	Moderately slow	Slight	Slight
Hapgood-Packer-Layview (461)	Hapgood	>80 inches (seasonal high water table)	Side slopes of mountains; 30 to 50%	Very gravelly loam	Moderate	Moderate	Slight
	Packer	>80 inches (seasonal high water table)	Windswept shoulders and upper side slopes of mountains; 15-50%	Extremely gravelly loam	Moderate	Slight	Slight
	Layview	10 to 14 inches (lithic bedrock)	Windswept crests and shoulder slopes of mountains; 8 to 15%	Very gravelly sandy loam	Moderately slow	Slight	Slight

Source: USDA NRCS 1992

3.2.13.2 Environmental Consequences

The total surface disturbance associated with implementation of the Proposed Action would impact up to 100 acres of soils, or approximately 12.5 percent of the entire Project Area. Soils within the Project Area have a slight to severe erosion hazard potential from water and a slight erosion hazard potential from wind. Impacts from erosion by water or wind are anticipated to be minimal.

Potential impacts to soils would be reduced by the EPM outlined in Section 2.1.12 requiring the use of BMPs to limit soil erosion and to reduce sediment runoff from disturbed areas during construction and operations. Topsoil cut for new exploration roads would result in the mixing of soil associations and the loss of soil characteristics. Soils would be cut and used as temporary construction fill as part of the road and drill pad construction. Subsequent reclamation efforts would place the soils back in the temporary cuts. Furthermore, as a result of reclamation of all drill sites, sumps, and road construction, the post-exploration topography is expected to be similar to pre-Project conditions, which would reestablish the site characteristics of slope and aspect of soil associations within the Project Area.

3.2.14 Special Status Species

The BLM's policy for management of special status species is in the BLM Manual Section 6840 (BLM 2008b). Special status species include the following:

- Federally Threatened or Endangered Species: Any species the USFWS has listed as an endangered or threatened species under the Endangered Species Act of 1973 (ESA) throughout all or a significant portion of its range;

- Proposed Threatened or Endangered Species: Any species the USFWS has proposed for listing as a federally endangered or threatened species under the ESA;

- Candidate Species: Plant and animal taxa under consideration for possible listing as threatened or endangered under the ESA;

- Delisted Species: Any species in the five years following their delisting;

- BLM Sensitive Species: 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 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 other 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 (BLM 2008b); and

- State of Nevada Listed Species: State-protected animals determined to meet BLM's Manual 6840 policy definition.

To further support the preparation of this EA, the USFWS, the NNHP, and the NDOW were contacted to obtain a list of threatened and endangered and sensitive species that have the potential to occur within the Project Area. In addition, evaluations of the most recent BLM Sensitive Species List and Special Status Species lists for the Battle Mountain District were conducted to determine if any species had the potential to occur within the Project Area (Enviroscientists 2013). The special status wildlife and plant species that occurred within the Project Area are further discussed below.

3.2.14.1 Affected Environment

Federally Listed Species

The response letter received from the USFWS, dated July 5, 2011, did not identify any federally listed or proposed species with the potential to occur in the Project Area (USFWS 2011). However, the USFWS did identify the greater sage-grouse (*Centrocercus urophasianus*) as a candidate species known to occur in the vicinity of Project Area. Greater sage-grouse is discussed in the BLM Sensitive Species section.

The NNHP response letter, dated June 15, 2011, reported in a five kilometer radius search surrounding the townships and ranges of the Project Area, that there were no at risk or federally listed species recorded within the Project Area (NNHP 2011).

The NDOW response letter, dated June 27, 2011, stated that greater sage-grouse summer distribution exists throughout the entire Project Area (NDOW 2011). The NDOW also identified the northern goshawk and the peregrine falcon (*Falco peregrinus*) as having the potential to occur within the Project Area. No peregrine falcons were observed within the Project Area during 2011 or 2012 field surveys.

Enviroscientists' biological surveys of the Project Area did not detect any federally listed species (Enviroscientists 2013).

BLM Sensitive Species

In addition to federally listed species (i.e., protected by the ESA) discussed above, the BLM also protects special status species by policy (BLM 2008b). The list includes certain species designated by the State of Nevada, as well as species designated as "sensitive" by the Nevada BLM State Director. Various BLM sensitive raptor, bird, and plant species identified within the Project Area during field surveys are discussed below.

The NNHP identified potential habitat in the Project Area for Beatley buckwheat (*Eriogonum beatleyae*), a BLM special status plant species. Beatley buckwheat was systematically surveyed within the Project Area. Known habitat affiliations for this species include dry volcanic outcrops (NNHP 2001). The survey was conducted during the appropriate time of year when this species would have been visible. Beatley buckwheat was not observed within the Project Area. No other BLM sensitive plant species was determined to have potential habitat within the Project Area upon review of habitat requirements.

Bats

Four BLM sensitive bat species were detected during acoustic surveys in the Project Area: Brazilian free-tailed bat (*Tadarida brasiliensis*); little brown bat (*Myotis lucifugus*); long-eared myotis (*Myotis evotis*); and small-footed myotis (*Myotis ciliolabrum*). However, there are no potential bat hibernacula or maternity colony sites within the Project Area. There are no abandoned mine workings in the Project Area and all natural outcrops do not have the depth or complexity to provide suitable winter or maternity roosting habitat.

Greater Sage-Grouse

In fall and winter months the birds shelter under mature sagebrush. In the winter males and females separate into different groups. Winter habitats of sage-grouse generally are dominated by big sagebrush; however, low sagebrush (*Artemisia arbuscula*) and silver sagebrush (*Artemisia cana*) communities also are used during winter (Schroeder et al. 1999). The canopy cover of sagebrush in both arid and mesic sites ranges from ten to 30 percent in wintering habitat and greater sage-grouse use shrub heights of 25 to 35 centimeters above the snow. The greater sage-grouse increase the proportion of sagebrush in their diet during the winter and rely on sagebrush exposure above the snow (Connelly et al. 2004).

In response to a request for identification of federally-listed and candidate species in the Project Area, the USFWS letter dated July 5, 2011, stated that the greater sage-grouse, a candidate species, has the potential to occur in the Project Area (USFWS 2011). The NDOW indicated greater sage-grouse summer distribution occurs throughout the entire Project Area and within a three-mile buffer, and winter distribution exists in the northwestern corner of the Project Area and southwestern half of a three-mile buffer area. NDOW also stated there were no known greater sage-grouse nesting or core breeding habitats or lek sites in the vicinity of the Project Area. According to the NDOW, the nearest lek to the Project Area, the Marks lek, is located approximately 6.2 miles to the south and is considered historic. The nearest active lek is the Dry Canyon Wash 2 lek located approximately 8.5 miles south of the Project Area (VanDellen 2012).

The BLM has issued two IMs for the protection of greater sage-grouse. IM 2012-043, *Greater Sage-Grouse Interim Management Policies and Procedures*, provides interim policies and procedures to the BLM to be applied to ongoing and proposed authorizations that affect greater sage-grouse, while long-term permanent measures are being developed (BLM 2011a). IM 2012-044, *BLM National Greater Sage-Grouse Land Use Planning Strategy*, provides direction to the BLM for the consideration of conservation measures, identified in *A Report on National Greater Sage-Grouse Conservation Measures* prepared by the Sage-Grouse National Technical Team, to apply during the land use planning process (BLM 2011b). The NDOW mapped greater sage-grouse habitat in Nevada to support these IMs and published a Habitat Characterization Map in March 2012. The BLM and United States Forest Service (USFS) used this NDOW map to create a map identifying Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) on BLM and USFS lands in Nevada. According to this map, there were approximately 137.8 acres of PPH located in the northeastern portion of the Project Area. There was no PGH in the Project Area. On August 10, 2012, the BLM Nevada State Office issued IM NV-2012-058, which provided clarity on how to implement mapping and management protocols outlined in IM 2012-043 and IM 2012-044 (BLM 2012b). Based on recent Nevada BLM guidance provided in IM NV-2015-017, the BLM has adopted the following new greater

sage-grouse habitat categories: High (equivalent to the previous PPH designation); Moderate (equivalent to the previous PGH designation); Low; and Non-habitat. Based on these categories, there are approximately 2.9 acres classified as Low, and approximately 799 acres of Non-Habitat.

Northern Goshawk

Northern goshawks typically inhabit late seral or old growth forests with closed canopies (greater than 40 percent) and a relatively open understory (Reynolds et al. 1992). In central Nevada, goshawks use a wide variety of habitats for foraging; however, goshawks are primarily found nesting in trembling aspen (*Populus tremuloides*) stands (Herron et al. 1985, Younk and Bechard 1994). Goshawks prey on a variety of small mammals and birds (Squires and Reynolds 1997). Stick nests are often built in trees on north or northwest facing slopes of less than 30 percent and near water (Reynolds et al. 1992). Goshawk home range size and nest stand size in central Nevada may be as small as one acre and the post-fledging area is approximately 420 acres. The post-fledging area is the area surrounding the nest location and is used by both the parents and young as they learn to hunt from the time of fledging through dispersal (USFS 2001). The remaining acres are considered the foraging area. An active northern goshawk nest was identified in the southwestern portion of the Project Area during August 2011 and July 2012 field surveys (Figure 3.2.9) (Enviroscientists 2013).

Pinyon Jay

Pinyon jays (*Gymnorhinus cyanocephalus*) tend to inhabit piñon and juniper woodlands as well as in scrub oak and sagebrush areas in non-breeding season. Nesting habitat occurs in the crowns of sagebrush and in trees. Pinyon jays were observed in the Project Area during the August 2011 and July 2012 field surveys (Enviroscientists 2013).

3.2.14.2 Environmental Consequences

Several BLM sensitive raptor and bird species have been observed or are likely to occur in the Project Area. Approximately 100 acres would be disturbed over the five-year Project life as a result of surface disturbing activities associated with implementation of the Proposed Action. Of the 100 acres of disturbance proposed, approximately 4.2 acres have been disturbed by Notice-level exploration activities. Surface exploration disturbance would be created incrementally and would be dispersed throughout the Project Area. Vegetation removal, including any reclaimed revegetation with the potential to support certain species, and ground disturbance, would result in a reduction of breeding habitat for sensitive bird species in the Project Area. Project-related disturbance would result in a temporary loss of foraging habitat for raptor species. This acreage would not all be disturbed at one time due to phased exploration activities. In addition, noise and disturbance activities generated from Project operations would have the potential to cause special status wildlife species to avoid utilizing specific locations within the Project Area, or the entire Project Area itself, for foraging and other activities.

The Proposed Action includes measures to avoid nesting migratory birds and raptors (Section 2.1.12); therefore, the destruction of active nests or disruption of breeding behavior of sensitive bird species would not occur as a result of surface disturbing activities associated with implementation of the Proposed Action. Reclamation would begin at the earliest practicable time

within the areas considered inactive, without potential, or completed. Reestablishment of vegetation would take place within three years of Project reclamation. Although long-term improvement of habitat could occur in the Project Area as surface disturbance is reclaimed and revegetated and a greater amount of habitat becomes available for special status species, short-term indirect impacts to special status species would occur due to the short-term temporary loss of vegetation as a result of Project-related surface disturbance.

Surface disturbing activities may also increase the spread of noxious weeds and invasive plant species. Musk thistle has been observed within the Project Area. The quality of the habitat may be reduced for sensitive species if noxious weeds and invasive plant species increase within the Project Area. GOE would utilize BMPs and the measures outlined in Section 2.1.12 to reduce the potential for the increase of noxious weeds and invasive plant species both during surface disturbance and reclamation.

