

ENVIRONMENTAL ASSESSMENT

DOI-BLM-NV-B020-2011-0086-EA

Monte Cristo Diatomaceous Earth Project



November 2012
U.S. Bureau of Land Management
Tonopah Field Office
Battle Mountain District
1553 South Main Street
P.O. Box 911
Tonopah, Nevada 89049



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DOI-BLM-NV-B020-2011-0086-EA

**GLOBAL SILICA, INC.
MONTE CRISTO
DIATOMACEOUS EARTH PROJECT
ESMERALDA COUNTY, NEVADA**

Environmental Assessment
#DOI-BLM-NV-B020-2011-0086-EA

November 2012

Bureau of Land Management
Tonopah Field Office
Battle Mountain District
1553 South Main Street/P.O. Box 911
Tonopah, Nevada 89049

**GLOBAL SILICA, INC.
MONTE CRISTO DIATOMACEOUS EARTH PROJECT
ENVIRONMENTAL ASSESSMENT**

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LIST OF ACRONYMS AND ABBREVIATIONS

°	degrees
AFY	acre-feet per year
amsl	above mean sea level
AUM	Animal Unit Month
BAPC	Bureau of Air Pollution Control
BLM	Bureau of Land Management
BMPs	Best Management Practices
BMRR	Bureau of Mining Regulation and Reclamation
BWPC	Bureau of Water Pollution Control
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESA	Cumulative Effects Study Area
CFR	Code of Federal Regulations
CWSP	clean water supply pond
DE	diatomaceous earth
DWSP	dirty water supply pond
ECMP	Esmeralda County Master Plan
EO	Executive Order
ESA	Endangered Species Act of 1973, as amended
F	Fahrenheit
ft ²	square feet
FLPMA	Federal Land Policy and Management Act of 1976
GHG	greenhouse gas
gpd	gallons per day
gpm	gallons per minute
GSI	Global Silica, Inc.
H	horizontal
HAPS	hazardous air pollutants
HFRA	Healthy Forest Restoration Act
HMA	Herd Management Area
IM	Instruction Memorandum
IPCC	Intergovernmental Panel on Climate Change
MBTA	Migratory Bird Treaty Act
MDB&M	Mount Diablo Base and Meridian
mg/L	milligrams per liter
Mining Law	General Mining Law of 1872, as amended
MLRA	Major Land Resource Area
µm	micrometer
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAGPRA	Native American Graves Protection and Repatriation Act
NDOA	Nevada Department of Agriculture
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources

NEPA	National Environmental Policy Act
NNHP	Nevada Natural Heritage Program
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statute
NSAAQS	Nevada State Ambient Air Quality Standard
NSHL	Nevada State Health Laboratory
PCS	petroleum contaminated soil
Plan	Plan of Operations/Permit for Reclamation
PLS	pure live seed
Project	Monte Cristo Diatomaceous Earth Project
RFFAs	Reasonably Foreseeable Future Actions
RMP	Resource Management Plan
ROWs	rights-of-way
SCP	Spill Contingency Plan
SIP	State Implementation Plan
SWMP	Solid Waste Management Plan
TCPs	Traditional Cultural Properties
TFO	Tonopah Field Office
U.S. 95	U.S. Highway 95
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
V	vertical
VRM	Visual Resource Management
WOUS	Waters of the United States
yd ³	cubic yards

GLOBAL SILICA, INC.
MONTE CRISTO DIATOMACEOUS EARTH PROJECT
ENVIRONMENTAL ASSESSMENT

1 INTRODUCTION / PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

The Monte Cristo Diatomaceous Earth Project (Project) is located approximately 49 miles northwest of Tonopah, Nevada, in the west central Monte Cristo Range. The Project is accessed from U.S. Highway 95 (U.S. 95) by traveling east at Rock Hill for approximately three miles to the proposed processing area and an additional five miles to the proposed Northwest and Southeast Mine Areas. The Project is located in parts of or all of Sections 22, 23, 26, 27 and 31 through 35, Township 4 North, Range 37 East (T4N, R37E), Sections 35 and 36, T4N, R36E, and Section 2, T3N, R36E, Mount Diablo Base and Meridian (MDB&M), in Esmeralda County, Nevada (Project Area). The Project Area consists of approximately 540 acres and is located entirely on public land administered by the Bureau of Land Management (BLM) Battle Mountain District, Tonopah Field Office (TFO). Figure 1.1.1 shows the Project location, access roads, and land ownership status.

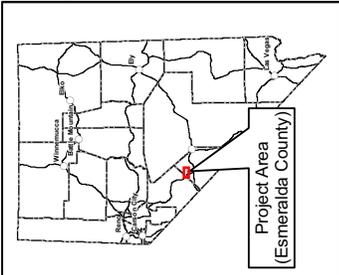
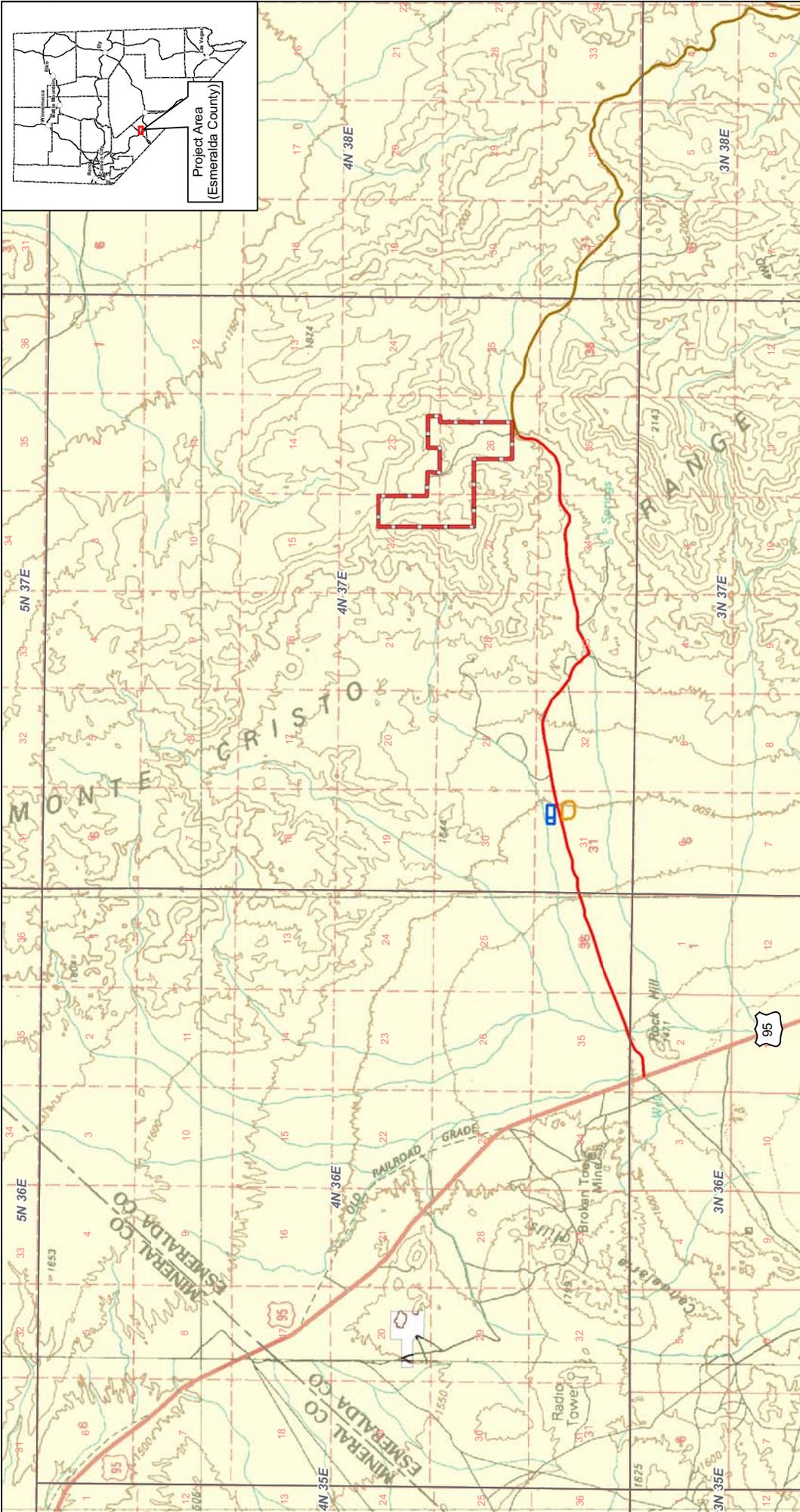
There is one existing Notice that covers exploration activities in portions of the Project Area. Notice NVN-87336, originally submitted in March 2009 and revised in September 2011, authorized Global Silica, Inc. (GSI) to conduct 4.6 acres of surface disturbance. This Notice was date stamped on October 18, 2011. Bulk sampling activities under this Notice consisted of trenching, sampling, utilization of existing access roads, and overland travel for site access. In addition, Notice NVN-90808 authorized 0.24 acre of surface disturbance associated with the construction of a water well and access road to the well.

GSI proposes to expand Notice-level exploration activities on public land under Notice NVN-87336 to mining activities. The expanded activities would include maintenance of existing roads (including an Esmeralda County road), new road construction, mine excavation, development of a borrow area, construction of a material processing and handling area, and future exploration related disturbance. These activities would create a total of 175.8 acres of surface disturbance, including authorized Notice-level disturbance in the Project Area. The authorized Notice-level disturbance is included in the two mine disturbance areas and would be consumed by the material removal in the mine areas.

The combined acreage of existing and proposed disturbance on BLM-administered land is greater than five acres; therefore, in July 2010 (revised October 2010, January 2011, February 2011, and July 2012) GSI submitted a Plan of Operations #NVN-88946/Nevada Reclamation Permit Application (Plan) to the BLM and the Nevada Division of Environmental Protection (NDEP), Bureau of Mining Regulation and Reclamation (BMRR) in accordance with the BLM's Surface Management 43 Code of Federal Regulations (CFR) 3809.400 and Nevada reclamation regulations in Nevada Administrative Code (NAC) 519A.

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

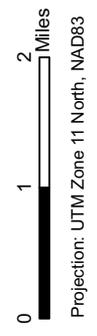


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DIATOMACEOUS EARTH PROJECT

Project Location, Access,
 and Land Status
 Figure 1.1.1
 11/15/2012



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- Explanation**
- Mine Area Boundary
 - Processing Area
 - Borrow and Growth Media Storage Areas
 - County Road
 - GSI-Maintained County Road
 - Land Status**
 - Bureau of Land Management
 - Private Land

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.

The purpose of this Project is to enable GSI's environmentally-responsible and economically-viable exploration, location, delineation, and mining of diatomaceous earth (DE) deposits on public land open to location under the Mining Law within the Project Area. The need for the action is established by the BLM's responsibility under the FLPMA and the BLM Surface Management Regulations at 43 CFR 3809, to respond to a mining plan of operations and to take any action necessary to prevent unnecessary or undue degradation of the lands.

1.3 BLM Responsibilities and Relationship to Planning

The BLM is responsible for this EA, which was prepared in conformance with the policy guidance provided in the updated BLM National Environmental Policy Act (NEPA) Handbook H-1790-1 (BLM 2008).

1.3.1 Tonopah Resource Management Plan

The Proposed Action conforms to the BLM's Tonopah Resource Management Plan (RMP) dated October 1997 (BLM 1997). Specifically, on page 23 in the RMP Record of Decision, under the heading "Locatable Minerals" subtitled "Objective":

"To provide opportunity for exploration and development of locatable minerals such as gold, silver, copper, lead, zinc, molybdenum, etc. consistent with the preservation of fragile and unique resources in areas identified as open to the operation of mining laws."

Under "Mineral Materials," page 23, "Objective":

"Provide for the extraction of mineral materials such as sand, gravel, building stone, cinders, etc., to meet public demand."

Under 43 CFR 3809.415, the operator of a plan of operations must prevent unnecessary or undue degradation to the public lands.

1.3.2 Local Land Use Planning and Policy

The Esmeralda County Master Plan (ECMP) includes policies that help guide the County's growth, management of natural resources, provision of public services and facilities, and the protection of the public's health, safety, and welfare. Relating to this Project, Policy 1-1 states that "the entire county shall be kept open for prospecting, mining, agriculture, and related activities" (Esmeralda County 2010).

In addition to the ECMP, the Esmeralda County Public Lands Policy Plan 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. The purpose of this plan is to accomplish the following: 1) detail Esmeralda County's vision and strong policy voice concerning public lands and potential Congressional actions; 2) define Esmeralda County's public land-related issues and needs; 3) provide locally developed land management policies that enable the federal land management agencies to better understand and respond in a positive

fashion to the concerns and needs of Esmeralda County in a collaborative process; 4) increase the role Esmeralda County has in determining the management of federal lands; 5) provide an opportunity to positively address federal land use management issues directly and thereby offer a proactive alternative rather than an after-the-fact response; and 6) encourage public comment and involvement.

1.4 Required Permits and Approvals

Various agencies have identified certain permits and approvals as required, or potentially required, prior to construction and other surface disturbance activities associated with the Proposed Action. A list of required or potentially required permits and approvals with granting agency are listed in Table 1.4-1.

Table 1.4-1: Required Permits and Approvals

Permit/Approval	Granting Agency
Plan of Operations/Record of Decision	United States (U.S.) Department of the Interior (DOI), BLM
Reclamation Bond Determination	U.S. DOI BLM; NDEP BMRR
Reclamation Permit	NDEP BMRR
Air Quality Operating Permit, Surface Area Disturbance Permit, and Dust Control Plan	NDEP Bureau of Air Pollution Control
Permit to Appropriate Water	Nevada Division of Water Resources
Onsite Sewage Disposal System Permit	NDEP Bureau of Water Pollution Control (BWPC)
Clean Water Act 404 Permit (to be determined)	U.S. Army Corps of Engineers
General Storm Water Permit (to be determined)	NDEP BWPC

1.5 Resources to be Analyzed

The Project was internally scoped by the BLM Interdisciplinary team at a meeting held on May 26, 2011, at the BLM office in Tonopah, Nevada. During this meeting, BLM personnel identified the elements associated with supplemental authorities and other resources and uses to be addressed in this document as outlined in Chapter 3. The following resources to be analyzed for the Proposed Action were identified as follows:

- Air and Atmospheric Values;
- Noxious Weeds, Invasive and Nonnative Species;
- Land Use and Realty;
- Migratory Birds;
- Soils;
- Special Status Species;
- Transportation and Access;
- Vegetation;
- Water Quality, Surface Water and Ground Water; and
- Wildlife.

2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Proposed Action

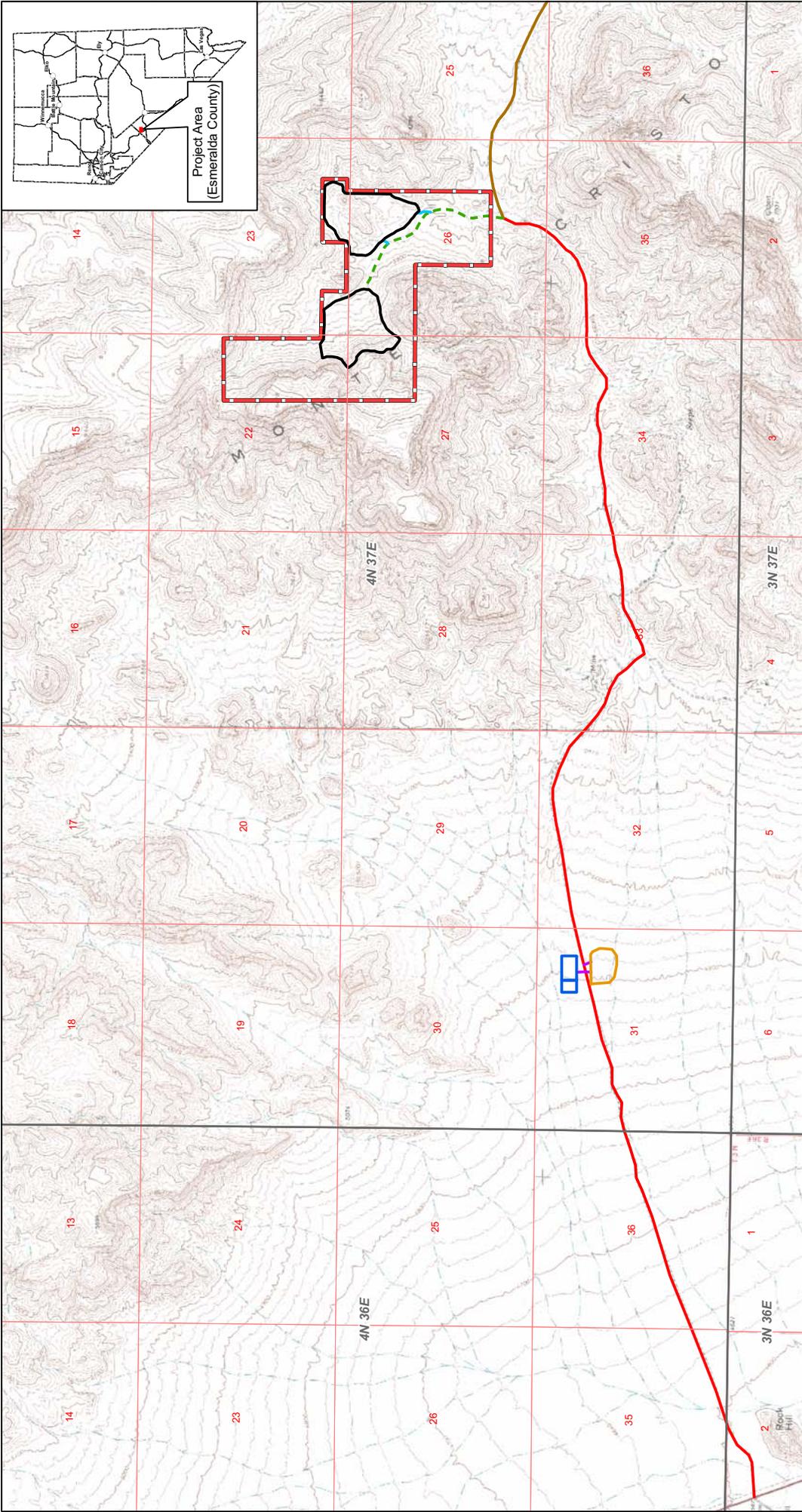
Under the Proposed Action, GSI proposes mining and mining-related activities that would create a total of approximately 175.8 acres of surface disturbance, subject to reclamation. This area encompasses the existing, authorized 4.8 acres of Notice-level disturbance. Project activities include the following: maintenance of approximately nine miles of existing roads, which includes approximately eight miles of an existing County road; approximately 16.2 acres of new road construction; approximately 130.7 acres of mine disturbance in two mine areas; mining an approximately six-acre borrow area for road maintenance materials; a three-acre growth media storage area; the construction of an approximately 13.3-acre material processing and handling area; and up to two acres of future exploration related disturbance. Project activities would also include development and exploration drilling, bulk sampling, mining, and processing. Proposed exploration would occur outside of the proposed mine areas. The authorized and proposed disturbance is outlined by each type of activity in Table 2.1-1. Figures 2.1.1 and 2.1.2 show the proposed surface disturbance.

Table 2.1-1: Acreage of Authorized and Proposed Project Disturbance

Project Activity	Surface Disturbance (acres)		
	Authorized Notice-level	Proposed	Total
Exploration Trenching and Roads	4.6	1.8	6.4
Water Well	0.2	--	0.2
Constructed Road	--	16.2	16.2
Mine Areas	--	130.7	130.7
Borrow Area	--	6.0	6.0
Growth Media Storage Area	--	3.0	3.0
Processing Area	--	13.3	13.3
Total	4.8	171.0	175.8

2.1.1 Location and Access

The Project is located on the west central Monte Cristo Range, entirely on public lands administered by the BLM in all or parts of Sections 22, 23, 26, 27 and 31 through 35, T4N, R37E, Sections 35 and 36, T4N, R36E, and Section 2, T3N, R36E, MDB&M, in Esmeralda County, Nevada. The Project is approximately 49 miles northwest of Tonopah, Nevada and accessed from U.S. 95, by traveling east at Rock Hill on Esmeralda County Road 5 for approximately three miles to the proposed processing area and an additional five miles to the proposed Northwest and Southeast Mine Areas. Access within the Project Area is by existing dirt roads and overland travel.



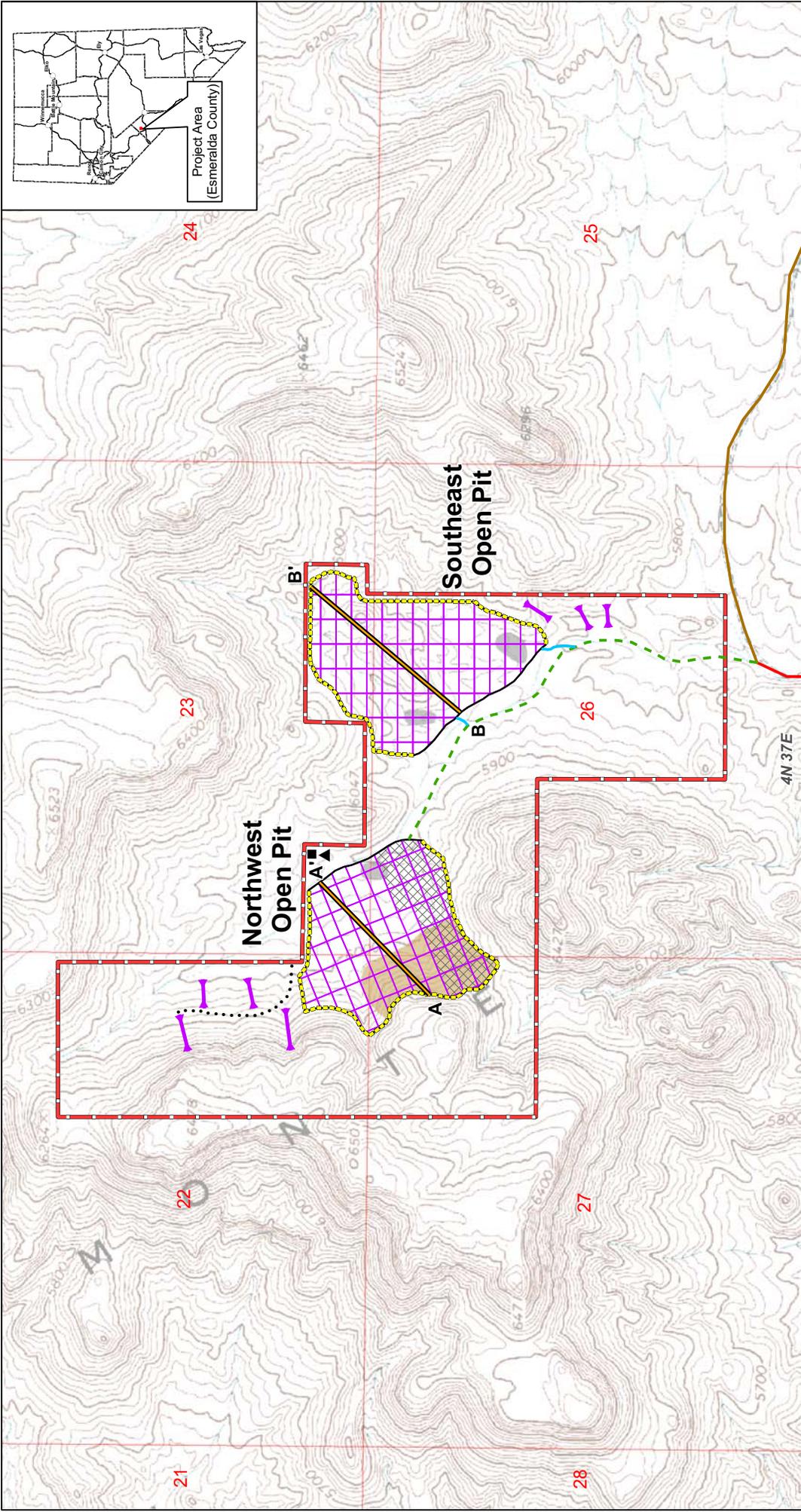
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 Proposed Surface Disturbance
 Figure 2.1.1
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0 0.5 1 Miles
 Projection: UTM Zone 11 North, NAD83

- Explanation**
- Mine Area Boundary
 - Open Pits
 - Borrow and Growth Media Storage Areas
 - Processing Area
 - Post-1981 Existing Road, maintained for mine traffic only
 - Pre-1981 Existing Road, maintained for mine traffic only
 - Proposed Constructed Roads
 - GSI-Maintained County Road
 - County Road



Explanation

- Mine Area Boundary
- Open Pits
- Perimeter-Access Road and Berm
- Off Specification Materials Backfill
- Storm Water Basins
- Mining Panels
- Fuel Storage Facility
- Maintenance Building
- Cross Section Line
- Post-1981 Existing Road, maintained for mine traffic only
- Pre-1981 Existing Road, maintained for mine traffic only
- GSI-Maintained County Road
- County Road
- Proposed Trench
- Proposed Trench Access Road
- Phase 1 Disturbance

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Mine Areas
 Figure 2.1.2
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BATTLE MOUNTAIN DISTRICT OFFICE
 Tonopah Field Office
 1553 South Main Street
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 Tonopah, Nevada 89049

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0 1,000 2,000 Feet
 Projection: UTM Zone 11 North, NAD83

