

**U.S. Department of the Interior
Bureau of Land Management**

Revised Draft Environmental Assessment

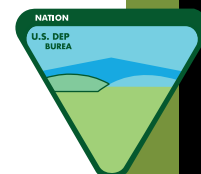
**Amended Mine Plan of Operations
Gold Bar Mine**

DOI-BLM-NV-B010-2021-0016-EA



**Bureau of Land Management
Battle Mountain District
Mount Lewis Field Office
50 Bastian Road
Battle Mountain, NV 89820**

February 2022



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Appendix C	Authorized Applicant-Committed Environmental Protection Measures

List of Acronyms and Abbreviations

µg/m³	Micrograms Per Cubic Meter
3 Bars	3 Bars Ecosystem and Landscape Restoration Project
AADT	Annual Average Daily Traffic
ABA	Acid-Base Accounting
ACEPM	Applicant-Committed Environmental Protection Measure
ACS	American Community Survey
ADR	Adsorption, Desorption, and Recovery
AFY	Acre-Feet Per Year
amended Plan	Amended Plan of Operations
AML	Appropriate Management Level
APE	Area of Potential Effect

ARMPA	Nevada and Northeastern California Greater Sage-grouse Approved Resource Management Plan Amendment
AUM	Animal Unit Month
BGEPA	Bald and Golden Eagle Protection Act of 1940
BLM	Bureau of Land Management
BMP	Best Management Practice
CCS	Conservation Credit System
CESA	Cumulative Effects Study Area
CFR	Code of Federal Regulations
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO₂e	Carbon Dioxide Equivalent
dBA	A-Weighted Decibels
EA	Environmental Assessment
ECP	Eagle Conservation Plan
EIS	Environmental Impact Statement
ET	Evapotranspiration
FLPMA	Federal Land Policy and Management Act of 1976
GBP	Gold Bar Proper
GBS	Gold Bar South
GHG	Greenhouse Gas
GHMA	General Habitat Management Area
gpm	Gallons Per Minute
GRSG	Greater Sage-Grouse
HA	Herd Area
HCT	Humidity Cell Test
HDPE	High Density Polyethylene
HLF	Heap Leach Facility
HMA	Herd Management Area
HQT	Habitat Quantification Tool
HUC	Hydrologic Unit Code
L₁₀	Sound Level Exceeded for 10 Percent of the Time
L₅₀	Sound Level Exceeded for 50 Percent of the Time
L₉₀	Sound Level Exceeded for 90 Percent of the Time
L_{dn}	Day-Night Average Sound Level
L_{eq}	Equivalent Continuous Sound Level
L_{max}	Highest Sound Pressure Level
L_{min}	Lowest Sound Pressure Level
LCT	Lahontan Cutthroat Trout
LNG	Liquified Natural Gas
mg/L	Milligrams Per Liter
MLFO	Mount Lewis Field Office
MMI	McEwen Mining Inc.
Mt	Million Tons
MWMP	Meteoric Water Mobility Procedure
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act of 1969
NHT	National Historic Trail
NO₂	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NRHP	National Register of Historic Places

NRS	Nevada Revised Statutes
OHV	Off-Highway Vehicle
PAG	Potentially Acid Generating
PHMA	Priority Habitat Management Area
Plan	Plan of Operations
PLS	Pregnant Leach Solution
PM_{2.5}	Particulate Matter 2.5 Microns in Diameter or Less
PM₁₀	Particulate Matter 10 Microns in Diameter or Less
PMU	Population Management Unit
RFFA	Reasonably Foreseeable Future Action
RMP	Resource Management Plan
ROW	Right-of-Way
RV	Recreational Vehicle
SER	Supplemental Environmental Report
SETT	Sagebrush Ecosystem Technical Team
SHPO	State Historic Preservation Office
SIR	Supplemental Information Report
SO₂	Sulfur Dioxide
SR	State Route
SWReGAP	Southwest Regional Gap Analysis Project
TDS	Total Dissolved Solids
USCB	United States Census Bureau
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VRI	Visual Resource Inventory
VRM	Visual Resource Management
WRDA	Waste Rock Disposal Area

1.0 Introduction

1.1 Introduction and General Information

In September 2020, McEwen Mining Inc. (MMI) submitted an Amended Mine Plan of Operations (amended Plan) for the Gold Bar Mine (N-91037) and Reclamation Permit (0384) (MMI 2020) to the Mount Lewis Field Office (MLFO) of the Battle Mountain District Bureau of Land Management (BLM). The amended Plan proposes to increase the authorized Gold Bar Mine boundary (herein referred to as the Gold Bar Proper [GBP] boundary) to include the proposed Gold Bar South (GBS) boundary. The amended Plan was determined to be complete by the BLM on October 29, 2020. The amended Plan was submitted to comply with BLM Surface Management Regulations (43 Code of Federal Regulations [CFR] subpart 3809), and State of Nevada regulations governing the reclamation of mined lands (Nevada Administrative Code [NAC] 519A.010-635). The BLM's regulations at 43 CFR 3809 require that the BLM fulfill its obligation under the National Environmental Policy Act of 1969 (NEPA) by analyzing and disclosing the potential environmental impacts of the proposed amendment.

The Gold Bar Mine is located approximately 30 miles northwest of Eureka, Nevada, in the southern Roberts Mountains in Eureka County, Nevada (**Figure 1-1**). The proposed expansion would increase the total acreage of the GBP boundary from 5,562 acres to 7,792 acres, of which approximately 7,593 acres would be on public land administered by the BLM MLFO and approximately 199 acres of private land controlled by MMI through its wholly owned subsidiaries, White Knight Gold (U.S.) Inc. and Golden Pick LLC. The proposed expansion would increase the total surface disturbance associated with the Gold Bar Mine to approximately 1,390 acres, of which, approximately 1,142 acres would occur on public land and approximately 182 acres would occur on private land. Approximately 65 acres of previously authorized exploration may occur anywhere within the GBP boundary. The full legal description of the authorized GBP and proposed GBS boundaries is provided in **Table 1-1**.

Table 1-1 Legal Description of the Authorized GBP and Proposed GBS Boundaries

Township and Range	Sections or Portions of Sections
Authorized GBP Boundary	
T19N R50E	6, 7, 8, 17
T20N R49E	3, 10, 11, 14, 23, 24, 25, 36
T20N R50E	31
T20N R51E	3, 10, 15, 22, 23, 26, 35
T21N R49E	4, 9, 16, 21, 22, 27, 34
T21N R51E	5, 8, 9, 16, 21, 27, 28, 34
T22N R49E	25, 26, 27, 28, 33
T22N R50E	1, 2, 3, 4, 8, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 24, 25, 28, 29, 30
T22N R51E	19, 29, 30, 31, 32
T23N R50E	33, 34, 35
Proposed GBS Boundary	
T22N R50E	13
T22N R51E	17, 18, 19, 20, 21, 28, 29, 30

Source: MMI 2020

The BLM MLFO is serving as the lead federal agency for preparing the Environmental Assessment (EA), and the amended Plan is available on file at the BLM Battle Mountain District Office.

1.2 Purpose and Need

The BLM's purpose is to respond to MMI's proposal as described in the amended Plan. The BLM's need for is established by the BLM's responsibilities under 43 CFR 3809 and Section 302 of the Federal Land Policy and Management Act of 1976 (FLPMA) to respond to an applicant's request for approval of a Plan of Operations, and to prevent unnecessary or undue degradation of public lands.

1.3 Decision to be Made

The BLM's decision based on the EA would include any of the following: 1) approve the amended Plan with no modifications; 2) approve the amended Plan with additional mitigation needed to prevent unnecessary or undue degradation of public lands and reduce or eliminate the effects of the Proposed Action or action alternatives; or 3) deny approval of the amended Plan and not authorize the Proposed Action if the BLM determines that it does not comply with the 43 CFR 3809 regulations and the FLPMA mandate to prevent unnecessary or undue degradation.

1.4 Land Use Conformance

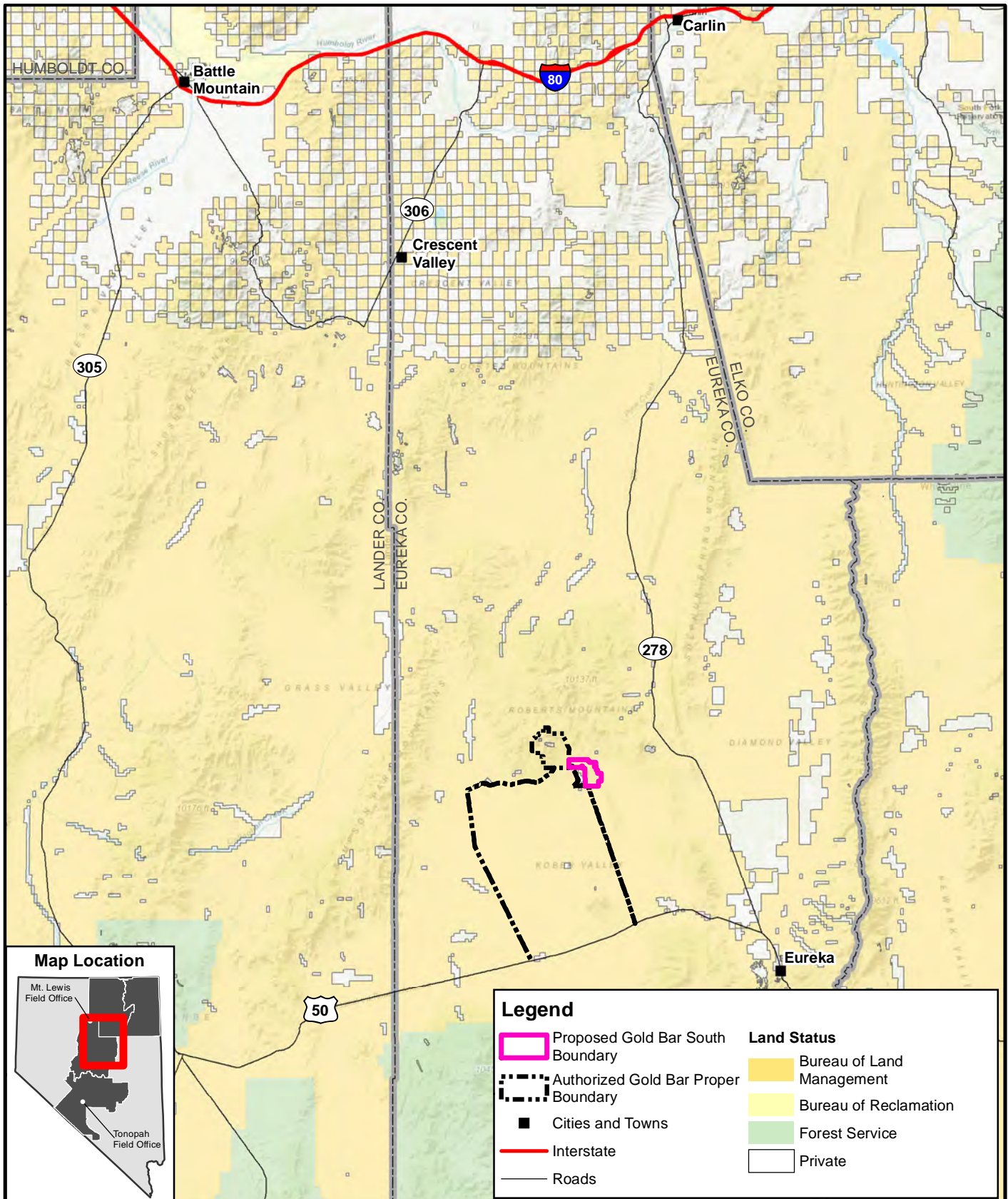
The Proposed Action conforms with the applicable BLM Resource Management Plans (RMPs), including the Shoshone-Eureka RMP (BLM 1986), as amended (BLM 1987), the 2015 Nevada and Northeastern California Greater Sage-grouse Approved Resource Management Plan Amendment (ARMPA) (BLM 2015a), and the 2019 Nevada and Northeastern California Greater Sage-Grouse Record of Decision and Approved Resource Management Plan Amendment (BLM 2019b). MMI would comply with applicable Eureka County codes and strive for consistency with the plans and policies in the Eureka County Master Plan. The Proposed Action, with implementation of identified Applicant-Committed Environmental Protection Measures (ACEPMs), and other associated avoidance and minimization measures, is in conformance with the Eureka County Master Plan, as appropriate. While land use conformance is summarized in this section, further details on land use conformance are provided in the Project Options Supplemental Information Report (SIR) (BLM 2021a).


1.5 Other Project Permits

In addition to this document, implementation of the Proposed Action would require authorizations from other federal, state, and local agencies with jurisdiction over certain aspects of the proposed GBS project. MMI is responsible for acquiring permits and authorizations necessary. Details of the required permits can be found in the Amended Mine Plan of Operations for the Gold Bar Mine (MMI 2020).

1.6 Public Involvement

A public comment period was held from August 2, 2021 to September 1, 2021. During this time, the document was available on the BLM ePlanning website at <https://eplanning.blm.gov/eplanning-ui/project/2015080/510> and comments could be submitted through the ePlanning website, by email, or by mail. The BLM received three comment letters during the comment period and one supplemental comment letter after the close of the comment period. These comments with responses are provided in **Appendix A**. Revisions as identified in the comment responses were completed to the supplemental environmental reports (SERs) and the Revised Draft EA as well as the addition of a more traditional cumulative effects analysis.



 <p>Battle Mountain BLM District Mount Lewis Field Office</p>	<p>MCEWEN MINING INC. AMENDED MINE PLAN GOLD BAR MINE EA</p> <p>0 12 24 Miles 1 in = 12 miles</p> <p>N</p>		<p>GOLD BAR MINE LOCATION</p>		
			<p>FIGURE 1-1</p>		<p>REVISION</p>
			<p>3/24/2021</p>		<p>A</p>

2.0 Alternatives Including the Proposed Action

2.1 Proposed Action

MMI is requesting to expand operations at the authorized GBP boundary to include the proposed GBS boundary and associated facilities (**Figure 2-1**) that will extend mining for an additional two years beyond the authorized mine life. In addition, as part of the Proposed Action, MMI has prepared and submitted an application to the United States Fish and Wildlife Service (USFWS) for an eagle take permit under the permit regulations of the Bald and Golden Eagle Protection Act of 1940 (BGEPA), Title 50 CFR subsection 22.26, for disturbance take at a single golden eagle (*Aquila chrysaetos*) territory.

The proposed GBS boundary consists of 2,230 acres of public land administered by the BLM MLFO (**Figure 2-1**). Disturbance associated with the Proposed Action includes construction and operation of facilities that would encompass approximately 213.3 acres of additional, new surface disturbance on public land (MMI 2020). Proposed surface disturbance is detailed further in comparison with the No Action Alternative under Section 2.4, and is shown on **Figure 2-1**. A more detailed breakdown of the disturbance is provided in the Project Options SIR (BLM 2021a).

Under the Proposed Action, the same surface mining procedures and techniques would be used as previously authorized and described in the No Action Alternative (Section 2.4). Operations within the proposed GBS boundary would produce approximately 2.8 million tons (Mt) of ore to be processed in the previously authorized processing facilities (MMI 2020). Only proposed additional facilities or proposed changes are described below, all other facilities would continue as currently authorized. The details of the Proposed Action are summarized throughout this section, and complete details can be found in the Project Options SIR (BLM 2021a).

2.1.1 Open Pits

Under the Proposed Action, surface mining would be expanded to include 51.1 acres associated with the proposed GBS Pit and pit buffer (**Figure 2-1**). The proposed GBS Pit would be accessed from the proposed GBS Haul Road (**Figure 2-1**). A geotechnical pit slope stability evaluation was completed for the GBS Pit and pit dimensions, and the complete stripping ratios are detailed in the Project Options SIR (BLM 2021a). The proposed GBS Pit is not anticipated to intercept groundwater (MMI 2020; BLM 2021a).