Impacts to the individual sensitive species observed in the Project Area are further discussed below.

Greater Sage-Grouse

There are approximately 2.9 acres of habitat designated as Low within the Project Area, and approximately 799 acres of Non-Habitat. No greater sage-grouse or sign was observed during biological surveys in August 2011 or July 2012. In addition, the NDOW indicated there are no known greater sage-grouse nesting or core breeding habitats in the vicinity of the Project Area (NDOW 2011). The NDOW also indicated the closest lek site is located approximately 6.5 miles south of the Project Area in Section 18, T24N, R47E, and is considered historic. The closest known active lek site is located approximately 8.5 miles south of the Project Area in Section 22, T24N, R46E (VanDellen 2012). Therefore, impacts to greater sage-grouse are not anticipated from the Proposed Action, and no greater sage-grouse mitigation is required.

Northern Goshawk

Project-related activities would directly affect potential northern goshawk habitat through removal of vegetation in areas proposed for surface disturbance, and possible impacts to the northern goshawk nest site identified in the Project Area during field surveys. A maximum of 100 acres of habitat would be directly removed over the five-year Project life as a result of surface disturbing activities associated with implementation of the Proposed Action. Potential impacts to breeding from Project activities would include possible direct loss of nests (e.g., crushing) or indirect effects (e.g., abandonment) from increased noise and human presence within close proximity to an active nest site. Implementation of the environmental protection measure outlined in Section 2.1.12 for the northern goshawk nest would ensure a nest check be conducted prior to any surface disturbing activities within a 0.5-mile buffer of the nest. In addition, incremental disturbance and concurrent reclamation of exploration activities would help reduce long-term impacts to northern goshawk.

Pinyon Jay

Project-related activities would directly affect potential pinyon jay habitat through removal of vegetation in areas proposed for surface disturbance. A maximum of 100 acres of habitat would

be directly removed over the five-year Project life as a result of surface disturbing activities associated with implementation of the Proposed Action. Potential impacts to breeding from the Project would include possible direct loss of nests (e.g., crushing) or indirect effects (e.g., abandonment) from increased noise and human presence within close proximity to an active nest site. Implementation of the environmental protection measure outlined in Section 2.1.12 for migratory birds would ensure that a nest survey be conducted prior to surface disturbance and nests avoided if exploration activities occur during the avian breeding season. In addition, incremental disturbance and concurrent reclamation of exploration activities would help reduce long-term impacts to pinyon jay.

3.2.15 Vegetation

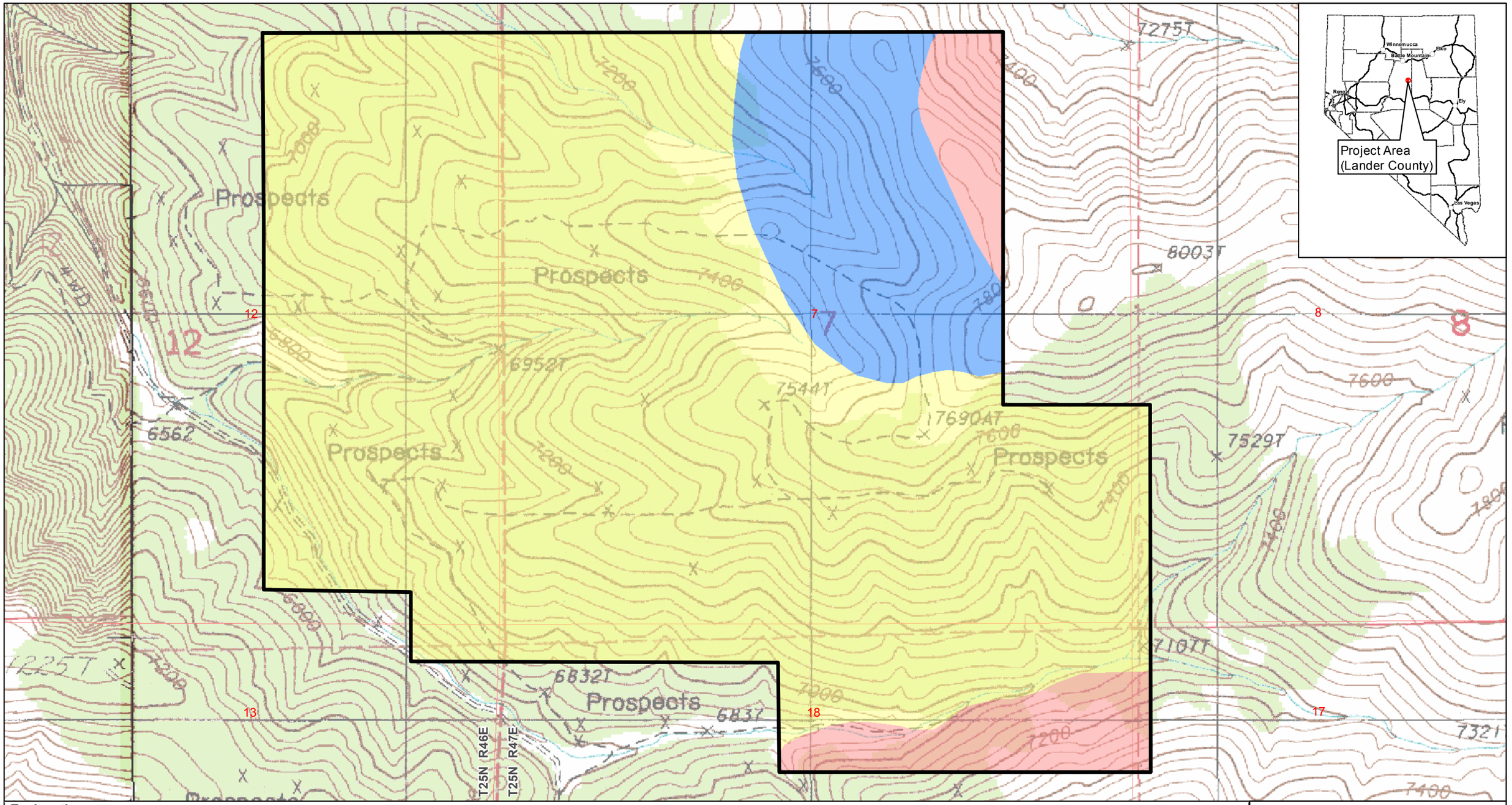
3.2.15.1 Affected Environment

The Project Area is within the Intermountain Region, Great Basin Division, Central Great Basin Section floristic zone. Three ecological sites were observed within the Project Area during field surveys, where vegetation communities were observed and identified. These sites include the PIMO/JUOS, South Slope 12-16" P.Z., and Mountain Ridge (Figure 3.2.15).

PIMO/JUOS

The PIMO/JUOS (Ecological Site ID #F024XY049NV) community is the dominant plant association within the Project Area measuring approximately 640 acres and is located on slopes ranging from eight to 50 percent with most sites between 30 and 40 percent. The Ecological Site Description (USDA 1973) describes this vegetation community as dominated by singleleaf piñon pine (*Pinus monophylla*), Utah juniper (*Juniperus osteosperma*), mountain big sagebrush (*Artemisia tridentata* spp. *vaseyana*), bluebunch wheatgrass (*Pseudorognaria spicata*), Thurber's needlegrass (*Achnatherum thurberianum*), Indian ricegrass (*Achnatherum hymenoides*), arrowleaf balsamroot (*Balsamorhiza sagittata*), and tapertip hawksbeard (*Crepis acuminata*). The dominant species observed in this community are Utah juniper and singleleaf piñon pine, with areas dominated by mountain big sagebrush, and to a lesser extent yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and western snowberry (*Symphoricarpos occidentalis*). Prickly pear cactus (*Opuntia polyacantha*) was noted in the dryer rocky soils within this community.

Forbs were interspersed within the shrubs and included Humboldt River milkvetch, wooly milkvetch, arrowleaf balsamroot, tapertip hawksbeard, bitterroot (*Lewisia rediviva*), large-fruited desert parsley, cryptantha (*Cryptantha glomerata*), matted Indian paintbrush, phlox, desert candle (*Caulanthus inflatum*), long-leaf hawksbeard (*Crepis acuminatus*), common larkspur, sego lily, umbrella desert buckwheat (*Eriogonum umbellatum*), and yampah (*Perideridia gairdneri*). Grasses noted within this community included bottlebrush squirreltail, Thurber's needlegrass, western wheatgrass (*Agropyron smithii*), Indian ricegrass, Great Basin wild rye (*Leymus cinereus*), and bluebunch wheatgrass. The observed plant community matched the characteristics included in the NRCS's Ecological Site Description for PIMO/JUOS.



Explanation

- Project Area
- Ephemeral Drainage

Ecological Sites

- PIMO/JUOS (F24XY049NV)
- Mountain Ridge (R024XY016NV)
- South Slope 12-16" P.Z. (R024XY029NV)

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Ecological Sites within the Project Area

Figure 3.2.15

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South Slope 12-16"P.Z.

The South Slope 12-16"P.Z. (Ecological Site ID #R024XY029NV) covers approximately 103 acres of the Project Area and is located on mountain slopes on all but northerly exposures in the northeastern quarter of the Project Area. The Ecological Site Description (USDA 1973) describes this vegetation community as dominated by mountain big sagebrush and bluebunch wheatgrass with mountain brome (*Bromus marginatus*), Great Basin wild rye, and Thurber's needlegrass.

Forbs were interspersed with the shrubs and included Humboldt River milkvetch (*Astragalus iodanthus*), matted Indian paintbrush (*Castilleja angustifolia*), common larkspur (*Delphinium nutallianum*), tapertip hawksbeard, and arrowleaf senecio (*Senecio traingularis*). Grasses noted within this community included bluebunch wheatgrass, Great Basin wild rye, and bottlebrush squirreltail (*Elymus elymoides*). Departures from the Ecological Site Description include the presence of singleleaf piñon pine and Utah juniper, which are scattered throughout the site. From the young age class and the scattered distribution it appears the piñon and juniper are invading this ecological site. Another departure is the lack of mountain brome and Thurber's needlegrass and the overall decrease in grass cover from 65 percent to 35 percent, with an increase in mountain big sagebrush and the addition of low sagebrush in this community.

Mountain Ridge

The Mountain Ridge (Ecological Site ID #R024XY016NV) covers approximately 59 acres of the Project Area and is located above the tree line in the northeast and southeast corners of the Project Area. The Ecological Site Description (USDA 1973) describes this vegetation community as dominated by low sagebrush and Idaho fescue (*Festuca idahoensis*) with bluegrass (*Poa*), Webber's needlegrass (*Achnatherum webberi*), and bluebunch wheatgrass. The dominant species observed in this community are low sagebrush, Sandberg's bluegrass (*Poa secunda*), and bluebunch wheatgrass.

Forbs were interspersed with the shrubs and included Hoelboel's rockcress (*Boechera holboelii*), wooly milkvetch (*Astragalus purshii*), arrowleaf balsamroot, sego lily (*Calochortus nutallii*), rayless tansy aster (*Erigeron aphanactis*), matted buckwheat (*Eriogonum caespitosum*), large fruited desert parsley (*Lomatium macrocarpum*), and stemless mock goldenweed (*Stenotus acaulis*). Grasses noted within this community included bottlebrush squirreltail and green needlegrass (*Stipa viridula*). The observed plant community matched the expected community for this ecological site, and it appears this site is in healthy condition with minimal disturbance. The percent cover of shrubs is near the expected level of 35 to 45 percent and mat-forming forbs are near the expected levels of five percent for phlox (*Phlox* spp.) and matted buckwheat.