2.1.2 Equipment

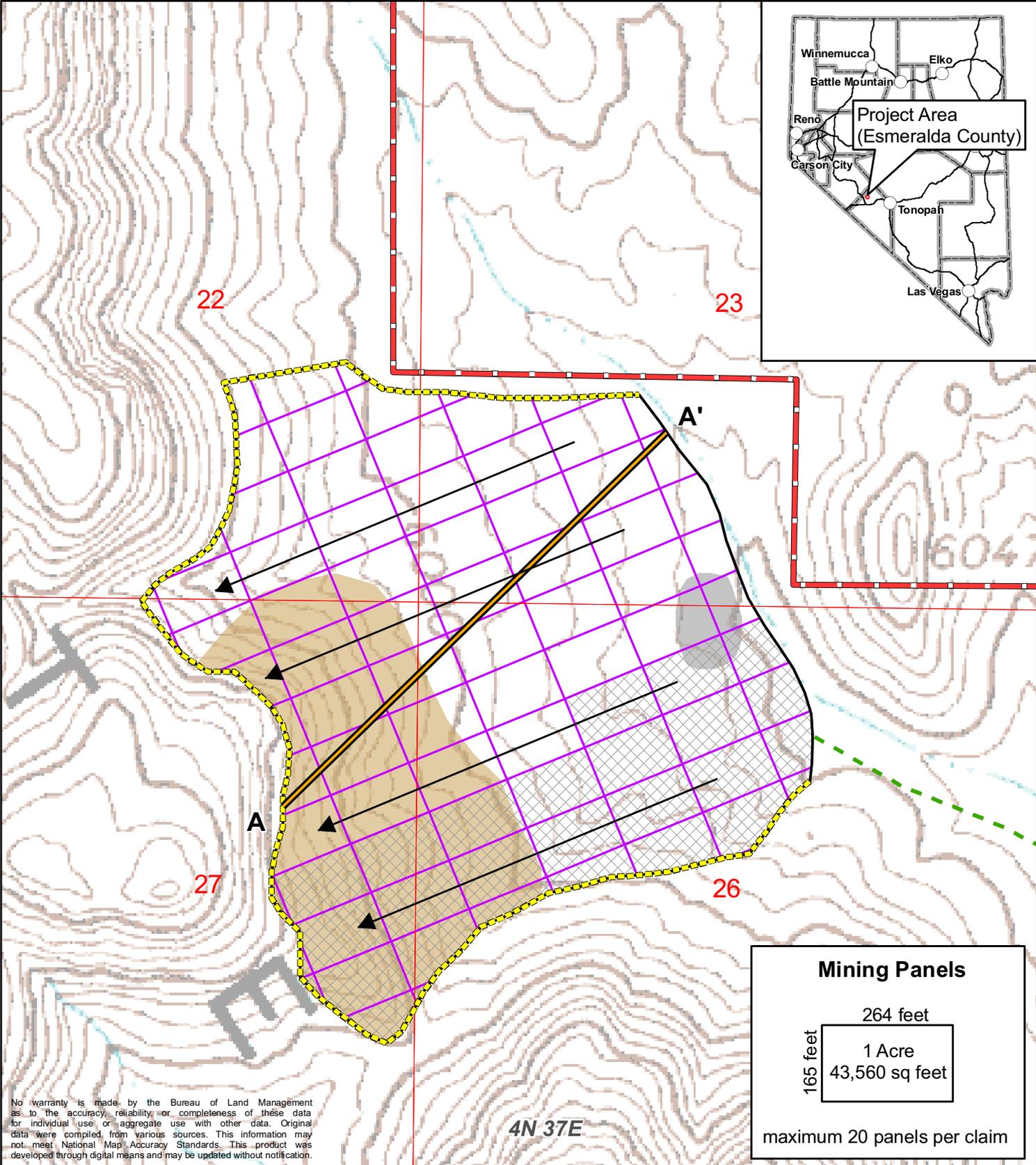
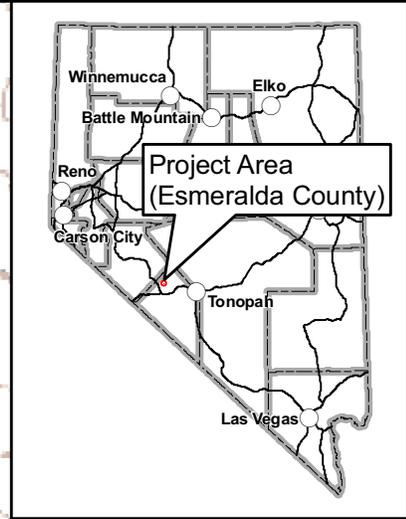
The Project is expected to utilize the following equipment:

- One D7 dozer;
- One D8 dozer;
- One D9 dozer;
- One 637 scraper;
- One scraper;
- Up to two excavators, 325 or 345 equivalent;
- Up to four loaders;
- Up to four off-road dump trucks;
- Up to two forklifts;
- One motor grader;
- One water truck;
- One mobile fuel and repair truck;
- One primary portable crusher;
- One secondary portable crusher;
- Up to six all-terrain vehicles; and
- One portable light plant/generator.

A Caterpillar D8 bulldozer and a Caterpillar 14H motor grader, or equivalent, would be used to maintain roads. Caterpillar 320 excavators, or equivalent, would be utilized for excavating material from the mine areas. Loaders would be used in conjunction with portable primary and secondary crushers at the processing area. Up to four dump trucks would be used to transport mined materials. A water truck would be utilized for road maintenance and dust control throughout the life of the Project. Roads would be reclaimed using a dozer, excavator, and an all-terrain vehicle with a seed broadcaster, or comparable method. GSI would take steps to prevent fires by ensuring that each field vehicle carries hand tools and a fire extinguisher. All portable equipment would be removed from the Project Area during extended periods of non-operation.

2.1.3 Mine Areas

Mining would occur in two distinct areas, the Northwest and Southeast Mine Areas (Figure 2.1.2). The deposits would be mined in approximately one-acre (nominal) panels to an average depth of 30 feet. Assuming an average weight of approximately 32 pounds per cubic foot, each fully mined panel would yield approximately 21,000 tons of material. Depending on the production rate, 150,000 to 300,000 tons of DE material would be mined annually. It is estimated that a total of approximately 1.3 million tons of DE would be mined in the Northwest Mine Area utilizing a total of 57 (nominal one-acre) mine panels (Figure 2.1.3). The total surface disturbance for the Northwest Mine Area would be approximately 62.5 acres. It is estimated that approximately 1.4 million tons of DE would be mined from the Southeast Mine Area utilizing 63 (nominal one-acre) mine panels (Figure 2.1.4). The total estimated Southeast Mine Area surface disturbance would be approximately 68.2 acres.



Mining Panels

264 feet

165 feet

1 Acre
43,560 sq feet

maximum 20 panels per claim

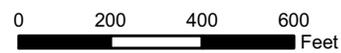
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Explanation

- Mine Area Boundary
- Open Pits
- Perimeter Access Road and Berm
- Off Specification Materials Backfill
- Storm Water Basins
- Cross Section Line
- Pre-1981 Existing Road, maintained for mine traffic only
- Direction of Mining

Phase 1 Disturbance

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1553 South Main Street
P. O. Box 911
Tonopah, Nevada 89049



Projection: UTM Zone 11 North, NAD83

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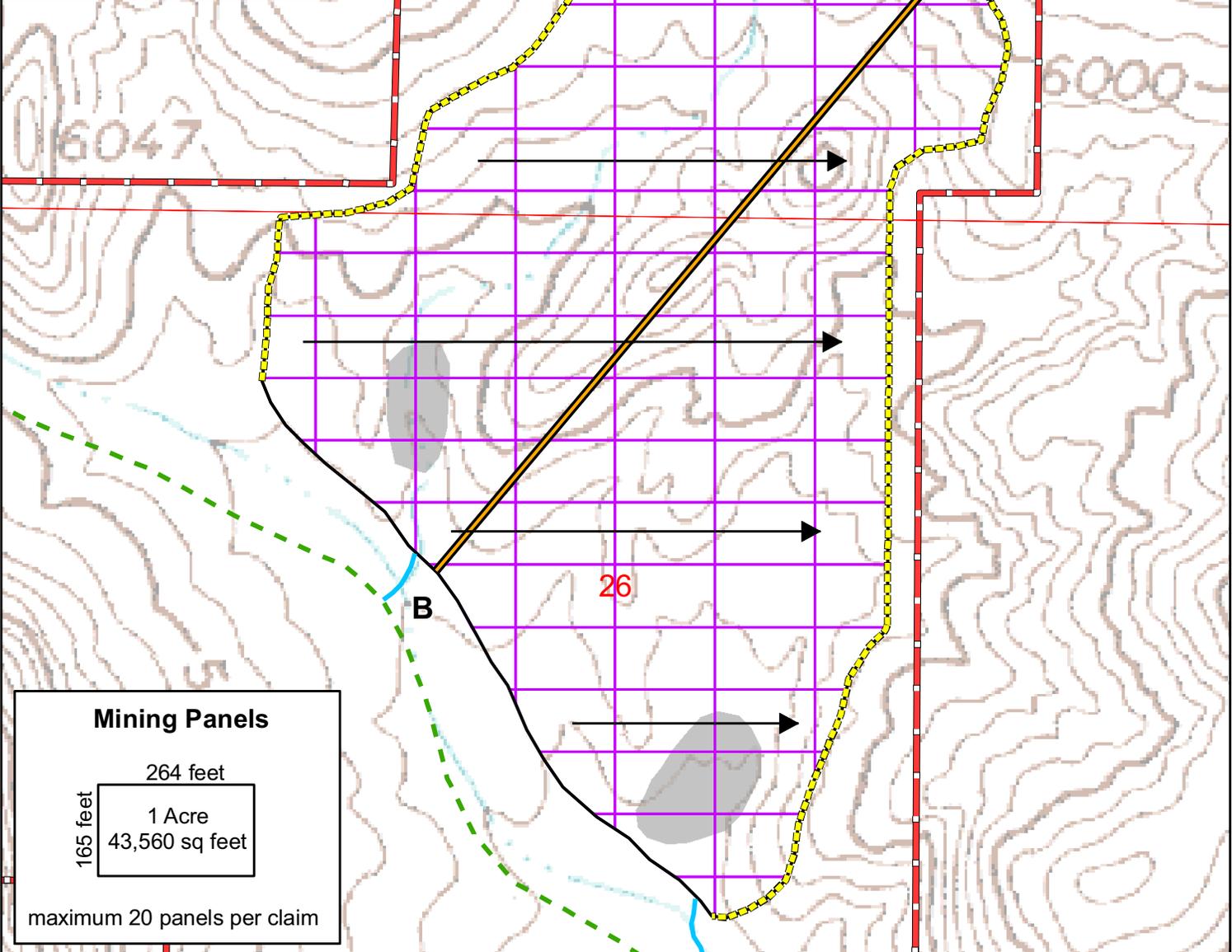
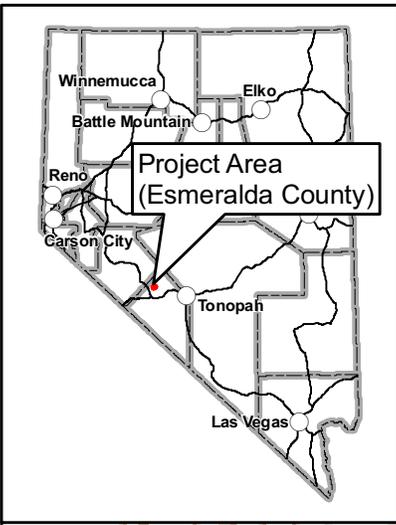
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Northwest Mine Area

Figure 2.1.3

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Mining Panels

264 feet
165 feet

1 Acre
43,560 sq feet

maximum 20 panels per claim

Explanation

- Mine Area Boundary
- Open Pits
- Perimeter Access Road and Berm
- Cross Section Line
- Storm Water Basins
- Post-1981 Existing Road, maintained for mine traffic only
- Pre-1981 Existing Road, maintained for mine traffic only
- Direction of Mining

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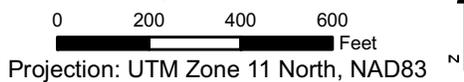
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Southeast Mine Area

Figure 2.1.4

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Mining would be completed using an excavator and haul trucks. The ore would be panel mined to an average depth of approximately 30 feet depending on topography using a benched method as shown on Figure 2.1.5. Benches would generally be 15 feet tall with 40-foot lay backs. Mine area surface grades would be maintained at approximately 1.5 percent, ensuring that the areas are free-draining with a positive slope. As mining progresses toward the final boundaries of each mine area, the benches would be mined to a three horizontal (H) to one vertical (V) slope for closure.

Mining would occur in a sequential manner as shown on Figure 2.1.6. The Northwest Mine Area would be mined first. Mining would commence from the lowest elevation in the southeast corner of the proposed pit boundary and progress to the southwest corner one panel at a time. Once the entire series of panels has been mined, mining would commence from the panel located to the north of the first panel mined (Figure 2.1.3). This pattern of mining would continue over the life of the Northwest Mine Area. Figure 2.1.7 shows cross sections that depict the pre-mining or existing topography and post-mining topography within the Northwest Mine Area.

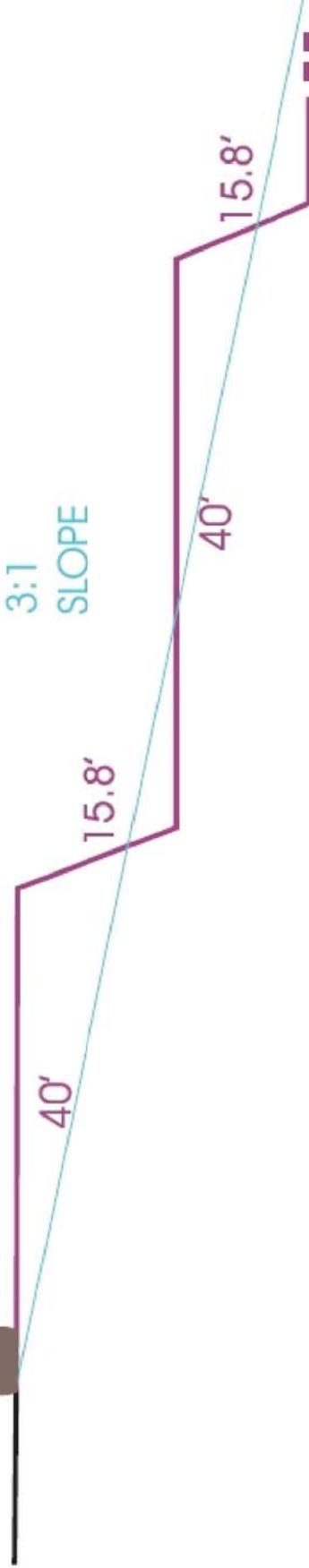
The Southeast Mine Area would be mined last. Mining would commence in the southwest corner of the Southeast Mine Area and progress directly east one panel at a time. Upon completion of one “row” of mine panels, mining would move directly to the north and the pattern would repeat (Figure 2.1.4). This pattern of mining from the west to the east and the south to the north would continue over the life of mining in the Southeast Mine Area. Figure 2.1.8 shows cross sections that depict the pre-mining or existing topography and post-mining topography within the Southeast Mine Area.

Mining and loading of raw material would occur up to 24 hours per day, seven days per week, at a maximum mining rate of 1,500 tons per day, or at an average mining rate of 1,000 tons per day. Initial mining activities (the first three years) would occur up to 24 hours per day, five days per week, and would occur at a maximum rate of 500 to 1,000 tons per day for a maximum total of 150,000 tons per year. Mining activity is expected to increase in the fourth year of operations to an average annual rate of 300,000 tons per year. At a nominal rate of 21,000 tons of material per panel, GSI would create approximately seven acres of mine-related surface disturbance per year during the initial stages of operations and up to 14 acres per year at full operations. GSI anticipates that approximately 450,000 tons (approximately 21 acres) would be mined after the first three years of operations. Raw material would be excavated on a daily basis and sent through a primary crusher located within the mine areas. The ore would be hauled from the mine areas to GSI’s processing facility to the west of the mine areas along the County road (Figure 2.1.1). The total haul distance to the processing facility would be approximately five miles from the Northwest Mine Area, and 4.5 miles from the Southeast Mine Area.

Upon the initiation of mining activities, growth media would be stripped from the surface of the area to be mined and stockpiled in berms sequentially constructed around the anticipated final perimeters of the Northwest and Southeast Mine Areas (Figures 2.1.2, 2.1.3, and 2.1.4). To access the pits and construct the berms, a road with a 15-foot running width would be constructed around the perimeter of the mine areas. The Northwest Mine Area berm would extend approximately 5,600 linear feet around the mine area perimeter. The berm would contain approximately 50,417 cubic yards (yd³) of material. The Southeast Mine Area berm would extend approximately 5,501 linear feet around the mine area perimeter. The berm would contain approximately 55,015 yd³ of material.

ZERO FEET OF OVERBURDEN

ACCESS ROAD
BERM



DIATOMACEOUS
EARTH



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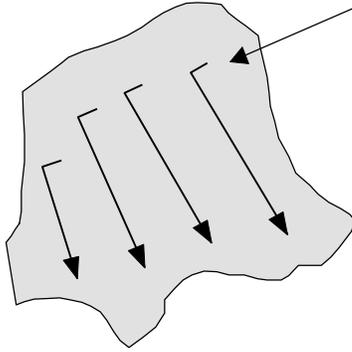
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General Pit and
Mine Bench Construction
Figure 2.1.5

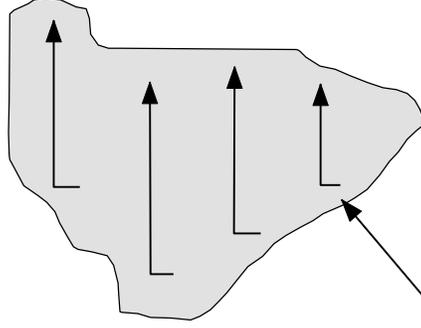
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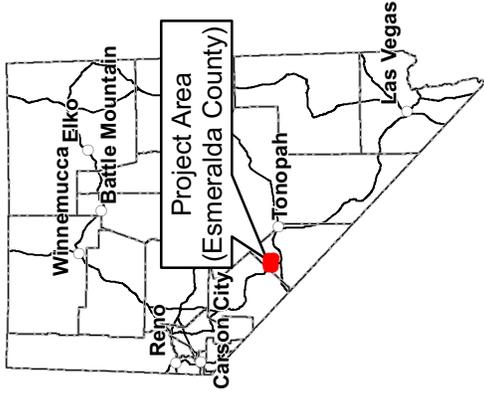
Northwest Mine Area



Southeast Mine Area



Start Mining Here



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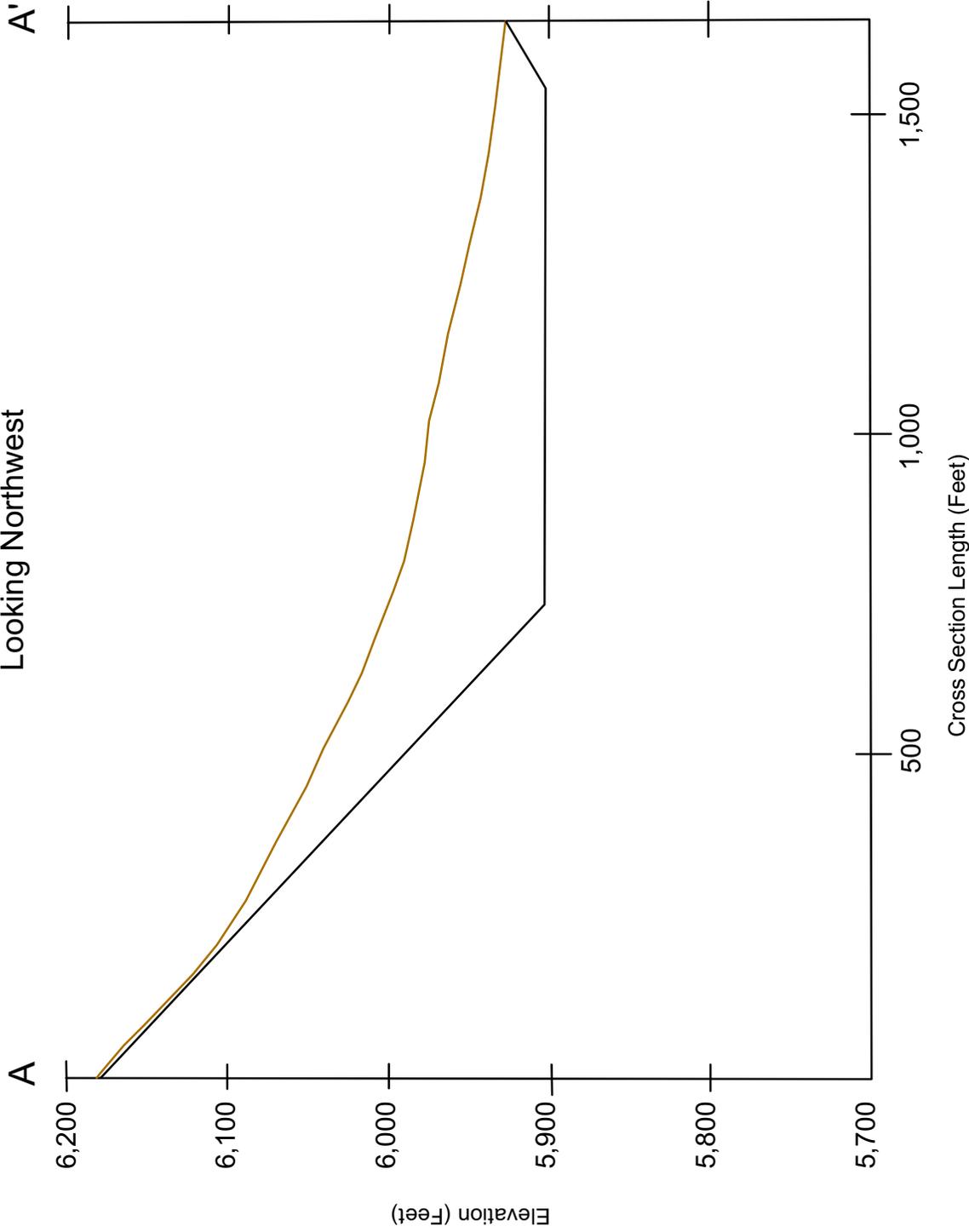
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Representation of Mining Sequence
in Each Mine Area

Figure 2.1.6

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Looking Northwest

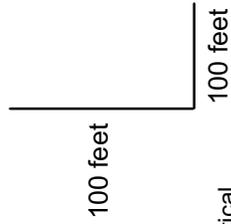


Explanation

- Existing Topography
- Post-Mining Topography

Pit Slopes are 3 Horizontal : 1 Vertical
 Vertical Exaggeration is 2 Horizontal : 1 Vertical

Scale:



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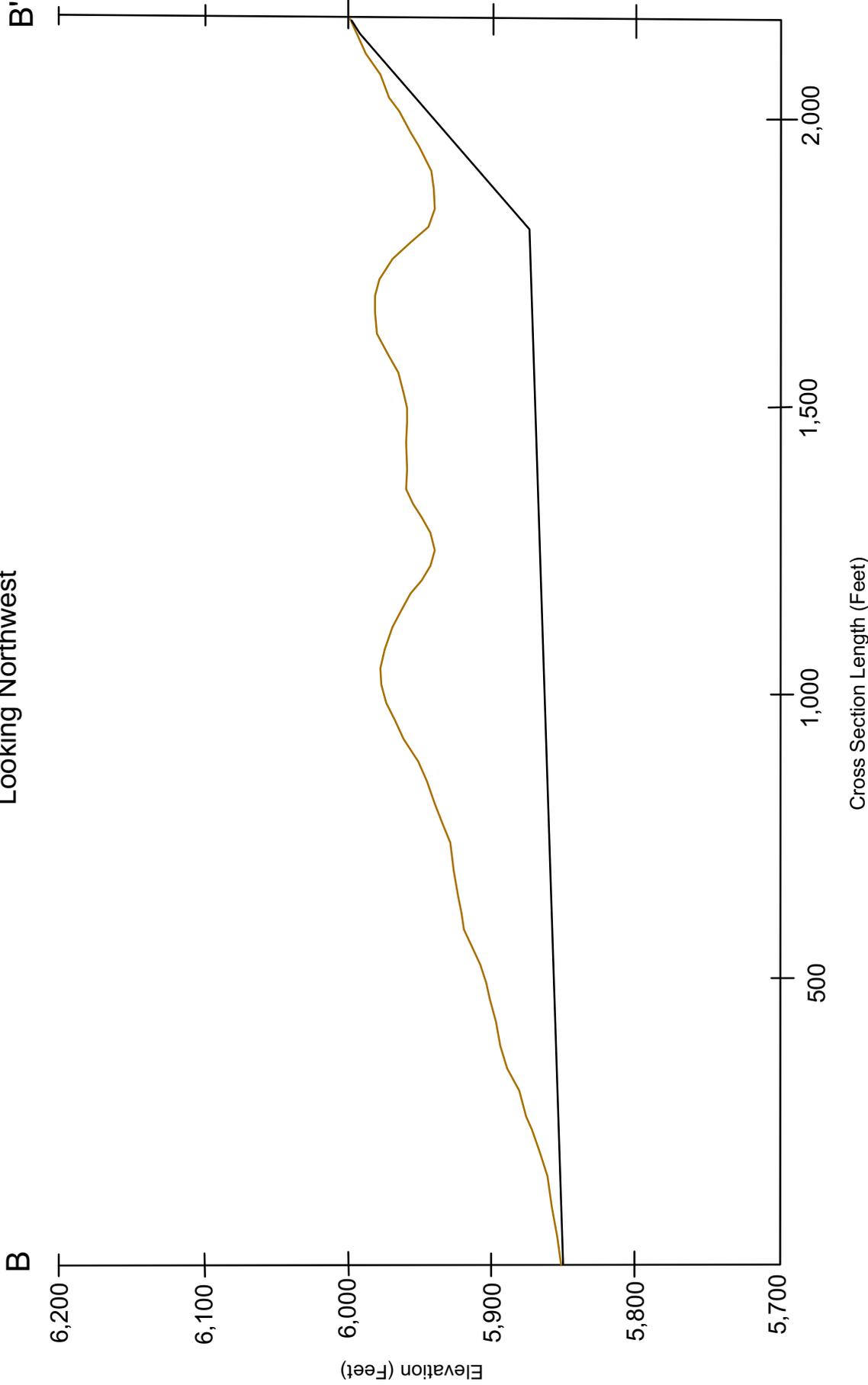
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Cross Section of the
 Northwest Mine Area

Figure 2.1.7

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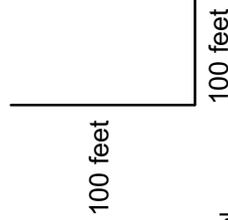
Looking Northwest



Explanation

- Existing Topography
- - - Post-Mining Topography

Scale:



Pit Slopes are 3 Horizontal :1 Vertical
Vertical Exaggeration is 2 Horizontal :1 Vertical

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Cross Section of the
Southeast Mine Area

Figure 2.1.8

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Perimeter roads and berms would be designed and constructed to collect precipitation run-on in perimeter ditches and channeled through openings in the berms and then through the mining areas to storm water retention basins. The soil and surface material that would be excavated and stored in the perimeter berms would be used as growth media for reclamation. These berm stockpiles would be constructed with 3H:1V slopes and interim seeded with fast growing grasses in order to minimize erosional processes. A dozer equipped with a ripper, scrapers, or front-end loaders and haul trucks would be used for removal of the surface material and construction of the berms, as necessary. The location of the perimeter berms are shown on Figures 2.1.2, 2.1.3, and 2.1.4. The berms would also function as safety barriers.