2.1.2 Waste Rock Disposal Areas

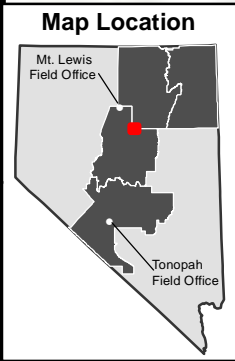
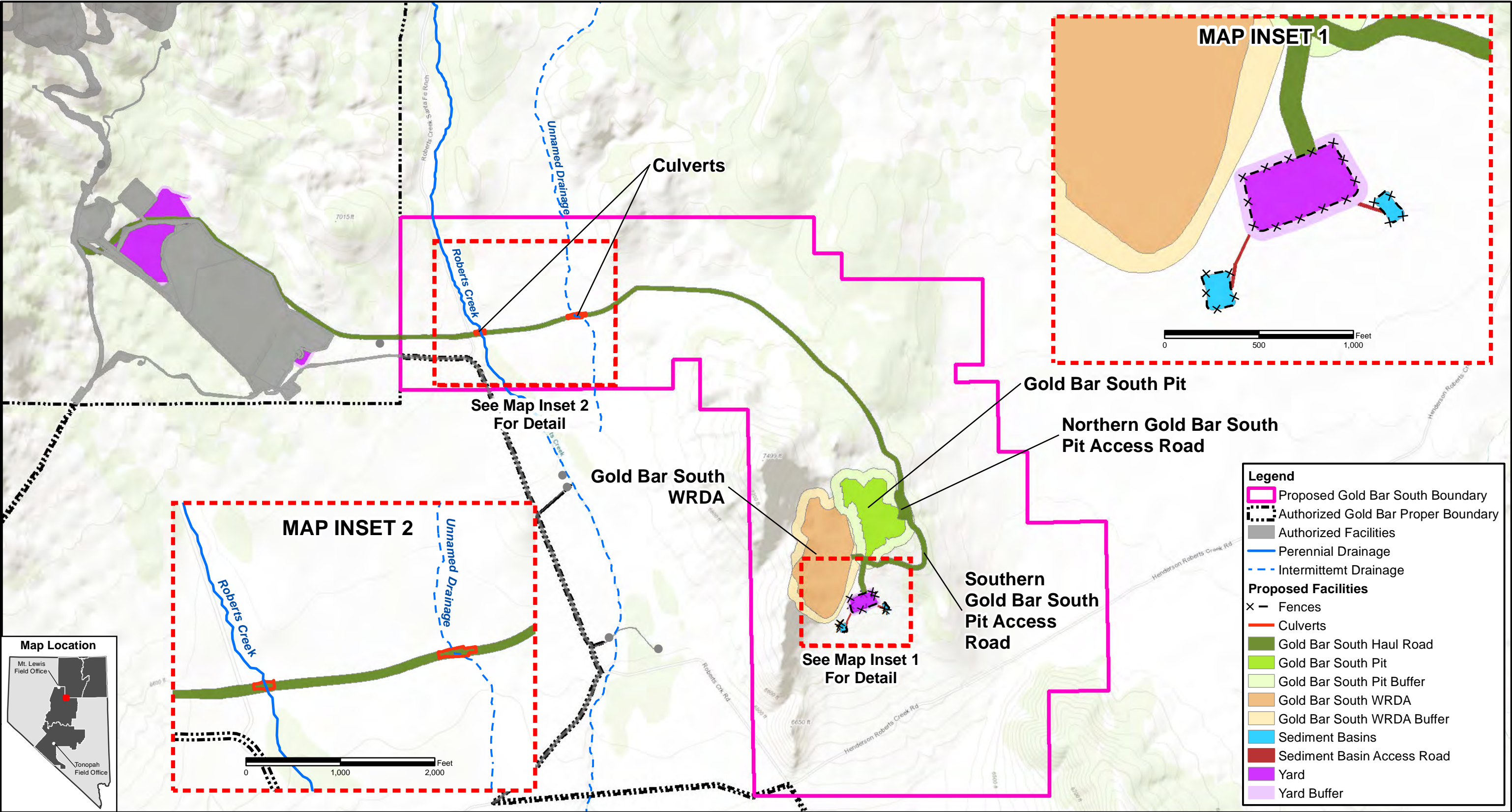
Mining of the proposed GBS Pit would generate approximately 11 Mt of additional waste rock, which would be placed on the adjacent proposed GBS Waste Rock Disposal Area (WRDA) (MMI 2020) (**Figure 2-1**). A summary of basic design parameters, dimensions, and geochemical testing for the ultimate proposed GBS WRDA, as well as stability analysis is included in the Project Options SIR and the amended Plan (BLM 2021a; MMI 2020).


2.1.3 Waste Rock and Ore Geochemistry

The GBS deposit is fully oxidized, and visible sulfides have not been positively identified in any of the rock types encountered during the proposed mining at GBS. Total sulfur concentration is dominated by largely insoluble sulfate minerals and acid-base accounting (ABA) and net acid generation test results indicate that all material encountered during mining are non-acid forming. Meteoric Water Mobility Procedure (MWMP) testing indicates the potential to leach metals is limited to arsenic and antimony with a few exceptions. A mine waste characterization program was conducted as part of the planning and impact assessment for the Proposed Action (MMI 2020).

2.1.4 Heap Leach Facility

The authorized heap leach facility (HLF) and leaching facilities would be utilized under the Proposed Action. The previously authorized HLF would process approximately 2.8 Mt of additional ore per year under the Proposed Action beyond the previously authorized 2.8 Mt of ore per year.





Battle Mountain
BLM District
Mount Lewis Field Office

MCEWEN MINING INC.
AMENDED MINE PLAN
GOLD BAR MINE EA

02000

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2,000

4,000

Feet

1 in = 2,000 feet

N

PROPOSED ACTION

FIGURE 2-1

DATE: 2/3/2022

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A

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

2.1.5 Ancillary Facilities

The authorized ancillary facilities, as described in Section 2.4.5, would be utilized under the Proposed Action. No changes would occur other than those described below.

Three yards would be constructed for a total of 36.6 acres of additional disturbance. Two yards would be constructed adjacent to the HLF within the GBP boundary and one yard would be constructed in the proposed GBS boundary adjacent to the proposed GBS WRDA (**Figure 2-1**).

Fencing would be constructed around the proposed sediment basins and the proposed yard adjacent to the GBS WRDA. Approximately 4.8 acres would be fenced. Fencing would be removed during reclamation.

2.1.6 Stormwater Management

Additional stormwater facilities would be constructed within the proposed GBS boundary and would include two sediment basins (0.9 acre) and 562 linear feet of 12-foot-wide sediment basin access road (0.15 acre) for a total of 1.04 acres of additional disturbance (MMI 2020) (**Figure 2-1**).

2.1.7 Water Management

Groundwater would continue to be pumped from the Production well at the same rate as authorized activities described in the No Action Alternative (Section 2.4.6). Under the Proposed Action, groundwater pumping would extend for an additional two years beyond authorized activities as described in the No Action Alternative.

2.1.8 Access and Other Roads

A new proposed GBS Haul Road would be constructed from the GBP boundary to the proposed GBS Pit in the proposed GBS boundary (**Figure 2-1**). The GBS Haul Road would be approximately 76 feet wide and approximately 24,432 linear feet for a total proposed surface disturbance of 53.2 acres. The proposed GBS Haul Road would be built using cut-and-fill construction techniques.

Culverts would be installed at two locations along the proposed GBS Haul Road; one crossing would be installed at the Robert's Creek crossing and the other crossing would be installed at an unnamed drainage crossing, located approximately 0.33 mile east of the Robert's Creek culvert crossing (**Figure 2-1**). At the Robert's Creek culvert crossing, two 66-inch-diameter, 106-foot corrugated metal culverts would be installed side-by-side. At the unnamed drainage culvert crossing, one 60-inch-diameter, 175-foot corrugated metal pipe would be installed.

2.1.9 Hazardous Materials Storage

Under the Proposed Action, an additional fuel station and associated 20,000-gallon diesel tank within secondary containment would be constructed outdoors within the yard adjacent to the proposed GBS WRDA (**Figure 2-1**). The diesel tank would be within secondary containment that consists of high-density polyethylene (HDPE) liner or a sealed concrete curb that holds 110 percent of the largest volume tank and has additional capacity to hold a 100-year, 24-hour storm event.

2.1.10 Exploration Operations

No additional exploration is proposed under the Proposed Action.

2.1.11 Schedule and Workforce

The workforce would be to the same as described in the authorized No Action Alternative but would be extended for an additional two years.

2.1.12 Equipment

No changes to the equipment fleet are proposed and would remain as authorized.

2.1.13 Proposed Reclamation

Under the Proposed Action, reclamation would be consistent with the authorized reclamation methods as summarized in Section 2.4.12 and described in further detail in the Project Options SIR (BLM 2021a) and the amended Plan (MMI 2020). Of the proposed facilities, only the GBS Pit would not be reclaimed, leaving an approximate additional 51.1 acres of unreclaimed surface disturbance, all of which occurs on public land administered by the BLM. Disturbance left unreclaimed from the authorized and proposed facilities is detailed in **Appendix B**. The GBS WRDA would remain as post-reclamation feature on the landscape and would be constructed, regraded, and reclaimed to be consistent with the surrounding topography in a similar manner to the authorized No Action Alternative.

2.1.14 Proposed Applicant-Committed Environmental Protection Measures

Under the Proposed Action, MMI would continue to implement the ACEPMs previously authorized in the Gold Bar Mine Final Environmental Impact Statement (EIS) (BLM 2017) (**Appendix C**). MMI would additionally implement the following proposed ACEPMs:

- In order to avoid inadvertent impacts to cultural resources that may result from unfamiliarity with protections for cultural resources, MMI would provide *Cultural Resource Sensitivity Training* to MMI employees and on-site subcontractors.
- Mine design would be refined to avoid adverse impacts to eligible or potentially eligible cultural resources when feasible.
- Prior to construction of facilities at the proposed GBS area, a paleontological resource monitoring and mitigation plan would be prepared by a qualified professional paleontologist. This plan provides detailed recommended monitoring locations; a description of a worker training program; detailed procedures for monitoring, fossil recovery, laboratory analysis, and museum curation; and notification procedures in the event of a fossil discovery by a paleontological monitor or other personnel. A curation agreement with Las Vegas Natural History Museum or another accredited repository approved by the BLM Battle Mountain District Office would also be obtained.
- Pre-clearance surveys would be conducted by a qualified biologist prior to ground disturbance for areas outside of the 2019 and 2020 biological survey area (Stantec 2020a). These surveys would be combined to the extent possible and would target: pygmy rabbits (*Brachylagus idahoensis*) or their sign; western burrowing owls (*Athene cunicularia*) or their sign; monarch butterflies (*Danaus plexippus*) or their host plant, milkweed (*Asclepias* spp.); special status plants; and noxious weeds. Surveys would be conducted according to methods described in the *BLM Draft Statewide Wildlife Survey Protocols* (BLM 2014) and *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009) in coordination with the BLM. If any target species or their sign are observed, MMI would coordinate with the Nevada Department of Wildlife (NDOW) and BLM regarding potential actions to take in advance of ground disturbance to minimize potential impacts to these species.
- During the lekking season time period (March 1 to May 15 from 6:00 PM to 9:00 AM), hauling traffic would be restricted to the northern GBS Pit access road. No southern GBS Pit access would occur during the lekking season time period. MMI would only utilize the northern GBS Pit access road to access the proposed GBS Pit and GBS WRDA during this seasonal restriction. Hauling would occur internally from the proposed GBS Pit to the GBS WRDA. During the lekking season timeframes (as listed above), there would be no more than two haul truck round trips per hour as described in **Table 2-1**. During the non-lekking season timeframe, MMI would access the proposed GBS Pit and GBS WRDA from both the northern and southern access roads as needed with no hauling restrictions.

Table 2-1 Maximum Haul Truck Round Trips Per Hour During Lekking Season Time Period

Hauling from the GBS WRDA Internally Through the GBS Pit	Hauling from the GBS Pit to the Authorized HLF Along the GBS Haul Road (Using Northern GBS Pit Access Road)	Maximum Total Haul Trucks Per Hour
Number of Haul Truck Round Trips Per Hour		
0	2	2
1	0	1

Source: Saxelby 2021b

- Prior to ground disturbance associated with the GBS Haul Road, MMI would work with the grazing permittee to install an appropriate livestock control feature, such as a cattle guard, along the proposed GBS Haul Road where it meets and bisects the existing pasture allotment fencing to prevent conflicts with livestock management.
- Prior to ground disturbance associated with the GBS Haul Road, MMI would coordinate with Eureka County to establish appropriate traffic controls at all intersections where the proposed GBS Haul Road meets existing county or other public roads to ensure continued public access on these county and/or other public roads, promote public safety, and prevent conflicts with the public and hauling traffic.
- To aid in mule deer migration, as dump lifts within the GBS area are finalized, they will be re-sloped to a final grade of approximately 3:1 within six months to a year (depending on timing and activity restrictions for greater sage-grouse (*Centrocercus urophasianus*) (GRSG).

2.2 Relocated Yard Alternative

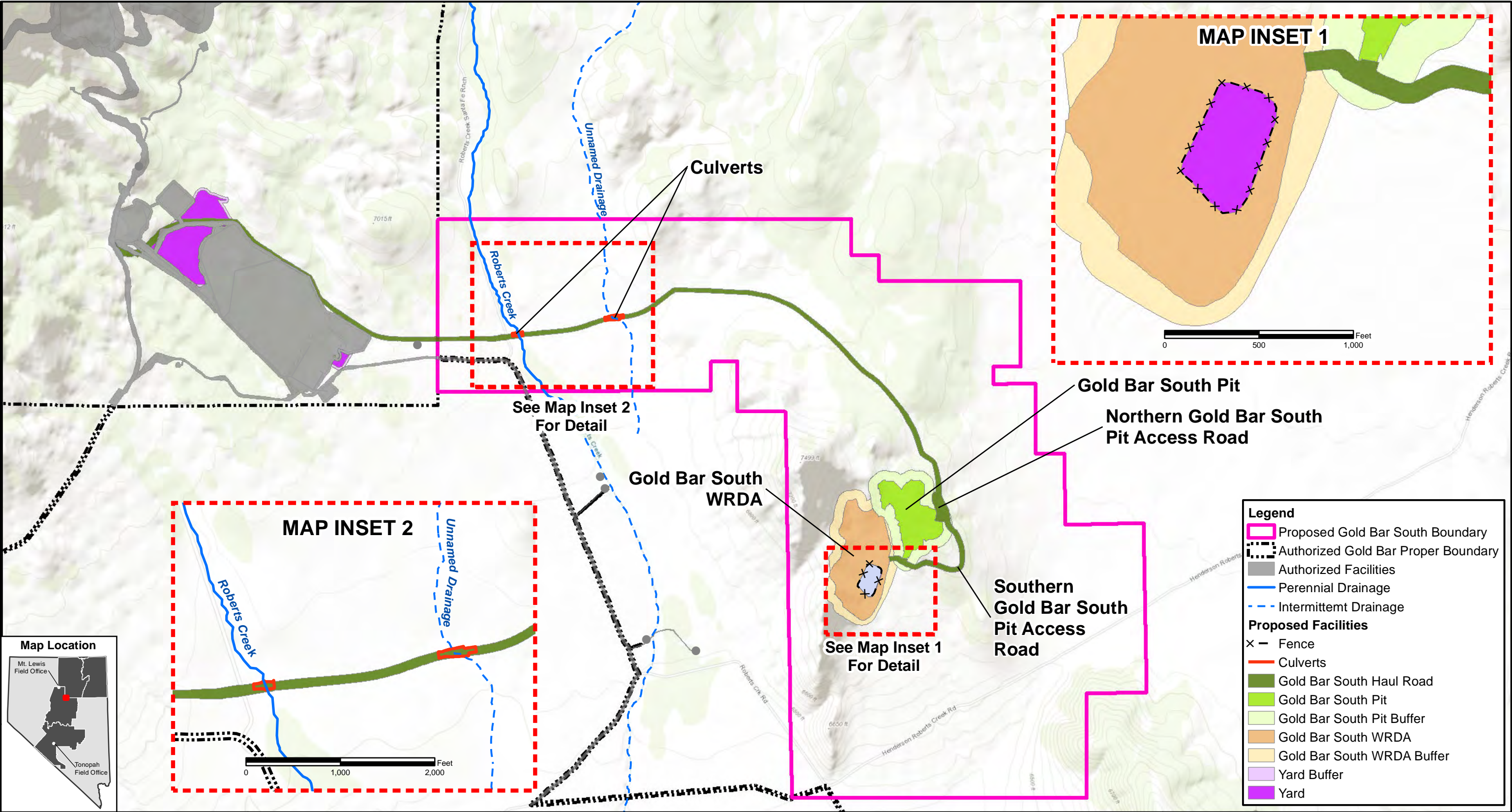
Under the Relocated Yard Alternative, the proposed GBS boundary and all components of the Proposed Action would remain the same except the currently proposed yard located within the proposed GBS boundary would be relocated within the footprint of the proposed GBS WRDA (**Figure 2-2**). The same overall activities as described for the Proposed Action would still occur. This alternative would result in a reduction of 8.3 acres of disturbance. No changes would occur to the proposed final design parameters of the GBS WRDA. The yard would continue to be fenced and would include a fuel station and associated 20,000-gallon diesel tank and all secondary containment and spill control measures would remain as described for the Proposed Action. Access to the yard would occur via roads internal to the GBS WRDA disturbance (**Figure 2-2**). Approximately 5.1 acres would be fenced.