3.2.15.2 Environmental Consequences

The total surface disturbance associated with implementation of the Proposed Action would impact up to 100 acres of ecological sites, or approximately 12.5 percent of the entire Project Area. According to Figure 3.2.13, primarily all of the surface disturbance associated with the Project would occur on the PIMO/JUOS ecological site; however, the disturbance would be created incrementally and dispersed throughout the Project Area. The surface disturbance associated with Project activities would be reclaimed and reseeded concurrently whenever

feasible using the BLM-approved seed mixture shown in Table 2.1-2. Monitoring activities are included in the Proposed Action, which would ensure that the revegetation meets reclamation standards.

3.2.16 Visual Resources

3.2.16.1 Affected Environment

The Visual Resource Management (VRM) system identifies classes for BLM-administered lands in order to identify and evaluate scenic values to determine the appropriate levels of management during land use planning (Table 3.2-4). Each management class portrays the relative value of the visual resources and serves as a tool that describes the visual management objectives (BLM 1986).

Lands within the Project Area are currently classified as VRM Class IV. The activities associated with mineral exploration and surface disturbance may require modifying the existing character of the landscape. There has been previous surface disturbance from mineral exploration and road construction activities in the Project Area. In addition, the Project Area is located approximately 40 miles southeast of Battle Mountain, Nevada, at the northern extent of the Toiyabe Range, and is not visible from any major highway.

Table 3.2-4: BLM 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 the attention of the casual observer. Any change 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 character 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. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Source: BLM 1986b

3.2.16.2 Environmental Consequences

Horizontal and shallow diagonal lines from drill roads would cause moderate, temporary line contrasts with the natural landscape. Disturbance of vegetation would cause moderate, temporary color contrasts. With successful reclamation of exploration roads and revegetation, long-term visual impacts are considered minimal. The objective of Class IV is to provide for management activities that 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 impacts of these activities through careful location, minimal disturbance, and repeating the basic elements (BLM 1986). The effects of the Proposed Action on visual resources would be consistent with BLM prescribed Class IV VRM objectives.

3.2.17 Wastes, Solid or Hazardous

3.2.17.1 Affected Environment

Federal hazardous material and waste laws and regulations are applicable to hazardous substances used, stored, or generated by the Project. Applicable federal laws would include the following: the Resource Conservation and Recovery Act of 1976; Hazardous and Solid Waste Amendments; Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA [aka Superfund]); and the Superfund Amendments and Reauthorization Act of 1986. Pursuant to regulations promulgated under Section 102 of CERCLA, as amended, release of a reportable quantity of a hazardous substance to the environment in a 24-hour period must be reported to the National Response Center (40 CFR Part 302). A release of a reportable quantity on public land must also be reported to the BLM.

Similarly, State of Nevada hazardous material and waste laws and regulations are applicable to hazardous substances used, stored, and generated by the operation of the Project. NAC 445A.240 requires immediate reporting of a release of a reportable quantity of a hazardous substance to the NDEP, based on Table 302.4 in 40 CFR Part 302.

The 2010 Lander County Master Plan includes a Safety Plan Element. The Safety Plan Element identifies the transportation of hazardous and volatile materials through communities in Lander County as a primary safety problem. The Lander County Department of Emergency Management developed an Emergency Response Plan (adopted in 1994) to comprehensively plan for effective mitigation, preparation, response, and recovery of any natural, technological/man-made, or war-related disaster.

Hazardous materials utilized at the Project Area would include diesel fuel, gasoline, and lubricating grease. Approximately 500 gallons of diesel fuel would be stored in fuel delivery systems on vehicles and drill rigs. Approximately 100 gallons of gasoline would be stored in fuel delivery systems for light vehicles. Approximately 100 pounds of lubricating grease would be stored on the drill rigs or transported by drill trucks.

All refuse generated by the Project would be disposed of at an authorized landfill facility off site, consistent with applicable regulations. No refuse would be disposed of on site. Portable chemical toilets would be available in the Project Area for use by Project personnel.

3.2.17.2 Environmental Consequences

The generation of wastes and the use of hazardous materials as a result of the Proposed Action may result in the release of these wastes or materials. Vehicles traveling on public roads in the Project Area would result in the presence of other hazardous materials and wastes (e.g., fuel, antifreeze, battery acid, lead tire weights, mercury switches, or catalytic converters) for the

duration of travel. Section 2.1.8 of this EA outlines how these wastes and materials would be managed and stored.

Through the implementation of the spill measures outlined in Appendix D of the Plan and the EPMs outlined in Section 2.1.12 of this EA, no appreciable impacts to the environment from wastes are anticipated as a result of the Proposed Action. Therefore, this resource element is not carried forward in additional analysis.

3.2.18 Water Quality

Surface Water

Surface water within the Project Area is mainly dependent upon seasonal precipitation. The Project Area receives moderate levels of precipitation, with moderate fluctuations in seasonal temperatures. The average annual precipitation is approximately 6.3 inches and tends to peak in January in the form of snow, which can accumulate up to approximately 3.8 inches in depth (WRCC 2013). Most of the rainfall in this portion of Nevada occurs as high-intensity, convective thunderstorms in spring and autumn (USDA 2006).

The Project is located within the Crescent Valley hydrographic basin. This hydrographic basin is typical of arid drainage basins in northern Nevada, where precipitation is generally insufficient to support perennial stream flow except where spring fed.

Three intermittent drainages traverse the Project Area in an east-west trend (Figure 2.1.1). One small intermittent stream is located along the southern border of the Project Area. Running water was present in this stream during baseline biology surveys in July 2011 but not in June 2012. Two other intermittent streams are present in the Project Area that did not contain water during 2011 and 2012 surveys. According to the definition of waters of the US in 33 CFR 328.3, there are no waters of the US in the Project Area. According to the National Hydrography Dataset, there are no springs in the Project Area.

Groundwater

Previous exploration drilling has encountered no groundwater. The Project design and EPMs (Section 2.1.12) would ensure the Proposed Action does not cause degradation of groundwater quality or quantity in accordance with NAC 534.425 through 534.428 if groundwater is encountered.

3.2.18.1 Environmental Consequences

Surface Water

Surface water features within the Project Area are limited to several intermittent drainages that traverse the Project Area in an east-west trend. The Proposed Action could result in impacts to surface water quality as a result of spills and sedimentation or erosion from surface disturbing activities. The potential impacts to surface water quality from spilled petroleum products would be minimized by the implementation of the EPMs outlined in Section 2.1.12 stating GOE's compliance with reporting procedures of spills of a certain quantity, as well as the Spill

Contingency Plan included as Appendix D of the Plan. BMPs would also be used for sediment control during construction, operation, and reclamation to minimize sedimentation from disturbed areas (Nevada Division of Environmental Protection and Nevada Division of Conservation 1994).

Groundwater

3.2.18.1.1 Groundwater Quantity

No hydrologic areas would be affected by the Proposed Action. The Proposed Action would be expected to require water only for dust suppression and drilling fluids. Water would be acquired from the Cortez Mine. No new water developments or water rights applications are anticipated; however, subsequent phases identify the potential installation of a production well. GOE would obtain any necessary permit and place of use prior to the construction and installation of a production well. Therefore, no impacts to groundwater quantity are expected. This resource element is not carried forward in additional analysis.

3.2.18.1.2 Groundwater Quality

No groundwater quality data are available. No groundwater was encountered in drill holes from previous drilling in the Project Area. The Proposed Action is not expected to impact groundwater quality because the drill holes would be abandoned in accordance with NAC 534.425 through 534.428. In addition, no drill holes would be left open at the end of the Project. Therefore, this resource element is not carried forward in additional analysis.

3.2.19 Wild Horses

3.2.19.1 Affected Environment

The Project Area lies within the central portion of the Bald Mountain Herd Management Area (HMA). The HMA encompasses approximately 139,879 acres and is 14 miles wide by 20 miles long. The BLM manages wild horses under the authority of the Wild Free-Roaming Horses and Burros Act of 1971 in accordance with the FLPMA. The Appropriate Management Level (AML) established for the HMA in 2005 was a range from 129 to 215 wild horses. The 2014 estimate population, based on the most recent aerial inventory in August 2012 was 281 wild horses.

The most recent gather was completed in December 2010. Since the 1980s, only this most recent gather, and one completed in 2009 have been conducted in order to achieve the AML and administer a fertility control drug to reduce population growth. The Project Area is near existing mining disturbance, reflects moderate terrain and cover by piñon and juniper trees. Historic inventory data does not show heavy concentrated use of the Project Area, though areas higher in use by wild horses are nearby.

3.2.19.2 Environmental Consequences

Approximately 100 acres of the 139,879-acre Bald Mountain HMA would be disturbed by the Project, which equals approximately 0.07 percent of the HMA. Impacts to wild horses could be caused by increased human activity, vehicle travel on Project roads, and noise associated with

drilling activities; however, it is expected that wild horses would avoid drill sites during drilling activities and move away to undisturbed portions of the HMA. There are no perennial water sources located in the Project Area to provide regular sources of drinking water to wild horses, but there are several springs outside the Project Area within the HMA that may receive use by wild horses. Sumps would be fenced until reclaimed and built with an incline on one end so entrapped animals could easily exit, limiting the potential for wild horse access.

The proposed exploration activities, in addition to the increased human presence could cause the population to use the HMA in the vicinity of the Project Area less frequently, possibly putting increased pressure on other areas. Shifts in wild horse distribution would likely be minor and undetectable through future monitoring, as the specific Project Area has not been used historically by concentrated numbers of wild horses.

Some impacts could occur to wild horses during the peak foaling season if substantial human activity disturbs the populations. As a result, new foals could be orphaned or abandoned.

Vegetation disturbance would occur through exploration, which would have an impact to the forage available in the Project Area. The estimated surface disturbance identified in the Project Area is approximately 100 acres throughout the life of the Project. The Project Area is not considered to be valuable foraging habitat for wild horses, since the area supports a moderate cover of trees. Opening up some of the area by the removal of trees through the exploration efforts could make the area more attractive to wild horse use.

Long-term impacts to wild horses are not anticipated as a result of surface disturbing activities associated with implementation of the Proposed Action, as well as with implementation of the EPMs outlined in Section 2.1.12. Wild horses would redistribute around the Project Area during Project activities and would begin to use the Project Area again once exploration activities ceased.

3.2.20 Wildlife

3.2.20.1 Affected Environment

A total of two reptiles and 15 mammals were directly observed or detected in the Project Area by tracks, scat, feathers, call, prey remains, or burrows. The general wildlife species detected in the Project Area are common throughout the Great Basin region. The reptiles observed in the Project Area were the bullsnake (*Pituophis catenifer*) and western fence lizard (*Sceloporus occidentalis*). Mammals detected in the Project Area included the following: American badger (*Taxidea taxus*); cliff chipmunk (*Eutamias dorsalis*); coyote (*Canis latrans*); deer mouse (*Peromyscus maniculatus*); montane vole (*Microtus montanus*); white-tailed antelope ground squirrel (*Ammospermophilus leucurus*); and woodrat (*Neotoma* sp.).