No overburden or waste rock would be mined or stockpiled. Any mined material that does not meet specific quality standards (off-specification material) would be backfilled into the southern end of the Northwest Mine Area (Figures 2.1.2 and 2.1.3). Initially, the off-specification material would be utilized for road maintenance activities until the southern end of the Northwest Mine Area has been mined and becomes available for the storage of the off-specification material.

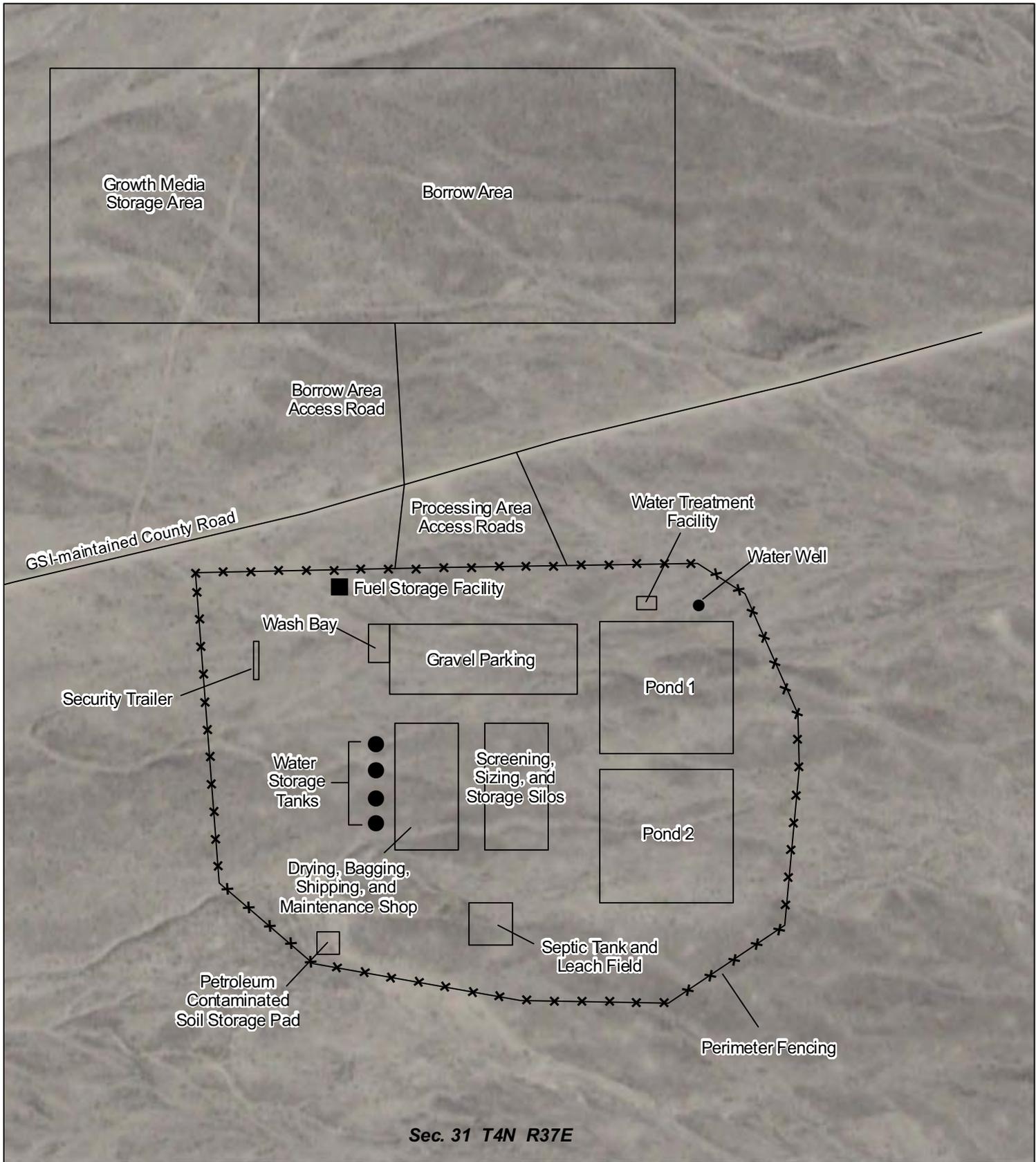
A daily stockpile containing approximately 1,500 tons of excavated material would be located within the mine areas, and would be relocated depending on the location of the daily mining activities, in conjunction with the primary crusher. In addition, a 60-foot by 30-foot maintenance building constructed of six steel legs and a corrugated metal roof would be located within the Northwest Mine Area.

One 2,000-gallon diesel fuel aboveground storage tank would be located adjacent to the Northwest Mine Area. The fuel tank would be located on a spill containment structure and fenced for security and safety. Spill containment would consist of a cement pad with approximately one-foot thick walls. The spill pad would be engineered to contain 110 percent of the total capacity of the fuel tank.

2.1.4 Processing Area

The processing area would contain all milling, processing, maintenance, and administrative facilities and would disturb approximately 13.3 acres. The processing area would be completely fenced and would contain a processing facility, ancillary facilities, a water well, and a septic tank and leach field. Prior to the construction of the processing area, growth media would be stripped from the ground surface and stockpiled adjacent to the borrow area for use in reclamation (Figure 2.1.9). All construction activities would be consistent with applicable BLM-approved Best Management Practices (BMPs). BMPs would be utilized where necessary to minimize erosion and sedimentation.

The processing facility footprint would include the primary processing (milling) facilities, as well as the administrative offices, the laboratory, and the maintenance shop. The processing facility would have an approximate footprint of 40,000 square feet (ft²). Approximately 20,000 ft² of the processing facility, including the office, laboratory, maintenance shop, and drying, bagging, and shipping areas would be housed in a steel building. The remaining 20,000 ft², which contains the screening and sizing area, would be located on a cement slab with a cover supported by a steel frame. One fresh water pond and one recycled water pond would be located to the east of the screening and sizing area. The ponds would be designed as lined



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Processing Area Layout

Figure 2.1.9

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Projection: UTM Zone 11 North, NAD83



facilities, each with an 80 mil smooth high density polyethylene liner. All power would be provided by generators.

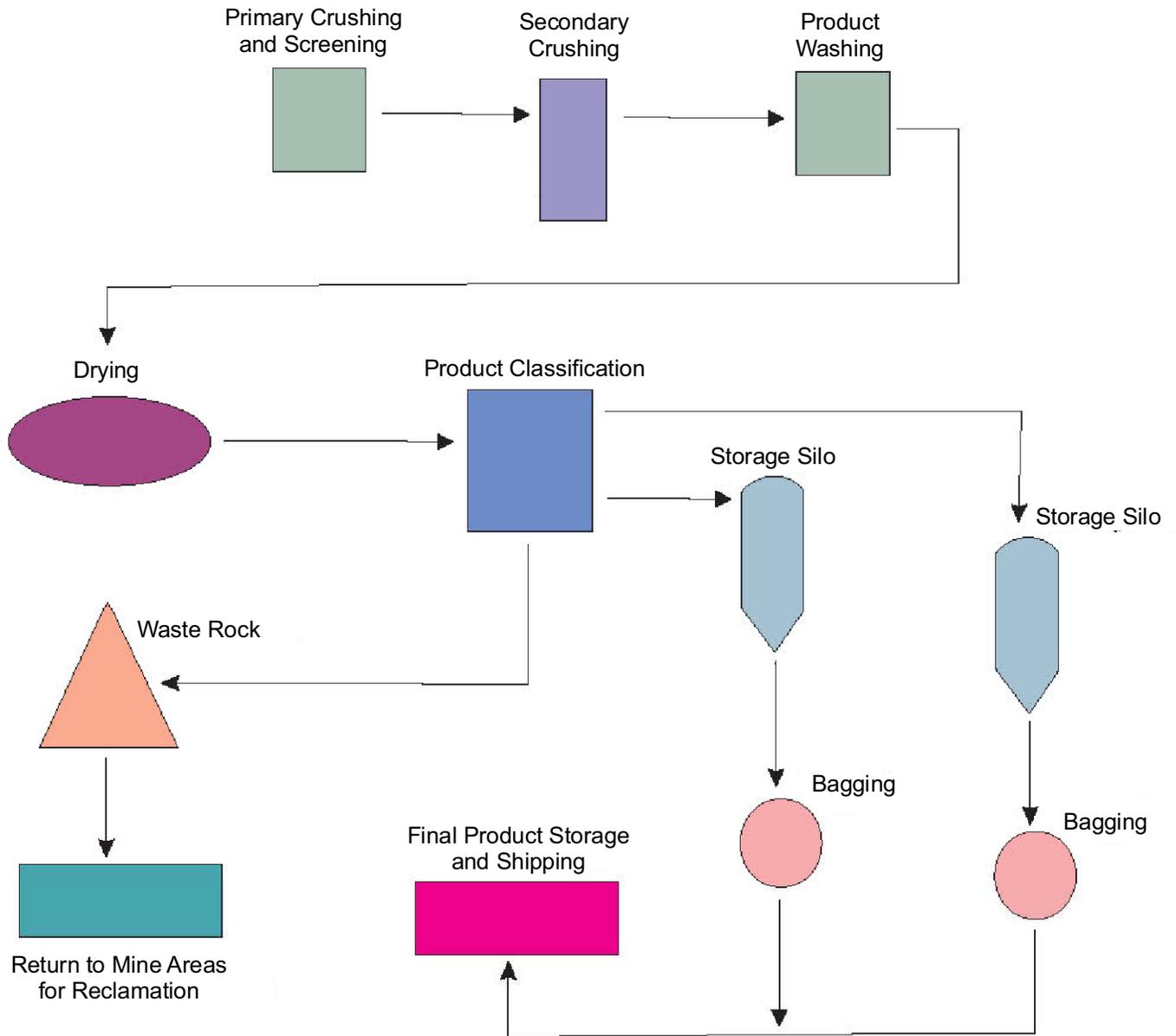
Ancillary facilities associated with the Project in the processing area would include the following: the loading and shipping facilities for semi-trailer transport; heavy equipment and light vehicle fueling facilities; diesel storage facilities; an employee parking facility (gravel); one trailer for security personnel, which would include portable water and sewer facilities; and a water supply system. A cement vehicle wash bay would be constructed adjacent to the maintenance portion of the processing facility. The gravel parking area would cover approximately 0.8 acre, and would be located north of the processing facility (Figure 2.1.9). The septic tank and leach field would be constructed approximately 100 feet southwest of the processing facility. The septic system and leach field would be engineered, constructed, and operated in accordance with the Bureau of Water Pollution Control regulations NAC445A.810 through 445A.925, for on-site sewage disposal systems. Once engineered and designed, an application for this system would be submitted under separate cover to the NDEP.

A petroleum contaminated soil (PCS) pad would be constructed within the southwest portion of the processing area (Figure 2.1.9). The PCS pad would be an engineered structure designed to hold all contaminated soils at the Project until such time that they can be properly disposed of off site. The site would measure approximately 35 feet wide by 35 feet long and would consist of a cement slab with approximately three-foot-high walls. The base and walls would have an average thickness of six inches.

GSI has drilled a water well for the Project in the northeast portion of the processing area. Water would be stored in four 25,000-gallon water storage tanks (Figure 2.1.9). Water would be supplied to the processing facility for employee use and processing activities. Water would also be used for road maintenance and dust control.

One 2,000-gallon diesel fuel aboveground storage tank would be located at the processing area. The fuel tank would be located on a spill containment structure and fenced for security and safety reasons. Spill containment would consist of a cement pad with approximately one-foot thick walls. The spill pad would be engineered to contain 110 percent of the total capacity of the fuel tank. One mobile fuel and repair truck would also be located at the processing facility.

The crushed material would be transported from the mine areas to the processing area using end-dump trucks with a capacity of 20 to 30 yd³. The processing facility would have a maximum throughput of 1,000 tons of raw material per day. After the material is transported to the processing area, the material would then be conveyed through the secondary crusher, washed, dried with a rotary dryer, then screened and sized. The material would then be either classified as off-specification (non-product grade) material and returned to the mine areas for use as reclamation material, or would undergo further classification and would be transferred to one of two storage silos. Processed materials would then be bagged and stored as final product to be shipped off site. GSI anticipates that approximately ten percent of the material would be classified as off-specification and hauled back to the southwest corner of the Northwest Mine Area and deposited in the designated area for off-specification materials backfill (Figures 2.1.2 and 2.1.3). Shipping would occur regularly so that only two to three days worth of product would be stored on site. Figure 2.1.10 shows the processing flow sequence. The processing facility would operate 24 hours per day, seven days per week at full production, but would initially occur 24 hours per day, five days per week.



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Processing Flow Sequence

Figure 2.1.10

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2.1.5 Borrow Area

GSI would develop a borrow area in Section 31 to supply gravel and cover material for maintaining Project-related roads (Figure 2.1.9). Approximately six inches of growth media would be stripped from the ground surface and stockpiled at the borrow area for use in reclamation. Large rocks and boulders would be placed in the road and crushed using a drag-along sheep's foot. The approximately six-acre borrow area would be mined to an average depth of approximately 20 feet. At the conclusion of gravel mining, borrow area high walls would have 3H:1V slopes.

2.1.6 Road Construction and Maintenance

GSI would utilize and maintain approximately nine miles of existing roads for Project access, which includes approximately eight miles of an existing RS-2477 (NVN-54385) Esmeralda County road, also identified as ESS-14, ESS-170, and ESS-169. According to a road maintenance agreement established in May 2011 between Esmeralda County and GSI, GSI would "maintain the County road to present conditions of the road and inspected and approved by Esmeralda County Road Department Supervisor" (Esmeralda County 2011a). Maintenance would consist of regular grading and graveling to reduce erosion and rutting. Gravel for road maintenance would be obtained from the borrow area located approximately 250 feet north of the entrance to the processing area (Figure 2.1.9).

Five new mine access roads would be constructed in the Project Area for a total surface disturbance of approximately 16.2 acres. The first two roads would be constructed from the GSI-maintained County road to access the east and west portions of the processing area (Figure 2.1.9). These two roads would measure 35 feet wide with approximately 132 linear feet and 195 linear feet, respectively, for a total surface disturbance of approximately 0.3 acre. A third access road would be constructed from the intersection of the first access road (used for product shipping and office traffic) and the GSI-maintained County road and would travel north approximately 250 feet to the location of the borrow area with a disturbance width of 35 feet, for a total surface disturbance of approximately 0.2 acre (Figure 2.1.9). The fourth and fifth access roads would be constructed with a 15-foot disturbance width and would be utilized as perimeter access roads for the mine areas (Figure 2.1.2). A total of approximately 11,101 linear feet (11.9 acres) of perimeter roads would be constructed. None of the roads would require culverts.

All construction activities would be consistent with BMPs as outlined in the *Best Management Practices Handbook* (Nevada State Conservation Commission 1994). The access roads in the vicinity of the processing area and borrow area would not require berm construction due to minimal topographic relief. BMPs would be utilized where necessary to minimize erosion and sedimentation. Figure 2.1.1 shows the location of the proposed constructed roads and existing GSI-maintained roads. A water truck would be utilized to provide dust abatement and a grader would be used periodically to maintain driving surfaces.

Road maintenance would include the necessary seasonal regrading and reestablishment of water bars as needed, outlined in the BLM Road Manual 9113. Erosion control would be monitored semi-annually in the spring and fall. Road maintenance would not increase the surface disturbance within the Project Area and would consist of smoothing rutted surfaces and filling holes on existing access and mine roads.

2.1.7 Water Supply and Usage

GSI would obtain water for the Project from a water well located in Section 31, T4N, R37E. The well is located within the Columbus Salt Marsh Valley Hydrographic Basin #118. The perennial yield for this basin is 4,000 acre-feet per year (AFY). Currently, approximately 1,764.36 AFY have been allocated to the following uses within the basin: 1,730.14 AFY to mining and milling; 31.86 AFY to quasi-municipal uses; and 2.36 AFY for stockwater (NDWR 2011). This leaves 2,235.64 AFY available for allocation within the basin. GSI would utilize 706.95 AFY for the Project. GSI obtained water rights in two locations from NDWR on February 17, 2012 for a total combined duty of an amount not to exceed 707 AFY (Permit Nos. 80894 and 80895).

Between May 23 and 25, 2012, a three step, step drawdown pump test was performed on the water well (Aqua Hydrogeologic Consulting 2012). The production rate was measured at approximately 35.85 gallons per minute (gpm), or approximately 58 AFY. GSI has indicated that this amount of water would be sufficient during the first year of the Project, which would only include construction and dust abatement activities. Prior to full mining operations, GSI would obtain additional water by drilling another well within the proposed disturbance areas in the Project Area, and within the area documented in the application for Permit No. 80895 (Section 31, T4N, R37E). If necessary, GSI would utilize their water rights under Permit No. 80894 to obtain water from an existing well located across U.S. 95 from the Project.

Water would be pumped from the production well to the clean water supply pond (CWSP). During operation of the processing plant, water would be pumped from the CWSP through a water treatment system to four 25,000-gallon storage tanks. This treated water would be used to rinse the mined material. The recovered rinse water would then be pumped to the dirty water supply pond (DWSP) where particulate material would be allowed to settle. Water would be pumped from the near surface of the DWSP to the CWSP. Sediments would be removed from the DWSP and deposited in the mine areas as required. Water for fugitive dust control would be pumped from the DWSP. Make-up water would be pumped from the production well to the CWSP as needed.

Each of the water supply ponds would have a capacity of six AFY while maintaining two feet of freeboard. The mined materials would be rinsed in vats. Each vat would process approximately 64 tons of material per day. The amount of water required for processing 64 tons of material would be approximately 61,300 gallons per day (gpd). Most of the water remaining in the material after rinsing would be removed by vacuum presses. The processed material would have a moisture content of approximately five percent. Crude diatomite typically contains as much as 40 percent moisture. The recovered water would be returned to the DWSP for reuse.

The consumptive use of water would be for fugitive dust control, at approximately 0.08 acre-feet per day, or approximately 26,068 gpd for 300 days per year and evaporation from the water holding basins at an average rate of approximately 0.03 acre-feet per day, or approximately 9,776 gpd. Minor losses would occur in the water treatment system, domestic use and vehicle washing. The total consumptive use of water would be approximately 58 AFY.

2.1.8 Water Management Plan

The construction methods of the perimeter road and berm would promote water drainage such that any precipitation run-on would be collected in perimeter ditches, channeled through openings in the berms, and then through the mine areas to the storm water retention basins, which would be constructed at the outlet of each mine area (Figures 2.1.2, 2.1.3, and 2.1.4). These storm water retention basins would prevent any runoff from the mine areas that may impact water quality. Perimeter ditches and storm water retention basins would be constructed in accordance with BMPs as outlined in the *Best Management Practices Handbook* (Nevada State Conservation Commission 1994), and would be sized to contain a 100-year, 24-hour precipitation event. Any excess sediment would be removed from the basins and placed on the mine area access road perimeter berms. Perimeter ditches, channels, and retention basins would be reclaimed upon completion of mining activities.

2.1.9 Surface Occupancy

Under 43 CFR 3710 Subpart 3715.0-5, occupancy means full or part-time residence on public lands. Occupancy also means 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. The structures that GSI would construct as part of this Project are described under Sections 2.1.2 through 2.1.7.

2.1.10 Exploration

Exploration activities would continue throughout the Project Area in order to identify new reserves or expand existing reserves. Activities would consist of trenching and road construction. Approximate locations of the exploration disturbance are shown on Figure 2.1.2. It is anticipated that up to two acres of surface disturbance may be created for exploration activities.

2.1.11 Solid and Hazardous Materials

All nonhazardous refuse generated by the Project would be disposed of off site at an authorized landfill facility consistent with applicable regulations. No refuse would be disposed of within the Project Area. Solid waste and general refuse would be stored in containers at the drill site locations then transported to an off-site facility.

Regulated petroleum substances utilized at the Project Area would include diesel fuel and lubricating grease and only include the substances that are within or support the equipment and vehicles. Varying amounts of these products would be used or stored on site depending on the number and types of equipment working on the Project. No drums or containers would be stored in the mine areas. In the event that hazardous or regulated materials are spilled, measures would be taken to control the spill, and the BLM and NDEP would be notified as required. Any hazardous substance spills would be handled in accordance with GSI's Spill Contingency Plan (SCP) (Appendix E of the Plan), including an immediate cleanup and any resulting waste transferred off site in accordance with all applicable local, state, and federal regulations. Spill kits would be stored within the processing area for use in case of a spill. As described in Section 2.1.16, 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 yd³ of impacted material) or a reportable quantity for hazardous waste is released based on the Federal EPA guidelines established under Title III List of Lists (40 CFR Part 302), the BLM and NDEP would be notified within 24 hours and the appropriate remedial actions and confirmation sampling would be conducted in accordance with NDEP direction.

2.1.12 Work Force

GSI will utilize either its' own workforce to mine the open pit deposit, or may hire contractors to mine the deposit. The Project will employ up to 15 people to construct the mining facilities and up to 30 to 50 individuals to operate the plant and mine. Initial mining activities (the first three years) would occur up to 24 hours per day, five days per week. At full Project operations, mining would occur up to 24 hours per day, seven days per week.

2.1.13 Reclamation

Reclamation would be completed to the standards described in 43 CFR 3809.420 and NAC 519A. Reclamation would meet the reclamation objectives as outlined in the United States Department of Interior Solid Minerals Reclamation Handbook #H-3042-1, Surface Management of Mining Operations Handbook H-3809-1, and revegetation success standards per BLM and BMRR "Revised Guidelines for Successful Mining and Exploration Revegetation." Reclamation would begin within the mine areas when the disturbance is considered inactive or mined out. Seeded areas would be monitored for stability and revegetation success, during the spring or fall, for a minimum of three years until attainment of the revegetation standards established in the Nevada Guidelines for Successful Revegetation for the NDEP and the BLM Instruction Memorandum (IM) #NV-13. The proposed reclamation is expected to last for up to approximately one year and would be initiated within two months following completion of mining activities. Table 2.1-2 shows the anticipated reclamation schedule.

2.1.13.1 Exploration Disturbance

It is anticipated that all exploration trenching conducted under the existing Notice would be consumed by surface disturbance resulting from mining activities or completely reclaimed. Exploration roads would be ripped or recontoured as necessary. All exploration and trenching related disturbance would be addressed in the reclamation cost estimate until consumed by mining operations. Any new exploration disturbance would be completely reclaimed and also addressed in the reclamation cost estimate.

2.1.13.2 Access and Haul Roads

All existing roads in the Project Area that would be maintained or modified by GSI would be returned to pre-Project conditions upon final reclamation. The pre-1981 Esmeralda County road (RS-2477, NVN-54385) that would provide access from U.S. 95 to the processing area, and then to the mine areas (a total of eight miles), would be maintained by GSI to accommodate mine traffic. GSI has an agreement with Esmeralda County to maintain this road "to present conditions of the road and inspected and approved by Esmeralda County Road Department Supervisor" (Esmeralda County 2011). At the end of the Project, this road would not require reclamation, as Esmeralda County would continue to utilize this road after mining activities cease. The year 1981 was the year that the BLM's surface management regulations were enacted (43 CFR 3809).

Any surface disturbance associated with mining activities constructed prior to 1981 does not require reclamation, but any disturbance created after the regulations were enacted does require reclamation.

Table 2.1-2: Anticipated Reclamation Schedule

Mine Facility and Reclamation Activity		2038				2039				2040				2041			
		Q1	Q2	Q3	Q4												
Roads	Regrading		■	■													
	Seeding				■												
	Monitoring					■	■	■	■	■	■	■	■	■	■	■	■
Open Pit	Regrading		■	■													
	Seeding				■												
	Monitoring					■	■	■	■	■	■	■	■	■	■	■	■
Process Area	Demolition and Removal	■															
	Regrading		■	■													
	Seeding				■												
	Monitoring					■	■	■	■	■	■	■	■	■	■	■	■
Borrow Area	Regrading		■	■													
	Seeding				■												
	Monitoring					■	■	■	■	■	■	■	■	■	■	■	■

Note: Regrading activities could occur year-round.

Approximately 4,250 linear-feet of an existing post-1981 road in the proposed mine area would require maintenance to accommodate mine traffic (Figure 2.1.2). In addition, two existing post-1981 roads that lead to the Southwest Mine Area would also be maintained to accommodate mine traffic. Upon cessation of mining operations, these roads would be completely reclaimed. All earthwork would be completed with a Caterpillar D9 or equivalent.