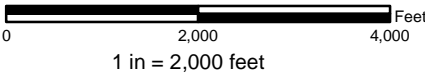

The sediment basins and associated access roads and fencing within the GBS boundary would no longer be necessary to capture stormwater run-off from the yard. Additionally, approximately 1.8 acres (675 feet) of the proposed GBS Haul Road, which would provide access to the yard under the Proposed Action, would not be constructed.

2.3 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, all components of the Proposed Action would be the same, except no haul trucks would be utilized within the proposed GBS boundary during the lekking season period from March 1 to May 15 from 6:00 PM to 9:00 AM. Additionally, no other mining activities would occur within the proposed GBS boundary during the lekking season as specified above. Light traffic travel timing restrictions would continue to be implemented during lekking season as previously committed by MMI and detailed in **Appendix C**.

The same activities as described for the Proposed Action would still occur. Mining rates and schedule would continue as described in the Proposed Action. This alternative would result in a reduction of noise disturbance during the GRSG lekking season. There would be no acreage changes associated with the Seasonal Hauling Restrictions Alternative.



 Battle Mountain BLM District Mount Lewis Field Office	MCEWEN MINING INC. AMENDED MINE PLAN GOLD BAR MINE EA				RELOCATED YARD ALTERNATIVE	
					FIGURE 2-2	
	DATE: 2/3/2022				REVISION A	

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

2.4 No Action Alternative (Previously Authorized)

The No Action Alternative is summarized throughout this section, and a complete description can be found in the Project Options SIR (BLM 2021a), the authorized Plan (MMI 2020), and the Gold Bar Mine Final EIS (BLM 2017, Volume I, Section 2.2). There have also been several minor modifications that have been approved through a Determination of NEPA Adequacy. Under the No Action Alternative, MMI would continue to operate the authorized Gold Bar Mine in accordance with current authorizations. The authorized GBP boundary consists of approximately 5,362 acres of public land administered by the BLM MLFO and 199 acres of privately owned land controlled by MMI. Authorized disturbance is 1,194 acres and details of the disturbance are summarized in **Table 2-2** and shown on **Figure 2-3**; a more detailed breakdown of the disturbance is provided in the Project Options SIR (BLM 2021a).

Table 2-2 Authorized Gold Bar Proper, Proposed Action, and Relocated Yard Alternative Surface Disturbance

Component ¹	Authorized GBP Disturbance (acres) ²			Proposed Action				Relocated Yard Alternative			
				Proposed Disturbance (acres)			Total Acres (GBP and Proposed Action)	Proposed Disturbance (acres)			Total Acres (GBP and Relocated Yard Alternative)
	Public	Private	Total	Public	Private	Total		Public	Private	Total	
Open Pits	85.7	136.9	222.6	51.1	0	51.1	273.7	51.4	0	51.4	274.0
Waste Rock Disposal Areas	457.6	39.4	497.0	71.5	0	71.5	568.5	71.5	0	71.5	568.5
Other Facilities	467.0	7.4	474.4	90.7	0	90.7	565.1	82.1	0	82.1	556.5
Total	1,010.3	183.7	1,194.0	213.3	0	213.3	1,407.3	205.0	0	205.0	1,399.0

Source: MMI 2020

¹ Acreages for each component includes associated buffers.

² In addition to the disturbance discussed above for GBP, up to 200 acres of total unreleased disturbance from the Gold Bar Exploration Project could occur in the area. The disturbance would not exceed 100 acres at any point, with a total project reclaimed area of disturbance not exceeding 200 acres.

2.4.1 Open Pits

The authorized Gold Bar Mine consists of a pit for each of the Gold Pick and Gold Ridge deposits and two pits in the Cabin Creek area. Mining occurs via conventional open pit mining methods in the Gold Pick, Gold Ridge, Cabin Creek Phase 1, and Cabin Creek Phase 2 pits (**Figure 2-3**). Pits are currently accessed from the Atlas Haul Road, the waste rock dumps, and a series of mine roads that connect the various facilities (**Figure 2-3**) (MMI 2020). The authorized pit depths are not anticipated to intercept groundwater; thus, no pit lakes would form. (MMI 2020). A summary of basic design parameters, dimensions, and stripping ratios are included in the Project Options SIR (BLM 2021a).

2.4.2 Waste Rock Disposal Areas

The Gold Bar Mine is authorized to generate approximately 14.5 Mt of waste rock annually that will be placed in WRDAs adjacent to the mined pits (**Figure 2-3**). The majority of the waste rock generated during mining is non-designated waste. Stormwater management at the WRDAs consists of best management practices (BMPs) including straw wattles, sediment traps constructed with hay bales, or sediment basins located downstream of the WRDAs. A summary of basic design parameters and dimensions, including cross sections, for the WRDAs within the GBP boundary is included in the Project Options SIR (BLM 2021a).

2.4.3 Waste Rock and Ore Geochemistry

The geochemical characterization and ABA completed for the No Action Alternative indicate that over 98 percent of the samples tested were characterized as non-acid generating (i.e., non-designated). Most samples contain neutralization potential in excess of acid generation potential and are predicted to be net neutralizing. The exception to this is one sample of carbonaceous ore material with significant sulfide sulfur and lower neutralization potential that is classified as potentially acid generating (PAG). The MWMP leachates were typically circum-neutral to moderately alkaline, with the exception of the high sulfur

carbonaceous ore. Although the excess of neutralizing capacity means that net acid conditions are unlikely to develop at the Gold Bar Mine, several constituents, such as arsenic, antimony, and thallium, are likely to be mobile under neutral to moderately alkaline conditions. A mine waste characterization program was conducted as part of the planning and impact assessment for the authorized Gold Bar Mine and is described in detail in Appendix I of the amended Plan (MMI 2020; BLM 2017).

2.4.4 Heap Leach Facility

MMI is authorized to process approximately 2.8 Mt of ore per year at GBP. A dedicated HLF, barren and pregnant solution tanks, process solution pond and ancillary facilities are designed to accommodate approximately 17.3 Mt of ore (MMI 2020). Design parameters for the HLF are included in the Project Options SIR (BLM 2021a). The HLF also includes a pregnant leach solution (PLS) collection and recovery system consisting of a network of collection pipes designed to collect PLS and transport it to the pregnant solution tanks in the Adsorption, Desorption, and Recovery (ADR) plant; a stormwater diversion channel located upgradient of the HLF which diverts potential drainage of stormwater around the HLF; and a process solution pond and associated piping, which holds weak cyanide solution collected from the heap, contains overflow from the pregnant and barren tanks, and provides make-up water to the barren or pregnant solution systems.

Gold recovery is ultimately achieved by the ADR processing plant (**Figure 2-3**), and a complete description of the gold recovery process is included in the Project Options SIR (BLM 2021a).

2.4.5 Ancillary Facilities

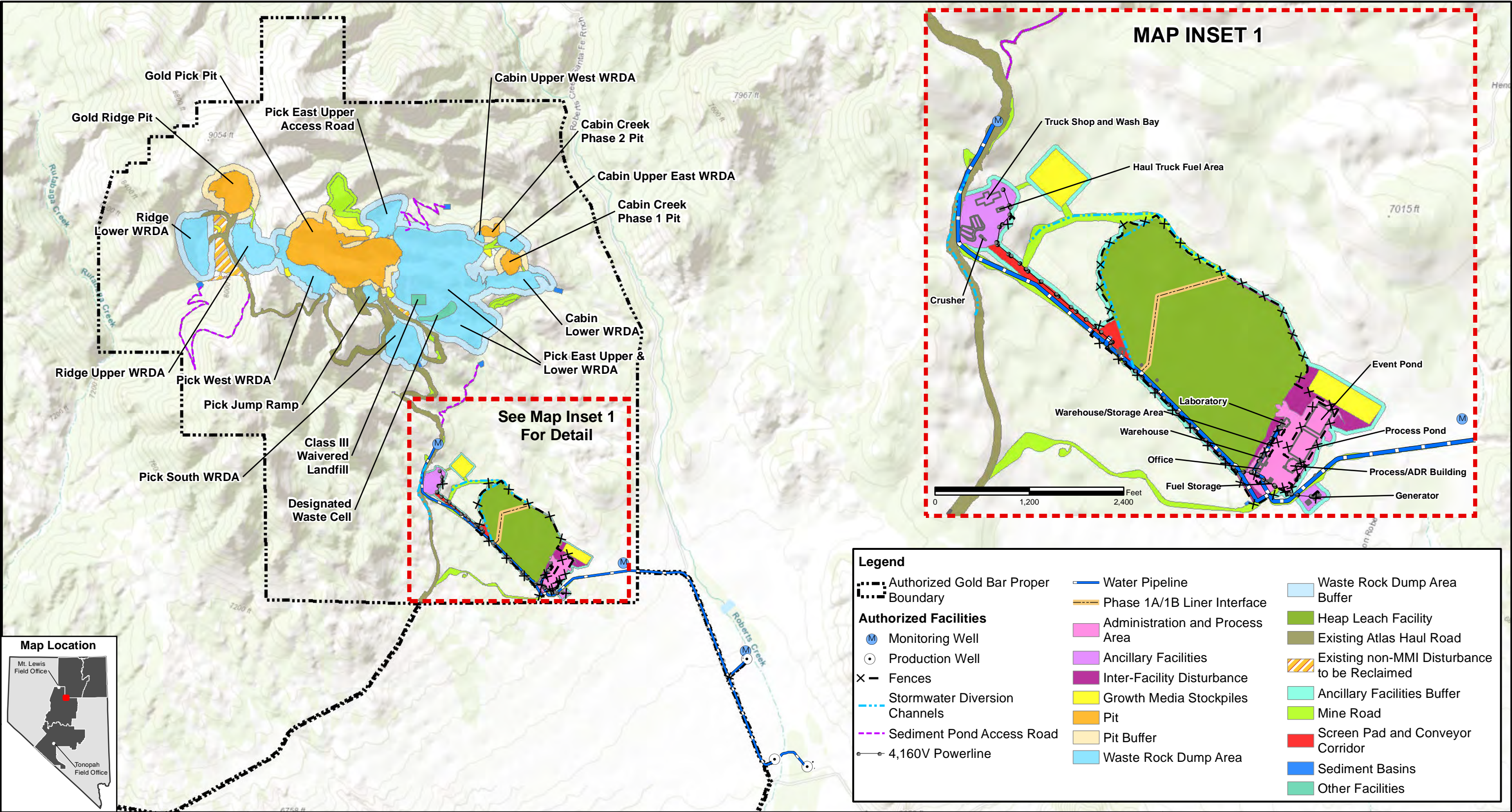
Power supply is provided by a series of three natural gas (liquefied natural gas [LNG] or compressed natural gas [CNG]) self-contained generators. A 455-kilowatt self-contained diesel generator is located at the primary water well (GBPW-210). This generator powers both water wells and the booster pumps required to lift water from the wellhead tank to the 500,000-gallon water storage tank. A 571-kilowatt self-contained diesel backup generator located adjacent to the ADR building supplies power to the process pond pumps in the event of a primary power outage, or in the event of a catastrophic failure of the main generators (MMI 2020). Power distribution within the GBP boundary consists of a 4,160-volt overhead distribution line connecting the process facilities, offices, and shop/warehouse buildings to the generators (MMI 2020) (**Figure 2-3**).


A Class III-waivered landfill is authorized to be constructed on the south side of the Pick East Upper Dump (**Figure 2-3**) but has not yet been constructed (MMI 2020).

Solar powered or manual security gates are installed at the authorized GBP boundary on the Atlas Haul Road and the North Robert's Creek Road. The buildings and process facilities including the warehouse/shop, office, laboratory, ADR plant, HLF, and ponds are fenced to specifications outlined in the BLM Handbook 1741-1 (**Figure 2-3**). In addition, individual facilities, including the ADR plant, ponds, LNG/Cryostorage or CNG storage tank, and natural gas generators are fenced separately (MMI 2020).

An authorized laboratory, warehouse area and plant maintenance shop, administration building, LNG/CNG storage areas, and a fenced laydown yard are located southeast of the authorized HLF. A truck shop and wash bay located northwest of the HLF is authorized but has not yet been constructed. A haul truck fuel area and a ready line used for temporary staging of mobile mine equipment is located outdoors, adjacent to the location of the authorized truck shop. Monitoring wells are northwest and southeast of the HLF.

There are three septic systems, which service the process building, the administration building and laboratory, and the warehouse/shop. An additional septic system is authorized and would provide capacity to service the previously authorized truck shop when it is constructed. The mine and crushing facilities use portable toilets (MMI 2020).





Battle Mountain
BLM District
Mount Lewis Field Office

**MCEWEN MINING INC.
AMENDED MINE PLAN
GOLD BAR MINE EA**

0 3,000 6,000 Feet
1 in = 3,000 feet

**AUTHORIZED GOLD BAR PROPER FACILITIES
(NO ACTION ALTERNATIVE)**

FIGURE 2-3	REVISION
DATE: 2/3/2022	A

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

2.4.6 Water Management

MMI is approved for 500 acre-feet of water per year, with a maximum diversion rate of 448.8 gallons per minute (gpm) (one cubic foot per second), or 310 gpm (0.6906 cubic foot per second) average over the entire year. Water from the production wells is pumped to a 500,000-gallon storage tank, located inside the authorized GBP boundary on the southwest side of the HLF.

A pump located in the ADR lifts water to a second 50,000-gallon water tank located north and above the truck shop, which supplies water to the truck shop, jaw or impact crusher, screen plant, lime silo for dust control, the water truck load out for seasonal road watering, and a chlorinator and drinking water tank/drinking water system (**Figure 2-3**) (MMI 2020).

2.4.7 Access and Other Roads

Site access roads are approximately 30 feet wide and HLF access roads are approximately 15 feet wide. MMI controls fugitive dust emissions from roads using water or chemical dust suppressant application (such as magnesium chloride or lignin sulfonate), where appropriate (MMI 2020).

2.4.8 Hazardous Materials Storage

The authorized fuel station is located outdoors, adjacent to the authorized location for the truck shop (yet to be constructed) for the haul fleet and in the administration building area for light vehicles. The truck shop fuel station contains two 10,000-gallon diesel fuel storage tanks and the administrative fuel station contains one 3,000-gallon gasoline storage tank and a 1,000 gallon on-road diesel tank for light vehicles. Equipment is located within the secondary containment to facilitate collection of spilled fuels, if necessary.

Most reagents are stored in tanks located outside of the process facilities in secondary containment. Other smaller quantities of hydrocarbons, fluxes, and reagents are located at the truck shop, warehouse, and process area. Reagents used in the analytical and metallurgical test procedures are stored at the laboratory in secondary containment.

Explosive agents are purchased, transported, stored, and used in accordance with the Mine Safety and Health Administration, Bureau of Alcohol, Tobacco and Firearms, and Department of Homeland Security rules and regulations, as well as any and all other applicable federal, state, or local statutes and regulations regarding the transportation, storage, and handling of explosives. Explosive agents, boosters, and blasting caps are stored within a secured explosives storage area.

2.4.9 Exploration Operations

MMI is authorized to perform exploration on up to 65.1 acres on public and private land within the GBP boundary under the Gold Bar Mine Final EIS (BLM 2017, 2019a). Exploration disturbance generally includes the construction of access roads, drill pads, sumps, trenches, surface sampling, bulk sampling, and staging areas. Exploration methods include both reverse circulation and core drilling, with some minor trenching. Exploration activities may also include water exploration and monitor well installation. In addition, up to 200 acres of exploration disturbance is authorized for the Gold Bar Exploration Project portions of which are in the GBP and GBS project boundaries (BLM 2019a).

2.4.10 Schedule and Workforce

Construction was initiated at the authorized Gold Bar Mine after issuance of a Record of Decision and Plan of Operations approval by the BLM on November 7, 2017 and is projected to occur over a seven-year mine life (five years of active mining plus two years of residual leaching). The authorized Gold Bar Mine operates on two, 10-hour or 12-hour shifts per day, 365 days per year. The mine requires an average of 91 mining staff. This number varies based on the mining schedule and haulage requirements. Blasting is done by a contractor using a three-man blasting crew. A total of 30 staff support processing and 14 staff provide general and administrative support to the mine. The combined manpower total for the operation is approximately 135 employees, comprised of three contractors and 132 staff (MMI 2020).

2.4.11 Equipment

Open pit mining is carried out by conventional, diesel-powered equipment, using a combination of blast-hole drills, rubber-tired wheel loaders, a track-mounted excavator, and off-highway 100-ton haul trucks and 45-ton articulating trucks. Support equipment is comprised of graders, track dozers, and water trucks. A complete list of equipment can be found in Section 2.4 of the amended Plan (MMI 2020).

2.4.12 Authorized Reclamation

Below is a summary of authorized reclamation for the No Action Alternative. A complete description of the reclamation for the No Action Alternative can be found in the Project Options SIR (BLM 2021a) and the amended Plan (MMI 2020).