Big game species

Two big game species were detected in the Project Area. Mule deer scat was observed and occurred primarily in the southwestern, wooded portions of the Project Area. No other mule deer sign such as sheds, tracks, beds, or skeletal remains was found. Elk (*Cervus canadensis*) scat was noted in the higher elevation portions of the Project Area. The NDOW and the BLM also noted

that mule deer (*Odocoileus hemionus*) habitat was located in the northeastern half of the Project Area (NDOW 2011).

Small game species

Additional small game species observations within the Project Area included mountain cottontail (*Sylvilagus nuttallii*) and desert cottontail (*Sylvilagus audobonii*).

3.2.20.2 Environmental Consequences

Direct impacts to wildlife would consist of temporary habitat loss and disturbance from human activity and noise. Approximately 100 acres would be disturbed over the five-year Project life as a result of surface disturbing activities associated with implementation of the Proposed Action. Of the 100 acres of disturbance proposed, 4.9 acres have been disturbed by Notice-level exploration activities. The surface exploration disturbance would be created incrementally and would be dispersed throughout the Project Area. No long-term impacts to wildlife habitat are likely to occur since reclamation would take place within two years after Project completion and reestablishment of vegetation would likely occur within three years. Reclamation activities would occur concurrently with Project activities when feasible.

Construction of drill sites and roads could disturb wildlife due to the presence of humans and by creating noise and dust. Wildlife foraging activities within the Project Area could continue since the proposed surface disturbance activities only cover approximately 12.5 percent of the entire Project Area (approximately 100 acres out of a total of approximately 802 acres); therefore, the Project is not anticipated to result in substantial direct impacts to wildlife species. Further, many species present are likely to adapt to disturbance and noise.

Musk thistle, common sheep sorrel, prickly lettuce, and cheatgrass have been observed within the Project Area, including the previously reclaimed areas. These noxious weeds and invasive plant species reduce the quality of habitat for wildlife. Project-related activities increase the potential for the spread of these species, in addition to the spread of other noxious weeds and invasive plant species, thus further reducing the quality of wildlife habitat. GOE would implement EPMs outlined in Section 2.1.12, which would mitigate or reduce the impact of noxious weeds and invasive species to wildlife habitat.

Although long-term improvement of habitat could occur in the Project Area as surface disturbance is reclaimed and revegetated and a greater amount of forb species becomes available for wildlife foraging, minimal short-term indirect impacts to wildlife would occur due to the short-term temporary loss of vegetation as a result of Project-related surface disturbance.

Impacts to specific wildlife groups are discussed in more detail below.

Small mammals

Due to ground disturbing activities, there would be a potential of direct mortality to small mammals (e.g., being crushed by vehicles or equipment). Ground disturbing activities would also impact small mammal habitat by removing vegetation and rocks and disturbing burrows. These impacts would be short-term, and habitat could be restored during reclamation.

Large mammals

Large mammals, such as mule deer and elk, may avoid the Project Area due to noise generated by the Project. Other large mammals, such as coyotes, could adapt to the noise and disturbance from the Project. These impacts would temporarily reduce the available habitat area for large mammals. Additionally, sumps associated with drill sites would be built with an incline on one end so entrapped animals could easily exit the sump, and fences would be constructed around sumps and other small excavations that would restrict wildlife access.

Amphibians and Reptiles

Amphibians are not present within the Project Area. Reptiles would be impacted by surface disturbing activities, which would remove vegetation and disturb soil. Surface disturbance would remove potential areas for the bullsnake and western fence lizard to lay their eggs or could destroy eggs laid within disturbance areas. Loss of vegetative cover and burrows could result in greater mortality due to predators. Snakes would be impacted by disturbance to dens and soils and potential destruction of eggs during breeding season. Temporary disturbance would reduce the forage area. Impacts would be temporary, and vegetation would be restored subsequent to reclamation.

3.3 Effects of the No Action Alternative

Under the No Action Alternative, none of the impacts associated with the Proposed Action would occur. However, GOE would continue surface mineral exploration activities currently authorized under Notice No. NVN-087765 in the Project Area, which may result in impacts from the surface exploration activities for a total of 4.9 acres.

3.3.1 Air Quality

Under the No Action Alternative, Notice-level exploration activities under Notice No. NVN-087765 would continue and include surface disturbance of approximately 4.9 acres on public land. GOE would control dust by minimizing surface disturbance and observing prudent speed limits. Under the No Action Alternative, dust would be generated by travel on dirt roads and emissions would be generated from drill rigs, support equipment, and vehicles during exploration activities. These emissions would cause a minor short-term localized impact to air quality. The reclamation of surface disturbance would gradually eliminate long-term impacts to air quality from wind erosion of disturbed soils. Under the No Action Alternative, impacts would be similar but less than under the Proposed Action, as there would be approximately 95.1 fewer acres of new surface disturbance under the No Action Alternative.

3.3.2 Cultural Resources

The No Action Alternative would result in approximately 95.1 fewer acres of surface disturbance than the Proposed Action; however, impacts would be the same as there are no NRHP-eligible sites in the Project Area. If unknown cultural resources are discovered by GOE during their operations, all work within 100 meters of the discovery would cease and the Authorized Officer would be notified immediately. Work would not resume until a notice to proceed has been issued

by that officer as specified in the acknowledgement letter issued by the BLM for Notice No. NVN-087765.

3.3.3 Fire Management

Under the No Action Alternative, no impacts to fire management would occur, as there are no active fuel treatment areas within the existing Project Area boundary. Therefore, impacts under the No Action Alternative would be the same as under the Proposed Action.

3.3.4 Forestry and Woodland Resources

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities, which would not impact forest resources. Therefore, impacts under the No Action Alternative would be similar as under the Proposed Action.

3.3.5 Geology and Minerals

Under the No Action Alternative, exploration drilling would be conducted, which would only result in the removal of small amounts of rock from the borings. Fewer holes would be drilled under the No Action Alternative, so impacts to geology and minerals would be similar, but less than impacts associated with the Proposed Action.

3.3.6 Lands and Realty

Under the No Action Alternative, up to 4.9 acres of surface disturbance would continue within the Project Area under currently acknowledged Notice-level exploration activities. GOE did not propose any changes or alterations to existing roads or ROWs in or adjacent to the Project Area. Roads constructed under Notice-level exploration activities could impact land use; however, any road disturbance is temporary and would be subject to reclamation. Therefore, anticipated impacts to land use, access, or realty resulting from the No Action Alternative would be similar to but less than impacts associated with the Proposed Action.

3.3.7 Migratory Birds

Under the No Action Alternative, up to 4.9 acres of surface disturbance would continue within the Project Area under currently acknowledged Notice-level exploration activities. This could result in the temporary loss of approximately 4.9 acres of migratory bird nesting or foraging habitat. Reclamation of surface disturbance would gradually eliminate potential impacts to migratory birds. Impacts to migratory birds as a result of the No Action Alternative would be similar, but less than the Proposed Action (approximately 4.9 acres of surface disturbing activities versus approximately 100 acres).

3.3.8 Native American Cultural or Traditional Concerns

Under the No Action Alternative, GOE would continue their Notice-level surface mineral exploration activities. The BLM MLFO has continual consultation with the local Tribes regarding ongoing and proposed projects and land management activities. No concerns

pertaining to the existing Notice-level exploration activities have been brought to the BLM's attention; therefore, at this time there would be no impacts to Native American Cultural or Traditional Concerns under the No Action Alternative.

3.3.9 Noxious Weeds, Invasive and Non-native Species

Under the No Action Alternative, up to 4.9 acres of surface disturbance would continue within the Project Area under currently acknowledged Notice-level exploration activities. Impacts associated with the No Action Alternative could result from establishment of noxious weeds, invasive and non-native species. Reclamation of surface disturbance, including reseeding, associated with Notice-level exploration activities, would gradually decrease potential impacts of noxious weeds, invasive and non-native species.

3.3.10 Rangeland Management

Under the No Action Alternative, up to 4.9 acres of surface disturbance would continue within the Project Area under currently acknowledged Notice-level exploration activities. The No Action Alternative would disturb up to 4.9 acres or 0.0008 percent of the entire allotment. This disturbance would equal approximately 0.2 AUM or approximately 0.003 percent of the total AUMs in the allotment. Impacts to rangeland management under the No Action Alternative would be similar to but less than the impacts associated with the Proposed Action.

3.3.11 Recreation

Under the No Action Alternative, ongoing mineral exploration activities currently permitted in the Project Area consist of surface drilling activities. The same recreational activities that would occur with the Proposed Action would continue to occur under the No Action Alternative. Impacts would be similar under the No Action Alternative as under the Proposed Action, as all roads would remain open and there would be no fencing of the Project Area to preclude use, except for fences around the sumps to protect wildlife and humans.

3.3.12 Socioeconomics

Under the No Action Alternative, ongoing mineral exploration activities currently permitted in the Project Area consist of surface drilling activities. This type of exploration requires a smaller work force, up to four employees including one drill operator, up to two helpers, and one geologist, and is more intermittent in nature. The No Action Alternative would result in beneficial impacts to the local economies, as the workers would obtain lodging, meals, and supplies in the local communities. However, under the No Action Alternative, impacts to public services and housing would be less than under the Proposed Action, as there would be fewer employees needing services in impacted communities.

3.3.13 Soils

Under the No Action Alternative, surface disturbance activities would impact approximately 4.9 acres. The potential for wind and water erosion of disturbed soils would be similar but less than the Proposed Action, since the No Action Alternative would be disturbing 95.1 acres less than the Proposed Action.

3.3.14 Special Status Species

Under the No Action Alternative, up to 4.9 acres of surface disturbance would continue within the Project Area under currently acknowledged Notice-level exploration activities. Impacts to special status species and their habitat under the No Action Alternative would be similar to but less than the impacts associated with the Proposed Action (approximately 4.9 acres of surface disturbing activities versus approximately 100 acres).

3.3.15 Vegetation

Under the No Action Alternative, up to 4.9 acres of surface disturbance would continue within the Project Area under currently acknowledged Notice-level exploration. Reclamation of surface disturbance, including reseeding, associated with Notice-level exploration activities, would minimize impacts to vegetation. Under the No Action Alternative, impacts would be similar to but less than the Proposed Action (approximately 4.9 acres of surface disturbing activities versus approximately 100 acres).

3.3.16 Visual Resources

Under the No Action Alternative, no facilities or structures would be constructed and reclamation of the temporary disturbance from drill pads and roads would occur shortly after disturbance. The Project Area has previously been disturbed and altered from past mining and mineral exploration activities, therefore, the No Action alternative would have no impact to visual resources based on this existing condition. The No Action Alternative would meet Class IV objectives.

3.3.17 Wastes, Hazardous or Solid

The generation of wastes and the use of hazardous materials as a result of the No Action Alternative may result in the release of these wastes or materials. The No Action Alternative only involves surface exploration drilling and does not include the storage of hazardous or regulated materials. The source of spills or leaks would be from the drill rigs operating at the site. Therefore, the No Action Alternative has less potential for spills because the scale of activities is less than the Proposed Action.

3.3.18 Water Quality – Surface Water

The No Action Alternative would result in the disturbance of up to 4.9 acres within the Project Area. With the use of BMPs to prevent erosion and sediment transport, impacts to water quality would not be anticipated (Nevada Division of Environmental Protection and Nevada Division of Conservation 1994). Should the drill holes encounter groundwater, the holes would be plugged in accordance with NAC 534.420.