Newly constructed roads at the Project would be completely reclaimed. Roads which do not require replacement of side cast material would be ripped with a bulldozer to relieve road compaction. Roads constructed in sloped areas would be recontoured to as near natural topography as practicable, then stabilized, and seeded. Regrading would be completed with a Caterpillar 345 excavator, or equivalent equipment.

2.1.13.3 Mine Areas

Mine area high walls would be excavated to a final slope of 3H:1V and would not require regrading (Figure 2.1.5). Final slopes would be covered with stockpiled growth media to an average depth of six inches from the pit berms and reseeded. Growth media for the mine area walls would be pushed down from the berm stockpile locations, then spread and ripped into the surface with a Caterpillar D7 or equivalent in preparation for reseeding.

Mine area floors would be covered with stockpiled growth media and reseeded. Growth media for the pit floors would be transported and placed with a Caterpillar 637 tandem scraper or

equivalent, then spread and ripped into the surface with a Caterpillar D7 or equivalent. The entire area would be reseeded.

The primary crusher would be removed from the mine area and hauled to an off-site location. The maintenance building would be decommissioned and removed from the Project Area.

2.1.13.4 Processing Area

The processing area contains one water well, four water storage tanks, crushing and processing equipment, buildings for processing the material, administrative and maintenance buildings, a fuel storage area, a PCS pad, a septic tank and leach field, and a wash bay, and are all contained within a perimeter fence. The total disturbance would be approximately 13.3 acres. During final mine closure, all buildings and structures would be dismantled and materials would be salvaged or removed to an authorized landfill. Concrete slabs would be broken using a track-hoe mounted hydraulic hammer or similar method and hauled off site to an authorized landfill. All toxic substances would be removed and disposed of in compliance with all applicable local, state, and federal regulations. Underground pipelines would be capped and left in place. Once all buildings, equipment, and corresponding components have been decommissioned and removed from the Project Area, the entire processing area would be covered with approximately six inches of growth media. The growth media material would be contained within one stockpile created during construction activities, and located adjacent to the borrow area. Hauling and spreading of the growth media would be conducted with a Caterpillar 637 tandem spreader or equivalent. Once placed, the growth media would be spread and then ripped into the surface in preparation for reseeded. Spreading and ripping would be conducted with a Caterpillar D7 or equivalent. Perimeter fencing would be removed prior to final reclamation.

2.1.13.5 Processing and Operations Facilities

The crushing and milling equipment (i.e., screen, primary and secondary crusher, dryer, apron feeder, conveyors, etc.), as well as the storage silos, would be dismantled and hauled off site to the town of Hawthorne for resale or salvage. It is anticipated that decommissioning of the crushing system and silos would be completed by up to three general laborers over a period of seven days. The equipment would be loaded by a five-ton crane onto a flat bed for transport.

Processing, administrative, lab, and maintenance buildings would be cleaned out and dismantled. Lab, maintenance, and office equipment with salvage or resale value would be transported to Tonopah, Nevada. Prior to dismantling, all chemicals, reagents, and potential hazardous materials in the lab and process facility would be sampled and characterized. All hazardous materials and chemicals would be lab packed in accordance with applicable regulations, and transferred off site by an authorized handler for disposal or further handling. It is anticipated that up to one lab pack would be shipped off site by a hazardous material transporter. Remaining debris and building materials would be trucked off site to the Hawthorne Class I Landfill.

Soils in the vicinity of the maintenance shop and wash pad would be analyzed for hydrocarbon contamination. If soil is contaminated, the soils would be excavated, packaged and transferred off site by an authorized solid waste handler in compliance with all applicable local, state, and federal regulations. It is anticipated that up to two yds³ of hydrocarbon contaminated soil would require off-site transport. Any contaminated materials would be transported to the Hawthorne Class I landfill.

All building foundations, pads, and foot walls would be broken down with a hydraulic hammer and buried with approximately 3.5 feet of cover material from the borrow area and six inches of stockpiled growth media.

2.1.13.5.1 Fuel Storage Area

Fuel storage tanks would be emptied of all remaining fuel, and rinsed. To the extent possible remaining fuel would be utilized during reclamation operations. Any remaining fuel and rinse waters would be hauled off site by an authorized waste transporter and disposed of in accordance with applicable local, state, and federal regulations.

Fuel tanks would be decommissioned and hauled to Tonopah, Nevada, for salvage or resale. It is anticipated that the tanks would be decommissioned by up to two general laborers over a period of 12 hours, and loaded onto a flat bed truck via five-ton crane. A total of two trips to Tonopah would be required to remove the tanks. The cement pad would be demolished with a hydraulic hammer and buried with approximately 3.5 feet of cover material from the borrow area and six inches of stockpiled growth media.

Soils in the vicinity of the fuel storage facilities would be sampled for total petroleum hydrocarbons. If soils are found to be contaminated, they would be excavated, packaged, and transferred off site by an authorized solid waste handler in compliance with all applicable local, state, and federal regulations. Contaminated material would be transported to the Hawthorne Class I landfill.

2.1.13.5.2 Septic Tank and Leach Area

The septic tank would be pumped out and the contents would be transferred off site by an authorized waste hauler. The tank would then be backfilled with sand and buried in place. Exposed portions of the sewer hookups would be cut to surface level. The remaining piping would be capped and buried.

2.1.13.5.3 Parking Area

Gravel in the parking area would be removed prior to application of growth media. Growth media would be transported, spread and ripped as discussed in Section 2.1.13.4.

2.1.13.5.4 Petroleum Contaminated Soils Pad

Soils in the PCS engineered pad would be packaged and transferred off site by an authorized solid waste handler in compliance with all applicable local, state, and federal regulations. The structure would be demolished with a hydraulic hammer and buried with approximately 3.5 feet of cover material from the borrow area and six inches of stockpiled growth media.

2.1.13.5.5 Water Well and Storage Tanks

The water well would be plugged pursuant to Nevada Revised Statute (NRS) 534.420. Casing would be pulled if possible. 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 the borehole is permanently cased, the casing would be perforated.

The water storage tanks would be decommissioned and transported to Tonopah, Nevada, for salvage or disposal. The water tanks footprints would then be covered with approximately six inches of growth media, ripped, and reseeded in conjunction with the rest of the processing facility area.

2.1.13.5.6 Water Ponds

The remaining water in the ponds would be evaporated. All pond liners would be folded down inside the bottom of the pond. The ponds would be backfilled with soil, regraded to divert runoff away from the pond footprint, and the surfaces will be revegetated.

2.1.14 Borrow Area

The borrow area would be excavated with approximate slopes of 3H:1V; therefore no regrading is anticipated. The entire disturbed area would be covered with approximately six inches of growth media stockpiled prior to initial excavation of the borrow area. Once the growth media is placed, it would be ripped into the surface in preparation for reseeded. Growth media would be hauled and placed with a Caterpillar 637 tandem scraper or equivalent, then spread and ripped into the surface with a Caterpillar D7 or equivalent. The entire borrow area would then be reseeded.

2.1.15 Handling of Growth Media

All growth media (average of approximately six inches) in the Project Area would be stripped and stockpiled prior to construction or excavation. Growth media from the approximately 13.3-acre processing area would be located in one stockpile adjacent to the borrow area. Growth media from the borrow area would be placed in stockpiles within the borrow area. Growth media collected from the mine areas would be stockpiled in berms around the entire perimeter (Figures 2.1.2, 2.1.3, and 2.1.4). All growth media would be completely consumed in the reclamation process.

2.1.16 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 2.1-3, is based on known soil and climatic conditions and was selected to establish a plant community that would support the post-exploration land use. The mix is designed to provide species that can exist in the environment of central Nevada, are proven species for revegetation, or are native species found in the plant communities prior to disturbance. Broadcast seeding would be at a rate of

approximately 18 pounds of pure live seed (PLS) per acre. Changes or adjustments to the reclamation plant list or application rate would be completed in consultation with and approval by the BLM and BMRR.

Table 2.1-3: Preliminary Revegetation Seed Mixture

Species	Common Name	PLS/acre
<i>Atriplex confertifolia</i>	Shadscale	3
<i>Atriplex canescens</i>	Fourwing saltbush	2
<i>Agropyron desertorum</i>	Desert wheatgrass	10
<i>Sphaeralcea coccinea</i>	Scarlet globemallow	2
<i>Achnatherum hymenoides</i>	Indian ricegrass	1
Total		18

2.1.17 Removal or Stabilization of Building, Structures, and Support Facilities

Several structures would be utilized during the life of the Project. All equipment and supplies would be decommissioned and removed following completion of the Project as discussed in previous sections. Other materials, including scrap, trash, and unusable equipment, would be removed on a daily or weekly basis and disposed of in accordance with federal, state, and local regulations and laws.

2.1.18 Post-Closure Management

Post-closure management would commence on any reclaimed area following completion of the reclamation work for the area. Post-closure management would extend until the reclamation of the site or component has been accepted by both the BLM and BMRR. For bonding purposes, a three-year post-closure management period is assumed following completion of reclamation construction on any site. For sites reclaimed early in the Project schedule, management of reclaimed sites would occur concurrently with operational site management. Annual reports showing reclamation progress would be submitted to the BLM and BMRR.

2.1.19 Environmental Protection Measures

GSI would commit to the following environmental protection measures as part of the Proposed Action to prevent unnecessary or undue degradation during construction, operation, and reclamation of the Project. The measures are derived from the general requirements established in the BLM's Surface Management Regulations at 43 CFR 3809 and the BMRR's 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. Water would be applied to roads by a water truck. Other methods of dust control include the application of tree sap or chemical dust suppressants to disturbed surfaces.

Cultural Resources

- Pursuant to 43 CFR 10.4(g), GSI 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 30 days or when notified to proceed by the BLM authorized officer.
- GSI would not knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, or object. If GSI 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.
- GSI would avoid eligible or unevaluated cultural sites within the Project Area. GSI 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 completed by broadcast seeding methods at an application rate of 18 pounds of PLS per acre, and would most likely include the following species: shadscale; fourwing saltbush; desert wheatgrass; scarlet globemallow; and Indian ricegrass.
- BMPs, such as fabric or certified weed-free straw bale filter fences, or siltation or filter berms, would be used for the Project to limit erosion and reduce sediment runoff from Project facilities and disturbed areas during construction and operations.

Fire Management

- GSI would comply with all applicable state and federal fire laws and regulations.
- In the event Project activities should start a fire, GSI 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;
 - Adequate firefighting equipment and an ample water supply would be kept in the Project Area;
 - Vehicle catalytic converters would be inspected often and cleaned of brush and grass debris;
 - GSI would conduct welding operations in an area free from or mostly free from vegetation. An ample water supply 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; and

- GSI would report wildland fires immediately to the BLM Central Nevada Interagency Dispatch Center at (775) 623-3444.

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.
- Regulated wastes would be removed from the Project Area and properly disposed of in a state, federal, or local designated area.
- All Project-related refuse would be disposed of on a daily basis consistent with applicable regulations. No refuse would be disposed of on site. In the event that hazardous or regulated materials such as diesel fuel are spilled, measures would be taken to control the spill and the NDEP would be notified. GSI would follow the SCP for the Project as outlined in Appendix E of the Plan.

Migratory Birds

- A pre-disturbance nest survey would be conducted by a BLM approved biologist prior to any surface disturbance associated with Project activities during the avian breeding season (March 1 through July 31 for raptors and March 15 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 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 and the location of the nest) 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, or until the young have fledged. 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.

Noxious Weeds, Invasive and Nonnative Species

- Noxious weeds would be controlled through implementation of preventive BMPs and eradication measures if noxious weeds were found.
- All vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities, for emergency fire suppression, or for authorized off-road driving within the Project Area, would be free of soil and debris capable of transporting weeds. All such vehicles and equipment would be cleaned in Tonopah with high power or high pressure equipment prior to entering the Project Area. Vehicles used for emergency fire suppression would be cleaned as part of check-in and

demobilization procedures. Cleaning efforts would concentrate on tracks, feet and tires, on the undercarriage. Special emphasis would be applied to the axels, frames, cross members, motor mounts, on and underneath the steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out and refuse would be disposed of in waste receptacles.

Paleontological Resources

- GSI would not knowingly disturb, alter, injure, or destroy any scientifically important paleontological deposits. If GSI discovers any paleontological resource, the discovery would be left intact and reported to the authorized BLM officer.

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.
- In the event that any existing roads are severely damaged as a result of GSI activities, GSI would return them to their original condition.
- All equipment would be properly muffled and equipped with suitable and necessary fire suppression equipment, such as fire extinguishers and hand tools. All Project-related traffic would observe prudent speed limits to enhance public safety, protect wildlife and livestock, and minimize dust emissions. All activities would be conducted in conformance with applicable federal and state health and safety requirements.

Recreation

- GSI would coordinate with the BLM and temporarily shut down operations in mid-August every year for two to three days, or a designated length of time, to allow the Best in the Desert off-road Vegas to Reno race to utilize Project Area roads, if necessary.

Survey Monuments

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

Water Quality

- GSI would follow the SCP for the Project as outlined in Appendix E of the Plan.

2.2 No Action Alternative

In accordance with BLM NEPA guidelines H-1790-1, Chapter V (BLM 2008), 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 from 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. Under Notices NVN-87336 and NVN-90808, GSI would continue authorized surface disturbance activities within the Project Area for a total disturbance of up to ten acres.

2.3 Alternatives Considered but Eliminated from Detailed Study

2.3.1 Off-Site Processing Area Alternative

Under this alternative, the 13.29-acre processing area would be eliminated from the Project Area, and all milling, processing, maintenance, and administrative activities would occur on off-site facilities outside of the Project Area. This alternative would meet the purpose and need of the Proposed Action to allow GSI the opportunity to locate, delineate, and mine DE deposits on public land under the Mining Law. However, the Off-Site Processing Area Alternative was eliminated for the following reasons: 1) this alternative would create additional road and surface disturbance due to increased traffic on county roads and Nevada highways beyond the Project Area; and 2) the alternative would also enlarge the disturbance of the Proposed Action beyond the existing Project Area and could create unnecessary and avoidable impacts to air quality, vegetation, and wildlife resources.

2.3.2 Rapid Mining Operations Alternative

Under this alternative, the same number of acres would be disturbed as the Proposed Action, but this alternative would have mining operations occur at the same time in the Northwest and Southeast mining areas, thereby resulting in more rapid removal of material for processing. This would meet the purpose and need of the Proposed Action to allow GSI the opportunity to locate, delineate, and mine DE deposits on public land under the Mining Law. However, this alternative would involve an increased need of processing facilities, general operations, equipment demand, personnel, and water, which could result in the need for a larger processing area. This would create an opportunity to increase the severity of the impacts discussed in the Proposed Action, and could create avoidable and unnecessary damage to resources within the Project Area.

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 affected by the Proposed Action or alternatives under consideration.

Supplemental Authorities that are subject to requirements specified by statute or Executive Order (EO) must be considered in all BLM environmental documents. The 14 elements associated with the supplemental authorities listed in the NEPA Handbook (BLM 2008, Appendix 1) and in the Nevada IM 2009-030, Change 1, are listed in Table 3.1-1. The table lists the elements and their status in the Project Area as well as the rationale to determine whether the element is present in the Project Area, and if the element would be affected by the Proposed Action. Supplemental Authorities that may be affected by the Proposed Action are analyzed in Section 3.2. Those elements listed under the supplemental authorities that do not occur in the Project Area and would not be affected are not discussed further in this EA. The elimination of nonrelevant issues follows Council on Environmental Quality (CEQ) policy, as stated at CFR 1500.4.

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/ Potentially Affected	Rationale/Reference Section
Air Quality			X	See Section 3.2.1.
Areas of Critical Environmental Concern	X			This element is not present within the Project Area or vicinity and is not further analyzed in the EA.
Cultural Resources		X		See Section 3.2.2.
Environmental Justice	X			No minority or low-income groups would be disproportionately affected by health or environmental effects as a result of implementation of the Proposed Action. Therefore, this element is not present within the Project Area or vicinity and is not further analyzed in this EA.
Farmlands (Prime or Unique)	X			This element is not present within the Project Area or vicinity and is not further analyzed in the EA.
Fish Habitat	X			This element is not present within the Project Area or vicinity and is not further analyzed in the EA.
Floodplains	X			This element is not present within the Project Area or vicinity and is not further analyzed in the EA.
Forest and Rangelands (Healthy Forest Restoration [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 is not proposing to use herbicides; therefore, EO 13045 does not apply.

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/ Potentially Affected	Rationale/Reference Section
Migratory Birds			X	See Section 3.2.6.
Native American Religious Concerns		X		See Section 3.2.7.
Noxious Weeds, Invasive, and Nonnative Species			X	See Section 3.2.8.
Threatened or Endangered Species			X	See Section 3.2.14.
Wastes, Hazardous or 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 the EA.
Wild and Scenic Rivers	X			This element is not present within the Project Area or vicinity and is not further analyzed in the EA.
Wilderness	X			This element is not present within the Project Area or vicinity and is not further analyzed in the EA.

In addition to the elements listed under supplemental authorities, the BLM considers additional resources and uses that occur on public lands and the issues that may result from the selection of either of the alternatives. These additional resources that have been considered for this EA are listed in Table 3.1-2 below, and are analyzed in Section 3.2.

Table 3.1-2: Additional Affected Resources

Other Resources or Uses	Present/ Not Affected	Present/ Potentially Affected	Rationale/Reference Section
Fire Management	X		See Section 3.2.3.
Geology and Mineral Resources		X	See Section 3.2.4.
Land Use and Realty		X	See Section 3.2.5.
Paleontological Resources	X		See Section 3.2.9.
Rangeland Management/Livestock Grazing		X	See Section 3.2.10.
Recreation	X		See Section 3.2.11.
Social and Economic Values	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.

Other Resources or Uses	Present/ Not Affected	Present/ Potentially Affected	Rationale/Reference Section
Wild Horses		X	See Section 3.2.19.
Wildlife		X	See Section 3.2.20.

The BLM has used environmental data collected in the Project Area to assess potential environmental effects that could result from the Proposed Action and alternatives. A level of uncertainty is associated with any set of data in terms of assessing potential outcomes, especially when natural systems are involved. The assessments described in this analysis are intended to allow comparison of alternatives to the Proposed Action, to provide a method to determine whether activities proposed by the applicant would comply with applicable regulations, and to determine if there are potentially significant effects that would require development of an Environmental Impact Statement.

3.2 Effects of the Proposed Action

3.2.1 Air and Atmospheric Values

3.2.1.1 Affected Environment

Air Quality

The Bureau of Air Pollution Control (BAPC) is the agency in the State of Nevada that has been delegated with the responsibility for the preparation of 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 included in a SIP is the Nevada State Ambient Air Quality Standards (NSAAQS). The NSAAQS are generally identical to the National Ambient Air Quality Standards (NAAQS), with the exception of the following: (a) an additional standard for carbon monoxide in areas with an elevation in excess of 5,000 feet above mean sea level (amsl); (b) a hydrogen sulfide standard; and (c) a violation of state standard occurs 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 permit and enforcement activities throughout the State of Nevada (except Clark and Washoe Counties). Based on the thresholds established by the BAPC for a Class II Operating Permit, emissions of less than 100 tons per year of any one regulated pollutant and emissions less than 25 tons per year of total hazardous air pollutants (HAPs) and emissions of ten tons per year of any one HAP, it is anticipated that the Project would be required to obtain a Class II Operating Permit. Ambient air quality dispersion modeling performed during the permitting process demonstrates the Project's compliance with applicable state and/or federal ambient air quality standards. A permitted facility is also required to submit annual emissions reports of regulated air pollutants to the BAPC.

The Project Area is located in the Columbus Salt Marsh Valley Hydrographic Basin, which is considered in attainment relative to the federal air quality standards for all regulated pollutants.

The existing air quality is typical of largely undeveloped regions of the western United States with limited sources of pollutants.

Climate and Meteorology

The Project Area is located in the west central Monte Cristo Range. The climate in the Project Area is typical of the higher elevation environment of the northern Basin and Range Province. The climate is arid, and receives moderate levels of precipitation with moderate fluctuations in seasonal temperatures. The average annual precipitation is 3.35 inches and tends to peak in May in the form of rain. Temperatures during the winter are cool with periods of very cold weather with the lowest average monthly temperature occurring in January of 17.6 degrees (°) Fahrenheit (F). The summers are hot and dry with the highest average monthly temperature occurring in July of 98.2° F. The average annual maximum and minimum temperatures in Coaldale, Nevada, approximately ten miles southeast from the Project Area, are 71.9 and 37.7° F, respectively (WRCC 2010), at an elevation of 4,666 feet amsl. Elevations in the Project Area range from 5,750 to 6,420 feet amsl.

Climate Change

According to the BLM's IM No. 2008-171, "Guidance on Incorporating Climate Change into Planning and NEPA Documents," dated August 19, 2008, climate change considerations should be acknowledged in EA documents. The IM states that ongoing scientific research has identified the potential impacts of anthropogenic (man-made) greenhouse gas (GHG) emissions and changes in biological carbon sequestration due to land management activities on global climate. Through complex interactions on a regional and global scale, these GHG emissions and net losses of biological carbon sinks cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused carbon dioxide equivalent concentrations to increase dramatically, and are likely to contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change (IPCC) recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations" (IPCC 2007).

Several activities contribute to the phenomena of climate change, including the following: emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development; large wildfires and activities using combustion engines; changes to the natural carbon cycle; and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs would have a sustained climatic impact over different temporal scales. For example, recent emissions of carbon dioxide can influence climate for 100 years.

Current emissions within the vicinity of the Project Area include vehicle combustion activities, fugitive dust from travel on unimproved roads, ranch activities, and wildland fires. Emissions of all pollutants are generally expected to be low due to the extremely limited number of sources in the vicinity of the Project Area. Existing climate prediction models are global in nature; therefore, they are not at the appropriate scale to estimate potential impacts of climate change within the Columbus Salt Marsh Valley Hydrographic Basin in which the Project is located. Due to the nature and scale of the Proposed Action, effects on climate change are not further analyzed in this EA.

3.2.1.2 Environmental Consequences

The Proposed Action has the potential to disturb up to 175.8 acres. Travel on dirt access roads and drilling activities within the Project Area have the potential to create fugitive dust and vehicle emissions, causing a minor impact to air resources. All Project-related activities with greater than five acres of surface disturbance would be operated under the required Surface Area Disturbance permit from the BAPC, which was obtained on August 13, 2012 (Permit No. AP1499-3161). The Project would also be required to obtain a Class II Operating Permit from the BAPC and would be required to comply with the stipulations set forth in the permit. In addition, environmental protection measures outlined in Section 2.1.19 indicate that speed limits on access roads would be observed and travel on roads within the Project Area would be conducted at prudent speeds. Fugitive dust would be controlled by using water trucks for dust suppression, as required. Reclamation of surface disturbance would gradually eliminate any potential for impacts to air resources. Any potential temporary impacts to air resources would cease once activities and reclamation are completed.

3.2.2 **Cultural Resources**

3.2.2.1 Affected Environment

In 2011, Summit Envirosolutions, Inc. surveyed 41 acres of a proposed borrow pit and processing area location, 302 acres of proposed open pits, less than one acre of a proposed fuel tank location, and approximately 1.7 linear miles of proposed access roads to Class III inventory standards (Sanchez 2011). At the time of the survey, the area of potential effect for this Project was defined as a 346-acre area.

Results of the inventory identified three archaeological sites (CrNV-64-14962, 64-14963, and 64-14964) and three isolated finds (CrNV-64-14965a, 64-14965b, and 64-14965c). The sites are all prehistoric lithic scatters that consist of simple debitage scatters. All three of the sites have been recommended as not eligible for the National Register of Historic Places (NRHP). The isolated artifacts consist of a flake, a biface, and a can. These are categorically not eligible for the NRHP according to the State Protocol Agreement between the BLM and State Historic Preservation Office.

3.2.2.2 Environmental Consequences

Based on the results of the Class III cultural inventory conducted by Summit Envirosolutions, Inc., impacts to three archaeological sites and three isolated finds could occur. However, none of these sites within the area surveyed are considered eligible for the NRHP. In addition, as described in Section 2.1.19, GSI would notify the BLM immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony. Also, if GSI discovers any cultural resource that might be altered or destroyed by human operations, the discovery would be left intact and reported to the authorized BLM officer. GSI would also avoid eligible or unevaluated cultural sites within the Project Area. GSI 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. Therefore, no impacts to cultural resources are anticipated as a result of implementation of the Proposed Action. This resource is not further analyzed in this EA.

3.2.3 Fire Management

3.2.3.1 Affected Environment

No fuel reduction or habitat management 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 vicinity.

3.2.3.2 Environmental Consequences

Implementation of the Proposed Action would be coordinated with the BLM's fire staff in order to ensure the safety of GSI personnel during all periods of prescribed fire activity in the area. Based on environmental protection measures in Section 2.1.19, and continued accessibility to the Project Area, impacts to fire management are not anticipated. In addition, reclamation measures include seeding with vegetation types that may assist in fire avoidance and suppression in the long term. No impacts to fire management from the Proposed Action are anticipated; therefore, fire management is not further analyzed in this EA.

3.2.4 Geology and Mineral Resources

3.2.4.1 Affected Environment

3.2.4.1.1 Geology

The Project Area is located in the Southern Nevada Basin and Range Major Land Resource Area (MLRA). The mountains in this area are dominated by Pliocene and Miocene andesitic and basaltic rocks. Paleozoic and Precambrian carbonate rocks are prominent in the mountains. Scattered outcrops of older Tertiary intrusives and very young tuffaceous sediments (Pliocene and Miocene) are in the western and eastern thirds of this MLRA. The valleys consist primarily of alluvial fill, but playa deposits are located in the lowest elevations in the closed basins. The alluvial valley fill consists of cobbles, gravel, and coarse sand near the mountains in the apex of the alluvial fans. Sands, silts, and clays are on the distal ends of the fans (Natural Resource Conservation Service [NRCS] 2006).