All mine components, including exploration will be reclaimed following the applicable BLM, Nevada Division of Environmental Protection (NDEP), and/or NAC guidelines. The reclamation plan for the authorized Gold Bar Mine is designed with the goals of stabilizing mine features, revegetating to reduce run-off and erosion, providing forage for wildlife and livestock, controlling invasive weeds, and reducing overall long-term visual impacts. The final regrading plan for the authorized Gold Bar Mine is designed to mitigate aesthetic impacts, provide for slope stability, promote run-off, and reduce infiltration into mine process facilities and areas. Slopes would be regraded with standard mine mobile equipment (dozers, trucks, loaders, scrapers) to blend with surrounding topography, interrupt straight-line features, and facilitate revegetation, where practical. Where feasible, large facilities such as the HLF or WRDAs may be rounded with variable slope angles to mimic nearby topography (MMI 2020). The primary revegetation effort would emphasize re-establishment of the native species within the soil seed bank and revegetation seed mixtures. A high-altitude seed mix would be developed with BLM based on a review and evaluation of existing vegetation and revegetation success at similar elevations and slope aspects in the authorized GBP boundary. Seed mixtures would be certified weed-free and will be certified for purity and pure live seed. Mulch or erosion-control fabric would be applied to erosion-prone areas, as necessary. The actual seed mixture, application rates and locations would be determined prior to seeding based on the results of interim and concurrent reclamation conducted during operations or BLM recommendations at the time of final reclamation (MMI 2020).

As determined acceptable by the BLM, roads on public lands suitable for public access or which continue to provide public access consistent with pre-mining conditions, would not be reclaimed at closure. The pits, reclaimed WRDAs, and HLF would also remain as features in the landscape, and the process pond and event pond would be converted to evaporation (E)- or evapotranspiration (ET)-cells during closure to address the passive management of draindown solutions. Facilities and roads that would remain as post-reclamation features within the GBP boundary are detailed in Project Options SIR (BLM 2021a).

2.4.13 Authorized Applicant-Committed Environmental Protection Measures

Under the No Action Alternative, MMI would continue to implement the approved ACEPMs in the Gold Bar Mine as authorized under the Gold Bar Mine Final EIS and Record of Decision (BLM 2017). Authorized ACEPMs are included as **Appendix C**.

2.5 Alternatives Considered but Eliminated from Detailed Analysis

2.5.1 Alternate Crossings Alternative

Under this alternative, MMI considered constructing bridges where the proposed GBS Haul Road crosses Roberts Creek and the unnamed drainage instead of the currently proposed culverts (**Figure 2-1**). This alternative was assessed to determine if it was feasible to construct a bridge in lieu of culverts, thus reducing impacts from fill material being placed within the drainages resulting in potential downstream sediment loading, providing unrestricted flood water conveyance, and reducing potential impacts to aquatic resources that may require Clean Water Act Section 404 compliance and permitting. Existing riparian vegetation and aquatic life that it may support would be impacted to a lesser extent than installation of culverts. However, this alternative would increase construction time near the drainages, thereby increasing the potential for water quality or soil resource conflicts during construction. Increased visual impacts from the constructed bridges could also occur to users of the Pony Express National Historic Trail (NHT) or other recreationists in the area. Additionally, the engineering and materials required for construction and reclamation of bridges would require an additional capital investment and would not be economically feasible for a project with a

two-year lifespan. Clean Water Act Section 404 permitting is not required as these drainages have been determined non-jurisdictional by the United States Army Corps of Engineers (USACE 2013, 2018). Overall, this alternative was eliminated from further analysis as the environmental concerns were similar to the Proposed Action due to the increased construction time, Clean Water Act 404 permitting is not required for culvert installation, and overall estimated capital costs would be too high for a two-year project.

2.5.2 Pit Backfilling Alternative

Under this alternative, the pit would be backfilled to address potential impacts to mule deer migration. This alternative was reviewed by the MMI team and due to the shape of the pit, backfilling would not be feasible until after mining is completed. With this approach, all material would have to be double hauled to backfill the pit and was determined to not be an economically feasible mine plan (MMI 2021). In addition, since backfilling could not take place until after mining is completed, the WRDA would have to be fully constructed and there would be no reduction in disturbance acreage.

3.0 Affected Environment

This chapter describes the existing conditions of the physical, biological, cultural, and socioeconomic resources that have the potential to be affected by activities related to the Proposed Action, the No Action Alternative, and action alternatives described in **Chapter 2**. To comply with NEPA, the BLM is required to address specific elements of the environment that are subject to requirements specified in statutes, regulations, or by Executive Order. **Tables 3-1** and **3-2** list the supplemental authorities and other resources addressed in the EA. Supplemental authorities that may be affected by the Proposed Action are discussed further in **Chapters 3** and **4** and in the SERs for each resource (BLM 2021b through 2021s). Those elements listed under the supplemental authorities that are not present in the proposed GBS boundary or resource-specific study area or are present but would not be affected are not carried through in this EA. The area of analysis for each resource analyzed in the EA are detailed in each resource specific SER.

Table 3-1 Supplemental Authorities to be Considered

Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale/Analysis Section
Air Quality			X	Refer to Sections 3.1 and 4.1.
Areas of Critical Environmental Concern	X			Not present in or near the GBS project area.
Cultural Resources			X	Refer to Sections 3.2, 4.2, and 4.19.1.
Environmental Justice			X	Refer to Sections 3.3, 4.3, and 4.19.2.
Fish Habitat			X	Refer Sections 3.18 and 4.18.
Floodplains			X	Refer to the Sections 3.6, 4.6, and 4.19.3.
Forests and Rangelands (Healthy Forests Restoration Act only)	X			Determined not present because the Project is not a Healthy Forests Restoration Act project.
Hazardous Material/Solid Waste			X	Refer to Sections 3.4 and 4.4.
Human Health and Safety	X			Determined not to be present in the Project Area because the Project does not propose herbicide use.
Migratory Birds			X	Refer to Sections 3.18, 4.18, and 4.19.15.3.
Native American Concerns			X	Refer to Sections 3.5 and 4.5.
Noxious Weeds/Invasive, Non-native Species			X	Refer to Sections 3.15 and 4.15.
Prime or Unique Farmlands	X			Not present in or near the GBS project area.
Riparian/Wetlands			X	Refer to Sections 3.15, 4.15, and 4.19.12.
Threatened, Endangered Species	X			Not present in or near the GBS project area.
Water Quality and Quantity			X	Refer to Sections 3.6, 4.6, and 4.19.3.
Wild and Scenic Rivers	X			Not present in or near the GBS project area.
Wilderness	X			Not present in or near the GBS project area.

Table 3-2 Other Resources of the Human Environment

Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale/Analysis Section
Bald and Golden Eagles			X	Refer to Sections 3.18, 4.18, and 4.19.15.3.

Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale/Analysis Section
Geology and Minerals			X	Refer to Sections 3.7, 4.7, and 4.19.4.
Historic Trails			X	Refer to Sections 3.8, 4.8, and 4.19.5.
Land Use and Realty			X	Refer to Sections 3.9, 4.9, and 4.19.6.
Noise			X	Refer to Sections 3.10, 4.10, and 4.19.7.
Paleontological Resources		X		After a paleontological survey was completed (Paleo Solutions 2020), an ACEPM was proposed for paleontological resources, described in Section 2.1.14, that would prevent potential impacts to paleontological resources from occurring; therefore, the resource was determined to not be affected.
Grazing Management			X	Refer to Sections 3.11, 4.11, and 4.19.8.
Recreation			X	Refer to Sections 3.12, 4.12, and 4.19.9.
Socio and Economic Values			X	Refer to Sections 3.13, 4.13, and 4.19.10.
Soil Resources			X	Refer to Sections 3.14, 4.14, and 4.19.11.
Special Status Species			X	Refer to Sections 3.15, 3.18, 4.15, 4.18, and 4.19.15.4.
Transportation and Access			X	Refer to Sections 3.9, 4.9, and 4.19.6.
Vegetation Resources			X	Refer to Sections 3.15, 4.15, and 4.19.12.
Visual Resources			X	Refer to Sections 3.16, 4.16, and 4.19.13.
Wild Horses and Burros			X	Refer to Sections 3.17, 4.17, and 4.19.14.
Wildlife Resources			X	Refer to Sections 3.18, 4.18, and 4.19.15.

3.1 Air Quality

The area of analysis for air quality for the Proposed Action and action alternatives is the GBS boundary and proposed GBS disturbance within the GBP boundary. This area of analysis represents the areas where air impacts from the Proposed Action and action alternatives may impact the public or the ambient air quality. The area of analysis is located in the Kobeh Valley air basin (hydrographic basin # 139), which is currently in attainment or unclassifiable for all air pollutants having an air quality standard. **Table 3-3** details the ambient air quality baseline data for the area of analysis to summarize the affected environment for air quality, and additional details are provided in the Air Quality SER (BLM 2021b).

Table 3-3 Ambient Air Quality Baseline Data

Pollutant	Averaging Period	Background Concentration ($\mu\text{g}/\text{m}^3$)	Monitoring Site
PM ₁₀	24-hour	10.2	Great Basin National Park (NDEP-Approved)
PM _{2.5}	24-hour	8.0	
	Annual	2.3	
CO	1-hour	1,030.4	Yosemite
	8-hour	801.4	
NO ₂	1-hour	9.2	
	Annual	1.9	

Pollutant	Averaging Period	Background Concentration (µg/m³)	Monitoring Site
SO ₂	1-hour	1.1	White Mountain
	3-hour	1.3	

Source: ASI 2020a

µg/m³ = micrograms per cubic meter

PM₁₀ = particulate matter 10 microns in diameter or less

PM_{2.5} = particulate matter 2.5 microns in diameter or less

CO = carbon monoxide

NO₂ = nitrogen dioxide

SO₂ = sulfur dioxide

3.2 Cultural Resources

The affected environment for cultural resources is summarized in this section, and additional details are provided in the Cultural Resources SER (BLM 2021c). The area of analysis for impacts to cultural resources is also referred to as the area of potential effect (APE) and is defined in 36 CFR 800.16(d) as “the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist.” The BLM has defined the area of analysis for direct impacts to cultural resources for the Proposed Action and action alternatives as the footprint of the proposed ground disturbance within the GBS boundary, plus a 30-meter buffer in all directions. The BLM has defined the area of analysis for indirect impacts to cultural resources for the Proposed Action and action alternatives as the footprint of proposed ground disturbance within the GBS boundary plus buffers of various sizes for individual indirect impacts; a one-mile buffer for impacts associated with vibrations; a three-mile buffer for impacts associated with auditory changes; and a seven-mile buffer associated with viewshed changes. Impacts to cultural resources within the authorized GBP boundary were previously analyzed in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.3).

Within the direct APE, a total of 13 cultural resources are known, of which four are eligible for the National Register of Historical Places (NRHP), eight are not eligible for the NRHP, and one remains unevaluated for the NRHP pending additional investigation. Within the indirect APE, a total of 592 cultural resources are known. These include 589 archaeological sites, the Roberts Creek Ranch, the Pony Express NHT, and the NRHP-eligible Roberts Mountain Carbonari District. Of the resources in the indirect APE, 219 are eligible for the NRHP, or unevaluated and consequently treated as eligible, and 373 are not eligible for the NRHP.

3.3 Environmental Justice

The area of analysis for environmental justice for the Proposed Action and action alternatives includes Census Block Groups 320110001001 and 320110001002, which includes the proposed GBS area as well as the town of Eureka. The area of analysis is the only geographic area likely to experience substantial social or economic effects from the Proposed Action and action alternatives. The affected environment for environmental justice is summarized in this section, and additional details are provided in the Environmental Justice SER (BLM 2021d).

In addition to the Gold Bar Mine, the area of analysis includes several other mining and mineral exploration activities including several major mines such as the Betze-Post Mine, Carlin Mine, Maggie Creek Plant, and the Ruby Hill Mine (NBMG 2019).

There would be no low-income population within the two Census Block Groups that exceed 50 percent. However, a low-income environmental justice population would be present in Census Block Group 320110001002, as the low-income population is greater than 10 percent of the State of Nevada reference population (Headwaters Economics 2020; USEPA 2020a). No minority environmental justice populations would be present. The percentage of the population identified as belonging to a minority group in each of the Census Block Groups would not be equal to or greater than 50 percent, nor would it be more than 10 percentage points higher than that of the State of Nevada reference population (Headwaters Economics 2020; USEPA 2020a).

Census Block Group 320110001001 has an American Indian population of approximately 3.1 percent and is greater than 10 percent of the reference population of Nevada; therefore, an American Indian environmental justice population would be present (Headwaters Economics 2020; USEPA 2020a).

3.4 Hazardous Materials and Solid Waste

The area of analysis for hazardous materials and solid waste for the Proposed Action and action alternatives includes the GBS boundary, the areas of proposed surface disturbance that would occur within the GBP boundary as well as the main transportation and access roads from which materials would be transported including:

- From Reno east via Interstate 80 to the State Route (SR) 278 exit (Exit 279), then SR 278 south to the intersection with U.S. Highway 50, and U.S. Highway 50 west to the Gold Bar Mine access routes;
- From Elko west via Interstate 80 to the SR 278 exit (Exit 279), then SR 278 south to the intersection with U.S. Highway 50, and U.S. Highway 50 west to the Gold Bar Mine access routes; and
- From Reno east via Interstate 80 to the east Fernley exit (Exit 48), south to Main Street/Lincoln Highway/U.S. Highway 50 to the Gold Bar Mine access routes.

The affected environment for hazardous materials is summarized in this section and includes air, water, soil, and biological resources that may be impacted by an accidental release of hazardous materials during transportation to and from both the GBP boundary and the GBS boundary, and during use within the GBP and GBS boundaries. Additional details of the affected environment, including the authorized rates of use, storage locations, and storage volumes of hazardous substances are provided in the Hazardous Materials and Solid Waste SER (BLM 2021g).

Hazardous materials are currently used daily in conjunction with mining activities to operate and maintain equipment and in the mining and processing activities. Bulk chemicals and supplies typically are transported to the Gold Bar Mine site on trucks via the access routes listed above. Non-hazardous solid wastes generated at the authorized Gold Bar Mine include wastepaper, wood, scrap metal, and other domestic trash, which are disposed of in the on-site Class III-waivered landfill. Sanitary liquid wastes are handled and disposed of through septic tanks/leach fields permitted by the NDEP. Sanitary and solid waste disposal practices are discussed further in Section 2.4 and the Hazardous Materials and Solid Waste SER (BLM 2021g).

3.5 Native American Traditional Values

The area of analysis for Native American traditional values for the Proposed Action and action alternatives includes the proposed GBS boundary and the areas of proposed surface disturbance that would occur within the authorized GBP boundary. The affected environment for Native American concerns is summarized in this section, and additional details are provided in the Native American Traditional Values SER (BLM 2021h).

The Western Shoshone are the indigenous people of the area of analysis, and most of Northern Nevada. The Western Shoshone refers to themselves as “Newe,” which translates to “the people” (Bengston 2003). Their ancestors occupied a vast territory in autonomous, highly mobile groups associated with a specific home district, united by a common language and culture. Historically, the Western Shoshone were organized in extended groups identified with loosely defined home districts that were often named for a prominent food source (Clemmer et al. 1999). After Euro-American contact, Western Shoshone “band” names tended to become more permanent. Today, Western Shoshone live on several small reservations and colonies located throughout California, Nevada, and Utah.

Formal government-to-government consultation is ongoing for the Proposed Action. The following Native American concerns have been raised during consultation for other projects in the region, and may be concerns during the current undertaking:

- Potential impacts to sensitive cultural resources;
- Potential impacts to GRSG;
- Potential impacts to Tribal hunting areas for big game and upland bird species;
- Potential impacts to the quality of plants and plant gathering sites used for ceremonial, medicinal, and food purposes; and
- Potential impacts to Native American burial sites.

3.6 Water Resources and Geochemistry

The area of analysis for water resources for the Proposed Action and action alternatives is the groundwater model hydrologic study area, located in the northern portion of the Kobeh Valley Hydrographic Basin (Nevada Hydrographic Basin 139). This area of analysis includes the proposed GBS disturbance and the area of predicted drawdown for the authorized water supply pumping that would be extended by two years under the Proposed Action.

The area of analysis is located on the southern edge of the Roberts Mountains where the range meets the alluvial fans of the valley, within the Roberts Creek watershed (Hydrologic Unit Code [HUC] 10 [1606000508]), located in the northern Kobeh Valley. Surface drainage is directed generally from the mountains to the central valley floor and ultimately eastward toward Devil's Gate. Roberts Creek is a perennial stream in certain segments that drains the area east of the GBP and GBS boundary and flows south into Kobeh Valley, where perennial flow ceases when the stream infiltrates into the alluvium of the valley. Kobeh Valley is part of the Diamond Valley Hydrologic Flow System (Tumbusch and Plume 2006) and is in hydrologic communication with Diamond Valley (Hydrographic Area 153) to the east through Devil's Gate via surface water flow of around 40 acre-feet per year (AFY) during wet years (Rush and Everett 1964). Groundwater flow modeling (Montgomery et al. 2010) has indicated that inter-basin flow from Kobeh Valley to Diamond Valley ranges from 810 to 1,393 AFY (BLM 2019a). The affected environment for water resources and geochemistry is summarized throughout this section, and additional details are provided in the Water Resources and Geochemistry SER (BLM 2021f).