3.3.19 Wild Horses

Under the No Action Alternative, up to 4.9 acres of surface disturbance would continue within the Project Area under currently acknowledged Notice-level exploration. GOE would place fences around drill sumps, limiting impacts to wild horses. Additionally, sumps associated with

drill sites would be built with an incline on one end so entrapped animals could easily exit the sump. Impacts to wild horses could be caused by surface disturbing activities on approximately 4.9 acres within the Project Area; however, water sources would not be impacted and it is expected wild horses would avoid drill sites during drilling operations. Water is available in areas within the HMA adjacent to the Project Area. Impacts to wild horses under the No Action Alternative would be similar to the impacts associated with the Proposed Action.

3.3.20 Wildlife

Under the No Action Alternative, up to 4.9 acres of surface disturbance would continue within the Project Area under currently acknowledged Notice-level exploration. Reclamation of existing surface disturbance would gradually eliminate impacts to wildlife. Impacts to wildlife as a result of the No Action Alternative would be similar, but proportionally less than the Proposed Action (approximately 4.9 acres of surface disturbing activities versus approximately 100 acres).

4 CUMULATIVE IMPACT ANALYSIS

4.1 Introduction

For the purpose of this EA, the cumulative impacts are the sum of all past, present, and reasonably foreseeable future actions (RFFAs) resulting primarily from mining, commercial activities and public uses. The purpose of the cumulative analysis in the EA is to evaluate the significance of the Proposed Action's contributions to cumulative impacts. A cumulative impact is defined under federal regulations as follows:

> "...the 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 individual minor but collectively significant actions taken place over a period of time" (40 CFR 1508.7).

As required under the NEPA and the regulations implementing the NEPA, this chapter addresses those cumulative effects on the environmental resources in the Cumulative Effects Study Areas (CESAs) that could result from the implementation of the Proposed Action and reasonable alternatives, past actions, present actions, and RFFAs. The extent of the CESA will vary by each resource, based on the geographic or biological limits of that resource. As a result, the list of projects considered under the cumulative analysis may vary according to the resource being considered. In addition, the length of time for cumulative effects analysis will vary according to the duration of impacts from the Proposed Action on the particular resource.

For the purposes of this analysis and under federal regulations, 'impacts' and 'effects' are assumed to have the same meaning and are interchangeable. The cumulative impacts analysis was accomplished through the following three steps:

Step 1: Identify, describe, and map CESAs for each resource to be evaluated in this chapter.

Step 2: Define timeframes, scenarios, and acreage estimates for cumulative impact analysis.

Step 3: Identify and quantify the location of possible specific impacts from the Proposed Action and judge the significance of these contributions to the overall impacts.

4.2 Cumulative Effects Study Areas

Environmental consequences of the Proposed Action were previously evaluated in Chapter 3 for the various environmental resources. Discussed in the following sections are the resources with the potential to be cumulatively impacted by the Proposed Action within the identified CESA. The discussions are based upon the previous analysis of each environmental resource. Based on the preceding analysis, the Proposed Action would not impact the following resources and would therefore not have cumulative impacts: Air Quality; Cultural Resources; Fire Management; Geology and Minerals; Lands and Realty; Recreation; Special Status Plant Species; Wastes (hazardous and solid); and Water Quality (groundwater). These resources are not further discussed in the cumulative impacts section.

The following ten elements or resources have been brought forward for cumulative impact analysis: Migratory Birds; Noxious Weeds, Invasive and Non-native Species; Socioeconomics; Soils; Special Status Animal Species; Vegetation; Visual Resources; Water Quality (surface water); Wild Horses and Burros; and Wildlife (General). The geographic areas considered for further analysis of cumulative effects vary in size and shape to reflect each evaluated environmental resource and the potential area of impact to each from the Proposed Action as determined through the analysis in Chapter 3.

The Socioeconomics CESA is comprised of Lander County. This CESA is used to analyze cumulative impacts to socioeconomics.

The Water Quality CESA for analyzing cumulative surface water quality impacts is defined as the Wood Spring Canyon HUC 6 subwatershed.

The Wild Horses CESA is defined as the Bald Mountain HMA. This CESA boundary is used to analyze cumulative impacts to wild horses, noxious weeds, invasive and non-native species, and soils.

The Wildlife CESA is defined as NDOW Hunt Unit 154. This CESA boundary is used to analyze cumulative impacts to Migratory Birds, Special Status Animal Species, and Wildlife.

Table 4.2-1 describes each CESA area by resource. Figure 4.2.1 shows the CESA boundaries.

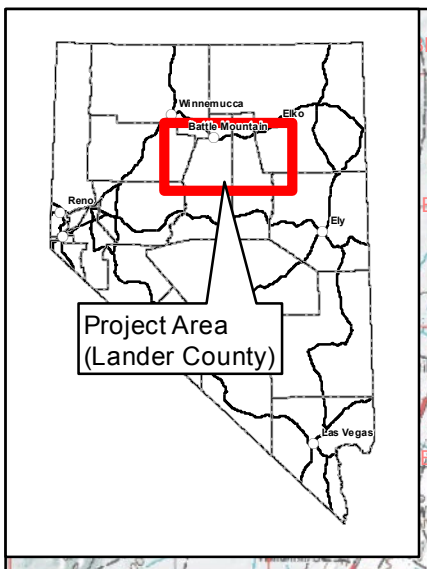
Table 4.2-1: Cumulative Effects Study Areas

Resources Analyzed	CESA	Description of CESA	Size of CESA (acres)
Water Quality (Surface Water) and Visual Resources	Water Quality CESA	Wood Spring Canyon HUC 6 Subwatershed	31,269
Noxious Weeds, Invasive and Non-native Species; Soils; Vegetation; and Wild Horses	Wild Horses CESA	Bald Mountain HMA	139,879
Migratory Birds; Special Status Animal Species; and Wildlife (General)	Wildlife CESA	NDOW Hunt Unit 154	656,839

4.2.1 Past, Present, and Reasonably Foreseeable Future Actions

4.2.1.1 Past and Present Actions

Past and present actions in the three CESAs include the following: wildland fires; wild horse gathers; wildlife habitat management; utility and other ROW construction and maintenance; mineral exploration (including approved surface exploration within the Project Area); mining; and recreation.



Explanation

- Project Area
- Water Quality CESA *(CESA for Visual Resources and Water Quality)*
- Wild Horses CESA *(CESA for Noxious Weeds, Invasive Nonnative Species, Soils, Vegetation, and Wild Horses)*
- Wildlife CESA *(CESA for Migratory Birds, Special Status Species, and Wildlife (General))*

Fire History (through 2012)

- 0
- 1999
- 2000
- 2001
- 2003
- 2006
- 2007
- 2008

0 2 4 6 8 Miles

N

BATTLE MOUNTAIN DISTRICT OFFICE
Mount Lewis Field Office LLNVB0100
50 Bastian Road
Battle Mountain, Nevada 89820

BUREAU OF LAND MANAGEMENT

TOIYABE EXPLORATION PROJECT

Cumulative Effects Study Areas and Fire History

Figure 4.2.1

5/26/2015

Wildland Fires

Although there are no recorded wildland fires within the Project Area or Water Quality CESA, there has been wildland fire disturbance within the Wild Horses CESA and the Wildlife CESA. The wildland fire disturbance in those CESAs is shown on Figure 4.2.1. Between 1999 and 2012, there were approximately 3,807 acres of wildland fire disturbance in the Wild Horses CESA and approximately 18,299 acres in the Wildlife CESA.

Vegetation treatments within the Wild Horses CESA include approximately 1,518 acres of aerial seeding and approximately 536 acres of drill seeding. Vegetation treatments within the Wildlife CESA include the following: approximately 13,573 acres of aerial seeding; approximately 15,478 acres of drill seeding; approximately 384 acres of chaining; approximately 1,134 acres of plowing and drill seeding; approximately 1,073 acres of aerial herbicide spraying; and approximately 65 acres of aerial mulching.

Wildlife Habitat Management/Restoration/Hazardous Fuel Treatment

Research and management of big game and wildlife are undertaken by the NDOW and the BLM and may include modification to existing habitat and rangeland facilities. The Austin mowing project is located within the Wildlife CESA and covers approximately 641 acres.

The Wildlife CESA contains portions of the Austin, Carico Lake, Grass Valley, Kingston, Manhattan Mountain, Mount Airy, Simpson Park, and Underwood allotments.

Rights-of-Way

The LR2000 database was queried by Section, Township, and Range to show the past and present ROWs that have been approved within the three CESAs. These ROWs include the following: roads and highways; telecommunications; power transmission facilities; communication sites; irrigation and water facilities; mineral material disposal sites; and other ROWs. The approximate total acreages of existing and approved ROWs within each CESA are listed in Table 4.2-2.

Table 4.2-2 Past and Present Rights-of-Way Acres in the CESAs

ROW Type	Water Quality CESA (acres)	Wild Horses CESA (acres)	Wildlife CESA (acres)
Roads and Highways	91	91	257
Telecommunications	52	0	71
Power Transmission	19	0	332
Communication Sites	0	0	1
Irrigation/Water Facilities and Pipelines	41	41	85
Mineral Material Disposal Sites	0	5	5
Other	0	0	1
Total	**203**	**137**	**752**

The exact acreage of surface disturbance associated with these ROWs cannot be quantified; however, it is assumed that these types of ROWs and the construction and maintenance associated with these facilities would create a level of surface disturbance that would contribute to cumulative impacts to various resources. In addition, certain types of ROWs can fragment habitat or create barriers or hazards for wildlife passage. The LR2000 database was queried on July 24, 2013, for the Water Quality, Wild Horses, and Wildlife CESAs; therefore, any newly approved ROWs added to the LR2000 database after this date are not included in the analysis.

Mineral Exploration and Mining

The LR2000 database was queried by Section, Township, and Range to show the past and present mineral exploration or mining activities (i.e., authorized Notices, closed Notices, and authorized and closed plans of operation) that have been issued within the three CESAs. Past and present mineral exploration and mining activities in the three CESAs include historic and current mineral exploration and mining operations. Table 4.2-3 shows the results of the LR2000 query, in acres, of the exploration and mining activities within each CESA. The LR2000 database was queried on July 24, 2013 for the Water Quality, Wild Horses, and Wildlife CESAs; therefore, any newly authorized Notices or plans of operation added to the LR2000 database after this date are not included in the analysis. The largest existing mining project, in which a portion is located in the Wildlife CESA, is the Cortez Mine, approximately 11 miles northeast of the Project Area, and includes approximately 692,000 acres.

Table 4.2-3: Past and Present Minerals Disturbance Acres in the CESAs

CESA	Authorization Status	Total Acres of Disturbance
Water Quality CESA	Closed Notices	36
	Authorized Notices	5
	Authorized and Closed Plans of Operation	71
	Water Quality CESA Total	**112**
Wild Horses CESA	Closed Notices	68
	Authorized Notices	9
	Authorized and Closed Plans of Operation	71
	Wild Horses CESA Total	**148**
Wildlife CESA	Closed Notices	202
	Authorized Notices	24
	Authorized and Closed Plans of Operation	22,988
	Wildlife CESA Total	**23,214**

Recreation

Historical and present recreational activities that have occurred within the Water Quality, Wild Horses, and Wildlife CESAs include primarily dispersed recreation activities such as hunting, hiking, fishing, camping, and off-road vehicle use.