Within the MLRA, the Project Area is located in the Monte Cristo Range. This range was formed during a late Cenozoic domal uplift rather than down dropping of adjacent blocks along basin and range structures. A conspicuous dome located northeast of the Project Area resulted from the intrusion of a seven million year old rhyolite formation. The intrusion and regional doming exposed Tertiary volcanic sediments, which include the fresh water diatomite formation.

The three principal formations exposed within the west central portion on the Monte Cristo Range are the Miocene Blairs Junction sequence, the McLean's Formation, and the Gilbert Andesite. The Blairs Junction sequence is a series of andesite and dacite flows and shallow intrusive ranging in age from 22.2 to 15.7 million years old. This unit is overlain by the McLean's Formation, which is comprised of siltstone, shale, sandstone, and diatomite, and ranges in age from 17.2 to 15 million years old. The McLean's Formation and diatomite beds are confined to a 20-mile long belt in the central portion of the Monte Cristo Range. The McLean's Formation is capped by the Gilbert Andesite, which is widespread throughout the Monte Cristo Range. The Gilbert Andesite forms massive outcrops and caps much of the higher portion of the

range, and has been dated at 15 million years old. Tertiary basalt is also ubiquitous throughout the Monte Cristo Range and overlies the diatomite beds within the Project Area.

3.2.4.1.2 Seismicity

According to the United States Geological Survey (USGS), the probability of a magnitude 5.0 earthquake or greater occurring within 32 miles (50 km) of the open pits in the Project Area within the next ten years is 0.4 to 0.5. The probability of a magnitude 5.0 earthquake or greater occurring within 32 miles (50 km) of the open pits in the Project Area within the next 30 years is 0.8 to 0.9 (USGS 2009).

3.2.4.2 Environmental Consequences

Although the probability of an earthquake occurring within the next 30 years is 0.8 to 0.9, the slope design of 3H:1V along with the benched approach would reduce any impacts to structural instability of the pit walls. In addition, the Proposed Action would result in the removal of approximately 2.7 million tons of DE over the life of the Project. This is considered an irreversible impact of the Project.

3.2.5 **Land Use and Realty**

3.2.5.1 Affected Environment

Land use in Esmeralda County is guided by the 1985 Esmeralda County Policy for Public Lands (Policy Plan). The 1985 Policy Plan is incorporated into the Tonopah RMP on page A-29. In January 2011, Esmeralda County started revising the Policy Plan, which is currently in draft form. Section 7 of Policy Plan sets guidance on land use relating to mineral resources. Esmeralda County is described as an ideal location for the development of mineral resources, and policies 7-1 through 7-9 provide guidance to utilize mineral resources with minimal environmental impacts. The entire Project Area is located on lands managed by the BLM.

The BLM LR2000 database was queried on September 3, 2011, to determine rights-of-way (ROWs) within the Project Area. Authorized ROWs existing within Sections 22, 23, 26, 27 and 31 through 35, T4N, R37E, of the Project Area include three roads operated by Esmeralda County.

Within Sections 35 and 36, T4N, R36E, of the Project Area, authorized ROWs include the following: two Esmeralda County roads (NVN-54385 and NVN-54392 RS-2477 varied width); one Nevada Department of Transportation (NDOT) federal highway (NEV-017753, NVCC-018459); NVN-73706 to Nevada Bell for an underground fiber optic line; and NEV-063524 overhead transmission line to Sierra Pacific Power doing business as NV Energy. Authorized ROWs within Section 2, T3N, R36E, of the Project Area include the following: a county road operated by Esmeralda County; a federal highway operated by the NDOT; and an underground fiber optic line authorized to Nevada Bell.

3.2.5.2 Environmental Consequences

No change in land use in the Project Area would result from the Proposed Action and no real estate transactions are proposed. Therefore, no impacts to land use and realty would result from the Proposed Action. This resource is not analyzed further in this EA.

3.2.6 **Migratory Birds**

3.2.6.1 Affected Environment

"Migratory bird" means any bird listed in 50 CFR 10.13. All native birds found commonly in the United States, with the exception of native resident game birds, are protected under the Migratory Bird Treaty Act (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.

Table 3.2-1 lists the bird species that were observed within the Project Area during a June 2010 biological survey. The Nevada Department of Wildlife (NDOW) identified other migratory bird species that are expected to use the Project Area on a regular or transient basis including the following: American kestrel (*Falco sparverius*); barn owl (*Tyto alba*); burrowing owl (*Athene cunicularia*); Cooper’s hawk (*Accipiter cooperii*); ferruginous hawk (*Buteo regalis*); golden eagle (*Aquila chrysaetos*); great horned owl (*Bubo virginianus*); long-eared owl (*Asio otus*); northern goshawk (*Accipiter gentilis*); northern harrier (*Circus cyaneus*); northern saw-whet owl (*Aegolius arcadicus*); osprey (*Pandion haliaetus*); peregrine falcon (*Falco peregrinus*); prairie falcon (*Falco mexicanus*); red-tailed hawk (*Buteo jamaicensis*); sharp-shinned hawk (*Accipiter striatus*); short-eared owl (*Asio flammeus*); Swainson’s hawk (*Buteo swainsoni*); and turkey vulture (*Cathartes aura*). Additional species that were not observed or mentioned above may also utilize the area on a regular or seasonal basis.

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

Common Name	Scientific Name	PIF¹ Long-term Planning and Responsibility Species	NVPIF² Priority Species	Habitat Associations*
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	Yes	Yes	Found in brushlands, chaparral, mixed piñon-juniper woodlands. Inhabits juniper-piñon-oak scrub on slopes, foothills and canyons. Nests in trees or shrubs one to ten meters above ground.
Black-chinned Sparrow	<i>Spizella atrogularis</i>	No (Management)	No	Found in Chaparral, sagebrush, and arid scrub; on gentle hillsides to steep, rocky slopes, or in brushy canyons.

Common Name	Scientific Name	PIF ¹ Long-term Planning and Responsibility Species	NVPIF ² Priority Species	Habitat Associations*
Horned Lark	<i>Eremophila alpestris</i>	No	No	Found in grassland, tundra, sandy regions, areas with scattered low shrubs, desert playas, grazed pastures, stubble fields, open cultivated areas, and rarely open areas in forest. Nests in hollow on ground often next to grass tuft or clod of earth or manure.
House finch	<i>Carpodacus mexicanus</i>	No	No	Found in arid scrub and brush, thornbush, oak-juniper, pine-oak associations, chaparral, open woodlands, towns, cultivated lands, and savanna. Nest on ledge, tree branches, shrub, and cacti.
Mourning Dove	<i>Zenaida macroura</i>	No	No	Open woodland, forest edge, cultivated lands with scattered trees and bushes, parks and suburban areas, arid and desert country (generally near water). Usually nests in a tree or shrub, sometimes on a stump or rock or on a ledge of a building, or on ground. May nest in an old nest of another species or build its own platform of twigs.

¹Partners in Flight

²Nevada Partners in Flight

Bold – denotes BLM Sensitive Species

*References: NatureServe 2010 and Great Basin Bird Observatory 2005.

3.2.6.2 Environmental Consequences

The Proposed Action includes a pre-disturbance migratory bird survey as the measure to avoid impacts to nesting migratory birds as outlined in Section 2.1.19. Therefore, the destruction of active nests or disruption of breeding behavior of migratory bird species would not occur as a result of the Proposed Action. Project-related surface disturbance would result in the temporary loss of approximately 175.8 acres of habitat for migratory birds in the Project Area. Reclamation activities would be conducted following the completion of the proposed Project and would begin within two months following completion of mining activities and last approximately three years. Table 2.1-2 outlines the reclamation schedule for the Project. The proposed reclamation is expected to occur for up to approximately three years. Therefore, the Proposed Action would result in a temporary loss of approximately 175.8 acres of migratory bird habitat for approximately 28 years.

3.2.7 Native American Religious Concerns

3.2.7.1 Affected Environment

Located within the traditional territory of the Western Shoshone, the TFO administrative boundary contains spiritual, traditional, and cultural resources, sites, and social practices that aid in maintaining and strengthening social, cultural, and spiritual integrity. Recognized tribes with known interests near the Project Area include the Yomba Shoshone Tribe, the Timbisha Shoshone Tribe, and the Duckwater Shoshone Tribe of the Duckwater Reservation. In addition, various other community members and individuals are known to have interests in the general area of the Monte Cristo Range.

Social activities that continue to define the culture take place across lands currently administered by the BLM. Some Western Shoshone maintain certain 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 antelope 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 (mono and matate); chert and obsidian quarries; hunting sites; sweat lodge locations; locations of pine nut ceremonies, traditional gathering, and camping; rocks used for 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 (P.L. 89-665; 80 Stat. 915; 16 United States Code [U.S.C.] 470), the NEPA, the CEQ's NEPA regulations (40 CFR Parts 1500-1508), the FLPMA (P.L. 94-579), the American Indian Religious Freedom Act (P.L. 95-341), the Native American Graves Protection and Repatriation Act of 1990 [NAGPRA] (P.L. 101-601: 104 Stat. 3048; 25 U.S.C. 3001), EO 13007 "Indian Sacred Sites" (May 24, 1996), and the Department of the Interior Policy on Consultation with Indian Tribes, 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 October 19, 2011, consultation initiation/invitation letters were mailed from the BLM TFO administrative area to the following Tribes: the Yomba Shoshone Tribe and the Death Valley Timbisha Shoshone Tribe. On February 18, 2012, the Project was presented to the Death Valley Timbisha Shoshone Tribe at a council meeting, and discussed at subsequent meetings. The Project was also discussed with the Yomba Shoshone Tribe and the Duckwater Shoshone Tribe at other meetings. Two site visits were scheduled with all three Tribes for April 24, 2012 and June 7, 2012. On April 24, 2012 the Yomba Shoshone Tribe attended the site visit and identified that the diatomite in the Project Area was used for medicinal purposes, and more specifically for

abdominal uses. Tribe members visited the identified cultural sites and asked that the sites be avoided. On June 7, 2012 the Duckwater Shoshone Tribe attended the site visit. The Tribe recommended that other Tribes be contacted. Other Tribes that were contacted expressed minimal interest in the Project. At the time this EA was prepared, the BLM continues to provide opportunities for participation and input. To date, the Tribes have recommended avoidance of the cultural sites.

3.2.7.2 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 TFO administrative area host certain traditional, spiritual, and cultural use activities today, as in the past. TCPs, designated by the tribes, tribal resources, or sacred sites, 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 eligible and unevaluated archaeological sites discovered and documented during cultural resources inventories. The BLM is currently in the process of attempting to identify (with the local tribes) any other sites, 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.

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

If a development plan (plan of operations) 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 would 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 (Section 2.1.19). Cultural and archaeological resources are protected under the Archaeological Resources Protection Act (16 U.S.C. 470ii) and the FLPMA.

Although 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), it states that the discovering individual must notify the land manager 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.

3.2.8 Noxious Weeds, Invasive, and Nonnative Species

3.2.8.1 Affected Environment

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 Battle Mountain District TFO recognizes the current noxious weed list designated by the State of Nevada Department of Agriculture (NDOA) statute, found at http://agri.nv.gov/nwac/PLANT_No WeedList.htm. An invasive species is defined as a nonnative or alien plant or animal that has entered into an ecosystem. EO 11312 (Prevention and Control of Invasive Species) considers invasive species those that are likely to cause economic harm or harm to human health. Noxious weeds, invasive and nonnative species are highly competitive, aggressive and easily spread. The Battle Mountain District has developed an Integrated Weed Management Plan. In addition, the BLM follows all Federal Noxious and Invasive Weed Laws, EO 11312, various BLM Manuals, the NRS, and NAC Chapter 555.

Surveys conducted in June 2010 identified invasive, nonnative plants in the Project Area including the following: Russian thistle (*Salsola tragus*); western tumble mustard (*Sisymbrium altissimum*); and cheatgrass (*Bromus tectorum*). Weedy, invasive species like cheatgrass generally occupy areas of previous disturbance and barren areas. No noxious weeds were identified during the survey of the Project Area.

3.2.8.2 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 nonnative species. Potential impacts would be reduced based on implementation of the environmental protection measures outlined in Section 2.1.19. In addition, should a new population of noxious weeds be detected, GSI would coordinate with the BLM on eradication methods.

3.2.9 Paleontological Resources

3.2.9.1 Affected Environment

The BLM manages paleontological resources under a number of federal laws including the following: FLPMA Sections 310 and 302(b), which direct the BLM to manage public lands to protect the quality of scientific and other values; 43 CFR 8365.1-5, which prohibits the willful disturbance, removal, and destruction of scientific resources or natural objects; 43 CFR 3622, which regulates the amount of petrified wood that can be collected for personal, noncommercial purposes without a permit; and 43 CFR 3809.420 (b)(8), which stipulates that a mining operator “shall not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains or any historical or archaeological site, structure, building or object on Federal lands.” On March 30, 2009, the Paleontological Resources Preservation Act (PRPA) became law when President Barack Obama signed the Omnibus Public Land Management Act of 2009, Public Law (P.L.) 111-011. P.L. 111-011, Title VI, Subtitle D on Paleontological Resources Preservation (known by its popular name, the PRPA) (123 Stat. 1172; 16 U.S.C. 470aaa) requires the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on federal land using scientific principles and expertise. The PRPA includes specific provisions

addressing management of these resources by the BLM, National Park Service, the Bureau of Reclamation, the United States Fish and Wildlife Service (USFWS), and the United States Forest Service.

The Project Area consists of a high-grade freshwater diatomite deposit exposed in full view over several miles with a measured thickness of up to 300 feet. The diatomite beds in the McLean's Formation are a chalk-like, soft, friable, earthy, very fine grained, siliceous sedimentary rock comprised of fossilized diatom remains. The McLean's Formation is typical of most freshwater diatomite deposits in the western United States that formed during the Miocene and Pliocene. The Miocene climate was fairly mild and wet, gradually becoming drier in the late Miocene. Lakes formed throughout the western United States during this period under similar geologic and climatic conditions. The McLean's Formation formed in a freshwater lake setting with diatom blooms occurring over several million years. Diatom growth and formation relies on an influx of silica and nutrients. Streams carried silica and important nutrients such as phosphorus into the lakes. These microscopic single-cell aquatic plants (algae) contain an internal, elaborate siliceous skeleton consisting of two frustules (valves) that vary in size from less than one micrometer (μm) to more than one millimeter in diameter, but are typically ten to 200 μm in diameter. The frustules have a broad variety of delicate, lacy, perforated shapes, including cylinders, discs, feathers, ladders, needles, and spheres. The USGS has identified the diatom, *Melosira* species from outcrop samples in the immediate area of the Project. This species is common in freshwater Miocene diatomite deposits in Nevada.

3.2.9.2 Environmental Consequences

Based on the review of the geologic setting of the Project Area, significant vertebrate fossils are not abundant within the geological formations mapped in the Project Area. The Proposed Action would not result in impacts to paleontological resources; therefore, this resource is not further evaluated in this EA.

3.2.10 Rangeland Management

3.2.10.1 Affected Environment

The Project Area is located within the Monte Cristo Grazing Allotment. The Monte Cristo Grazing Allotment is approximately 520,377 acres in size. The grazing allotment sustains a total of 9,351 Animal Unit Months (AUMs) from November 1 through March 15. An AUM represents the amount of forage required to support one cow and her calf for one month.

No fencing, cattle guards, or other rangeland improvements are present within the Project Area.

3.2.10.2 Environmental Consequences

The Proposed Action includes surface disturbance of approximately 175.8 acres of the approximate 540-acre Project Area over an approximately 28-year period within the Monte Cristo Grazing Allotment. The Monte Cristo Grazing Allotment spans approximately 520,377 acres and sustains approximately 55 acres per AUM. Therefore, the Proposed Action has the potential to temporarily affect approximately three AUMs or approximately 0.0003 percent of the total AUMs in the Monte Cristo Grazing Allotment. Impacts to rangeland

management and livestock grazing are not anticipated from the Proposed Action and are not further analyzed in this EA.

No fencing, cattle guards, or other rangeland improvements are present within the Project Area and therefore would not be impacted by the Proposed Action. Rangeland improvements are not further analyzed in this EA.

3.2.11 Recreation

3.2.11.1 Affected Environment

Recreational uses of the public land in the vicinity of the Project Area consist of dispersed recreational activities such as hunting, biking, primitive camping, rock hounding, and off-road vehicle travel (Esmeralda County 2010). Ideal recreational opportunities occur in Fish Lake Valley, south of the Columbia Salt Marsh Valley hydrographic basin. Recreational opportunities in Fish Lake Valley include fishing, camping and hiking (Esmeralda County 2011b). In addition, the annual Best in the Desert off-road Vegas to Reno race that usually occurs in mid-August, utilizes the GSI-maintained County road that provides access to the mine areas and processing area from U.S. 95, which results in traveling through and adjacent to portions of the Project Area.

3.2.11.2 Environmental Consequences

Impacts to recreation from the Proposed Action would result in a temporary loss within the Mine Area Boundary for dispersed recreational opportunities for an approximately 28-year period; however, similar recreational opportunities exist outside of the Project Area. Additional protection measures for recreation have been incorporated into the Proposed Action to reduce potential impacts to recreation as stated in Section 2.1.19, which include stipulations for GSI to cease any mining activities and road travel during the Best in the Desert race. Therefore, impacts to recreation that would result from the Proposed Action are not anticipated. Recreation is not further analyzed in this EA.

3.2.12 Social and Economic Values

3.2.12.1 Affected Environment

The Project Area is located in west central Nevada in Esmeralda County, approximately 49 miles northwest of Tonopah, Nevada, and east of Inyo and Mono Counties in California. Esmeralda County is trapezoidal in shape, consisting of 3,589 square miles of broad valleys and high mountain ranges. Approximately 97 percent of the county is managed by the federal government. The BLM is the dominant resource agency in the County; managing approximately 94 percent of the public land (Esmeralda County 2010). A sliver of Death Valley National Park resides in the southernmost portion of the County. Most of the communities are located along U.S. 95 which traverses to Coaldale from the north, eastward to Tonopah, and then south through the county boundary.

The total population of Esmeralda County has been relatively stable over the last decade. The population of the County is currently 783 people (State of Nevada 2011). The majority of these residents live in the towns of Goldfield and Silver Peak, with populations in 2008 of 415 and

182, respectively. Fish Lake Valley, located between the White Mountains and the Silver Peak Range in the eastern portion of the county, is the primary location of agricultural activity.

The town of Goldfield, in addition to its role as County Seat, provides amenities including the following: a gas station; auto repair shop; grocery/convenience store; lodging accommodations; an antique store; and several saloons (Esmeralda County 2010). The median household income in Esmeralda County for 2009 was \$42,526 annually (State of Nevada 2010). The labor force was 447 in 2009, with an 8.7 percent unemployment rate, which was 3.8 percent below the 12.5 percent rate for the entire State of Nevada. The largest employers were made up of mining companies, Esmeralda County, and the Esmeralda County School District.

Mining plays an important role in the economic activity of Esmeralda County. The Project would employ up to 15 people to construct the mining facilities and 30 to 50 individuals to operate the plant and mine. This workforce would stay in surrounding communities and contribute to the local economy.

3.2.12.2 Environmental Consequences

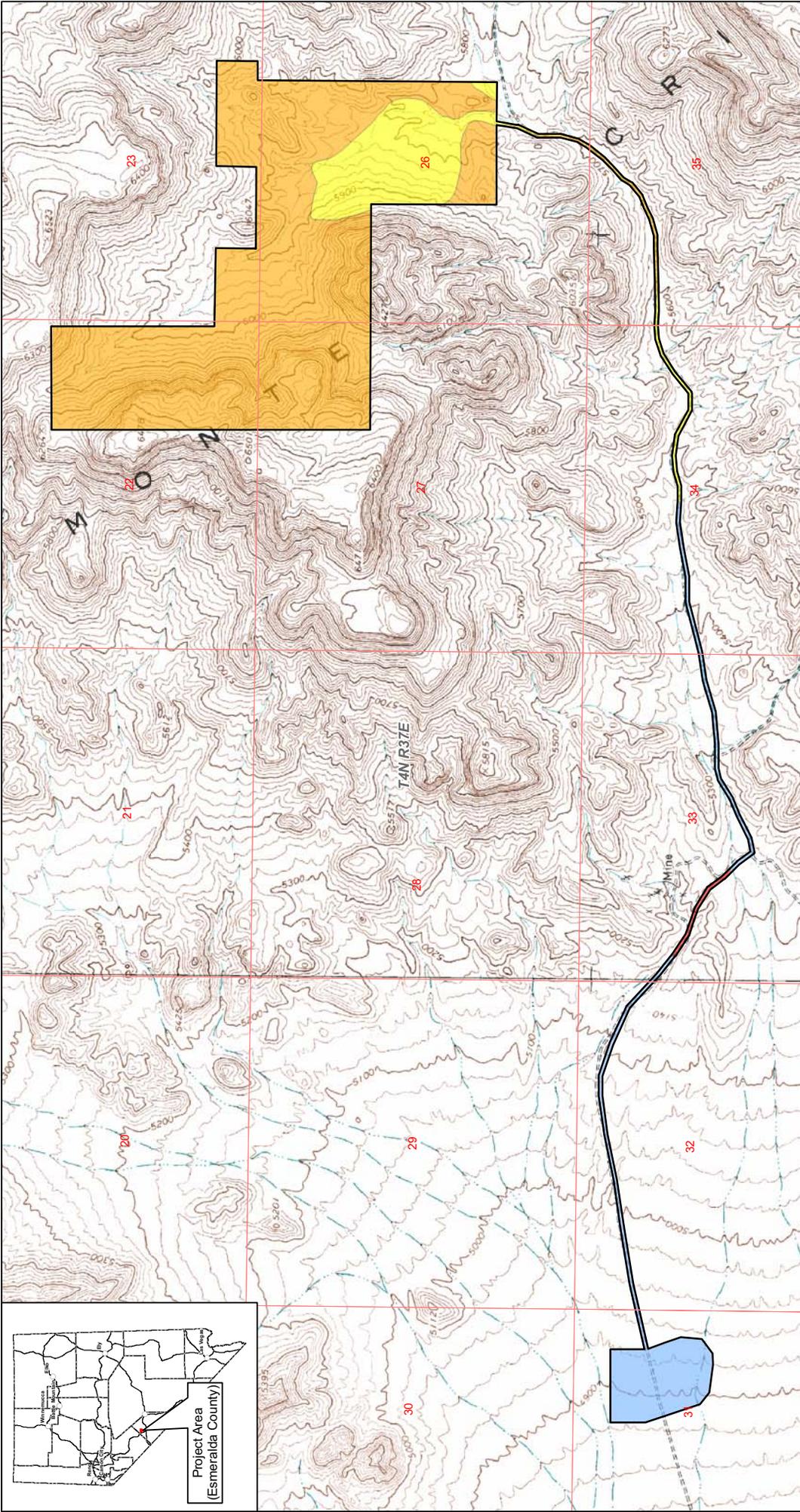
The workforce required to operate the mine and related facilities over the 28-year life span of the Project would include as many as 30 to 50 individuals. Employment would span the life of the Project and would not be expected to create a high demand for additional public or private services at any one given time. However, these individuals would support local businesses in communities such as Tonopah, Nevada or Hawthorne, Nevada and provide income to the communities through the purchase of goods and services throughout the life of the Project. Impacts to social and economic values that would result from the Proposed Action are anticipated to be primarily beneficial to the local economy; therefore, social and economic values are not further analyzed in this EA.

3.2.13 **Soils**

3.2.13.1 Affected Environment

The soil types in the Project Area are typical of those found throughout the Northern Basin and Range Province of Nevada. Soils in the Project Area form fan remnants, inset fans, drainages, pediments, hills, mountainsides, and peaks, and consist of fine sandy loam, gravelly sandy loam, gravelly sand, very gravelly sand, very gravelly fine sandy loam, very cobbly fine sandy loam, very stony fine sandy loam, and loamy sand (NRCS 2010).

According to the NRCS, a total of four soil associations occur within the Project Area (Figure 3.2.13 and Table 3.2-2). The dominant soil association is the Stewval-Pintwater-Rock outcrop, which occurs in 429.4 acres (74.5 percent). These soils are shallow to deep over lithic bedrock and derived from residuum and colluviums from volcanic rocks.



BUREAU OF LAND MANAGEMENT
MONTE CRISTO
DIATOMACEOUS EARTH PROJECT

Soil Series in the Project Area
 Figure 3.2.13
 11/15/2012

No warranty is made by the Bureau of Land Management for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not be current. Map users should verify the information developed through digital means and may be updated without notification.

BATTLE MOUNTAIN DISTRICT OFFICE
 Tonopah Field Office
 1553 South Main Street
 P. O. Box 911
 Tonopah, Nevada 89049

Projection: UTM Zone 11 North, NAD83

0 1,000 2,000 3,000 Feet

- Explanation**
- Project Area
 - NRCS Soil Units
 - 101, Unsel-Wardenot-Izo association (60.1 acres - 10.5%)
 - 193, Terlico-Pintwater-Wardenot association (83.7 acres - 14.6%)
 - 231, Stewwal-Pintwater-Rock outcrop association (426.4 acres - 74.5%)
 - 360, Downeyville-Pintwater-Rock outcrop association (2.3 acres - .4%)

The topographic transition of the Project Area in the lower elevations of the mining area portion of the Project Area are composed of fan remnants, pediments, and inset fans as the terrain decreases to slopes less than 30 percent. These soils are shallow to deep and are derived from mixed alluvium and residuum from volcanic rocks. The westernmost features of the Project Area are located in fan remnants and inset fans and drainage ways of mixed alluvium.