3.6.1 Surface Water Resources

Kobeh Valley contains mountain-block watersheds where streams originating in the surrounding mountains drain onto broad alluvial fans that border the mountains, and eventually to valley bottoms where surface water flow infiltrates into the valley alluvium. Perennial, intermittent, and ephemeral stream reaches are found in the bedrock-dominated mountainous areas, but flows tend to dissipate upon reaching the alluvial fans or drain toward low-lying playas near the valley center (BLM 2019a).

Thirteen primary drainages and numerous tributaries and ephemeral channels have been identified within five miles of the GBS boundary. Primary channels included Denay Creek, Henderson Creek, Roberts Creek, Rutabaga Creek, Tyrone Creek, and U'ans-in-dame Creek. Roberts Creek is the only primary drainage running through the area of analysis, with several unnamed, intermittent drainages. Sixty-one seep and spring sites have been identified within five miles of the GBS boundary, but only one spring location occurs within the area of analysis and is located approximately one-half mile north of the GBS boundary and is a limnocrone emergence with channel flow into a pond and riparian area (Stantec 2020c).

Channels and wetlands within the area of analysis have been concluded to terminate prior to reaching another jurisdictional drainage and, therefore, are not subject to federal jurisdiction under Section 404 of the Clean Water Act (USACE 2018).

The area of analysis has been mapped as a Flood Zone X, which is an area determined to be outside the 500-year flood area and is an area of minimal flood hazard (FEMA 2020). During the 2020 seep, spring, and surface water survey, Roberts Creek was determined to be a V-shaped drainage in the upper and middle portions of the channel with no apparent floodplain. The lower portions exhibited an approximately 400-foot-wide floodplain with braided channels throughout (Stantec 2020c).

3.6.2 Groundwater Resources

Groundwater flow in Kobeh Valley alluvium is through interconnected pore spaces and is often connected to adjacent basins through gaps in the mountain ranges with observed connections to alluvial groundwater in North Monitor Valley, Diamond Valley, and Antelope Valley (BLM 2019a). Groundwater flow in consolidated bedrock units is mainly through secondary features such as faults, fractures, and bedding planes (BLM 2019a).

Field investigations to characterize the hydrogeology of the area of analysis were conducted to establish the baseline hydrogeologic conditions for groundwater for the 2017 Gold Bar EIS, in the vicinity of the GBS boundary (SRK 2014, 2020b; BLM 2017). Groundwater pumping would be focused on local alluvium to provide a water supply for mining and milling consumptive use by the Gold Bar Mine. Locations of the wells and piezometers located in the vicinity of the area of analysis, including wells drilled by MMI and by others, and existing hydrogeologic conditions are described in the Water Resources and Geochemistry SER (BLM 2021f).

Groundwater elevations and flow directions were compiled for the Mount Hope Project to the east of the GBS boundary (Montgomery et al. 2010). It was determined that groundwater elevations have remained relatively unchanged from pre-development conditions (circa 1955; BLM 2019a). Regional groundwater flow in the alluvial basin material of Kobeh Valley is generally from west to east with groundwater elevations on the west side of the valley between 6,200 and 6,250 feet above mean sea level compared to elevations on the east side of approximately 6,025 feet above mean sea level. Groundwater flow directions are influenced by local topography in the Kobeh Valley.

A groundwater budget is a basic accounting of the inflows and outflows from a hydrologic system in a specific area. For the Kobeh Valley Hydrographic Basin a recent estimate by the United States Geological Survey (USGS) (BLM 2017; Berger et al. 2016) quantifies precipitation recharge at 13,000 AFY and subsurface inflow at 4,200 AFY (3,400 AFY from North Monitor Valley). Groundwater outflow was estimated to consist of 15,900 AFY from ET due to phreatophytes along the center of Kobeh Valley, 2,900 AFY from groundwater pumping for agricultural use, and 2,000 AFY subsurface outflow to Diamond Valley. The USGS estimate for outflow has 17,000 AFY of ET, 600 AFY of groundwater pumping withdrawals, and 130 AFY of subsurface flow to Diamond Valley (Montgomery et al. 2010; BLM 2017). The Nevada Division of Water Resources estimates the perennial yield for the Kobeh Valley Hydrographic Basin to be 15,000 AFY (NDWR 2020).

3.6.3 Water Rights

A full description of active and non-active water rights within the area of analysis are provided in the Water Resources and Geochemistry SER (BLM 2021f). No public reserve water rights under the 1926 Executive Order, Public Water Reserve No. 107 were identified in the database within the area of analysis (Donahue Hydro-Geo 2020).

3.6.4 Water Quality

3.6.4.1 Surface Water Quality

Surface water samples collected from Roberts Creek exhibit a circum-neutral pH with total dissolved solids (TDS) between 269 milligrams per liter (mg/L) and 395 mg/L. The major ion chemistry of the creek water samples was dominated by calcium and bicarbonate alkalinity, consistent with waters originating from a carbonate lithology like those found in the Roberts Mountains. This surface water is well-oxygenated with dissolved oxygen concentrations of approximately 21 mg/L (JBR 2013; USGS 2015).

Spring within the area of analysis exhibited a circum-neutral pH and a TDS concentration of 442 mg/L and was oxygenated with a dissolved oxygen concentration of 7.6 mg/L (Stantec 2020c).

3.6.4.2 Groundwater Quality

A summary of the groundwater chemistry is provided in this section, and a full analysis is included in the Water Resources and Geochemistry SER (BLM 2021f). Groundwater quality in the area of analysis was assessed from water chemistry samples collected from production well GBPW-210 and monitoring wells GMW-01, GBMW-02 and GBMW-03. The groundwater chemistry conditions are typical of carbonate-

sources groundwaters in northern Nevada where groundwaters moving from the mountain block into the alluvium begin to equilibrate with atmospheric oxygen (reducing dissolved iron and manganese) and atmospheric carbon dioxide (reducing bicarbonate alkalinity) (BLM 2019a). Iron and Manganese showed existing exceedances of NDEP reference values in GBMW-01.

3.6.4.3 Mined Material and Pit Wall Rock Geochemical Characterization

This section summarizes the existing geochemical characterization, and more detailed information is provided in the Water Resources and Geochemistry SER (BLM 2021f). The authorized heap leach pad in the GBP boundary is a lined, zero-discharge heap leach pad. Representative samples of the GBS deposit were collected from each main rock type present (SRK 2020a) based on estimated proportions of the rock types and in accordance with NDEP-Bureau of Mining Regulation and Reclamation and BLM guidance (NDEP 2019; BLM 2010). These samples were submitted for static and kinetic laboratory test work.

From the materials tested, 57 samples were classified as non-PAG and 13 samples were classified as PAG. The remaining 75 samples were classified as having uncertain acid-generation potential based on their net neutralizing potential and neutralization potential ratio values. Most of the samples classified as uncertain exhibited comparable low levels of acid-generation and acid-neutralization potential (SRK 2020a). ABA testing exhibited acid-generating potential associated with some samples from three units, the aggregate for all materials to be placed in the WRDA is net acid-neutralizing. MWMP tests were conducted on 31 rock samples, to identify the presence of leachable metals and soluble salts and provide an approximate estimate of the water quality of leachate that would be generated by leaching of these samples under semi-arid conditions (SRK 2020a). The tests quantified the initial flush of analytes from waste rock materials to be placed in the WRDA with dissolved concentrations of TDS, sulfate, chloride, metals (mercury and thallium) and metalloid oxyanions (arsenic and antimony) noteworthy compared to NDEP Profile I reference values. Initial humidity cell tests (HCT) leachate concentrations (weeks one and two) resembled the MWMP test effluents when compared to NDEP Profile I reference values. However, leached concentrations of most metals decreased rapidly after the initial two-week time period to concentrations below reference values. HCT analysis indicates circum-neutral leachate and generally low metals release (SRK 2020a).

All the waste rock material from the proposed GBS Pit is non-acid-generating but has the potential to leach some metals and metalloids at neutral pH conditions. Metal leaching under neutral pH conditions is attributable to minor amounts of weathered metal-bearing minerals within the samples tested. As is common with mine rocks in Nevada, metalloid oxyanions (primarily arsenic and antimony) leached under pH-neutral conditions at concentrations above NDEP reference values from approximately half the samples.

3.7 Geology and Minerals

The area of analysis for geology and minerals for the Proposed Action and action alternatives includes the proposed GBS boundary and the areas of proposed surface disturbance that would occur within the authorized GBP boundary. The affected environment for geology and minerals is summarized in this section, and additional details are provided in the Geology and Minerals SER (BLM 2021j).

The proposed GBS boundary consists of Devonian to Mississippian aged bedrock and Tertiary and Quaternary aged sediments. Specifically, within the proposed GBS boundary, the main rock types identified from youngest to oldest includes: Quaternary Alluvium; Tertiary Dikes; Tertiary Volcanics; Mississippian Webb Formation (Webb); and Devonian Devils Gate Limestone (SRK 2020a). The Proposed Action involves a near surface, sediment-hosted gold deposit. Gold mineralization was deposited in brecciated siltstones of the Mississippian Webb Formation, at and immediately above its contact with the Devonian Devils Gate Limestone. Lower levels of mineralization also occur in adjacent Devils Gate Limestone (SRK 2020a). The main rock types are described in the Geology and Minerals SER (BLM 2021k).

Mineralization within the proposed GBS boundary is typical of Carlin-type gold deposits and consists of epithermal, disseminated, sediment-hosted gold, in zones related to hydrothermal dissolution in limestone and the resulting collapse breccia in the overlying siliciclastic unit. Gold is associated with brecciated, oxidized, silicified, and argillized mudstones, siltstones, and sandstones of the Webb Formation and is usually accompanied by silicification and strong barite veining. Jasperoid is brecciated and contains veins

of barite and scattered gold mineralization. In contrast to the sediment-hosted GBP deposits, gold mineralization is associated with brecciation (SRK 2020b).

There are four main fault set orientations in the proposed GBS boundary. All faults are sub-vertical and are not anticipated to adversely affect the stability of the pit wall, except for possible raveling and sloughing, as the altered, weathered, and sheared rocks within and proximal to the faults are exposed (SRK 2012).

3.8 Historic Trails

The area of analysis for historic trails for the Proposed Action and action alternatives consists of the area within the Roberts Creek HUC 10 Watershed (1606000514) and the Coils Creek HUC 10 Watershed (1606000507), as well as the southern portion of the Upper Pine Creek watershed. A HUC watershed was chosen for the historic trails area of analysis because the limits of the watershed typically coincide with mountain crests and topographic highpoints. Beyond these topographic highpoints, topography generally begins to block views of the area within the watershed. The affected environment for historic trails is summarized in this section, and additional details are provided in the Historic Trails SER (BLM 2021k).

The Pony Express NHT crosses less than one mile south of the Proposed Action (NPS 2011b). The National Park Service has designated this segment of the Pony Express NHT (designated as Overland Canyon to Simpson Park Station) as a high-potential segment. This segment is categorized as NHT Condition Category IV as outlined in the Federal Trail Data Standards. The definition of NHT Condition Category IV is "Location verified and Permanently Altered" (NPS 2011a).

Within the area of analysis, the Pony Express NHT crosses Kobeh Valley, which has a wide, flat form. Nearly the entire valley floor within view of the trail is vegetated. Vegetation cover consists of mainly sagebrush and is fairly uniform. In general, there are large expanses of undisturbed land with native vegetation. There are several unpaved roads that cross the NHT, including Three Bars Road and Roberts Creek Road. The surfaces of these roads are native soils and have a bold and flat form with a distinct finely stippled surface. The edges of the road surfaces create strong curvilinear lines. The Pony Express NHT also looks much like an unpaved dirt road and has similar line, form, and color elements as the other unpaved roads visible from the Pony Express NHT. There are several buildings associated with ranching activities located within view of the Pony Express NHT. One building is dark brown with a silver roof. The other buildings are muted colors that are pale and close to white. The silver and pale colors on the buildings are unlike the otherwise natural colors within the study area, and for this reason, the buildings are readily apparent. Wood fence posts near the buildings are also visible. These buildings are part of the privately-owned Roberts Creek Ranch, which began as a station on the Pony Express NHT. Existing disturbance at the permitted Gold Bar Mine approximately one to 1.5 miles from the NHT segment is visible from the Pony Express NHT. The existing mining disturbance is a blend of light gray, light tan, and light orange colors. Surrounded by darker vegetation cover, the light-colored disturbances are apparent.

Ambient noise levels were observed at two human receptor locations in the noise assessment. Noise analysis applicable to the human environment typically uses the United States Environmental Protection Agency (USEPA)-recommended outdoor noise standard of 55 A-weighted decibels (dBA) day-night average sound level. According to the baseline noise assessment, ambient day-night average noise levels over a 24-hour period is between 41.1 and 41.9 dBA within the National Trail study corridor. In general, daytime noise levels are louder than night-time noise levels throughout the entire National Trail study corridor.

3.9 Land Use, Realty, Access, and Transportation

The area of analysis for land use, realty, access, and transportation for the Proposed Action and action alternatives includes the proposed GBS boundary and the areas of proposed surface disturbance that would occur within the authorized GBP boundary. The affected environment for land use, realty, access, and transportation is summarized in this section, and additional details are provided in the Land use, Realty, Access, and Transportation SER (BLM 2021l).

The area of analysis encompasses approximately 2,273.2 acres of public lands administered by the BLM MLFO within Eureka County, Nevada. Land uses within and adjacent to the area of analysis include mining and mineral exploration, livestock grazing, agriculture, woodland products harvesting, recreation, and wildlife habitat (BLM 2017). Historical mining has occurred within the area of analysis between 1986 and early 1994 by the Atlas Corporation, which included open pits and WRDAs (BLM 2017).

No patents were identified within the area of analysis. Complete detail on the existing BLM land use authorizations or rights-of-way not controlled by MMI within or adjacent to the area of analysis is provided in the Land use, Realty, Access, and Transportation SER (BLM 2021l).

Within the area of analysis, MMI or its subsidiaries control multiple mining claims (MMI 2020). There are also two mining claims within the area of analysis that are not controlled by MMI. These claims, HNT 1 and HNT 2, are controlled by Nevada Select Royalty, Inc.

Existing transportation routes for the Gold Bar Mine access include Roberts Creek Road, Bypass Road, Gold Bar Process Road, North Roberts Creek Road, Three Bars Road, Gold Bar Road, Atlas Haul Road, and GBS Haul Road. Under the Proposed Action, vehicle access to the GBP boundary would continue as authorized in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.10). There are several unimproved roadways (i.e., dirt and gravel roads and public access trails) within or adjacent to the area of analysis that are used by the public (Eureka County 2005; USCB 2018b), which are improved and maintained public/county roads, designated through Nevada Revised Statutes (NRS) 403 and NRS 405, providing public access to and through the area, including access to private property. There are also other public access roads in the area not actively maintained by the counties, many of which are designated public roads through NRS 405. Annual Average Daily Traffic (AADT) near the proposed GBS boundary has increased by six to 14 percent at the four roads utilized for project access from 2016 to 2019 (NDOT 2020).

3.10 Noise

The affective environment for noise is summarized in this section, and additional details are provided in the Noise SER (BLM 2021m). In order to determine the existing environment potentially affected by noise, sensitive noise receptor sites in the area of analysis were identified at the Roberts Creek 2 Lek and Henderson Pass Lek. The two lek sites were chosen to represent noise sensitive sites. The Three Bars Lek was also included in the analysis for consistency with previous monitoring (BLM 2017, 2019a). The Three Bars Lek was chosen to represent pre-development noise levels as it is located approximately five miles from existing mining operations at the existing Gold Bar Mine and is not located close to any other substantial sources of anthropogenic noise. Additionally, human noise receptor sites within the area of analysis were identified at the Roberts Creek Ranch and Pony Express NHT.

The results from the human noise receptor monitoring data at Roberts Creek Ranch was reported for daytime and nighttime hours and are presented in **Table 3-4**. The results from the GRSG lek noise monitoring data at was reported for three time periods and are presented in **Table 3-5**. During GRSG lekking hours (4:00 AM to 9:00 AM), 24-hour average, and evening through morning hours (6:00 PM to 10:00 AM).