4.2.1.2 Reasonably Foreseeable Future Actions

RFFAs in the Water Quality CESA include livestock grazing, wildland fires, wildlife habitat management, ROW maintenance, mineral exploration and mining, and recreation.

RFFAs in the Wild Horses CESA include livestock grazing, wildland fires, wild horse gathers, wildlife habitat management, ROW maintenance, mineral exploration and mining, and recreation.

RFFAs in the Wildlife CESA include livestock grazing, wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration and mining, and recreation.

The proposed Bald Mountain Thinning habitat enhancement project would be located in all three CESAs and would include approximately 5,544 acres of hand thinning.

4.3 Evaluation of Potential Cumulative Impacts

4.3.1 Migratory Birds

The CESA for migratory birds is the Wildlife CESA. This CESA encompasses approximately 656,839 acres is shown on Figure 4.2.1.

Past and Present Actions: Past and present actions that could have impacted and may be currently impacting migratory birds and their habitat include wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, and dispersed recreation. Impacts to migratory birds and their habitat have resulted from the following: 1) indirect impacts from the destruction of habitat associated with building roads and clearing vegetation; 2) indirect impacts from the disruption from human presence or noise from drill rigs, water trucks, and 4WD pickups; and 3) direct impacts or harm to migratory birds that result from the removal of trees and shrubs containing viable nests or ground nests destroyed by construction or ranching equipment. There are no specific data that quantify impacts to migratory birds and their habitat as a result of livestock grazing or recreation. However, impacts to migratory birds from livestock grazing include trampling of vegetation or nesting areas near streams, springs, or riparian areas within the Wildlife CESA. Impacts to migratory birds and their habitat from recreation activities include destruction of native vegetation or nesting areas from off-road vehicles that traveled off of established roadways.

Historic fires (1999–2012) have burned approximately 18,299 acres in this CESA (approximately 2.8 percent of the CESA). Authorized and closed mineral exploration and mining Notices and plans of operation total approximately 23,214 acres (approximately four percent of

the CESA) of surface disturbance. Approximately 752 acres of ROWs were issued within the Wildlife CESA that had the potential to create surface disturbance and disturb migratory bird habitat and vegetation. The CESA is also comprised of NDOW Hunt Unit 154, which had the potential to create noise and disturbance to migratory birds, or remove or alter habitat. The Wildlife CESA encompasses portions of the Austin, Carico Lake, Grass Valley, Kingston, Manhattan Mountain, Mount Airy, Simpson Park, and Underwood grazing allotments. Livestock grazing and associated management could have contributed to the spread of noxious weeds, invasive and non-native species, which could have had an indirect effect on migratory birds and their habitat. However, disturbance to migratory birds from past and present actions would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species. The past and present actions that are quantifiable have disturbed approximately 6.4 percent of the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

RFFAs: Potential impacts to migratory birds and their habitat from livestock grazing, wildlife habitat management, dispersed recreation, ROW construction and maintenance, mineral exploration and mining activities, or loss of native vegetation associated with potential wildland fires are expected to continue. There are no specific data to quantify impacts to migratory birds or their habitat within the CESA as a result of dispersed recreation, livestock grazing, wildlife habitat management, or potential wildland fires. There is one pending telecommunication ROW project reported in LR2000 in the Wildlife CESA, and is approximately 33 acres. There are approximately 24 acres of pending minerals projects, which includes the proposed Project. All pending minerals projects are required to incorporate protection measures for migratory birds and therefore, are not expected to directly harm migratory birds, but may result in habitat removal or alteration.

4.3.1.1 Proposed Action

The Proposed Action (approximately 100 acres) would impact approximately 0.02 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wildlife CESA is approximately 42,322 acres, which results in an incremental cumulative impact from the Proposed Action of approximately 0.2 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts would be localized and minimized due to the implementation of the EPMs outlined in Section 2.1.12. Therefore, based on the above analysis and findings, incremental impacts to migratory birds and their habitat as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, would not be significant.

4.3.1.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wildlife CESA is approximately 42,322 acres, which is an impact to approximately 6.4 percent of the CESA. This alternative (approximately 4.9 acres) would result in an incremental impact of approximately 0.01 percent. Impacts to migratory birds and their habitat from this alternative, in combination with past and present actions and RFFAs disturbance, would be minimal.

4.3.2 Noxious Weeds, Invasive and Non-native Species

The CESA for noxious weeds, invasive and non-native species is the Wild Horses CESA. This CESA encompasses approximately 139,875 acres and is shown on Figure 4.2.1.

Past and Present Actions: Past and present actions with impacts created from noxious weeds, invasive and non-native species could have included and may currently include wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, and dispersed recreation. These actions could have disturbed vegetation and soils creating an opportunity for invasive plant colonization and the introduction of noxious weed, invasive or non-native species seeds. There are no specific data to quantify impacts from noxious weeds, invasive and non-native species that resulted from wildlife habitat management, livestock grazing, or dispersed recreation.

Historic fires (1999–2012) have burned approximately 3,807 acres in the Wild Horses CESA (approximately 2.7 percent of the CESA). Authorized and closed mineral exploration and mining Notices and plans of operation total approximately 148 acres (approximately 0.1 percent of the CESA) of surface disturbance. Approximately 137 acres of ROWs were issued within the Wild Horses CESA that had the potential to introduce noxious weeds, invasive and non-native species. There are also ongoing revegetation treatments in the Wild Horses CESA that total approximately 2,054 acres. The past and present actions that are quantifiable have disturbed approximately 4.4 percent of the CESA.

RFFAs: Potential impacts from noxious weeds, invasive and non-native species as a result of livestock grazing, wildlife habitat management, dispersed recreation, ROW construction and maintenance, mineral exploration and mining activities, or loss of native vegetation associated with potential wildland fires are expected to continue. There are no specific data to quantify impacts from noxious weeds, invasive and non-native species as a result of dispersed recreation, livestock grazing, wildlife habitat management, or potential wildland fires. There are approximately 24 acres of disturbance from pending minerals projects in the Wild Horses CESA, and no pending ROW projects.

4.3.2.1 Proposed Action

The Proposed Action (approximately 100 acres) would impact approximately 0.07 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wild Horses CESA is approximately 6,170 acres, results in an incremental cumulative impact from the Proposed Action of approximately 1.6 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Based on the above analysis and findings, incremental impacts from noxious weeds, invasive and non-native species as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minimal.

4.3.2.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wild Horses CESA is approximately 6,170 acres, which is an impact to approximately 4.4 percent of the

CESA. This alternative (approximately 4.9 acres) would result in an incremental impact of approximately 0.08 percent. Impacts from noxious weeds, invasive and non-native species from this alternative, in combination with past and present actions and RFFAs disturbance, would be minimal.

4.3.3 Socioeconomics

The CESA for socioeconomics is the Socioeconomics CESA, or Lander County, which encompasses approximately 3,597,440 acres.

Past and Present Actions: Past and present actions within the Socioeconomics CESA include the following: grazing and agriculture; utilities and infrastructure; wildland fires; recreation; mining; and mineral development and exploration. Impacts to socioeconomics from these activities include increased population, increased demand for public services, increased employment opportunities, increased revenues within the CESA, and increased expenditures by the communities within the CESA. The extent of these impacts vary with the type of activity and have not been quantified; however, the majority of these impacts from past and present activities do not have any ongoing impacts and are considered to be part of the existing social and economic climate within the CESA.

RFFAs: Socioeconomic impacts would result from the following RFFAs: grazing and agriculture; utilities and infrastructure; wildland fires; recreation; mining; and mineral development and exploration.

4.3.3.1 Proposed Action

As outlined in Section 3.2.12, the socioeconomic impacts from the Proposed Action would be short-term, and would not create a noticeable increase in demand for additional public or private services (e.g., law enforcement, emergency response, fire protection, health care and social services, water, and solid waste), and would also not impact public schools, the permanent housing market, or other services associated with permanent workers. The socioeconomic impacts resulting from the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be short-term and beneficial but are not expected to be significant when compared to the overall economy of Lander County.

4.3.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved and ongoing mineral exploration activities in the Project Area would continue. The cumulative impacts resulting from the No Action Alternative would be less that those associated with the Proposed Action because the authorized operations would result in the need for fewer employees than the Proposed Action.

4.3.4 Soils

The CESA for soils is the Wild Horses CESA. This CESA encompasses approximately 139,875 acres and is shown on Figure 4.2.1.

Past and Present Actions: Past and present actions that could have impacted and may be currently impacting soils include wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, vegetation treatments, soil compaction due to travel by heavy equipment on unpaved roads, and dispersed recreation. These actions may have directly disturbed or impacted soils, or increased erosion or sedimentation potential. Soil disturbance has also been associated with wildland fires; however, fire rehabilitation and natural revegetation has occurred, stabilizing soil loss. Impacts from these activities include loss of soils productivity due to changes in soil physical properties, soil fertility, soil movement in response to water and wind erosion, and loss of soil structure due to compaction. There are no specific data to quantify impacts to soils from livestock grazing, wildlife habitat management, or dispersed recreation in the Wild Horses CESA.

Historic fires (1999–2012) have burned approximately 3,807 acres in this CESA (approximately 2.7 percent of the CESA). Authorized and closed mineral exploration and mining Notices and plans of operation total approximately 148 acres (approximately 0.1 percent of the CESA) of surface disturbance. Approximately 137 acres of ROWs were issued within the Wild Horses CESA that had the potential to create surface disturbance. There are also ongoing revegetation treatments in the Wild Horses CESA that total approximately 2,054 acres. The quantifiable past and present actions have disturbed approximately 4.4 percent of the CESA.

RFFAs: Potential wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, vegetation treatments, soil compaction due to travel by heavy equipment on unpaved roads, and dispersed recreation are expected to continue. There are no specific data to quantify impacts to soils as a result of dispersed recreation, livestock grazing, wildlife habitat management, or potential wildland fires. There are approximately 24 acres of disturbance from pending minerals projects in the Wild Horses CESA, and no pending ROW projects.

4.3.4.1 Proposed Action

The Proposed Action (approximately 100 acres) would impact approximately 0.07 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wild Horses CESA is approximately 6,170 acres, results in an incremental cumulative impact from the Proposed Action of approximately 1.6 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Based on the above analysis and findings, incremental impacts to soils as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, would be minimal.

4.3.4.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wild Horses CESA is approximately 6,170 acres, which is an impact to approximately 4.4 percent of the CESA. This alternative (approximately 4.9 acres) would result in an incremental impact of approximately 0.08 percent of this CESA. Impacts to soils from this alternative, in combination with past and present actions and RFFAs disturbance, would be minimal.

4.3.5 Special Status Species

The CESA for special status species is the Wildlife CESA. This CESA encompasses approximately 656,839 acres and is shown on Figure 4.2.1.

Past and Present Actions: Past and present actions that could have impacted and may be currently impacting special status species and their habitat include wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, and dispersed recreation. These activities have the potential to impact water resources and wildlife habitat, or result in direct impacts to individuals in travel routes, or loss of forage, cover, and habitat, as well as disturbance of mating and brood rearing practices.