Table 3.2-2: Soils Associations in the Project Area

Association	Soil Series	Depth to Bedrock	Landscape position/ % Slope	Profile Soil Texture	Permeability	Erosion Hazard by Water	Erosion Hazard by Wind
Unsel-Wardenot-Izo (101)	Unsel	N/A	Summits, upper side slopes of fan piedmont remnants; 2 to 8%	Gravelly sandy loam to very gravelly sand	Low to Moderate	Low	High
	Wardenot	N/A	Inset fans; 2 to 8%	Gravelly loamy sand to extremely cobbly loamy sand	High	Low	High
	Izo	N/A	Drainageways; 2 to 4%	Gravelly sand to extremely gravelly coarse sand	High	High	Moderate
Terlco-Pintwater-Wardenot (193)	Terlco	N/A	Fan piedmont remnants; 2 to 8%	Gravelly clay loam to extremely gravelly loamy sand	Low	Low	Moderate
	Pintwater	10 to 20 inches	Side slopes of rock piedmonts; 15 to 30%	Very cobbly fine sandy loam to unweathered bedrock	Moderate to High	Moderate	Low
	Wardenot	N/A	Inset fans; 2 to 8%	Gravelly fine sandy loam to extremely cobbly loamy sand	High	Low	High
Stewval-Pintwater-Rock outcrop (231)	Stewval	4 to 14 inches	Mountain slopes; 30 to 50%	Very stoney fine sandy loam to unweathered bedrock	Moderate	Moderate	Low
	Pintwater	10 to 20 inches	Lower portions of eroded mountainsides; 30 to 50%	Very cobbly fine sandy loam to unweathered bedrock	Moderate to High	High	Low

Association	Soil Series	Depth to Bedrock	Landscape position/ % Slope	Profile Soil Texture	Permeability	Erosion Hazard by Water	Erosion Hazard by Wind
	Rock outcrop	N/A	Small peaks and ridges of mountains; N/A	N/A	Very Low	Low	Low
Downeyville-Silverbow-Rock outcrop (363)	Downeyville	4 to 14 inches	Hills; 15 to 50%	Very fine cobbly sandy loam to unweathered bedrock	Moderate	Low	Low
	Silverbow	N/A	Hills; 8 to 30%	Very stony find sandy loam to cemented	Low to Moderate	Low	Low
	Rock outcrop	N/A	Small peaks and ridges on hills; N/A	N/A	N/A	N/A	N/A

Note: N/A = not applicable

3.2.13.2 Environmental Consequences

Surface disturbance associated with the Proposed Action would impact up to 175.8 acres of soils, or approximately 33 percent of the Project Area. Disturbance to the Project Area would be temporary, and reclaimed within three years after completion of the 25-year life of the mine. The soil associations in the Project Area vary from low to high for erosion hazards by water and wind. Mine area impacts under the Proposed Action would increase the wind and water erosion potential of disturbed soils until reclamation was successfully completed.

The potential impacts to soils would be reduced by the environmental protection measures incorporated in the Project design as described in Section 2.1.19 that includes reseeding for erosion and sediment control.

3.2.14 Special Status Species

The BLM’s policy for management of special status species is in the BLM Manual Section 6840. Special status species include the following:

- **Federally Threatened or Endangered Species:** Any species that the USFWS has listed as an endangered or threatened species under the ESA throughout all or a significant portion of its range.
- **Proposed Threatened or Endangered Species:** Any species that the USFWS has proposed for listing as a federally endangered or threatened species under the Endangered Species Act (ESA).

- Candidate Species: Plant and animal taxa that are under consideration for possible listing as threatened or endangered under the ESA.
- BLM Sensitive Species: 1) Species that are currently under status review by the USFWS; 2) Species whose numbers are declining so rapidly that federal listing may become necessary; 3) Species with typically small and widely dispersed populations; or 4) Species that inhabit ecological refugia or other specialized or unique habitats.
- State of Nevada Listed Species: State-protected animals that have been determined to meet BLM's Manual 6840 policy definition.

Nevada BLM policy is to provide State of Nevada listed species and Nevada BLM sensitive species with the same level of protection as is provided to candidate species in BLM Manual 6840.06C. Per the wording in Table IIa in BLM Information Bulletin NV-2003-097, Nevada protected animals that meet BLM's 6840 policy definition are those species of animals occurring on BLM-managed lands in Nevada that are: 1) 'protected' under authority of the NAC; 2) have been determined to meet BLM's policy definition of "listing by a state in a category implying potential endangerment or extinction;" and 3) are not already included as federally listed, proposed, or candidate species.

The USFWS, the Nevada Natural Heritage Program (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, the BLM Sensitive Species List and Special Status Species (threatened and endangered) lists for the Battle Mountain District were evaluated. The special status wildlife and plant species that have potential to occur within the Project Area are further discussed below.

3.2.14.1 Affected Environment

Federally Listed Species

In response to a request for federally-listed and candidate species in the Project Area, the USFWS memorandum of December 17, 2010 stated that no listed, proposed or candidate species occur in the Project Area (USFWS 2010a).

BLM Sensitive Species

The BLM provides protection for special status species in accordance with policy set forth in BLM Manual 6840.06 which states: "Bureau sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the ESA." The list includes certain species designated by the State of Nevada, as well as species designated as "sensitive" by the Nevada BLM State Director.

The NDOW has identified that desert bighorn sheep (*Ovis canadensis nelson*) and various BLM and state sensitive raptor, bird, and bat species have the potential to occur within the Project Area, and are described below (NDOW 2010).

Desert bighorn sheep

Desert bighorn sheep are located in mountain ranges throughout the Southwest U.S. In Nevada, the sheep reside in regions marked by hot summers and little annual precipitation. Typical habitat for desert bighorn is rough, rocky and steep, broken up canyons and washes, and is found in open areas that provide an escape and do not restrict vision ranging from 1,476 to 10,826 feet amsl. Habitat communities include Sonoran-Mojave Desert Scrub, Cliffs and Canyons, Alpine and Tundra and Barren (NDOW 2004).

Desert bighorn require access to freestanding water during summer months, and may require water through the entirety of the year during drought conditions (NDOW 2011a). Desert bighorn are herbivores and their diet varies with habitat and seasons, but is mostly composed of grasses, forbs, and shrubs.

The NDOW has identified the potential occurrence of desert bighorn sheep in the Project Area. Management of desert bighorn falls under the NDOW, and Hunt Unit 211 North: Monte Cristo Range; Esmeralda County (Unit 211N). The NDOW 2010-2011 survey recorded 311 desert bighorn for the Monte Cristo herd. Unit 211N has experienced steady growth of desert bighorn over the past seven to ten years. General populations are trending stable (NDOW 2011b).

In a June 2010 biological survey, 13 desert bighorn were observed on cliffs that were eroding from the canyon wall in the northwestern portion of the mine areas. The desert bighorn moved south and departed the Project Area via an ephemeral drainage. According to the BLM, there are no specific mitigation routes for desert bighorn within the vicinity of the Project Area, only habitat.

Raptors

The NDOW and BLM have established that several raptor species are known to occur in the Project Area and within a three-mile buffer area. These include the great horned owl, red-tailed hawk, Cooper's hawk, golden eagle, and northern goshawk. The northern goshawk is a NDOW species of special concern and is a target species for conservation as outlined by the Nevada Wildlife Action Plan. A complete list of raptor species that are known to have range in the Project Area are listed in Table 3.2.6.1.

A June 2010 biological survey identified potential foraging habitat for various BLM special status raptor species in the Project Area including the following: golden eagle; northern goshawk; ferruginous hawk; Swainson's hawk; burrowing owl; short-eared owl; long-eared owl; peregrine falcon; and prairie falcon. Tree-nesting habitat in the Project Area is not sufficient for the northern goshawk, ferruginous hawk, Swainson's hawk, or long-eared owl.

The USFWS has issued an interim guidance on the management of golden eagles to further aid in impact analysis and mitigation identification during the NEPA process (USFWS 2010a). However, although not observed within the Project Area during wildlife surveys, there is suitable habitat for BLM special status raptors such as the bald eagle (*Haliaeetus leucocephalus*), ferruginous hawk, golden eagle, and northern goshawk. Golden eagles have foraging habitat within the Project Area and vicinity. In eastern Nevada, suitable nesting habitat for golden eagle is primarily cliffs and ledges. According to the NDOW, there is a golden eagle nest located in T4N, R37E, Section 28, which is within the vicinity of the Project Area.

Birds

No BLM sensitive bird species were located in the Project during a June 2010 biological survey. The Project Area contains sagebrush scrub vegetation and qualifies as potential habitat for the federal candidate species greater sage-grouse (*Centrocercus urophasianus*). However, no sign was detected for the greater sage-grouse, and the survey, along with the NNHP and the NDOW did not identify any greater sage-grouse use or leks in the Project Area or vicinity. The lack of available water resources and sparse vegetation in the Project Area makes it unlikely any greater sage-grouse would utilize the Project Area.

Bats

The NNHP identified potential habitat for the western pipistrelle (*Pipistrellus hesperus*) and the California myotis (*Myotis californicus*), both Nevada BLM sensitive species. The biological surveys of June 2010 for the Project Area identified suitable roosting habitat of small crevices in rocky outcrops. However, the lack of available water resources in the Project Area, in addition to the absence of buildings or mine workings make it unlikely the western pipistrelle and/or the California myotis would utilize the Project Area.

Plants

In a letter dated January 12, 2010, the NNHP stated that no at risk taxa have been recorded within the Project Area or within a three-mile radius (NNHP 2010). However, habitat may be available for the Candelaria blazingstar (*Mentzelia candelariae*), classified as Vulnerable by the NNHP. The biological survey for the Project Area found no sign of the Candelaria blazingstar.

3.2.14.2 Environmental Consequences

Federally Listed Species

No federally threatened or endangered species are known to occur in the Project Area or were observed during biological surveys; therefore, no impacts to federally listed species would result from the Proposed Action.

BLM Sensitive Species

Golden eagles are protected by the MBTA and the Bald and Golden Eagle Protection Act, both of which prohibit take. The *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance* provides guidance to conduct informed impact analyses and mitigation during the NEPA process (USFWS 2010b). Golden eagle foraging habitat is present in the Project Area. Potential nesting habitat was not observed within the Project Area; however, a golden eagle nest was located in the vicinity of the Project Area. In order to avoid impacts to individual golden eagles and their habitat, implementation of the environmental protection measure outlined in Section 2.1.19 for migratory birds would ensure that prior to surface disturbance, nesting surveys for migratory birds (including golden eagles) would be conducted and any identified nests would be avoided.

Desert bighorn sheep are recognized as a Nevada BLM Special Status Species, affording protection similar for candidate species in BLM Manual 6840.06(C). Desert bighorn sheep were identified in the Project Area during a June 2010 survey, and their occurrence within the Project Area was established by the NDOW; however, even though there is potential suitable habitat for desert bighorn sheep, the springs in the vicinity of the Project Area are dry and the noise associated with the mining activities would keep the bighorn sheep away from the Project Area. Impacts to bighorn sheep as a result of surface disturbing and mining activities are not anticipated

3.2.15 Vegetation

3.2.15.1 Affected Environment

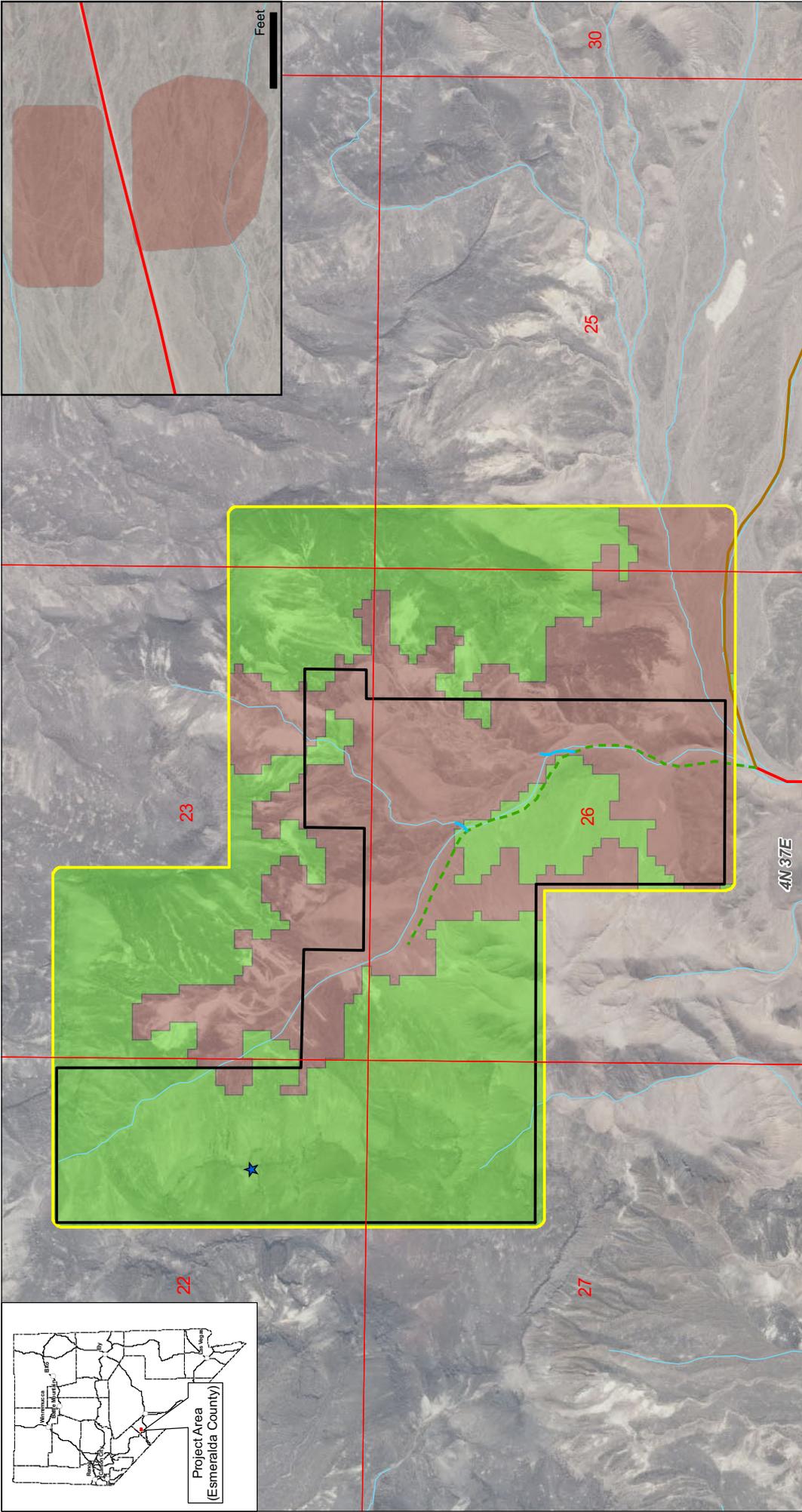
Based on the results of a baseline vegetation survey conducted in June 2010, vegetation communities within the Project Area consist of sagebrush scrub and salt desert scrub. These vegetation communities exhibit various levels of disturbance from past exploration activities and roads within the Project Area. The vegetation communities are shown on Figure 3.2.15.

Sagebrush Scrub

The Sagebrush Scrub community is the most dominant plant association within the Project Area and covers approximately 299 acres (57 percent). The Sagebrush Scrub community is located primarily within the northwest portion, in the higher elevations and mountaintops, of the Project Area. Depending on slope aspect and elevation, the Sagebrush Scrub community is dominated by either basin big sagebrush (*Artemisia tridentata* ssp. *Tridentata*) or black sagebrush (*Artemisia nova*). Other shrubs in this community include the following: busdage (*Picrothamnus desertorum*); Mormon tea (*Ephedra viridis*); spiny menodora (*Menodora spinescens*); shadscale (*Atriplex confertifolia*); and yellow rabbitbrush (*Chrysothamnus viscidiflorus*). Forbs observed within this vegetation community include the following: golden gilia (*Phacelia adenophora*); Douglas' dustymaiden (*Chaenactis douglasii*); roundspike cryptantha (*Cryptantha humilis*); Palmer's buckwheat (*Eriogonum palmerianum*); desert paintbrush (*Castilleja angustifolia*); scalebud (*Anisocoma acaulis*); wingnut cryptantha (*Cryptantha pterocarya*); orange globemallow (*Sphaeralcea munroana*); browneyes (*Camissonia claviformis*); Cooper's dogweed (*Adenophyllum cooperi*); Arizona honeysweet (*Tidestromia oblongifolia*); golden spiderflower (*Cleome platycarpa*); and winterfat (*Krascheninnikovia lanata*). Grasses observed within the sagebrush scrub community include the following: Indian ricegrass (*Achnatherum hymenoides*); bottlebrush squirreltail (*Elymus elymoides*); and James galleta (*Pleuraphis jamesii*). Additionally, silver cholla (*Cylindropuntia echinocarpa*) occurs throughout the sagebrush scrub vegetation community.

Salt Desert Scrub

The Salt Desert Scrub community covers approximately 222 acres (43 percent) within the Project Area and is primarily located within the lower elevations of the Project Area along the ephemeral drainages. Shrubs within the Salt Desert Scrub community include the following: busdage; shortspine horsebrush (*Tetradymia spinosa*); spiny hopsage (*Grayia spinosa*); Bailey's greasewood (*Sarcobatus baileyi*); yellow rabbitbrush; rubber rabbitbrush (*Ericameria nauseosa*); waterjacket (*Lycium andersonii*); Russian thistle (*Salsola tragus*); leafcover saltweed (*Atriplex phyllostegia*); green molly (*Bassia americana*); Mormon tea; threadleaf snakeweed (*Gutierrezia*



BUREAU OF LAND MANAGEMENT
MONTE CRISTO
DIATOMACEOUS EARTH PROJECT
 Vegetation Communities
 and Wildlife Habitat
 Figure 3.2.15
 11/15/2012



No warranty is made by the Bureau of Land Management for individual use or aggregate use with other data. Original data were compiled from various sources. This information may be developed through digital means and may be updated without notification.

0 1,000 2,000 Feet
 Projection: UTM Zone 11 North, NAD83

- Explanation**
- Mine Boundary
 - Biological Survey Area (998 Acres)
 - Post-1981 Existing Road, maintained for mine traffic only
 - Pre-1981 Existing Road, maintained for mine traffic only
 - Proposed Constricted Roads
 - GSI-Maintained County Road
 - County Road
 - ★ Desert Bighorn Sheep
 - Ephemeral Drainage
 - Vegetation
 - Sagebrush Scrub (576 acres)
 - Salt Desert Scrub (422 acres)

microcephala); Mojave indigobush (*Psoralea arborescens*); burrobush (*Hymenoclea salsola*); shadscale; fourwing saltbush (*Atriplex canescens*); spiny menodor; and black sagebrush. Forbs observed within this habitat include the following: golden gilia; Douglas' dustymaiden; roundspike cryptantha; western tumble mustard (*Sisymbrium altissimum*); dwarf purple monkeyflower (*Mimulus nanus*); scalebud; Parish's popcornflower (*Plagiobothrys parishii*); wingnut cryptantha; purple desert lupine (*Lupinus shockleyi*); and desert calico (*Loeseliastrum matthewsii*). Grasses occur predominantly within canopy openings within this community and include Indian ricegrass, bottlebrush squirreltail, and galleta grass.

3.2.15.2 Environmental Consequences

Surface disturbance activities would result in the temporary (28-year) reduction of approximately 299 acres of Sagebrush Scrub and approximately 222 acres of Salt Desert Scrub. Reclamation measures outlined in Section 2.1.19, which would help reduce potential impacts to vegetation would take place after the completion of the Project. All reclaimed areas would be reseeded with a BLM approved seed-mix (Table 2.1-3).

The BLM-approved seed mixture would be similar to pre-disturbance vegetation conditions. The mix is designed to provide species that can exist in the environment of central Nevada, are proven species for revegetation, or are native species found in the plant communities prior to disturbance.

3.2.16 **Visual Resources**

3.2.16.1 Affected Environment

The Visual Resource Management (VRM) system designates 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 3.2-3). Each management class portrays the relative value of the visual resources and serves as a tool that describes the visual management objectives (BLM 1986).

Table 3.2-3: 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 1986

Lands within the Project Area are currently designated as VRM Class IV. The activities associated with mining activities and surface disturbance may require modifying the existing character of the landscape; however, there have been prior mining activities in the Project Area and the surface has previously been modified. In addition, the Project Area is located approximately eight miles from U.S. 95, and is not clearly visible to travelers on the highway.

3.2.16.2 Environmental Consequences

The Project would result in visual impacts principally affecting the visual elements of line and color with the construction of surface support facilities over an approximately 28-year period. Disturbance of vegetation would cause moderate, temporary color contrasts. With successful reclamation and revegetation, visual impacts would be minimized. The effects of the Project on visual resources would be consistent with BLM prescribed Visual Resource Inventory Class IV objectives.

3.2.17 **Wastes, Solid or Hazardous**

3.2.17.1 Affected Environment

Federal and State of Nevada 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; Hazardous and Solid Waste Amendments; Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA [aka Superfund]); and the Superfund Amendments and Reauthorization Act. 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, 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.

The 2010 ECMP refers to the 2006 Esmeralda County Solid Waste Management Plan (SWMP) regarding the proper management and disposal of industrial solid waste. The SWMP was developed to ensure that the management of solid waste does not have a detrimental effect on the public health and environment of Esmeralda County.

There are currently no hazardous materials or wastes in the vicinity of the Project Area.

3.2.17.2 Environmental Consequences

Potential sources of pollution from Project activities may include service vehicles and other equipment that use oil, fuel and lubricating grease. Additional sources of pollutants may include solvents, trash, and other debris. The Project also includes an on-site septic tank and leach field within the processing area.

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 2.1.11 of this EA outlines how these wastes and materials would be managed and stored.

Through the implementation of the SCP outlined in the Plan and the environmental protection measures outlined in Section 2.1.19 of this EA, impacts to the environment from wastes resulting from implementation of the Proposed Action are not anticipated. This resource is not analyzed further in this EA.

3.2.18 Water Resources

3.2.18.1 Affected Environment

Surface Water

The accumulation of surface water in the Project Area is contingent to seasonal precipitation. The Project Area receives moderate levels of precipitation that is sparsely distributed throughout the year, averaging 3.35 inches annually (WRCC 2010). The majority of precipitation in central Nevada is from frontal storms, mainly from the north and west, during the winter months and convectional storms during the summer months. Frontal storms are generally low intensity, short duration events covering large areas. Convective storms are generally high-intensity thunderstorms, and are brief and have limited aerial extent.

The Project Area is located in the Monte Cristo Range, which divides the Columbus Salt Marsh Valley and Monte Cristo Valley Hydrographic Basins (Nos. 118 and 136) within the Central Hydrographic Region. The drainages within the Project Area formed from ephemeral streams supplied with runoff from rains and winter snow pack. There are no seeps or perennial drainages within the Project Area. There are four ephemeral drainages within the Project Area. No major surface water bodies occur within one-half mile downgradient of the Project Area. The nearest known source of permanent surface water is located outside of the Columbus Salt Marsh Valley watershed. Mine area surface grades would be maintained at approximately 1.5 percent, ensuring that the area is free-draining with a positive slope.

Ground Water Quantity

The processing area of the Project lies within the Great Basin aquifer system, and more specifically, overlies the Basin and Range basin-fill aquifer, consisting primarily of unconsolidated sand and gravel of Quaternary and Tertiary age. The most permeable basin-fill deposits are present in the depressions created by late Tertiary to Quaternary block faulting and can be classified by origin as alluvial-fan, lake-bed, or fluvial deposits. The alluvial fans are the most important hydrologic features in the basin-fill aquifer. The basin fill receives most of its recharge through the coarse sediments deposited in the fans. These highly permeable deposits allow rapid infiltration of water as streams exit the valleys that are cut into the almost impermeable rock of the surrounding mountains and flow out onto the surface of the fans (Planert and Williams 1995). The mine area does not lie over a major aquifer system.

The Project Area is located in the Columbus Salt Marsh Valley ground water basin. According to the Nevada Division of Water Resources (NDWR), the perennial yield of the Columbus Salt Marsh Valley ground water basin is 4,000 AFY. Current allocation is approximately 1,764.36 AFY (NDWR 2011). No ground water allocation occurs within the Project Area. No other beneficial use ground water wells have been identified within the boundaries or influence of the Project Area.

A four-hole drill program was completed on November 11, 2011 to determine if ground water would be encountered as part of the Project’s mining operations. Two holes were drilled in the Northwest Mine Area to depths of 80 and 100 feet, and two holes were drilled in the Southwest Mine Area to depths of 100 feet each. No ground water was encountered in any of the holes.

A production well has been installed within the boundaries of the processing area. The location of the well is shown on Figure 2.1.9. Ground water was encountered at a depth of 770 feet, and was determined to produce approximately 35.85 gpm, or approximately 58 AFY.

Ground Water Quality

The quality of ground water in unconsolidated deposits in the Basin and Range area varies from basin to basin; dissolved-solids concentrations range from less than 500 milligrams per liter (mg/l) (freshwater) to more than 10,000 mg/l. Generally, at the basin margins and on the slopes of alluvial fans, the ground water is fresh (Planert and Williams 1995).

State water quality standards for Nevada are established in the NAC, Chapter 445, Section 445A.11704 through 445A.2234. The water from the production well was sampled on June 13, 2012, and water quality tests were performed on June 20, 2012 by the Nevada State Health Laboratory (NSHL) (NSHL 2012). Tests were performed for the following parameters: chloride; fluoride; nitrate + nitrate as N; sulfate; and ortho-phosphate. The test results indicate that all background concentrations met or exceeded drinking water standards. Table 3.2-4 shows the state water quality standards and the results of the water quality tests for the production well.

Table 3.2-4: Ground Water Quality Data

Parameter	NDEP Profile I/II Reference Value (mg/L)	Concentration (mg/L)
Chloride	100	100
Fluoride	4	0.5
Nitrate + Nitrate as N	10	<0.5
Ortho-phosphate	N/A	N/A
Sulfate	500	230

Notes: mg/L= milligrams per liter; < = less than
Source: NSHL 2012

3.2.18.2 Environmental Consequences

Surface Water

The Proposed Action incorporates design elements including an SCP and the implementation of BMPs to ensure that surface water quality is protected as a result of the Project activities. Perimeter roads and berms would be constructed in a manner that any precipitation run-on would

be collected in perimeter ditches and channeled through openings in the berms and then through the mining areas to storm water retention basins. Storm water retention basins would be constructed at the outlet of each mine area within the anticipated mine disturbance.