Table 3-4 Baseline Noise Levels at Roberts Creek Ranch and Pony Express Trail Monitoring Locations

Monitoring Location	Mean Sound Level L _{dn}	Daytime Mean Sound Level			Nighttime Mean Sound Level		
		L _{eq}	L ₅₀	L ₉₀	L _{eq}	L ₅₀	L ₉₀
LT-1 (Roberts Creek Ranch)	41.1	40.4	30.8	25.2	29.4	24.7	20.4
LT-2 (Pony Express Historic Trail)	41.9	39.6	27.4	21.0	33.2	20.0	14.3

Source: Saxelby 2021a

Note: All results are shown in dBA

L_{dn} = day-night average sound level

L_{eq} = equivalent continuous sound level

L₅₀ = sound level exceeded for 50 percent of the time

L₉₀ = sound level exceeded for 90 percent of the time

Table 3-5 Baseline Noise Levels at Lek Monitoring Locations

Monitoring Location	L _{min}	L _{max}	L _{eq}	L ₁₀	L ₅₀	L ₉₀
4:00 AM to 9:00 AM Average						
Three Bars Lek	3.7	51.0	22.8	18.3	13.5	7.7
Henderson Pass Lek	8.5	58.8	33.8	34.5	22.5	15.6
Roberts Creek 2 Lek	7.7	57.6	32.1	32.6	22.7	15.2
24-Hour Average						
Three Bars Lek	3.5	45.8	18.8	18.6	10.0	5.4
Henderson Pass Lek	8.6	53.7	29.5	28.3	19.2	13.6
Roberts Creek 2 Lek	6.6	51.5	26.8	26.2	17.5	11.3
6:00 PM to 10:00 AM Average						
Three Bars Lek	3.3	45.0	17.9	18.1	9.7	5.3
Henderson Pass Lek	7.8	52.9	27.2	28.1	17.9	12.7
Roberts Creek 2 Lek	6.3	48.7	24.2	24.5	16.0	10.8

Source: Saxelby 2021a

Note: All results are shown in dBA

L_{min} = lowest sound pressure level

L_{max} = highest sound pressure level

L₁₀ = sound level exceeded for 10 percent of the time

3.11 Grazing Management

The area of analysis for grazing management for the Proposed Action and action alternatives includes the Roberts Mountain allotment as the Proposed Action and action alternatives occurs within this allotment. The affected environment for grazing management is summarized in this section, and additional details are provided in the Grazing Management SER (BLM 2021n).

Table 3-6 presents the acres and authorized use for the Roberts Mountain allotment, as well as the overlap with the proposed GBS boundary. The Roberts Mountain Allotment has a single permittee that is permitted for both sheep and cattle grazing (BLM 2020b, 2020c).

Table 3-6 Permitted Grazing in the Area of Analysis

Allotment	Pastures	Public Acres	Private Acres	Active Cattle AUMs	Active Sheep AUMs	Suspended AUMs	Authorized Disturbance (acres)	Overlap with Proposed Disturbance (acres)	Overlap with Proposed GBS Boundary (acres)
Roberts Mountain	21	117,818	2,640	3,182	1,350	8,596	1,194	213.3	2,230

Sources: BLM 2020b; Burdick 2020

AUM = animal unit month

The Roberts Mountain Allotment is in the Improve category, indicating management is focused with a high priority for improving the current unsatisfactory conditions (BLM 1986, 1988). The allotment categories apply to not only grazing, but also non-grazing causal factors that may degrade the landscape.

Range improvement projects have been installed in this allotment, including fences, cattleguards, spring developments, and water troughs.

3.12 Recreation

The area of analysis for recreation for the Proposed Action and action alternatives includes the proposed GBS boundary and the areas of proposed surface disturbance that would occur within the authorized GBP

boundary. The affected environment for recreation is summarized in this section, and additional details are provided in the Recreation SER (BLM 2021o).

Recreation within the analysis area primarily includes dispersed recreation, including off-highway vehicle use, pleasure driving, rock collecting, photography, hunting, camping, sightseeing and wildlife viewing, hiking, winter sports, horseback riding, and mountain biking. The numerous unimproved trails and roads within the area of analysis are the primary means of accessing the dispersed recreational opportunities. There are existing disturbances and features associated with past mining activities within the area of analysis (BLM 2017). There are no Special Recreation Management Areas identified within the area of analysis in the RMP (BLM 1986).

The dispersed nature of recreation activities within the area of analysis precludes availability of any specific user data for individual recreation activities except hunting. The area of analysis is used for mule deer (*Odocoileus hemionus*) and pronghorn (*Antilocapra americana*) hunting and includes mule deer distribution and is adjacent to or within pronghorn distribution. The area of analysis is also likely used for hunting upland game species and furbearers. The NDOW regulates big game hunting through a quota system and tags are sold for each big game species in the various hunt units. Big game harvests vary from season to season depending on the game population, number of hunters, and other environmental factors that may affect hunting, such as extended periods of inclement weather during a hunting season.

There are no developed or designated recreation facilities, parks, or sites located within the area of analysis. However, there are numerous undeveloped or non-designated camp sites along Roberts Creek that are used throughout the summer and during the fall hunting season. The Roberts Creek area is easily accessed by southern Eureka County residents and frequently used for camping and fishing (BLM 2012). In addition, the Roberts Creek Reservoir is located less than 0.25 mile from the proposed GBS boundary and also provides fishing opportunities near the area of analysis. The Pony Express NHT intersects the southern area of the proposed the GBS boundary.

There are no wilderness areas, wilderness study areas, Areas of Critical Environmental Concern, Research Natural Areas, and no identified lands with wilderness characteristics within the area of analysis (BLM 1980).

3.13 Social and Economic Values

The area of analysis for social and economic values for the Proposed Action and action alternatives is Eureka County. The area of analysis was chosen based on the location of the mine and would be the county where potential socioeconomic impacts would occur.

The analysis below represents the best available information for the existing social and economic condition of the area of analysis using publicly available United States Census Bureau (USCB) data. However, due to the uncertainties related to the ongoing COVID-19-related economic impacts and changes in regional economic and social conditions, the data below may be inexact as it is based on prior economic conditions data and trends. Furthermore, the USCB data are estimates and may not reflect actual conditions in population growth, housing availability and other socioeconomic conditions. The affected environment for social and economic values is summarized throughout this section, and a detailed assessment is provided in the Social and Economic Values SER (BLM 2021p).

3.13.1 Population and Demography

Eureka County had an estimated population of 1,987 people in the 2010 Census. Nevada has been one of the country's fastest growing states for much of the past three decades (USCB 2001, 2011). During the expansion, the bulk of the growth occurred in urbanized areas. Eureka County experienced steady growth through the 1980 to 1990 period, but has had slower growth in the 1990s, higher growth in the 2000s, and slow growth in the 2010s. Much of the mining workforce in southern Eureka County mines resides in the Eureka vicinity primarily because it is the most accessible community with a modest selection of services and housing. Some workers may choose to live in other communities within Eureka County as well, depending on housing availability. Local knowledge suggests that population growth in southern Eureka County is greater than estimated by the USCB's American Community Survey (ACS) data (Eureka County 2021b).

Eureka County is less diverse than Nevada as a whole, except for the American Indian population, which is substantially greater than the State of Nevada (USCB 2018a). A summary of the affected environment for environmental justice populations is provided in Section 3.3, and a detailed discussion on race and ethnicity is presented in the Environmental Justice SER (BLM 2021d).

3.13.2 Economy and Employment

Eureka County's primary economic driver is mining, with 3,958 jobs in the sector (95.3 percent of jobs in Eureka County) (NDETR 2020a). The number of employees is higher than the number of residents, due to the daily import of workers from surrounding communities. Eureka County and Nevada saw changes in employment levels in 2020, likely in part due to the COVID-19 pandemic. Eureka County unemployment peaked in April 2020 at 6.3 percent, and by September 2020 had decreased to 3.1 percent, similar to November 2019 levels of 3.4 percent (NDETR 2020b).

3.13.3 Income

Average mining wages and salaries are the highest for any industry in Nevada, with an average weekly wage of \$1,670 for the second quarter of 2020. Weekly mining wages for Eureka County were \$2,305 for the most recently available data (fourth quarter of 2019) (NDETR 2020a, 2020c). Other high weekly wage jobs in the area of analysis include trade, transportation and utilities and public administration (NDETR 2020a, 2020c).

Estimates for 2019 indicate that per capita personal incomes in the area of analysis lag behind the state average of \$51,161 by approximately 16 percent in Eureka County (\$42,932) (USBEA 2019). However, the estimated median household income for the state of Nevada in 2018 was estimated at \$57,598, compared with \$77,625 for Eureka County (34.8 percent above the state of Nevada level) (USCB 2018c). Despite high industrial wages, Eureka County has an estimated 7.7 percent of the population living below the poverty level, which is lower than the state of Nevada poverty rate of 13.7 percent (USCB 2018d).

3.13.4 Housing

The 2019 ACS estimated that Eureka County had 452 vacant housing units out of 1,226 total units for a total of approximately 36.9 percent vacancy (USCB 2019); however, local knowledge suggests that housing availability is more limited, and that unoccupied housing is less than the ACS data describes (Eureka County 2021b). Approximately 2.5 percent of vacant units are owned by homeowners. Vacant units also include seasonal and recreational use and may not be available to house new residents.

Manufactured homes remained the dominant housing type in Eureka County, accounting for 62 percent of county housing in 2017. With few traditional rental-housing units in Eureka County (multi-family and single-family attached), most renters occupy mobile homes and single-family detached housing (Eureka County 2018). Recognizing housing shortages in the area, Eureka County subsidized development of the Eureka Canyon subdivision, annexed into the town of Eureka. Buildable lots currently exist in the Prospect Canyon and Eureka Canyon subdivisions as well as in the nearby Devil's Gate General Improvement District. The Eureka Canyon subdivision currently has 58 vacant lots for sale, averaging approximately \$24,000 per lot. Lots are equipped with water, wastewater, and electricity and are constructed with streets, curbs, and gutters in place. The Eureka Canyon subdivision has the potential to be expanded to adjacent areas given sufficient housing demands, including for potential multi-family housing units (Eureka County 2021b).

There are numerous temporary housing opportunities available, including approximately 88 hotel rooms and 110 spaces at recreational vehicle (RV) parks. Local knowledge suggests that the majority of existing RV spaces are occupied. Temporary housing resources in Eureka are routinely occupied by construction and mine workers as well as tourists and recreationists, with RV parks being particularly used by mine operations staff for weekly commuting. Demand for temporary housing is typically higher in the summer months. During both peak summer travel periods and the work week, hotels, motels, and RV parks in the area of analysis are routinely reported to be at full or near-full occupancy (Eureka County 2021b).

3.13.5 Community Facilities and Services

3.13.5.1 Public Utilities

Southeastern Eureka County is served by Mt. Wheeler Power. The service area includes the town of Eureka and the Gold Bar Mine (BLM 2017).

Within Eureka County, there are three municipal water systems operated by Eureka County including the water systems in the town of Eureka, Devil's Gate Water District, and the town of Crescent Valley (Eureka County 2018). All systems are managed by the Eureka County Public Works Department.

The Eureka Wastewater Treatment Facility, managed by Eureka County's Public Works Department, treats wastewater for the town of Eureka with a multi-cell, aerated evaporative lagoon treatment system. The facility is permitted to discharge up to 100,000 gallons per day, though it typically operates 50 percent of its capacity (BLM 2017).

Eureka County Public Works operates a Class II landfill north of the town of Eureka and a landfill transfer site in Crescent Valley. Current capacity at the Eureka landfill (approximately 1,000,000 cubic yards) is expected to be sufficient until approximately 2035 under current conditions

3.13.5.2 Public Safety

The Eureka County Sheriff provides law enforcement and detention services for the entire county and provides emergency dispatch services for all public safety functions in the county including law enforcement, emergency medical, and fire suppression activities. The sheriff's office has a staff of 17, including the sheriff, undersheriff, patrol officers, dispatchers, jailers, and support staff. The sheriff's office operates the detention facility in the town of Eureka, which can accommodate up to 20 adult inmates. The Nevada Highway Patrol, stationed in Eureka, provides law enforcement on the federal and state highway system and provides support to other law enforcement agencies (BLM 2017).

The Eureka Volunteer Fire Service provides fire protection services in the town of Eureka and surrounding area. The Diamond Valley Volunteer Fire Department serves a primary area north of the town of Eureka. There are also volunteer fire departments in Eureka County in the towns of Pine Valley, Crescent Valley, Beowawe, and Dunphy (BLM 2017). In addition to the local fire departments, the BLM, the United States Forest Service, and the Nevada Division of Forestry provide fire protection, primarily in outlying areas where they are chiefly responsible for fighting wildland fires. Eureka County also has two volunteer ambulance services which serves residents in the towns of Eureka and Crescent Valley (Eureka County 2020).

The Eureka County Medical Clinic serves southern Eureka County, and the William Bee Ririe Hospital has expanded their service area to include the residents of Eureka County at the Eureka County Medical Clinic. There is no hospital in Eureka County, so persons needing hospital or medical services beyond the capabilities of the diagnostic centers are transported to Elko (Northeastern Nevada Regional Hospital) or Ely (William Bee Ririe Hospital) or other regional facilities (BLM 2017).

3.13.5.3 Education

The Eureka County School District provides public education in the area of analysis. Student enrollment has increased over the last five years from 259 in 2015 to 2016 to 349 in 2019 to 2020, although the district has maintained a steady student to teacher ratio (Nevada Department of Education 2016, 2020a; Nevada Report Card 2016, 2017, 2018, 2019, 2020). Steadily increasing enrollment can cause school districts to face limitations for scarce facilities and/or finances. Eureka School District reports class sizes are below targets, and they did not request any variances for the 2019 to 2020 school year (Nevada Department of Education 2020b). Education funding is a limiting factor when addressing increased enrollment.

3.13.6 Public Finance

State-shared revenues, designated as intergovernmental resources, include sales, motor vehicle, fuel, and gaming taxes. For Fiscal Year 2018 to 2019 for Eureka County, revenues were approximately \$22.6 million, and expenses were approximately \$16.0 million. Revenues are primarily from taxes and intergovernmental sources and expenditures are primarily from general government and public works operations (Eureka County 2019). Senate Bill Number 543, signed by the Governor in June 2019, modifies the distribution of

net proceeds of minerals within a county, including school districts. The exact method of disbursement of net proceeds of minerals is currently unknown, but the new funding formula would have implications on the current disbursement of those funds to individual school districts (Nevada Legislature 2019).

3.14 Soils

The area of analysis for soils for the Proposed Action and action alternatives includes the proposed GBS boundary and the areas of proposed surface disturbance that would occur within the authorized GBP boundary. The affected environment for soils is summarized in this section, and additional details are provided in the Soil Resources SER (BLM 2021q).

The area of analysis includes 15 soil map units comprised of 22 individual soil series, classified as well drained and range from shallow in the mountains to deep in the flats and alluvial fans. Surface soil textures are loams highly modified by coarse fragments. Slopes range from zero to 50 percent. Depth to restrictive features, such as bedrock or a duripan, ranges from four to over 80 inches. Due to the arid climate characteristics of the region, topsoil is generally thin and contain little organic matter. Soils within the area of analysis are relatively limited in their ability to provide suitable topsoil because approximately 1,898 acres (83 percent) of the soils within the area of analysis have a poor topsoil source rating. Based on the anticipated reclamation demands, with appropriate measures, there would be enough reclamation materials from within the area of analysis for future reclamation needs of the Proposed Action (Cedar Creek 2020).

Wind erodibility group ratings range from one to eight, with one being the most susceptible and eight being the least susceptible to erosion. Soil map units within the area of analysis range between wind erodibility groups of four to seven (NRCS 2020), but one soil map unit, 590, has an erodibility rating of 3, being very susceptible to wind erosion.

Within the area of analysis, there are four soil units (soil units 141, 270, 590, and 770) classified as prime farmlands only if measures are taken to overcome a hazard or limitation to the soil (i.e., irrigation and removal of excess salts and sodium).

3.15 Vegetation, including Noxious and Invasive Non-native Species and Special Status Plants

The area of analysis for vegetation, including noxious and invasive non-native species and special status plants, for the Proposed Action and action alternatives includes the proposed GBS boundary and the areas of proposed surface disturbance that would occur within the authorized GBP boundary. The affected environment for vegetation is summarized in this section, an additional details are provided in the Vegetation, including Noxious and Invasive, Non-native Species and Special Status Plants SER (BLM 2021i).

The area of analysis encompasses a total of seven different ecological types. Upland vegetation communities mapped in the area of analysis include four types of mixed sagebrush shrubland systems, two types of woodland systems, and one type of grassland and meadow systems. Four noxious and one non-native invasive species have been identified within the area of analysis: black henbane (*Hyoscyamus niger*) (Category B), musk thistle (*Carduus nutans*) (Category C), perennial pepperweed (*Lepidium latifolium*) (Category C) and bull thistle (*Cirsium vulgare*) (Invasive Weed Species) (Stantec 2020a; JBR 2013). An area of Scotch thistle (*Onopordum acanthium*) was treated by the Diamond Valley Weed Control District around the Roberts Creek crossing location along the proposed GBS Haul Road (Eureka County 2021a).