Historic fires (1999–2012) have burned approximately 18,299 acres in this CESA (approximately 2.8 percent of the CESA). Authorized and closed mineral exploration and mining Notices and plans of operation total approximately 23,214 acres (approximately four percent of the CESA) of surface disturbance. Approximately 752 acres of ROWs were issued within the Wildlife CESA that had the potential to create surface disturbance and disturb special status species and their habitat and vegetation. The CESA is also comprised of the NDOW Hunt Unit 154, which had the potential to create noise and disturbance to special status species, or remove or alter habitat. The Wildlife CESA encompasses portions of the Austin, Carico Lake, Grass Valley, Kingston, Manhattan Mountain, Mount Airy, Simpson Park, and Underwood grazing allotments. Livestock grazing and associated management could have contributed to the spread of noxious weeds, invasive and non-native species, which could have had an indirect effect on special status species. However, disturbance to special status species and their habitat from past and present actions would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species. The past and present actions that are quantifiable have disturbed approximately 6.4 percent of the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

RFFAs: Potential impacts to special status species and their habitat from livestock grazing, wildlife habitat management, dispersed recreation, ROW construction and maintenance, mineral exploration and mining activities, or loss of native vegetation associated with potential wildland fires are expected to continue. There are no specific data to quantify impacts to special status species or their habitat within the CESA as a result of dispersed recreation, livestock grazing, wildlife habitat management, or potential wildland fires. There is one pending telecommunication ROW project reported in LR2000 in the Wildlife CESA, and is approximately 33 acres. There are approximately 24 acres of pending minerals projects, which includes the Project.

4.3.5.1 Proposed Action

The Proposed Action (approximately 100 acres) would impact approximately 0.02 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wildlife CESA is approximately 42,322 acres, results in an incremental cumulative impact from the Proposed Action of approximately 0.2 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact

of the Proposed Action. However, based on the above analysis and findings, incremental impacts to special status species and their habitat as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, would be minimal.

4.3.5.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wildlife CESA is approximately 42,322 acres, which is an impact to approximately 6.4 percent of the CESA. This alternative (approximately 4.9 acres) would result in an incremental impact of approximately 0.01 percent. Impacts to special status species and their habitat from this alternative, in combination with past and present actions and RFFA disturbance, would be minimal.

4.3.6 Vegetation

The CESA for vegetation is the Wild Horses CESA. This CESA encompasses approximately 139,875 acres and is shown on Figure 4.2.1.

Past and Present Actions: Past and present actions that could have impacted and may be currently impacting vegetation include wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, vegetation treatments that altered the structure, composition, and ecology of plant communities, and dispersed recreation. There are no specific data to quantify impacts to vegetation from livestock grazing, wildlife habitat management, or dispersed recreation. Impacts caused by hunting activities and associated off-road vehicle travel include the introduction of noxious weeds, invasive or non-native species and trampled vegetation.

Historic fires (1999–2012) have burned approximately 3,807 acres in this CESA (approximately 2.7 percent of the CESA). Authorized and closed mineral exploration and mining Notices and plans of operation total approximately 148 acres (approximately 0.1 percent of the CESA) of surface disturbance. Approximately 137 acres of ROWs were issued within the Wild Horses CESA that had the potential to create surface disturbance. There are also ongoing revegetation treatments in the Wild Horses CESA which total approximately 2,054 acres. The quantifiable past and present actions have disturbed approximately 4.4 percent of the CESA.

RFFAs: Potential wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, vegetation treatments, and dispersed recreation are expected to continue. There are no specific data to quantify impacts to vegetation as a result of dispersed recreation, livestock grazing, wildlife habitat management, or potential wildland fires. There are approximately 24 acres of disturbance from pending minerals projects in the Wild Horses CESA, and no pending ROW projects.

4.3.6.1 Proposed Action

The Proposed Action (approximately 100 acres) would impact approximately 0.07 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wild Horses CESA is approximately 6,170 acres, results in an incremental cumulative impact from the Proposed Action of approximately 1.6 percent. Since there are limited quantifiable data for all activities

within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Based on the above analysis and findings, incremental impacts to vegetation as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, would be minimal.

4.3.6.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wild Horses CESA is approximately 6,170 acres, which is an impact to approximately 4.4 percent of the CESA. This alternative (approximately 4.9 acres) would result in an incremental impact of approximately 0.08 percent. Impacts to vegetation from this alternative, in combination with past and present actions and RFFAs disturbance, would be minimal.

4.3.7 Visual Resources

The CESA for visual resources is the Water Quality CESA. This CESA encompasses approximately 31,269 acres and is shown on Figure 4.2.1.

Past and Present Actions: Past and present actions that may have impacted and may be currently impacting visual resources include ROW construction, mineral exploration, and mining.

Authorized and closed mineral exploration and mining Notices and plans of operation total approximately 112 acres (approximately 0.4 percent of the CESA) of surface disturbance. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, or have naturally revegetated over time. Approximately 203 acres of ROWs were issued within the Water Quality CESA that had the potential to create surface disturbance. The past and present actions that are quantifiable have disturbed approximately one percent of the CESA.

RFFAs: Potential wildland fires, ROW construction, mineral exploration, and mining are expected to continue. There are approximately 20 acres of disturbance from pending minerals projects in the Water Quality CESA, and no pending ROW projects.

4.3.7.1 Proposed Action

The area within the Water Quality CESA is currently designated as VRM Class IV. The Proposed Action (approximately 100 acres) would impact approximately 0.3 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Water Quality CESA is approximately 335 acres, which results in an incremental impact from the Proposed Action of approximately 30 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts from surface disturbance would be minimized by concurrent reclamation. In addition, during non-daylight drilling, artificial lighting would be directed downward to address the "dark sky initiative," subject to MSHA regulations or other safety concerns. Even after reclamation, the disturbed areas associated with the Proposed Action, as well as past, present and RFFAs, may result in visual contrasts with the existing landscape as the vegetation is re-establishing; however, native vegetation would gradually re-establish within the disturbed areas to minimize visual contrasts. Therefore, based on the above analysis and

findings, incremental impacts to visual resources as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor and not significant.

4.3.7.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Water Quality CESA is approximately 335 acres, which is an impact to approximately one percent of the CESA. This alternative (approximately 4.9 acres) would result in an incremental impact of approximately 1.5 percent. Impacts to visual resources from this alternative, in combination with past and present actions and RFFAs disturbance, would be minimal.

4.3.8 Water Quality – Surface Water

The CESA for surface water quality is the Water Quality CESA. This CESA encompasses approximately 31,269 acres and is shown on Figure 4.2.1.

Past and Present Actions: Past and present actions that could have impacted and may be currently impacting surface water quality include wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, and dispersed recreation. There are no specific data to quantify impacts to surface water quality from livestock grazing, wildlife habitat management, or dispersed recreation.

Authorized and closed mineral exploration and mining Notices and plans of operation total approximately 112 acres (approximately 0.4 percent of the CESA) of surface disturbance. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time. Approximately 203 acres of ROWs were issued within the Water Quality CESA that had the potential to create surface disturbance. The CESA is also comprised of the NDOW Hunt Unit 154, which had the potential to create soil erosion and sedimentation of surface water features. The past and present actions that are quantifiable have disturbed approximately one percent of the CESA.

RFFAs: Potential wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, vegetation treatments, and dispersed recreation are expected to continue. There are no specific data to quantify the amount of sedimentation that could result from these activities. However, mineral exploration activities would be required to comply with spill contingency plans, NDOT and MSHA regulations for the handling of hazardous substances, and applicable BMPs, thus minimizing impacts to surface water quality. There are approximately 20 acres of disturbance from pending minerals projects in the Water Quality CESA, and no pending ROW projects.

4.3.8.1 Proposed Action

The Proposed Action (approximately 100 acres) would impact approximately 0.3 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Water Quality CESA is approximately 335 acres, results in an incremental cumulative impact from the Proposed Action of approximately 30 percent. Since there are limited quantifiable data for all activities

within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. However, based on the above analysis and findings, incremental impacts to water quality as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, would be minimal.

4.3.8.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Water Quality CESA is approximately 335 acres, which is an impact to approximately one percent of the CESA. This alternative (approximately 4.9 acres) would result in an incremental impact of approximately 1.5 percent. Impacts to water quality from this alternative, in combination with past and present actions and RFFAs disturbance, would be minimal.

4.3.9 Wild Horses

The CESA for wild horses is the Wild Horses CESA. This CESA encompasses approximately 139,875 acres and is shown on Figure 4.2.1.

Past and Present Actions: Past and present actions that could have impacted and may be currently impacting wild horses include wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, and dispersed recreation. Impacts to wild horses from these activities include loss of forage, increased traffic, and noise from drilling and mining activities. The extent of these impacts varies with the type of activity. There are no specific data to quantify impacts to wild horses from dispersed recreation.

Wild horse gathers have been conducted within the Bald Mountain HMA to remove excess wild horses and implement population growth suppressant (fertility control). Initially, gathers to remove excess wild horses were conducted in 1981 and 1982, with the removal of 364 horses. Gathers did not occur again until January 2009 at which time 511 wild horses were removed to achieve the established AML of 129 wild horses. Forty-nine wild mares were treated with PZP-22 fertility control. The HMA was again gathered in December 2010 to essentially retreat mares for fertility control and remove a limited number of horses comprised mostly of young horses. Sixty-two horses were removed, with a post gather population estimated to be 136 horses, and 54 mares treated or re-treated with PZP-22. Genetic analysis was done following the 2008 gather and 97 hair samples were collected from wild horses released back to the range. A report was prepared and concluded that the genetic variability of this herd was high which was true for other herds from this region. Genetic similarity results suggested a herd with mixed ancestry. The variation results plus the fairly close relationship among herds from this region indicated that these herds likely interbred.

Historic fires (1999–2012) have burned approximately 3,807 acres in the Wild Horses CESA (approximately 2.7 percent of the CESA). Authorized and closed mineral exploration and mining Notices and plans of operation total approximately 148 acres (approximately 0.1 percent of the CESA) of surface disturbance. Approximately 137 acres of ROWs were issued within the Wild Horses CESA that had the potential to introduce noise and increased traffic from human disturbance activities. There are also ongoing revegetation treatments in the Wild Horses CESA which total approximately 2,054 acres. The quantifiable past and present actions have disturbed approximately 4.4 percent of the CESA.

RFFAs: Potential wildland fires, wildlife habitat management, wild horse gathers, ROW construction and maintenance, mineral exploration, mining, livestock grazing, vegetation treatments, and dispersed recreation are expected to continue. There are no specific data to quantify impacts to wild horses as a result of dispersed recreation, livestock grazing, wildlife habitat management, or potential wildland fires. There are approximately 24 acres of disturbance from pending minerals projects in the Wild Horses CESA, and no pending ROW projects.

Mining and mineral exploration activities, oil and gas production, geothermal development, gravel pit expansion, road building, fencing, wild horse gathers, and OHV use, are all activities which can impact wild horse distribution and seasonal movement throughout and between HMAs. Each activity results in incremental restrictions on free roaming behavior and over time may influence utilization patterns, genetic interchange and use of water sources. The Project would cause disturbance of approximately 100 acres of vegetation and soils within the HMA. Increased human activity would cause disturbance to wild horses beyond the 100 acres, and would likely result in slight changes to distribution and use patterns. The impacts of this Project would be short term and temporary in nature. Since the Project would be implemented in phases, and reclamation would occur following the work, no permanent impacts to wild horses are expected.

Through exploration activities, any removal of piñon or juniper trees, in conjunction with reclamation of the disturbed areas could make the area more attractive to wild horses in the long term, in addition to reducing risk of wildfire. Future gathers would occur to remove excess wild horses and implement population growth suppressants. Other future actions could include adjustment of the AML or implementation of a Herd Management Area Plan. All of these actions would promote improved habitat and animal health, potentially offsetting any negative impacts from other activities in the HMA such as exploration or mining, which could affect distribution in the HMA.