There are several ephemeral drainages present within the Project Area. A jurisdictional “Waters of the United States” (WOUS) assessment was performed for the drainages that traverse the Project Area, and a determination report was submitted to the United States Army Corps of Engineers (USACE) on November 14, 2012 (Enviroscientists 2012). If this determination does not result in a WOUS status by the USACE, then no further action would be necessary. If the determination results in a WOUS status by the USACE, then a complete WOUS delineation would need to be prepared and a Clean Water Act Section 404 Permit and a General Storm Water Permit from the NDEP BWPC would need to be obtained to cover any impacts to the Project drainages. Additional environmental analysis pursuant to the NEPA would be conducted in support of the permit.

Ground Water Quantity

As discussed in Section 2.1.7, the perennial yield of the ground water in the Columbus Salt Marsh Valley Basin #118 is 4,000 AFY. Current allocation is approximately 1,764.36 AFY (NDWR 2011). This leaves 2,235.64 AFY available for allocation within the basin. GSI would utilize 706.95 AFY for the Project. GSI obtained water rights in two locations from NDWR on February 17, 2012 for a total combined duty of an amount not to exceed 707 AFY (Permit Nos. 80894 and 80895).

No ground water allocation occurs within the Project Area, and no other beneficial use ground water wells have been identified within the boundaries or influence of the Project Area. The Project would utilize approximately 32 percent of the remaining allocation available in the Columbus Salt Marsh Valley Basin.

Ground Water Quality

Proposed mining in the Mining Areas would not extend below the water table, as determined by the drill tests. Therefore, the pits would remain dry except for seasonal meteoric accumulations, and ground water quality impacts associated with mining activities would not occur.

3.2.19 Wild Horses

3.2.19.1 Affected Environment

The Project Area lies within the Pilot-Table Herd Management Area (HMA), encompassing 255,040 acres. Wild horses are managed under the BLM with the authority of the Wild Free-Roaming Horses and Burros Act of 1971 in accordance with the FLPMA. The appropriate management level for the HMA has been established at 249 to 415 animals. A total of 402 animals were counted during the last population survey of the HMA in January 2011.

3.2.19.2 Environmental Consequences

Approximately 175.8 acres of the 255,040-acre HMA would be disturbed by the Project over an approximately 28-year time period, which equals approximately 0.07 percent of the HMA. Even

though there is suitable habitat within the Project Area for wild horses, the lack of water sources and noise from mining activities reduces the likelihood that horses would utilize the area. Therefore, impacts to wild horses are not anticipated from surface disturbing and mining activities. This resource is not analyzed further in this EA.

3.2.20 Wildlife

3.2.20.1 Affected Environment

Wildlife habitat in the Project Area is typical of that associated with the Salt Desert Scrub and Sagebrush Scrub vegetation communities found throughout the northern Great Basin. The Project Area provides plentiful wildlife habitat directly attributable to the varying structures and densities of the vegetation communities and topographic features of the Monte Cristo area.

In June 2010 Enviroscientists, Inc. performed a general wildlife survey in the Project Area. In addition, the USFWS, NDOW, and NNHP were contacted regarding the presence of wildlife species within and near the Project Area. The following discussion summarizes the results of the survey including which species were observed or detected within the Project Area as well as species likely to be present or to utilize the Project Area based on the information provided by the USFWS and NDOW and the NNHP (USFWS 2010b; NDOW 2010; NNHP 2010). Wildlife habitat within the Project Area is shown on Figure 3.2.15.

Mammals

In addition to the special status species discussed in Section 3.2.13, wildlife detected directly or indirectly in Project Area during biological surveys include the following: mule deer (*Odocoileus hemionus*); pronghorn antelope (*Antilocapra americana*); coyote (*Canis latrans*); woodrat (*Neotoma sp.*); wild horse (*Equus ferus*); desert cottontail (*Sylvilagus audubonii*); and black-tailed jackrabbit (*Lepus californicus*).

In addition to surveys, NDOW established that mountain lions (*Felis concolor*) are likely to inhabit the Project Area and adjacent lands on a transient basis, since mule deer are the primary prey for mountain lions.

Birds

A list of migratory birds, including raptors that have the potential to occur within the Project Area are included in the discussion in Section 3.2.6. Several game bird species and other bird species not observed or mentioned may also inhabit the area on a regular or seasonal basis.

Amphibians and Reptiles

According to the NDOW, the desert horned lizard (*Phrynosoma platyrhinos*), Great Basin collared lizard (*Crotaphytus bicinctores*), Great Basin gophersnake (*Pituophis catenifer deserticola*), long-nosed leopard lizard (*Gambelia wislizenii*), western fence lizard (*Sceloporus occidentalis*), and the yellow-backed spiny lizard (*Sceloporus uniformis*) have been recorded or sighted in the Project Area and within a three-mile buffer area.

Biological survey work in June 2010 documented the long-nosed leopard lizard, desert horned lizard, zebra-tailed lizard (*Callisaurus draconoides*), and the Great basin collared lizard.

Fish

No perennial streams or fish habitat occur in the Project Area.

3.2.20.2 Environmental Consequences

Direct impacts to wildlife would consist of temporary habitat loss and disturbance from human activity and noise. Approximately 175.8 acres of existing wildlife habitat would be temporarily impacted by Project activities over an approximate 28-year time period. Reclamation and reestablishment of vegetation would take place within one year after Project completion, and reclamation activities would occur concurrently with Project activities when feasible.

Although 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, indirect impacts to wildlife could occur due to the temporary loss of vegetation as a result of Project-related surface disturbance.

3.3 Effects of the No Action Alternative

Under the No Action Alternative, none of the impacts associated with the Proposed Action would occur, as the Proposed Action would not be implemented. However, GSI would continue authorized surface disturbance activities under Notices NVN-87336 and NVN-90808 in the Project Area, and would result in impacts from up to ten acres of surface exploration activities, which would primarily be similar, but proportionately less than the Proposed Action (up to ten acres of disturbance versus 175.8 acres).

3.3.1 Air and Atmospheric Values

Under the No Action Alternative, Notice-level exploration activities under Notices NVN-87336 and NVN-90808 would continue and include surface disturbance of up to ten acres on public land. Under the No Action Alternative, dust would continue to be generated by travel on dirt roads and emissions would continue to be generated from trenching equipment, support equipment, and vehicles during exploration activities. These emissions would result in a minor impact to air quality as compared to the Proposed Action. The reclamation of surface disturbance would gradually eliminate impacts to air quality from wind erosion of disturbed soils. Although impacts are similar under the No Action Alternative, impacts would be less than under the Proposed Action, as there would be approximately 166 fewer acres of surface disturbance under the No Action Alternative. No stipulations for air quality were included in the BLM Decision letter for the Notice; however, GSI would control dust by minimizing surface disturbance and observing prudent speed limits.

3.3.2 Cultural Resources

Under the No Action Alternative, potential impacts would continue to occur to cultural resources from trenching and other surface disturbance activities. However, as specified in the Decision letters issued by the BLM for the two Notices, any previously mapped eligible or unevaluated

sites would be avoided. Although the No Action Alternative would result in 166 fewer acres of surface disturbance than the Proposed Action, impacts would be similar to impacts associated with the Proposed Action, as similar stipulations are outlined in Section 2.1.19 of this EA for the avoidance of cultural resources.

3.3.3 Geology and Mineral Resources

Under the No Action Alternative, up to 1,000 tons of material could be removed from the Project Area, while up to 2.7 million tons of DE material would be removed under the Proposed Action. Therefore, impacts to geology and mineral resources under the No Action Alternative would be less than impacts associated with the Proposed Action.

3.3.4 Land Use and Realty

Under the No Action Alternative, which consists of Notice-level surface exploration activities, GSI does not propose any changes or alterations to existing roads outside the Project Area. Therefore, there would be no anticipated impacts to land use, access, or realty resulting from the No Action Alternative.

3.3.5 Migratory Birds

Under the No Action Alternative, trenching and other surface disturbance activities would continue to occur and would continue to impact the breeding and nesting activities of migratory birds. However, the No Action Alternative would result in 166 fewer acres of surface disturbance than the Proposed Action, therefore resulting in less potential to impact the breeding and nesting activities of migratory birds. In addition, GSI would comply with the protection measures identified for migratory birds for the No Action Alternative as specified in the Decision letters issued by the BLM for the two Notices.

3.3.6 Native American Religious Concerns

Under the No Action Alternative, GSI would continue Notice-level trenching and other surface disturbance activities. The BLM TFO would continue consultation with the local tribes with regards to 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 Religious Concerns under the No Action Alternative.

3.3.7 Noxious Weeds, Invasive and Nonnative Species

Under the No Action Alternative, trenching and other surface disturbance activities currently authorized in the Project Area under the two Notices would continue to occur and may result in impacts from noxious weeds, invasive and nonnative species. Under the Notice-level exploration activities, GSI would work with the BLM specialists to monitor and treat any noxious weed problems should they arise. Any potential impacts from noxious weeds, invasive and nonnative species would be less under the No Action Alternative in comparison with the impacts associated with the Proposed Action, as there would be fewer vehicles traveling to the Project Area to introduce those species.

3.3.8 Paleontological Resources

Based on the discussion of the geologic formations present in the Project Area, under the No Action Alternative, there would be no significant impacts to paleontological resources. In addition, GSI would comply with the protection measures identified for paleontological resources as specified in the Decision letters issued by the BLM for the two Notices. Impacts associated with the No Action Alternative would be similar to impacts associated with the Proposed Action.

3.3.9 Rangeland Management

Under the No Action Alternative, trenching and other surface disturbance activities currently authorized in the Project Area under the two Notices would continue to occur and existing impacts to rangeland management would occur, affecting 4.6 acres within the Monte Cristo Grazing Allotment. Impacts to rangeland management would be less under the No Action Alternative in comparison with impacts associated with the Proposed Action, as there would be 166 fewer acres disturbed within the Monte Cristo Grazing Allotment.

3.3.10 Recreation

Although there would be 166 fewer acres of surface disturbance associated with the No Action Alternative than the Proposed Action, under the No Action Alternative, impacts to recreation would be similar to impacts related to the Proposed Action. Under the No Action Alternative, GSI would halt any exploration activities along the Project access road when the Best in the Desert off-road Vegas to Reno race utilizes the access road in the race route.

3.3.11 Social and Economic Values

Under the No Action Alternative, trenching and other surface disturbance activities currently permitted in the Project Area would continue to occur. The No Action Alternative would eliminate the social and economic values impacts of 30 to 50 potential mine employees for the 28-year Project life on the surrounding communities as a result of the Proposed Action. Therefore, social and economic values impacts associated with the No Action Alternative would be less than impacts associated with the Proposed Action.

3.3.12 Soils

Under the No Action Alternative, trenching and other surface disturbance activities would impact up to ten acres versus 175.8 acres under the Proposed Action. The potential for wind and water erosion of disturbed soils would be incrementally less than those associated with the Proposed Action, as the Proposed Action would disturb approximately 166 additional acres and would have a greater potential for wind and water erosion of disturbed soils.

3.3.13 Special Status Species

Under the No Action Alternative, trenching and other surface disturbance activities currently authorized in the Project Area under the two Notices would continue to occur, and surface disturbance activities would impact up to ten acres of habitat versus 175.8 acres under the

Proposed Action. Impacts to special status species under the No Action Alternative would be similar in nature to those impacts associated with the Proposed Action. However, due to removal of 166 fewer acres of habitat under the No Action Alternative, impacts would be proportionately less than impacts associated with the Proposed Action.

3.3.14 Vegetation

Under the No Action Alternative, trenching and other surface disturbance activities currently authorized in the Project Area under the two Notices would continue to occur, and surface disturbance activities would impact up to ten acres as opposed to 175.8 acres of surface disturbance associated with the Proposed Action. Due to the removal of 166 fewer acres of vegetation under the No Action Alternative, impacts would be proportionately less under the No Action Alternative than those associated with the Proposed Action.

3.3.15 Visual Resources

Under the No Action Alternative, trenching and other surface disturbance currently authorized in the Project Area under the two Notices would continue to occur. Impacts to color and line would be similar to those associated with the Proposed Action, but would have a proportionately smaller impact to visual resources than under the Proposed Action, as there would be no structures built under the No Action Alternative. The No Action Alternative would meet Class IV objectives.

3.3.16 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. Since the activities associated with the No Action Alternative consist of minimal trenching and other surface disturbance activities using non-hazardous materials and fewer vehicles in the Project Area, the impacts from hazardous or solid wastes would be similar to but less than impacts associated with the Proposed Action.

3.3.17 Water Resources

Surface Water

Potential impacts to surface water as a result of the No Action Alternative could result due to the fact that this alternative does not implement the environmental protection measures identified in the Proposed Action. However, up to ten acres of disturbance under this alternative would be reclaimed and revegetated as soon as practicable following exploration activities resulting in minor impacts to surface water. In addition, there are no major surface water bodies or perennial drainages in the Project Area that could be affected by surface disturbance activities.

Ground Water Quantity

Under the No Action Alternative, trenching and other surface disturbance currently authorized in the Project Area under the two Notices would continue to occur. Under the No Action Alternative, the depth of the trenches would not likely encounter ground water, as ground water has only been encountered in the Project Area at approximately 770 feet below the ground

surface. If any drill holes encountered ground water, the holes would be plugged pursuant to NAC 534.420 through NAC 534.425. Therefore, there would be no impacts to ground water quantity under the No Action Alternative.

Ground Water Quality

Under the No Action Alternative, exploration drilling activities would continue. Under the No Action Alternative, the 100-foot deep drill holes would not likely encounter ground water, as ground water has only been encountered in the Project Area at approximately 770 feet below the ground surface. If any drill holes were to encounter ground water, the holes would be plugged pursuant to NAC 534.420 through NAC 534.425. Therefore, there would be no impacts to ground water quality under the No Action Alternative.

3.3.18 Wild Horses

Impacts to wild horses under the No Action Alternative would result in the removal of up to ten acres of potential foraging habitat. Impacts would be less under the No Action Alternative than those associated with the Proposed Action, as the Proposed Action would be removing 166 acres more of potential foraging habitat.

3.3.19 Wildlife

Under the No Action Alternative, trenching and other surface disturbance currently authorized in the Project Area under the two Notices would continue to occur and would impact up to ten acres of wildlife habitat versus 175.8 acres under the Proposed Action. Impacts to wildlife under the No Action Alternative would be similar in nature to those impacts associated with the Proposed Action. However, due to the removal of 166 fewer acres of habitat under the No Action Alternative, impacts would be proportionately less than those associated with the Proposed Action.

4 CUMULATIVE EFFECTS

For the purposes of this EA, the cumulative impacts are the sum of all past, present (including proposed actions), 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 individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

As required under the NEPA and the regulations implementing NEPA, this chapter addresses those cumulative effects on the environmental resources in the Cumulative Effects Study Areas (CESAs), which could result from the implementation of the Proposed Action and No Action Alternative, past actions, present actions, and RFFAs. The extent of the CESA would vary with each resource, based on the geographic or biologic 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 would 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 the CESAs for each resource to be evaluated in this chapter.

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

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

4.1 Introduction

Environmental consequences of the Proposed Action were evaluated previously in Chapter 3 for the various environmental resources. Discussed in the following sections are the resources that have 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: Cultural Resources; Fire Management; Geology and Mineral Resources; Land use and Realty; Native American Religious Concerns; Paleontological Resources; Rangeland Management; Recreation; Social and Economic Values; Visual Resources; Wastes, Solid or Hazardous; and Wild Horses. These resources are not discussed further in the cumulative impacts section.

The geographical areas considered for the 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. For this cumulative impact

analysis, three CESAs are evaluated. Table 4.1-1 outlines the CESA area identified for each resource.

Table 4.1-1: Cumulative Effects Study Areas

Resource	CESA	Description of CESA	Size of CESA (acres)
<ol style="list-style-type: none"> 1. Air Quality 2. Migratory Birds 3. Noxious Weeds, Invasive and Nonnative Species 4. Soils 5. Vegetation 6. Water Resources 	Hydrographic Basin CESA	Columbus Salt Marsh Valley Hydrographic Basin	243,661
<ol style="list-style-type: none"> 1. Special Status Species (Golden Eagle) 	Golden Eagle CESA	Five-mile radius around the Project Area	85,944
<ol style="list-style-type: none"> 1. General Wildlife 2. Special Status Species (Desert Bighorn Sheep) 	Wildlife CESA	A portion of Hunt Unit 211 within the west central Monte Cristo Range	262,281

Note: No special status plant species would be impacted by the Project, so the cumulative analysis only brings forward special status wildlife species (golden eagle and desert bighorn sheep only).

The CESA for air quality was determined to be one air basin (Columbus Salt Marsh Valley Hydrographic Basin) (Figure 4.1.1) within which the Project is located based on the anticipated extent of air impacts; the regulatory framework for air resources in the State of Nevada is based on hydrographic basins.

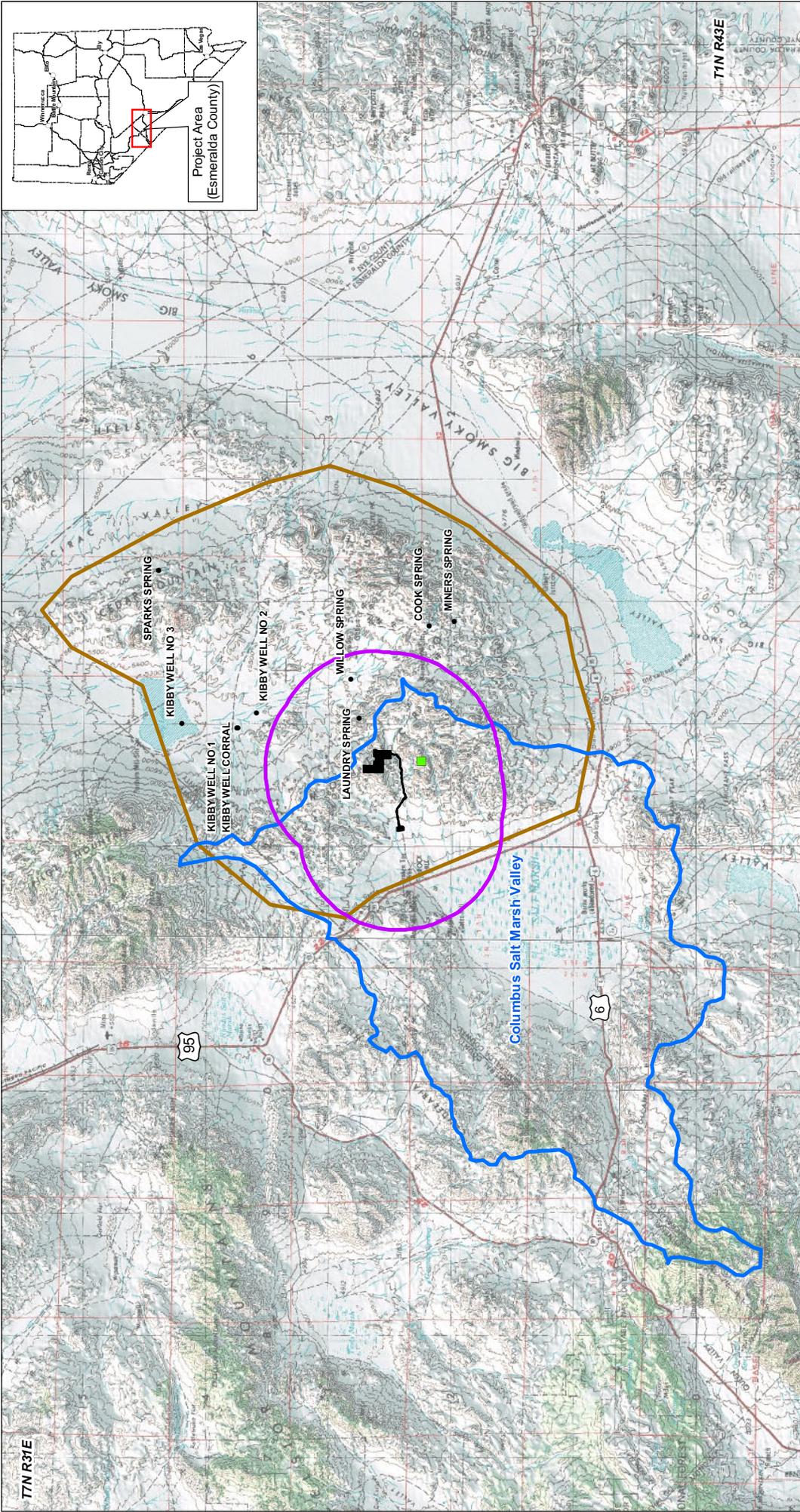
The CESA for migratory birds was determined to be the Columbus Salt Marsh Valley Hydrographic Basin (Figure 4.1.1), as impacts to birds would occur throughout the basin as a result of similar habitat.

The CESA for noxious weeds, invasive and nonnative species, soils, and vegetation is the Columbus Salt Marsh Valley Hydrographic Basin (Figure 4.1.1). These resources would have similar impact characteristics with the hydrographic basin for the Project Area.

The CESA for water resources and water quality is determined to be the Columbus Salt Marsh Valley Hydrographic Basin (Figure 4.1.1). This determination is based on the location of the Project relative to the location and patterns of subsurface waters and aquifers, and the location and patterns of surface waters and drainages relative to the Project Area.

The CESA for special status species, specifically for the golden eagle, was determined to be a five-mile radius around the Project Area (Figure 4.1.1), as that is the golden eagle survey radius standard set by the USFWS for mining projects.

The CESA for special status species, specifically for desert bighorn sheep, and general wildlife, was determined to be a portion of NDOW Hunt Unit 211 that is within the west central Monte Cristo Range, since any potential effects to desert bighorn sheep and wildlife would be within that portion of the hunt unit (Figure 4.1.1).



Explanation

- Project Area
- Hydrobasin CESA: Air Quality, Migratory Birds, Noxious Weeds, Invasive and
- Normative Species, Soils, Vegetation, and Water Resources
- Golden Eagle CESA: Special Status Species: Golden Eagle
- Wildlife CESA: General Wildlife, Special Status Species: Big Horn Sheep
- Guzzler
- BLM Range Improvements

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BUREAU OF LAND MANAGEMENT
MONTE CRISTO
DIATOMACEOUS EARTH PROJECT

Cumulative Effects Study Areas

Figure 4.1.1

11/15/2012

4.2 Past and Present Actions

Past and present actions in the three CESAs include the following: livestock grazing, wildlife and game habitat management; dispersed recreation; utility and other ROWs; mineral exploration (including approved exploration within the Project Area); and mining.

Livestock Grazing and Rangeland Improvements

All three CESAs include the Monte Cristo Grazing Allotment. The grazing allotments sustain a total of 9,351 AUMs available from November 1 through March 15. An AUM represents the amount of forage required to support one cow and her calf for one month. The Monte Cristo Grazing Allotment is approximately 520,377 acres and sustains approximately 55 acres per AUM. This results in approximately three AUMs for the Project Area.

Grazing and rangeland improvements within the CESAs include the following: one corral; five springs; and three wells. Figure 4.1.1 shows the locations and names of these improvements.

Wildland Fires

There have been no recorded wildland fires in the CESAs between 1910 and 2010.

Wildlife and Game Habitat Management

Research and management of big game and wildlife are undertaken by the NDOW and the BLM which may include modifications to existing habitat and rangeland facilities. The Project Area is located in NDOW Hunt Unit 211, encompassing the entire Wildlife CESA, as shown on Figure 4.1.1. Deer harvest data was supplied by NDOW for 2000-2011 for the hunt units. Population estimates for mule deer for 211 is combined with 212 (Management Unit 212) to encompass a total of 2,291,713 acres in Esmeralda County and is estimated at approximately 300 adult animals. Very dry conditions experienced since the late 1990s have resulted in low population numbers for these two units. Data for pronghorn antelope in Unit 211 is unavailable. Current population numbers for the North portion of Hunt Unit 211 (211N), considered as the Monte Cristo herd, projected 311 desert bighorn sheep in late August 2010, a trending increase over the last ten years. A total of three mountain lions were harvested in Hunt Units 211 and 212 in Esmeralda County from 2001-2011. Mountain lion populations are considered healthy by NDOW over the Southern Region of Nevada, including Hunt Unit 211. These two hunt units span the majority of the Monte Cristo and Columbus Salt Marsh Valley CESAs (NDOW 2011a and 2011b).

Rights-of-Way

The LR2000 database was used to query the various types of ROWs that have been approved in the three CESAs by Township, Range, and Section, and include the following: water and irrigation facilities; telephone; roads and highways; communication sites; power transmission; and other ROWs. The approximate acreage of each ROW within each CESA associated with these ROWs is listed in Table 4.2-1. The 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 September 1, 2011, October 7, 2011 and October 10, 2011. Any recently approved ROWs that have been added to the LR2000 database after October 10, 2011, are not included in this analysis (BLM 2011).

Mineral Exploration and Mining

The LR2000 database was used to query the past and present mineral exploration or mining activities (authorized Notices, expired Notices, closed Notices, approved and closed plans of operation, and sand and gravel extraction operations) that have been issued in the three CESAs by Township, Range, and Section. Past and present mineral activities in the three CESAs include historic exploration and mining operations. Table 4.2-2 is a summary of the past and present mineral activities within each CESA and is based on the LR2000 database used by the BLM. The acreage of surface disturbance associated with these mining activities cannot be quantified; however, it is assumed that these types of mining activities would create a level of surface disturbance that would contribute to cumulative impacts to various resources. The LR2000 database was queried on September 1, 2011, October 7, 2011, and October 10, 2011; therefore, any recently approved Notices or plans that have been added to the LR2000 database after October 10, 2011 are not included in this analysis (BLM 2011).