Twelve special status plants were determined to have potential to occur within the area of analysis (Stantec 2020a), but no special status plant species were observed during the surveys. Potential habitat for Eastwood's milkweed; Beatley's buckwheat, Pahute Mesa beardtongue, and least phacelia was located within the area of analysis (Stantec 2020a), but no individuals or populations of these species were identified during the survey (Stantec 2020a).

Approximately six acres of mapped wetland or riparian areas occur along Roberts Creek within the area of analysis (JBR 2013). Approximately 3.4 acres of dry meadow occurs near the Roberts Creek Reservoir

where Roberts Creek becomes intermittent. Approximately 2.6 acres of riparian willow occurs along Roberts Creek, prior to entering the dry meadow at Roberts Creek Reservoir.

3.16 Visual Resources

The area of analysis for visual resources for the Proposed Action and action alternatives is a three-mile buffer of the proposed GBS boundary. This area of analysis was chosen because it represents the potential viewshed for the Proposed Action. A summary of the affected environment is provided in this section, and additional details for visual resources are provided in the Visual Resources SER (BLM 2021r).

3.16.1 Characteristic Landscape

The area of analysis is located within the Basin and Range physiographic province, characterized by broad, sediment-filled valleys bounded by isolated mountain ranges. These mountain ranges rise to thousands of feet above the basins. While most mountain ranges tend to be elongated in a north-south direction, the area of analysis area lies on the south slopes of the Roberts Mountains, which are not elongated in any particular direction. The area of analysis extends down the southern flank of the Roberts Mountains towards Kobeh Valley, which is a nearly flat valley bounded by the Simpson Park Mountains to the west and the Whistler Range to the east (BLM 2017).

Vegetation on the Roberts Mountains is typical of the surrounding mountain ranges and consists of pinyon-juniper mixed with mountain mahogany in the higher elevations. Sagebrush and grasses constitute the vegetation cover in the lower elevations and valley flats (BLM 2017). The texture of the vegetation is coarse in the immediate foreground and medium to smooth at the middle and background distances.

Previous mining and exploration activities have occurred within the area of analysis and are visibly evident because the light-colored cleared areas contrast with the darker pinyon-juniper stands and mountain mahogany. The area also has some naturally exposed lighter-colored rock outcroppings (BLM 2017).

Man-made features occurring from mining activities, including the historic Atlas Gold Bar Mine, also currently occur within the area of analysis at the authorized Gold Bar Mine northwest of the Proposed Action. Areas of disturbance are visible within the viewshed due to vegetation removal, reshaping of soils, mass-grading, and the addition of multiple mine facilities (i.e., open pits, mine roads, waste rock disposal areas, a HLF, and ancillary facilities) which have already added contrasting form, color, line and texture to portions of the undisturbed landscape within the area of analysis. Additionally, previously authorized exploration activities occur within the area of analysis including overland access, new road construction, drilling geophysical analysis, trenching, construction of exploration drill pads and sumps, and reclamation which results in additional removal of vegetation cover and additional introduction of form, line, color, and texture elements that contrast with the features of the existing landscape.

3.16.2 Visual Resources Inventory

The Visual Resources Inventory (VRI) classes are based on a sensitivity level analysis, scenic quality evaluation, and delineation of distance zones and indicate the overall value of landscapes. Based on the VRI that has been completed for the BLM BMDO, the majority of the area of analysis has been designated as a VRI Class II, with smaller areas designated as a VRI Class III. The areas of VRI Class III are primarily in those areas designated in the seldom-seen distance zone. The proposed GBS boundary is designated as a VRI Class II.

After reviewing the current VRI and previous NEPA and completing an analysis of scenic quality, visual sensitivity levels, and delineating distance zones, it was established by BLM management that the interim Visual Resource Management (VRM) class for the area of analysis be managed under interim VRM Class III and Class IV. The interim VRM management would be consistent with the prior Gold Bar Mine authorization and the previously authorized exploration activities within the proposed GBS boundary and would comply with the Shoshone-Eureka RMP objectives and land use allocations.

3.17 Wild Horses

The area of analysis for wild horses (*Equus ferus*) for the Proposed Action and action alternatives includes the proposed GBS boundary and the areas of proposed surface disturbance that would occur within the authorized GBP boundary. This area of analysis falls within the Roberts Mountain Herd Management Area (HMA) and Herd Area (HA). The affected environment for wild horses is summarized in this section, and additional details are provided in the Wild Horses SER (BLM 2021s).

The Proposed Action would be located within the Roberts Mountain HMA which consists of approximately 99,321 acres of BLM land and 667 acres of a mix of private and other public lands for a total of 99,988 total acres (BLM 2020c). The area of analysis overlaps with approximately 1,736 acres of the Roberts Mountain HMA, managed as part of the Roberts Mountain Complex, which includes the Roberts Mountain HMA, Whistler Mountain HMA, and Fish Creek North HMA (BLM 2017). The Appropriate Management Level (AML) for the Roberts Mountain Complex HMA is 170 to 184 wild horses, established through the 1994 and 2004 Final Multiple Use Decisions. No burros are managed within this HMA (BLM 2017). In 2021, the population for the Roberts Mountain Complex (both inside and outside of the HMA boundaries) was 1,045 horses, post-foaling, for the Roberts Mountain Complex (Richardson 2021). The portion of the area of analysis that overlaps the Roberts Mountain HMA represents 1.7 percent of the HMA and 1.1 percent of the Roberts Mountain Complex.

Horses within the Roberts Mountain HMA are able to move between the Fish Creek, Kobeh Valley, and Roberts Mountain HMAs through open gates and breaks in the allotment fences. Since a fence between the Roberts Mountain HA and HMA boundaries does not exist, it is not unusual for a number of wild horses to move out of the HMA boundaries. With increases in population above the AML, wild horses have continued to expand outside of the HMA boundaries into the Roberts Mountain HA. Horses have also spread north outside of the HA boundary.

Though wild horses utilize habitat in the general area of the area of analysis, much of the area does not provide ideal habitat for wild horses and is not heavily utilized by wild horses. This lack of use is likely related to the historic mining disturbance and the steep, dense singleleaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) tree community in the area of analysis. During baseline surveys completed in 2019, wild horses were observed within the proposed Gold Bar Mine expansion area (Stantec 2020a). Additionally, as previously committed, MMI currently maintains record logs for wild horse sightings within or near the authorized GBP boundary. The sighting log indicates there have been approximately 53 individual instances of wild horse sightings with various numbers of individual horses recorded by Gold Bar Mine employees from September 2017 to June 2020 (MMI 2020).

3.18 Wildlife Resources (Including Migratory Birds and Wildlife Special Status Species)

The area of analysis for the Proposed Action and action alternatives for wildlife resources, including migratory birds, special status species, and big game species, is the proposed GBS boundary plus the area of proposed surface disturbance within the GBP boundary. The area of analysis for GRSG encompasses the 3.1-mile buffer of the proposed GBS boundary. The affected environment for wildlife resources is summarized in this section, and additional details are provided in the Wildlife Resources SER (BLM 2021e).

3.18.1 General Wildlife

3.18.1.1 Avian Species, including Migratory Birds and Raptors

Forty-one avian species have been observed within or near the area of analysis. Of the avian species documented within or near the area of analysis, 39 are protected under the Migratory Bird Treaty Act. Special status avian species are discussed further in Section 3.3.2.

GRSG are the only upland game bird species to be observed in the area of analysis (NDOW 2020a). GRSG are designated as a special status species and are discussed further in Section 3.3.2. No waterfowl concentrations, shorebirds, or migratory game birds have been observed within the area of analysis.

Eight species of raptors potentially occur as residents or migrants within or near the area of analysis. Field surveys have documented no general raptor species nests within the area of analysis. Golden eagle nests documented in the area of analysis are discussed under golden eagles (Section 3.4).

3.18.1.2 Mammal Species

Approximately 24 mammal species have been observed within or near the area of analysis (Stantec 2020a; NDOW 2020a), and a complete list of those species is provided in the Wildlife Resources SER (BLM 2021e). Special status mammal species are discussed further in Section 3.3.2.

Mule deer, pronghorn, and mountain lion (*Puma concolor*) occur within portions of the area of analysis. There are no known occurrences of bighorn sheep (*Ovis canadensis*) or elk (*Cervus canadensis*) in the area of analysis.

3.18.2 Special Status Species

3.18.2.1 Aquatic Species

Based on information from the USFWS consultation, one federally threatened species, Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) (LCT), was identified as potentially occurring within the Gold Bar Mine vicinity (USFWS 2020). However, based on the streams listed in the USFWS Five-Year Review, the closest occurrence of LCT is in Pete Hansen and Birch creeks in the northern Roberts Mountains, approximately seven miles northeast of the area of analysis (USFWS 2009). No known populations of LCT or LCT habitat occur within the area of analysis; therefore, LCT are not discussed further within this report.

3.18.2.2 Avian Species, Including Migratory Birds and Raptors

The special status avian species that have been identified within the area of analysis and include Brewer's sparrow (*Spizella breweri*), ferruginous hawk (*Buteo regalis*), golden eagle, pinyon jay (*Gymnorhinus cyanocephalus*), sage trasher (*Oreoscoptes montanus*), GRSG, and western burrowing owl (Stantec 2020a; NDOW 2020a; GBE 2017; Western Biological 2018, 2019, 2020).

Bald and Golden Eagles

The area of analysis for bald and golden eagles for the Proposed Action and action alternatives includes the proposed GBS disturbance footprint plus a 10-mile buffer. The area of analysis lies within the Great Basin Bird Conservation Region, which includes portions of northeastern California, eastern Oregon and Washington, most of Nevada, western Utah, southern Idaho, and southern British Columbia. The golden eagle is a bird of open and semi-open habitats (Kochert and Steenhof 2002) and is found primarily in mountainous canyon land, rimrock terrain of open desert, tundra, and grassland areas of the western United States. Golden eagles typically forage in open habitats including grasslands and steppe. Habitats surrounding the GBS boundary include perch and roost sites as well as mountainous areas that are suitable for soaring. The area of analysis is suitable for golden eagle nesting and foraging habitat.

Twenty-four vegetation communities occur within the area of analysis, mapped by the Southwest Regional Gap Analysis Project (SWReGAP) (USGS 2011), with the dominant vegetation communities being Great Basin Pinyon-Juniper Woodland (19 percent), Inter-Mountain Basins Big Sagebrush Shrubland (52 percent), and Inter-Mountain Basins Montane Sagebrush Steppe (21 percent). The remaining 21 vegetation communities were mapped as five percent or less of the area of analysis, and all details are listed alongside relevant golden eagle habitat that provide potential foraging value in the Eagle Conservation Plan (ECP) Gold Bar South Project Eureka County, Nevada (Stantec 2020b). There are multiple seeps, springs, stock troughs, and intermittent and ephemeral drainages within the area of analysis that provide a reliable water source for eagle prey. Golden eagles frequently feed on carrion, which can be found along roads, especially during winter; golden eagles consume fresh carrion during nesting season (Kochert and Steenhof 2002). Roads within the area of analysis, including the proposed GBS Haul Road, represent potentially high-value golden eagle scavenging habitat.

Within the area of analysis, various rock outcrops and mine highwalls were identified as areas with potential nesting golden eagles. Cliff and rock outcrops exist in the Roberts Creek Mountains as well as various isolated hill features around the Project Area, and there are multiple open pits throughout the area of analysis, primarily from the historic Atlas Gold Bar Mine and the existing GBP. Golden eagle surveys have been conducted annually from 2017 through 2020, with all inventory and monitoring reports following the standard golden eagle survey protocols accepted by the USFWS (Stantec 2020b). A total of 13 golden eagle nest sites have been documented within the 10-mile radius of the GBS disturbance footprint over the past four years of surveys. Documented nest locations within the area of analysis are further discussed and shown on Figures 4 and 5 in the ECP Gold Bar South Project Eureka County, Nevada (Stantec 2020b). In

2020, there was one in-use golden eagle nest located on a rock outcrop within 10 miles of the GBS disturbance footprint, east of SR 278. In 2017, three golden eagle nests were in-use within the area of analysis, and in 2018 and 2019, one golden eagle nest was in-use within the area of analysis.

A total of nine distinct golden eagle nesting territories were delineated in the area of analysis. Consistent with 50 CFR 22.3, an eagle territory is defined as an area that contains one or more nests within the home range of a mated pair of eagles, regardless of whether such nests were built by the current resident pair. One territory was documented with four nests present, within 0.6 mile of each other, less than one mile from the proposed GBS disturbance footprint. The four nests within this territory have never been simultaneously in use by golden eagles within the same breeding season during the 2017 through 2020 surveys (Stantec 2020b); however, because these four nests have been documented within one mile of the GBS disturbance footprint, they have the potential to be impacted by the Proposed Action. This territory has not been documented in-use since 2018. Each territory delineated within the area of analysis is discussed in further detail in the ECP Gold Bar South Project Eureka County, Nevada (Stantec 2020b).

3.18.2.3 Insect Species

No monarch butterflies or their host plants were observed within the area of analysis (Stantec 2020a). Therefore, special status insects are not discussed further within this report.

3.18.2.4 Mammal Species

Eleven special status bat species have been identified within the area of analysis (Stantec 2020a). Maternity roosting and/or winter hibernacula habitat is not available in the area of analysis due to the lack of caves and historic shafts and adits as well as the lack of facility buildings. No pygmy rabbits or dark kangaroo mice (*Microdipodops megacephalus*) have been identified within the area of analysis; however, habitat for both species has been identified as present within the area of analysis (Stantec 2020a; USGS 2001).

4.0 Environmental Consequences

The Proposed Action and action alternatives may cause changes in the natural and human environment. This chapter assesses and analyzes these potential changes and discloses the effects to the BLM and public. Effect assessment methodology for each resource is detailed in specific resource SERs. In addition, the below is a summary of impacts and more detail can be found in each resource specific SER (BLM 2021b through 2021s). The impacts discussed in this chapter are specifically analyzed for the Proposed Action and would be in addition to the existing impacts previously disclosed for the Gold Bar Mine and the close causal impacts of the authorized but not yet constructed Mount Hope Mine under the Gold Bar Mine Final EIS (BLM 2017, Volume II, Chapter 4). There are no pending authorizations in the project area.

4.1 Air Quality

4.1.1 Proposed Action

The Proposed Action would result in an increase in emissions. The modeling assumptions used to determine environmental consequences are based on the USEPA-approved AERMOD air quality dispersion modeling system, which was run using elevated terrain based on a digital elevation model provided by MMI, the building downwash algorithms, USEPA regulatory defaults, and the rural algorithm option that is based on land use; the air quality modeling assumptions are the same as those approved for and described further in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.2). Potential emissions from the GBS project were calculated based on conservatively high annual activity rates (ASI 2020b). The estimated annual potential emissions associated with the Proposed Action are presented in **Table 4-1**. As the GBS project is an expansion of the Gold Bar Mine, **Table 4-1** includes the authorized Gold Bar Mine (No Action Alternative and a close causal relationship with the Proposed Action) emissions to demonstrate total emissions for the Gold Bar Mine.

Table 4-1 Authorized Gold Bar Mine (No Action Alternative) and Proposed Action Potential Emissions

Source	PM ₁₀	PM _{2.5}	CO	NO _x	SO ₂
	tons per year				
Authorized Gold Bar Mine (No Action Alternative) Process Emissions	41.93	14.15	61.66	67.97	0.19
Authorized Gold Bar Mine (No Action Alternative) Fugitive Emissions ¹	277.57	28.51	60.51	52.40	2.02
Total Authorized Gold Bar Mine (No Action Alternative) Emissions	319.5	42.66	122.17	120.36	2.21
Proposed Action – GBS Emissions ¹	62.79	8.33	99.07	32.76	0.04
Total Gold Bar Mine (Proposed Action and No Action Alternative)	382.29	50.99	221.24	153.12	2.25

Source: ASI 2020b

NO_x = nitrogen oxides

¹ Includes mobile equipment tailpipe emissions.

The results presented in **Table 4-2** show that the total ambient concentrations resulting from the combined Proposed Action and No Action Alternative are sufficiently below the applicable National Ambient Air Quality Standards (NAAQS) for all pollutant and averaging periods.