4.3.9.1 Proposed Action

The Proposed Action (approximately 100 acres) would impact approximately 0.07 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wild Horses CESA is approximately 6,170 acres, results in an incremental cumulative impact from the Proposed Action of approximately 1.6 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Based on the above analysis and findings, incremental impacts to wild horses as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, would be minimal.

4.3.9.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wild Horses CESA is approximately 6,170 acres, which is an impact to 4.4 percent of the CESA. This alternative (approximately 4.9 acres) would result in an incremental impact of approximately 0.08 percent. Impacts to wild horses from this alternative, in combination with past and present actions and RFFAs disturbance, would be minimal.

4.3.10 Wildlife

The CESA for wildlife is the Wildlife CESA. This CESA encompasses approximately 656,839 acres and is shown on Figure 4.2.1.

Past and Present Actions: Past and present actions that could have impacted and may be currently impacting wildlife and their habitat include wildland fires, wildlife habitat management, ROW construction and maintenance, mineral exploration, mining, livestock grazing, and dispersed recreation. These activities have the potential to impact water resources and wildlife habitat, or result in direct impacts to individuals in travel routes, or loss of forage, cover, and habitat, as well as disturbance of mating and brood rearing practices.

Historic fires (1999–2012) have burned approximately 18,299 acres in this CESA (approximately 2.8 percent of the CESA). Authorized and closed mineral exploration and mining Notices and plans of operation total approximately 23,214 acres (approximately four percent of the CESA) of surface disturbance. Approximately 752 acres of ROWs were issued within the Wildlife CESA that had the potential to create surface disturbance and disturb wildlife and their habitat and vegetation. The CESA is also comprised of the NDOW Hunt Unit 154, which had the potential to create noise and disturbance to wildlife, or remove or alter habitat. The Wildlife CESA encompasses portions of the Austin, Carico Lake, Grass Valley, Kingston, Manhattan Mountain, Mount Airy, Simpson Park, and Underwood grazing allotments. Livestock grazing and associated management could have contributed to the spread of noxious weeds, invasive and non-native species, which could have had an indirect effect on wildlife. However, disturbance to wildlife and their habitat from past and present actions would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species. The past and present actions that are quantifiable have disturbed approximately 6.4 percent of the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

RFFAs: Potential impacts to wildlife and their habitat from livestock grazing, wildlife habitat management, dispersed recreation, ROW construction and maintenance, mineral exploration and mining activities, or loss of native vegetation associated with potential wildland fires are expected to continue. There are no specific data to quantify impacts to wildlife or their habitat within the CESA as a result of dispersed recreation, livestock grazing, wildlife habitat management, or potential wildland fires. There is one pending telecommunication ROW project reported in LR2000 in the Wildlife CESA, and is approximately 33 acres. There are approximately 24 acres of pending minerals projects, which includes the Project.

4.3.10.1 Proposed Action

The Proposed Action (approximately 100 acres) would impact approximately 0.02 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wildlife CESA is approximately 42,322 acres, results in an incremental cumulative impact from the Proposed Action of approximately 0.2 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. However, based on the above analysis and findings, incremental impacts

to wildlife and their habitat as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, would be minimal.

4.3.10.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wildlife CESA is approximately 42,322 acres, which is an impact to approximately 6.4 percent of the CESA. This alternative (approximately 4.9 acres) would result in an incremental impact of approximately 0.01 percent. Impacts to wildlife and their habitat from this alternative, in combination with past and present actions and RFFA disturbance, would be minimal.

5 CONSULTATION AND COORDINATION

This EA was prepared at the direction of the BLM, MLFO, Battle Mountain District, Nevada, by Enviroscientists, Inc., under a contract with GOE. The following is a list of persons, groups, and agencies consulted, as well as a list of individual responsible for the preparation of this EA.

5.1 Persons, Groups, and Agencies Consulted

Federal Agencies

Marcy Haworth (for Jill Ralston), US Fish and Wildlife Service

State Agencies

Eric Miskow, Nevada Natural Heritage Program
Timothy Herrick, Nevada Department of Wildlife
Todd Suessmith, Nevada Division of Environmental Protection, Bureau of Mining Regulation & Reclamation

Native Americans

Te-Moak Tribe of Western Shoshone, Battle Mountain Band Council
Yomba Shoshone Tribe
Duckwater Shoshone Tribe

5.2 List of Preparers and Reviewers

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Kent Bloomer	Noxious Weeds, Invasive and Non-native Species
Jon Kramer	Lands and Realty
Benjamin Cramer	Recreation, Visual Resources, Lands with Wilderness Characteristics
William O'Neill	Wildlife, Migratory Birds, Special Status Species
John Kinsner	Cultural Resources
Alden Shallcross	Water Quality
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APPENDIX A

TOIYABE EXPLORATION PROJECT
ENVIRONMENTAL ASSESSMENT
RESPONSES TO PUBLIC COMMENTS

Toiyabe Exploration Project Environmental Assessment Responses to Public Comments			
Commenter	**Comment Number**	**Comment**	**Response**
Nevada Division of Environmental Protection, Bureau of Water Pollution Control	A-1	The project may be subject to BWPC permitting. Permits are required for discharges to surface waters and groundwater's of the State (Nevada Administrative Code NAC 445A.228). BWPC permits include, but are not limited to, the following: • Stormwater Industrial General Permit • De Minimis Discharge General Permit • Pesticide General Permit • Drainage Well General Permit • Temporary Permit for Discharges to Groundwater's of the State • Working in Waters Permit • Wastewater Discharge Permits • Underground Injection Control Permits • Onsite Sewage Disposal System Permits • Holding Tank Permits Please note that discharge permits must be issued from this Division before construction of any treatment works (Nevada Revised Statute 445A.585). For more information on BWPC Permitting, please visit our website at: http://ndep.nv.gov/bwpc/index.htm. Additionally, the applicant is responsible for all other permits that may be required, which may include, but not be limited to: • Dam Safety Permits – Division of Water Resources • Well Permits – Division of Water Resources • 401 Water Quality Certification – NDEP • 404 Permits – U.S. Army Corps of Engineers • Air Permits – NDEP • Health Permits – Local Health or State Health Division • Local Permits – Local Government	Golden Oasis Exploration (GOE) is aware of the required NDEP BWPC and Nevada Division of Water Resources (NDWR) permits. Many of the listed permits are required for sites and activities occurring within or adjacent to Waters of the U.S (Stormwater Industrial General Permit, De Minimis Discharge General Permit, Pesticide Permit, Working in Waters Permit, 401 Water Quality Certification, and 404 Permits). As explained in Section 3.2.18 of the EA, there are no Waters of the U.S. in the Project Area. The Project does not involve discharges to surface or groundwater. Therefore, permits involving discharges are not applicable to the site (Drainage Well General Permit, Temporary Permit for Discharge to Groundwaters of the State, Wastewater Discharge Permits, and Underground Injection Control Permits). The Project does not include any onsite sewage disposal systems or holding tanks.

Toiyabe Exploration Project Environmental Assessment Responses to Public Comments			
Commenter	**Comment Number**	**Comment**	**Response**
			No dams have been authorized for the Project; therefore, dam safety permits are not required. Groundwater monitoring and production wells have been included for potential inclusion into subsequent phases of the Project. GOE will obtain the appropriate water rights and permits prior to construction. The site operates under the Class II Air Quality Operating Permit Surface Area Disturbance AP1041-3514.
Nevada Natural Heritage Program	B-1	The proposed reclamation seed mix shown on page 2-8 includes three non-native species – Palmer penstemon, scarlet globemallow, and forage kochia. Native substitutes should be found for these species if possible. For globemallow, a native locally-adapted species such as Sphaeralcea grossulariaefolia would be preferable. In particular, we request that Palmer penstemon never be used in seed mixes west of 116 degrees West longitude. Commercial Palmer penstemon (Penstemon palmeri var. palmeri) is not native to northwestern Nevada, and when introduced there poses a biological threat to a rare native variety, Lahontan beardtongue (Penstemon palmeri var. macranthus). Hybridization between the two could increase the likelihood that Lahontan beardtongue will need regulatory protection as a Threatened or Endangered species, resulting in economic impacts to public agencies and individuals, and biological degradation of Nevada's natural heritage. Please find a native, locally adapted substitute for Palmer penstemon in seed mixes used in northwestern Nevada.	In addition the native species previously included in the seed mix, the following native species have been added: bluebunch wheatgrass (*Pseudoroegeria spicata*), mountain brome (*Bromus marginatus*), tapertip hawksbeard (*Crepis acuminate*), arrowleaf balsamroot (*Balsamorhiza sagittata*), and Utah serviceberry (*Amelanchier utahensis*).

Toiyabe Exploration Project Environmental Assessment Responses to Public Comments			
Commenter	**Comment Number**	**Comment**	**Response**
Nevada Department of Wildlife	C-1 (Table 3.2-1)	There are several species of migratory birds detected within the project area that seem out of place. For instance, American White pelican, Cinnamon Teal, Green-winged Teal, Mallard and White faced ibis. All of these species are reliant on bodies of water and this exploration project is within PJ.	Table 3.2-1 has been revised to match the birds detected in the Project Area as listed in the Biological Survey Report (Enviroscientists 2013).
	C-2 (Figure 3.2.9)	This figure does not adequately depict mule deer habitat. How was this data deprived and was the most updated mule deer seasonal habitat layer used?	Figure 3.2.9 has been updated with the most current (August 2014) crucial winter mule deer habitat obtained from the NDOW's GIS data download page.
	C-3	NDOW suggests a 0.5 mile disturbance buffer from 3-1 – 8-15 for Northern Goshawk. Furthermore, there is a road that is next to the nest location, what will be the activity on this road?	In order to avoid potential impacts to the northern goshawk (*Accipiter gentilis*) nest identified in the Project Area, GOE would conduct an annual nest check prior to any drilling, road construction, or vehicular travel that is planned to occur between March 1 and August 15. If the nest is found to be active than GOE would implement the following: • Inform the BLM of the nest status; • Not conduct drilling or road construction within a 0.5-mile buffer around the active nest during the northern goshawk breeding season of March 1 through August 15;

Toiyabe Exploration Project Environmental Assessment Responses to Public Comments			
Commenter	**Comment Number**	**Comment**	**Response**
			• Only allow vehicles to travel along the access road located to the east of the active nest (Figure 2.1.2) within the 0.5-mile buffer between March 1 and August 15 provided the vehicles do not stop; and • Not allow vehicles to travel along the access road directly west of the active nest (Figure 2.1.2) between March 1 and August 15. If the annual nest check determines that the nest is not active, these restrictions would not apply.

Toiyabe Exploration Project Environmental Assessment Responses to Public Comments			
Commenter	**Comment Number**	**Comment**	**Response**
	C-4	Mule deer impacts: Portions of the project area are within crucial mule deer winter range. Crucial mule deer winter range definition is winter ranges that are vital or crucial to the continued existence of the population. NDOW would suggest a timing restriction of exploration activities from December 1st to April 15th.	The BLM does not have any regulations or timing restrictions within crucial mule deer winter range. The reclamation seed mix, Table 2.1-2 of the EA, includes important mule deer forage species such as Utah serviceberry (*Amelanchier utahensis*) and snowberry (*Symphoricarpos albus*). Except for the seed mix for forage, no changes have been made to the EA.