Table 4.2-1: Past and Present Rights-of-Way Acres in the CESAs

Right-of-Way Type	CESA		
	Hydrographic Basin CESA (acres)	Golden Eagle CESA (acres)	Wildlife CESA (acres)
Water/Irrigation Facility	21	0	0
Telephone	2,686	2,672	1,655
Roads/Highway	4,685	1,693	3,168
Communication Sites	27	10	101
Power Transmission	1,822	192	1,218
Other	0	0	0
TOTAL	9,241	4,567	6,142

Table 4.2-2: Past and Present Mineral Activities Acres in the CESAs

CESA	Authorization Status	Total Acres
Hydrographic Basin CESA	Closed Notices (44)	90
	Expired Notices (11)	34
	Authorized Notices (7)	14
	Authorized and Closed Plans (5)	1,163
	Sand and Gravel Extraction Operations	896
	Hydrographic Basin CESA Total	2,197
Golden Eagle CESA	Closed Notices (21)	50
	Expired Notices (6)	9
	Authorized Notices (4)	10
	Authorized and Closed Plans (1)	50
	Sand and Gravel Extraction Operations	291
	Golden Eagle CESA Total	410

CESA	Authorization Status	Total Acres
Wildlife CESA	Closed Notices (39)	92
	Expired Notices (11)	19
	Authorized Notices (7)	16
	Authorized and Closed Plans (1)	50
	Sand and Gravel Extraction Operations	772
	Wildlife CESA Total	949

4.3 Reasonably Foreseeable Future Actions

RFFAs in addition to the Proposed Action in the Hydrographic Basin CESA include the following: livestock grazing; wildland fire; wildlife and game habitat management; ROW development; mineral exploration and mining; oil and gas development; and dispersed recreation.

RFFAs in addition to the Proposed Action in the Golden eagle CESA include the following: livestock grazing; wildland fire; wildlife and game habitat management; ROW development; mineral exploration and mining; oil and gas development; and dispersed recreation.

RFFAs in addition to the Proposed Action in the Wildlife CESA include the following: livestock grazing; wildland fire; wildlife and game habitat management; mineral exploration and mining; ROW development; oil and gas development; and dispersed recreation.

4.4 Impact Analysis

4.4.1 Air and Atmospheric Values

The CESA for air and atmospheric values is the Columbus Salt Marsh Valley Hydrographic Basin, which encompasses approximately 243,661 acres and is shown on Figure 4.1.1.

Past and Present Actions: Past and present actions that have had the potential to impact air quality would have included livestock grazing, mineral exploration and mining, ROW construction and maintenance, and dispersed recreation that disturbed or impacted soils creating fugitive dust or that had the potential to generate emissions. There are no specific data that quantify impacts from grazing, roads, ROWs, or recreation.

Approved, closed or expired mineral exploration and mining Notices or Plans, and sand and gravel extraction operations total 2,197 acres (0.9 percent of the CESA) of surface disturbance. 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, have become naturally stabilized, and have naturally revegetated over time. Approximately 9,241 acres of ROWs were issued within the Hydrographic Basin CESA that had the potential to create fugitive dust or emissions. The CESA is primarily located within NDOW Hunt Unit 211. The activities associated with these actions had the potential to create surface disturbance and contribute to soil erosion and degradation of access roads leading to fugitive dust.

RFFAs: Livestock grazing, wildland fire, wildlife and game habitat management, ROW construction and maintenance, mineral exploration and mining, oil and gas development, and dispersed recreation are likely to continue within the Hydrographic Basin CESA that have the

potential to impact air quality. Approximately six acres of pending minerals projects were reported in the LR2000 database within the Hydrographic Basin CESA, and 113 acres of pending ROW projects.

4.4.1.1 Proposed Action

A total of the quantifiable past and present actions and RFFA disturbance within the Hydrographic Basin CESA is approximately 11,557 acres, which is an impact to approximately 4.7 percent of the Hydrographic Basin CESA (243,661 acres). The Proposed Action (175.8 acres) would impact approximately 0.07 percent of the CESA. The incremental contribution of the Proposed Action's particulate and combustion emissions and fugitive dust would be relatively small and the cumulative emissions are generally dispersed. Stationary sources would be regulated by the NDEP BAPC under individual permits to ensure that impacts would be reduced to levels that are consistent with the ambient air quality standards. Environmental protection measures are included in the Project that would minimize the potential effects of fugitive dust on air quality. Reclamation of Project-related proposed surface disturbance would gradually eliminate fugitive dust from wind erosion. There are no issues of concern related to the cumulative impacts on air quality.

4.4.1.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Hydrographic Basin CESA is 11,557 acres, which is an impact to approximately 4.7 percent of the Hydrographic Basin CESA. This alternative (up to ten acres) would impact approximately 0.004 percent of the CESA. Due to the comparatively small impact within the CESA, the impacts to air and atmospheric resources from this alternative in combination with past and present actions and RFFAs would be less than, but similar to the impacts associated with the incremental impacts associated with the Proposed Action.

4.4.2 **Noxious Weeds, Invasive and Nonnative Species**

The CESA for Noxious Weeds, Invasive and Nonnative Species is the Columbus Salt Marsh Valley Hydrographic Basin, which encompasses approximately 243,661 acres and is shown on Figure 4.1.1.

Past and Present Actions: Past and present actions with impacts created from noxious weeds, invasive and nonnative species include mineral exploration, wildland fires, grazing operations, road construction and maintenance, or dispersed recreation that could have disturbed vegetation and soils creating an opportunity for invasive plant colonization and the introduction of noxious weed seeds. Surveys did not locate noxious weeds in the Project Area; however, invasive nonnative species (i.e., cheatgrass, Russian thistle, and western tumble mustard) are present in the Hydrographic Basin CESA.

Approved, closed or expired mineral exploration and mining Notices or plans of operations, and sand and gravel extraction operations total 2,197 acres (approximately 0.9 percent of the CESA) of surface disturbance. 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. Approximately 9,241 acres of ROWs were issued within the Hydrographic Basin CESA. These ROWs had the

potential to create surface disturbance and introduce noxious weeds and invasive species. The CESA is located primarily within NDOW Hunt Unit 211. Activities associated with hunting had the potential to create surface disturbance and associated off-road vehicular traffic, which could have introduced noxious weeds and invasive species. Approximately 115,612 acres (approximately 47 percent) of the Hydrographic Basin CESA is located within the Monte Cristo Grazing Allotment and livestock grazing and related management activities contribute to the spread of noxious weeds and invasive species. The BLM identified the occurrence of the salt cedar (*Tamarix spp.*) and halogeton (*Halogeton glomeratus*) within the Monte Cristo Grazing Allotment. The salt cedar is considered a Category “B” weed by the NDOA. Category “B” weeds are required by the NDOA to be controlled in areas where populations are previously known to occur (NDOA 2010).

RFFAs: Potential impacts from noxious weeds, invasive and nonnative species as a result of grazing, dispersed recreation, roads, ROWs, minerals activities, or loss of native vegetation associated with potential wildland fires could occur. There are no specific data on the potential impacts resulting from noxious weeds or invasive and nonnative species from dispersed recreation, grazing, or potential wildland fires. Approximately six acres of pending minerals projects were reported in the LR2000 database within the Hydrographic Basin CESA, and approximately 113 acres of pending ROW projects.

4.4.2.1 Proposed Action

Past and present actions and RFFAs in the Hydrographic Basin CESA, in combination with the Proposed Action, would result in potential impacts from noxious weeds or invasive and nonnative species that would be limited to infestations following removal or disturbance of vegetation. The Proposed Action (175.8 acres) would impact approximately 0.07 percent of the Hydrographic Basin CESA. The past and present actions and RFFAs would impact an undetermined percentage of the Hydrographic Basin CESA that is not readily quantifiable. The potential incremental impacts from the Proposed Action would be minimized due to the implementation of environmental protection measures outlined in Section 2.1.19. As a result, a minor incremental impact from noxious weeds or invasive and nonnative species in the Hydrographic Basin CESA is expected.

4.4.2.2 No Action Alternative

Cumulatively, the past and present actions, and RFFAs would result in potential impacts from noxious weeds, invasive and nonnative species limiting infestations to exposed soil following removal of vegetation. These impacts would be localized. Therefore, impacts from noxious weeds or invasive and nonnative species as a result of this alternative would be proportionately less than the Proposed Action in combination with past and present actions and RFFAs.

4.4.3 **Migratory Birds**

The CESA for migratory birds is the Columbus Salt Marsh Valley Hydrographic Basin, which encompasses approximately 243,661 acres and is shown on Figure 4.1.1.

Past and Present Actions: Past and present actions that could have impacted migratory birds are livestock grazing and range improvements, wildland fires, wildlife and game habitat

management, dispersed recreation, utilities and other ROWs, mineral exploration, and mining. Impacts to migratory birds have resulted from the following: 1) destruction of habitat associated with road building and cutting trees; 2) disruption from human presence or noise from drill rigs, water trucks and four wheel drive pickups; or 3) direct impacts or harm to migratory birds that would result if trees containing viable nests were cut down or ground nests destroyed by construction or ranching equipment. There are no specific data that quantify impacts to migratory birds as a result of grazing or recreation. However, impacts to migratory birds from recreation activities would include destruction of native vegetation or nesting areas from off-road vehicles that traveled off of established roadways. Impacts to migratory birds from grazing include trampling of vegetation or nesting areas. Impacts from wildland fires would include total destruction of the existing habitat and alteration of the habitat thereafter.

Approved, closed or expired mineral exploration and mining Notices or plans of operations, and sand and gravel extraction operations total 2,197 acres (0.9 percent of the CESA) of surface disturbance. 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. Approximately 9,241 acres of ROWs were issued within the Hydrographic Basin CESA that had the potential to create surface disturbance and disturb migratory bird habitat and vegetation. Approximately 115,612 acres (47 percent) of the Hydrographic Basin CESA is located within the Monte Cristo Grazing Allotment and livestock grazing and associated management could have contributed to the spread of invasive species which could have had an indirect effect on migratory birds.

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 only a small portion of the CESA, less than one percent.

RFFAs: Potential impacts to migratory birds from grazing, dispersed recreation, roads, ROWs, minerals activities, or loss of native vegetation associated with potential wildland fires could occur. There are no specific data on the potential impacts to migratory birds or their habitat as a result of dispersed recreation, grazing, or potential wildland fires. Approximately six acres of pending minerals projects were reported in the LR2000 database within the Hydrographic Basin CESA, and 113 acres of pending ROW projects.

4.4.3.1 Proposed Action

Impacts to migratory birds and their habitat from the Proposed Action would be limited to the removal of vegetation, or temporary alteration of habitat (up to 175.8 acres), and noise associated with Project related activities. These impacts would be localized and minimized due to implementation of the environmental protection measures outlined in Section 2.1.19 and measures required by the BLM (e.g., migratory bird survey during nesting season to comply with the MBTA). The Proposed Action would affect approximately 0.07 percent of the Hydrographic Basin CESA.

Quantifiable past and present actions and RFFA disturbance for the Hydrographic Basin CESA is approximately 11,557 acres, which is an impact to approximately 4.7 percent of the total Hydrographic Basin CESA (approximately 243,661 acres). Based on the above analysis and

findings, incremental impacts to migratory birds as a result of the Proposed Action when added to the past and present actions and RFFAs are expected to be minor.

4.4.3.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Hydrographic Basin CESA is approximately 11,557 acres, which is an impact to approximately 4.7 percent of the Hydrographic Basin CESA. This alternative (up to ten acres) would impact approximately 0.004 percent of the CESA. Due to the small impact within the Hydrographic Basin CESA, the impacts to migratory birds or their habitat from this alternative in combination with past and present actions and RFFAs would be proportionately less than the Proposed Action in combination with past and present actions and RFFAs.

4.4.4 **Soils**

The CESA for soils is the Columbus Salt Marsh Valley Hydrographic Basin, which encompasses approximately 243,661 acres and is shown on Figure 4.1.1.

Past and Present Actions: Past and present actions that could have impacted soils include livestock grazing, mineral exploration and mining, ROW construction and maintenance, and dispersed recreation that disturbed or impacted soils, or that increased erosion or sedimentation. Soil disturbance may also have been associated with wildland fires; however, fire rehabilitation and natural revegetation have likely 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 that quantify impacts from grazing, roads, ROWs, or recreation.

Approved, closed or expired mineral exploration and mining Notices or plans of operations, and sand and gravel extraction operations total 2,197 acres (0.9 percent of the CESA) of surface disturbance. 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. Approximately 9,241 acres of ROWs were issued within the Hydrographic Basin CESA that had the potential to create surface disturbance. The CESA is located primarily within NDOW Hunt Unit 211. The activities associated with these actions had the potential to create surface disturbance and contribute to soil erosion and degradation of access roads. The majority of the Hydrographic Basin CESA is located within the Monte Cristo Grazing Allotment and livestock grazing and associated management contributes to the erosion of soils particularly in drainages or riparian areas.

RFFAs: Potential impacts to soils could result from grazing, dispersed recreation, roads, wildfires, ROWs, and minerals activities. There are no specific data on the potential impacts to soils from dispersed recreation, grazing, vegetation improvement activities, or potential wildfires. Impacts associated with RFFAs would be similar to the impacts described for past and present actions. Approximately six acres of pending minerals projects were reported in the LR2000 database within the Hydrographic Basin CESA, and 113 acres of pending ROW projects.

4.4.4.1 Proposed Action

A total of the quantifiable past and present actions and RFFA disturbance within the Hydrographic Basin CESA is approximately 11,557 acres, which is an impact to approximately 4.7 percent of the Hydrographic Basin CESA (243,661 acres). The Proposed Action (175.8 acres) would impact approximately 0.07 percent of the CESA. Surface disturbance would increase the potential for erosion of soils. Impacts would be reduced with the implementation of environmental protection measures outlined in Section 2.1.19 and BMPs. Due to the comparatively small impact within the CESA, the incremental impacts to soils from the Proposed Action in combination with past and present actions and RFFAs are not anticipated.

4.4.4.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Hydrographic Basin CESA is 11,557 acres, which is an impact to approximately 4.7 percent of the Hydrographic Basin CESA. This alternative (up to ten acres) would impact approximately 0.004 percent of the CESA. Due to the comparatively small impact within the CESA, the impacts to soils from this alternative in combination with past and present actions and RFFAs would be proportionately less than the Proposed Action in combination with past and present actions and RFFAs.

4.4.5 **Vegetation**

The CESA for vegetation is the Columbus Salt Marsh Valley Hydrographic Basin, which encompasses approximately 243,661 acres and is shown on Figure 4.1.1.

Past and Present Actions: Past and present actions that could have impacted vegetation include livestock grazing, wildland fire, mineral exploration and mining, ROW construction and maintenance, and dispersed recreation.

Approved, closed or expired mineral exploration and mining Notices or plans of operations, and sand and gravel extraction operations total 2,197 acres (0.9 percent of the CESA) of surface disturbance. 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. Approximately 9,241 acres of ROWs were issued within the Hydrographic Basin CESA that had the potential to create surface disturbance. The CESA is located primarily within NDOW Hunt Unit 211. The activities associated with hunting had the potential to create surface disturbance and vehicles which could have introduced invasive species and trampled vegetation. The majority of the Hydrographic Basin CESA is located within the Monte Cristo Grazing Allotment and livestock grazing and associated management could have contributed to changes in vegetation structure and the spread of invasive species.

RFFAs: Potential impacts to vegetation could result from grazing, dispersed recreation, roads, wildfires, ROWs, and minerals activities. There are no specific data on the potential impacts to vegetation from dispersed recreation, grazing, or potential wildfires. Impacts associated with RFFAs would be similar to the impacts described for past and present actions. Approximately six acres of pending minerals projects were reported in the LR2000 database within the Hydrographic Basin CESA, and 113 acres of pending ROW projects.

4.4.5.1 Proposed Action

Past and present actions and RFFA disturbance within the Hydrographic Basin CESA is approximately 11,557 acres, which is an impact to approximately 4.7 percent of the Hydrographic Basin CESA (243,661 acres). The Proposed Action (175.8 acres) would impact approximately 0.07 percent of the CESA. Due to the small impact within the Hydrographic Basin CESA, incremental impacts to vegetation from the Proposed Action in combination with past and present actions and RFFAs are not anticipated.

4.4.5.2 No Action Alternative

A total of the past and present actions and RFFA disturbance within the Hydrographic Basin CESA is approximately 11,557 acres, which is an impact to approximately 4.7 percent of the Hydrographic Basin CESA. This alternative (up to ten acres) would impact approximately 0.004 percent of the CESA. Due to the small impact within the Hydrographic Basin CESA, the impacts to vegetation from this alternative in combination with past and present actions and RFFAs would be proportionately less than the Proposed Action in combination with past and present actions and RFFAs.

4.4.6 **Water Resources**

The CESA for water quality (surface water) is the Columbus Salt Marsh Valley Hydrographic Basin, which encompasses approximately 243,661 acres and is shown on Figure 4.1.1.

Past and Present Actions: Past and present actions that were likely to have had impacts to surface water include livestock grazing, mineral exploration and mining, ROW construction and maintenance, and dispersed recreation.

Approved, closed or expired mineral exploration and mining Notices or plans of operations, and sand and gravel extraction operations total 2,197 acres (0.9 percent of the CESA) of surface disturbance. 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 and have naturally revegetated over time decreasing the amount of sediment that reaches the waterways. Approximately 9,241 acres of ROWs were issued within the Hydrographic Basin CESA that had the potential to create surface disturbance. The CESA is located primarily within NDOW Hunt Unit 211. The activities associated with these actions had the potential to create soil erosion and sedimentation of surface water features. The majority of the Hydrographic Basin CESA is located within the Monte Cristo Grazing Allotment and livestock grazing and associated management could have contributed to the erosion of soils and degradation of stream zones.

RFFAs: Potential impacts to surface water quality could result from livestock grazing, fire management, wildland fires, ROW maintenance, and dispersed recreation. There are no specific data on the amount of sedimentation that could result from these activities. However, the mining activities would be required to have spill prevention plans, handle hazardous substances in accordance with NDOT and the Mine Safety and Health Administration, adhere to NAC 534.4369 and 534.4371, and utilize BMPs, thus minimizing impacts to water quality.

Approximately six acres of pending minerals projects were reported in the LR2000 database within the Hydrographic Basin CESA, and 113 acres of pending ROW projects.

4.4.6.1 Proposed Action

A total of the past and present actions and RFFA disturbance within the Hydrographic Basin CESA is approximately 11,557 acres, which is an impact to approximately 4.7 percent of the Hydrographic Basin CESA (243,661 acres). The Proposed Action (175.8 acres) would impact approximately 0.07 percent of the CESA. Surface disturbance would increase the potential for erosion and sedimentation in the surface water system. Impacts would be reduced with the implementation of environmental protection measures outlined in Section 2.1.19 and BMPs. Due to the comparatively small impact within the CESA, incremental impacts to surface water quality from the Proposed Action in combination with past and present actions and RFFAs are not anticipated.

4.4.6.2 No Action Alternative

A total of the past and present actions and RFFA disturbance within the Hydrographic Basin CESA is approximately 11,557 acres, which is an impact to approximately 4.7 percent of the Hydrographic Basin CESA. This alternative (up to ten acres) would impact approximately less than 0.004 percent of the CESA. Due to the comparatively small impact within the CESA, the impacts to surface water quality from this alternative in combination with past and present actions and RFFAs would be proportionately less than the Proposed Action in combination with past and present actions and RFFAs.

4.4.7 **Special Status Species: Golden eagle**

The CESA for special status species: golden eagles, is the Golden Eagle CESA, which encompasses approximately 85,944 acres and is shown on Figure 4.1.1.

Past and Present Actions: Past and present actions that are likely to have had impacts to special status species include livestock grazing, mineral exploration, mining, ROW construction and maintenance, oil and gas exploration, and dispersed recreation. These activities are likely to have had impacts to water resources and wildlife habitat, or have resulted in direct impacts to individuals in travel routes. Impacts to special status species from these activities include loss of forage, cover, and habitat as well as disturbance of mating and brood rearing practices. There are no specific data that quantify impacts to special status species as a result of grazing or recreation; however, the greatest impact would be from off road use that destroyed habitat.

Approved, closed or expired mineral exploration and mining Notices or plans of operations, and sand and gravel extraction activities total 410 acres (0.5 percent of the CESA) of surface disturbance. 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. Approximately 4,567 acres of ROWs were issued within the Golden Eagle CESA that had the potential to create surface disturbance and disturb habitat and vegetation. Approximately 85,944 acres of the CESA are comprised of NDOW Hunt Unit 211, which had the potential to create noise and disturbance to special status wildlife species, remove or alter habitat. The majority of the Golden Eagle CESA

is located within the Monte Cristo Grazing Allotment and livestock grazing and associated management contributes to the spread of invasive species and change of vegetation structure which can have an indirect effect on special status species.

However, disturbance to special status species 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 only a small portion of the CESA, less than one percent.

RFFAs: Potential impacts to special status species from grazing, dispersed recreation, roads, ROWs, minerals activities or loss of native vegetation associated with potential wildland fires could occur. There are no specific data on the potential impacts to sensitive species or their habitat as a result of dispersed recreation, grazing, or potential wildland fires. Approximately 1.18 acres of pending minerals projects were reported in the LR2000 database within the Golden Eagle CESA, and no pending ROW projects.

4.4.7.1 Proposed Action

Past and present actions and RFFA disturbance within the Golden Eagle CESA is approximately 4,978 acres, which is an impact to approximately six percent of the total Golden Eagle CESA (85,944 acres). The Proposed Action (175.8 acres) would impact approximately 0.2 percent of the CESA. Due to the small impact within the Golden Eagle CESA, incremental impacts to special status species or their habitat from the Proposed Action in combination with past and present actions and RFFAs are not anticipated. Impacts would also be reduced with the environmental protection measures outlined in Section 2.1.19.

4.4.7.2 No Action Alternative

A total of the past and present actions and RFFA disturbance within the Golden Eagle CESA is approximately 4,978 acres, which is an impact to approximately six percent of the Golden Eagle CESA. This alternative (up to ten acres) would impact approximately 0.01 percent of the CESA. Due to the small impact within the Golden Eagle CESA, the impacts to golden eagle species or their habitat from this alternative in combination with past and present actions and RFFAs would be proportionately less than the Proposed Action in combination with past and present actions and RFFAs.

4.4.8 **Wildlife**

The CESA for general wildlife and special status species: desert bighorn sheep is the Wildlife CESA, which encompasses approximately 262,281 acres and is shown on Figure 4.1.1.

Past and Present Actions: Past and present actions that are likely to have had impacts to wildlife include livestock grazing, mineral exploration, mining, ROW construction and maintenance, oil and gas exploration, and dispersed recreation. These activities are likely to have had impacts to water resources and wildlife habitat, or result in direct impacts to individuals in travel routes. Impacts to wildlife and game animals from these activities included loss of forage, cover, and habitat as well as disturbance of mating and brood rearing practices. There are no specific data that quantify impacts to wildlife as a result of grazing or recreation; however, the greatest impact would be from off road use that removed habitat.

Approved, closed, or expired mineral exploration and mining Notices or plans of operations, and sand and gravel extraction activities total 949 acres (0.4 percent of the CESA) of surface disturbance. 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. Approximately 6,142 acres of ROWs were issued within the Wildlife CESA that had the potential to create surface disturbance and disturb habitat and vegetation. The Wildlife CESA is comprised of a portion of NDOW Hunt Unit 211, which had the potential to create noise and disturbance to wildlife, remove or alter habitat. The majority of the Wildlife CESA is located within the Monte Cristo Grazing Allotment and livestock grazing and associated management could have contributed to the spread of invasive species and change of vegetation structure, which could have had an indirect effect on wildlife.

However, disturbance to wildlife and game species 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 only a small portion of the CESA, less than one percent.

RFFAs: Potential impacts to special status species from grazing, dispersed recreation, roads, ROWs, minerals activities or loss of native vegetation associated with potential wildland fires could occur. There are no specific data on the potential impacts to sensitive species or their habitat as a result of dispersed recreation, grazing, or potential wildland fires. Approximately 2.42 acres of pending minerals projects were reported in the LR2000 database within the Wildlife CESA, and no pending ROW projects. These pending minerals projects all are required to incorporate environmental protection measures and mitigation measures for wildlife.

4.4.8.1 Proposed Action

Past and present actions and RFFA disturbance within the Wildlife CESA is approximately 7,093 acres, which is an impact to approximately three percent of the Wildlife CESA (262,281 acres). The Proposed Action (175.8 acres) would impact approximately 0.07 percent of the CESA. Due to the small impact within the Wildlife CESA, incremental impacts to wildlife or their habitat from the Proposed Action in combination with past and present actions and RFFAs are not anticipated. Impacts would also be reduced with the environmental protection measures outlined in Section 2.1.19. Future projects in the Wildlife CESA would evaluate potential impacts to desert bighorn sheep and their habitat and may require additional mitigation.

4.4.8.2 No Action Alternative

A total of the past and present actions and RFFA disturbance within the Wildlife CESA is approximately 7,093 acres, which is an impact to approximately three percent of the Wildlife CESA. This alternative (up to ten acres) would impact approximately 0.004 percent of the CESA (262,281 acres). Due to the small impact within the Wildlife CESA, the impacts to wildlife or their habitat from this alternative in combination with past and present actions and RFFAs would be proportionately less than the Proposed Action in combination with past and present actions and RFFAs.

5 CONSULTATION AND PUBLIC INPUT

This EA was prepared at the direction of the BLM, TFO, Battle Mountain District, Nevada, by Enviroscientists, Inc., under a contract with GSI. The following is a list of individuals responsible for preparation of the EA.

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5.2 Persons, Groups and Agencies Contacted

Federal Agencies

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Native Americans

Yomba Shoshone Tribe
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