Table 4-2 Proposed Action Air Quality Modeling Results

Pollutant	Averaging Period	Maximum Concentration (µg/m ³)	Background Concentration (µg/m ³)	Total Concentration (µg/m ³)	NAAQS (µg/m ³)	% NAAQS	Compliance
PM ₁₀	24-hour	30.0	10.2	40.2	150	27%	Yes
PM _{2.5}	24-hour	8.1	8.0	16.1	35	46%	Yes
	Annual	2.6	2.3	4.9	12	41%	Yes

Pollutant	Averaging Period	Maximum Concentration ($\mu\text{g}/\text{m}^3$)	Background Concentration ($\mu\text{g}/\text{m}^3$)	Total Concentration ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	% NAAQS	Compliance
CO	1-hour	2,376.5	1,030.4	3,406.9	40,000	9%	Yes
	8-hour	723.4	801.4	1,524.8	10,000	15%	Yes
NO ₂	1-hour	116.5	9.2	125.7	188	67%	Yes
	Annual	4.4	1.9	6.3	100	6%	Yes
SO ₂	1-hour	1.0	1.1	2.1	196	1%	Yes
	3-hour	0.7	1.3	2.0	1,300	0.2%	Yes

Source: ASI 2020b

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

The Proposed Action will not affect the ore processing and refining operation permitted limits. Therefore, it will not result in additional potential mercury emissions (ASI 2020b). The authorized Gold Bar Mine has the potential to emit 155,300 metric tons per year of carbon dioxide equivalent (CO₂e) as a result of fuel burning equipment and processes (BLM 2017). The Proposed Action would result in an additional 1,793.6 metric tons of potential CO₂e emissions. This would be the result of an additional 386,000 gallons of diesel fuel consumption by mobile equipment associated with the Proposed Action (ASI 2020b). Total greenhouse gas (GHG) emissions from the Proposed Action would be an estimated 157,094 metric tons per year of CO₂e. Per the USEPA GHG equivalencies calculator, this would produce approximately the same amount of GHG emissions annually as that produced by 17,921 households from energy consumption (USEPA 2020b). The Nevada annual emissions of GHG were approximately 43.8 million metric tons per year in 2017 (NDEP 2020). In comparison, the GHG emissions from the Proposed Action are approximately 0.36 percent of the Nevada annual GHG emissions. GHG emissions have been linked with accelerated global climate change (IPCC 2007).

MMI would comply with all regulatory requirements set forth by the NDEP-Bureau of Air Pollution Control. The Proposed Action would include use of control devices and dust suppression methods to mitigate particulate emissions. The facility would commit to the implementation of these air emissions controls in the NDEP-Bureau of Air Pollution Control air permit and in the Fugitive Dust Control Plan for the GBS project. To ensure that the BLM is informed of air quality impacts and comply with Nevada's regulatory requirements, the BLM would require that MMI submit copies of all air quality reports delivered to the State of Nevada to the BLM, and report annually to the BLM on measures taken to control emissions of fugitive dust.

The effects from the Proposed Action are expected to be negligible, short-term, and localized.

4.1.2 No Action Alternative

Impacts to air quality would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.2) and the Gold Bar Exploration Project Final EA (2019a, Section 3.9).

4.1.3 Relocated Yard Alternative

Under the Relocated Yard Alternative, emissions may be reduced overall due to the reduction of disturbance and associated construction activities needed for the external laydown yard and sediment basin, as well as reducing the haul road length in this area and eliminating the need for vehicle travel along the additional access to the laydown yard. However, as the Relocated Yard Alternative would have the same air quality impacts as the Proposed Action and would be in compliance with NAAQS. Impacts from the Relocated Yard Alternative may result in reduced emissions but are anticipated to be localized, short-term, and negligible.

4.1.4 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, there would be a reduced emission generation during the restricted periods which would reduce the amount of criteria pollutant generation from the GBS project. However, the Seasonal Hauling Restrictions Alternatives would have the same air quality impacts as the Proposed Action and would be in compliance with NAAQS. Impacts from the Seasonal Hauling Restrictions

Alternative may result in reduced emissions and criteria pollutant generation, but are anticipated to be negligible, short-term, and localized.

4.2 Cultural Resources

4.2.1 Proposed Action

Thirteen cultural sites including five eligible or potentially eligible archaeological sites occur in the direct APE for the Proposed Action. These sites include prehistoric task locations and locales associated with 19th century charcoal production. The five cultural resources would be directly adversely affected by the Proposed Action through ground-disturbing activities that would result in complete or partial destruction of these resources (**Table 4-3**). Effects to these resources would be adverse, long-term, and localized.

In the indirect APE for the Proposed Action, 592 cultural sites have been documented with 219 considered eligible or potentially eligible cultural resources have been identified. The BLM has determined that three of these resources would be indirectly adversely impacted by the Proposed Action (**Table 4-3**). The Pony Express NHT and the historic Roberts Creek Ranch would be indirectly adversely impacted by changes in auditory and visual conditions. The Roberts Creek Ranch and a rockshelter also would have the potential to be indirectly adversely impacted by vibrations emanating from the mine's facilities. The BLM has determined that the remaining 216 eligible and potentially eligible cultural resources in the indirect APE would not be adversely impacted by the Proposed Action. Auditory effects to resources would be short-term and limited to the duration of mine life. Visual effects to resources would be short-term, as reclamation after mining would return the viewshed of those resources to a natural state. Vibrational effects to resources would result in physical damage, which would be long-term.

Table 4-3 Cultural Resource Sites Impacted by the Proposed Action

Resource Designation*	Resource Type	APE	Consequence
CrNV-63-482	Pony Express Trail	Indirect Visual/Auditory APE	Adverse, indirect (visual, auditory); short-term; localized
CrNV-63-2097	Prehistoric task location	Direct APE	Adverse, direct; long-term; localized
CrNV-63-2139	Roberts Creek Ranch	Indirect Visual/Auditory/Vibrational APE	Adverse, indirect (visual, auditory, vibrational); short- and long-term; localized
CrNV-63-21172	Historic charcoal production	Direct APE	Adverse, direct; long-term; localized
CrNV-63-21176	Historic charcoal production	Direct APE	Adverse, direct; long-term; localized
CrNV-63-21180	Prehistoric task location	Direct APE	Adverse, direct; long-term; localized
CrNV-63-21192	Rockshelter	Indirect Vibrational APE	Adverse, indirect (vibrational); long-term; localized
CrNV-63-23206	Prehistoric task location	Direct APE	Adverse, direct; long-term; localized

*Coordination with the Nevada State Historic Preservation Office (SHPO) to review the eligibility of these sites is pending. Four of the eight sites have been determined as not eligible for the NRHP; the remaining four are pending determination.

Direct effects associated with the Proposed Action would be adverse, long-term, and localized. Indirect effects associated with the Proposed Action would be adverse, short-term to long-term, and localized.

Adverse impacts to NRHP-eligible and potentially eligible cultural resources would occur under the Proposed Action. A Memorandum of Agreement was executed and a Historic Properties Treatment Plan to mitigate adverse effects was developed and would be implemented in consultation with the SHPO. The MOA was signed on August 25, 2021 between the BLM, SHPO, and MMI. Native American Consultation is discussed further in Section 4.5 Native American Concerns and Section 5.3 Native American Consultation.

4.2.2 No Action Alternative

Impacts to cultural resources, and required mitigation treatment, would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.3) and the Gold Bar Exploration Project Final EA (2019a, p. 7).

4.2.3 Relocated Yard Alternative

No eligible or potentially eligible cultural resources are located within the 8.3 acres of facilities that would not be constructed under the Relocated Yard Alternative. Therefore, the direct and indirect adverse effects and mitigation measures under the Relocated Yard Alternative would be the same as the Proposed Action.

4.2.4 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, no additional impacts to cultural resources would occur and therefore, the impacts would be the same as the Proposed Action.

4.3 Environmental Justice

4.3.1 Proposed Action

The Proposed Action would not be expected to disproportionately affect any particular population. A low-income environmental justice population and an American Indian environmental justice population are present in the area of analysis. Environmental effects may occur at a distance from the Proposed Action, such as noise or air quality impacts, but would affect the area's population equally, without regard to minority status or income level. In addition, ACEPMs have been included to reduce noise and air-related impacts.

Implementation of the Proposed Action would not create any new job opportunities and authorized employment levels (i.e., 135 employees) would remain the same under the Proposed Action. Under the Proposed Action, the 135 jobs created from the authorized Gold Bar Mine would continue for an additional two years. The job opportunities would continue to offer the potential for a temporary and nominal increase in employment opportunities within the area of analysis, which may result in a temporary and nominal increase in per capita income and median household income in the area of analysis. Effects to household incomes would continue to be a minor, short-term, localized, but beneficial effect. These beneficial effects would continue to be distributed equally to various populations within the area of analysis, and not just those below the poverty level.

Overall, impacts from the Proposed Action on environmental justice populations would continue as previously analyzed in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.4), and the Proposed Action would not result in a disproportionate impact on a minority population or low-income population.

4.3.2 No Action Alternative

Impacts to environmental justice populations would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.4) and the Gold Bar Exploration Project Final EA (2019a, p. 7) and are not anticipated to result in a disproportionate impact on a minority population or low-income population.

4.3.3 Relocated Yard Alternative

Impacts under the Relocated Yard Alternative would be the same as those described for the Proposed Action.

4.3.4 Seasonal Hauling Restrictions Alternative

Impacts under the Seasonal Hauling Restrictions Alternative would be the same as those described for the Proposed Action.

4.4 Hazardous Materials and Solid Waste

4.4.1 Proposed Action

Under the Proposed Action, transport of materials to and from the site, storage, generation and management of nonhazardous and hazardous materials would continue as described the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.8). The Proposed Action would extend the transport, storage, generation and management of hazardous and nonhazardous materials for an additional two years. Overall, impacts would be the same as previously analyzed in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.8).

Under the Proposed Action, an additional fuel station and associated 20,000-gallon diesel tank would be constructed outdoors within the yard adjacent to the proposed GBS WRDA. MMI would continue to implement ACEPMs to minimize the probability of a release. The diesel tank would be within secondary containment that consists of HDPE liner or a sealed concrete curb that holds 110 percent of the largest volume tank and has additional capacity to hold a 100-year, 24-hour storm event.

In the event of a major or minor spill of hazardous materials, MMI's Spill Contingency Plan would include procedures for the response, containment, and safe cleanup of any spills or discharges of substances that potentially may degrade the environment (MMI 2020). Operations at the proposed Gold Bar Mine expansion would be conducted in accordance with this plan and would ensure that impacts from spills or releases would be minimized and the spill materials would be contained and removed. Should a major spill occur during operations and maintenance, it would not be expected to affect a large area or spread off-site, and therefore impacts would be anticipated to be negligible to minor, short-term and localized.

Under the Proposed Action, accidental releases may occur within the proposed GBS boundary when transporting materials along the proposed GBS Haul Road. MMI would continue to implement ACEPMs and the Spill Contingency Plan to minimize the risk and effects of a potential spill along the GBS Haul Road. A spill of hazardous materials or fuels along the proposed GBS Haul Road would only impact soil adjacent to the road. The spill would likely be contained and remediated within one year, making the spill or release short-term and localized.

The proposed GBS Haul Road would include two channel crossings at Roberts Creek and at an unnamed drainage, which may result in a spill or release into Roberts Creek or the unnamed drainage which may spread in the water body depending on the extent of the spill and flow in the channel at the time of the spill. Remediation within one year may not be possible and the spread of the spill could result in impacts over a large area if water is present, making the spill or release potentially long-term and regional. However, the environmental effects of a release would be similar as those already analyzed in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.8). MMI would continue to implement ACEPMs and the Spill Contingency Plan to minimize the effects of a potential spill.

Any large-scale release of hazardous substances would have implications for public health and safety. The location of the release would again be a primary factor in determining its importance. The probability of a release is low and the probability of a release in a populated area or waterway is lower (BLM 2017). The Proposed Action would not increase the probability of a release; therefore, it is not anticipated that a release involving a severe effect to human health or safety would occur during the life of the Gold Bar Mine. Overall, based upon the small quantities of hazardous waste that would be generated by the Proposed Action, an accident resulting in a release to the environment during transportation from the Proposed Action area is not anticipated. Impacts would be anticipated to be negligible to minor, short-term and localized.

4.4.2 No Action Alternative

Under the No Action Alternative, impacts to hazardous materials and solid waste would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.8) and the Gold Bar Exploration Project Final EA (2019a, Section 3.13).

4.4.3 Relocated Yard Alternative

The types of wastes managed and the applicable ACEPMs for the Relocated Yard Alternative would be the same as described for the Proposed Action and therefore the impacts would be the same as described for the Proposed Action.

4.4.4 Seasonal Hauling Restrictions Alternative

The types of wastes managed and the applicable ACEPMs for the Seasonal Hauling Restrictions Alternative would be the same as described for the Proposed Action. Transport of materials along the proposed GBS Haul Road would not occur during the lekking season period (i.e., March 1 to May 15 from 6:00 PM to 9:00 AM). As a result, there would be a decreased risk of spills or releases along the proposed GBS Haul Road or within the proposed GBS boundary during the lekking season period timeframes specified above. Outside of the lekking season period timeframes specified above, the impacts would be the same as the Proposed Action.

4.5 Native American Concerns

4.5.1 Proposed Action

Formal government-to-government consultation is ongoing for the Proposed Action. The following tribal entities have been contacted and asked to participate in identifying potential areas of concern that may be associated with the project:

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

The Duckwater Shoshone Tribe and Ely Shoshone Tribe requested a site visit to the GBS boundary with the BLM. The BLM conducted a site visit with the Ely Shoshone Tribe on May 10, 2021. Due to unforeseen circumstances, Duckwater Shoshone tribal members were unable to attend the May 10, 2021 site visit, but the BLM conducted an additional site visit with the Duckwater Shoshone Tribe on July 13, 2021. Consultation between the BLM and contacted bands and tribes will be ongoing through the life of the project, including reclamation but to date they have not identified any issues of concern.

Places of traditional religious and cultural importance, traditional cultural properties, and sacred sites have not been identified in the area of analysis for the Proposed Action; therefore, adverse effects to these property types would not occur. The BLM and the Tribes would continue active coordination and dialogue, per guidance provided in BLM Manual 1780 and BLM Handbook H-1780-1.

Although human remains are not expected, per Part 1.VI.C of the State Protocol Agreement (BLM and SHPO 2014), if Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during the undertaking on federally-managed lands, BLM would comply with Native American Graves Protection and Repatriation Act and its implementing regulations in 43 CFR 10, Subpart B. Human remains and associated grave goods discovered on private lands would be handled according to the provisions of NRS 383.

Impacts to Native American traditional values resulting from the Proposed Action would be negligible to minor, short-term, and localized.

4.5.2 No Action Alternative

Under the No Action Alternative, impacts to Native American traditional values would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.11) and the Gold Bar Exploration Project Final EA (2019a, p. 7) and are anticipated to be negligible to minor, short-term, and localized.

4.5.3 Relocated Yard Alternative

Impacts to Native American traditional values resulting from the Relocated Yard Alternative would be the same as the Proposed Action.

4.5.4 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, impacts to Native American traditional values would be the same as the Proposed Action.

4.6 Water Resources and Geochemistry

4.6.1 Proposed Action

4.6.1.1 Surface Water and Groundwater Quantity Impacts

While the Proposed Action does not include mining below the local groundwater table and thereby pumping for dewatering purposes would be unnecessary, the GBS expansion would extend the production well pumping needed for mining operations by two additional years. A calibrated three-dimensional numerical groundwater flow model was developed to estimate effects to groundwater on the alluvial aquifer from the additional two years (from 10 years of pumping to 12 years of pumping) of groundwater pumping from two authorized production wells under the Proposed Action. A summary of the analysis is provided in this section, and additional details can be found in groundwater model technical memorandum (SRK 2014, 2020a), as well as the Water Resources and Geochemistry SER (BLM 2021f).

The predicted drawdown under the Proposed Action scenario of a pumping rate at 380 gpm extends approximately 0.5 to 1.9 miles around the production wells (**Figure 4-1**). The minimum and maximum extent of the 10-foot drawdown contour increases by 0.1 and 0.5 mile, respectively, from the 10-year currently authorized groundwater pumping (SRK 2020a). The Roberts Creek Ranch well falls within the simulated 10-foot drawdown contour, and it is anticipated that drawdown near the well would be around 15 to 20 feet (BLM 2017). Whereas it is not anticipated to result in impacts to operational pumping at the Roberts Creek Ranch well, MMI has previously committed to an ACEPM to enter into a private agreement with the Roberts Creek Ranch if it is determined that any impacts to the Ranch water rights or use would occur. All mitigation measures would comply with Nevada Water Law and would involve the Nevada Office of the State Engineer. Ninety-nine percent recovery of groundwater levels are expected within two years after cessation of water pumping (BLM 2017). Impacts to groundwater resources, including water rights, would be minor, long-term, and localized.

There are several drainages within the area of analysis. Roberts Creek transitions from perennial to intermittent and ephemeral flow at the confluence with upland tributaries within the area of analysis. Other intermittent and ephemeral stream reaches within the area of analysis flow only during or after wet periods (BLM 2017). Pumping from the deep ground water system would not impact Roberts Creek or its riparian vegetation, or the other intermittent and ephemeral channels within the area of analysis as Roberts Creek is disconnected from the deep groundwater system based upon its flow characteristics and depths to groundwater in wells within the Roberts Creek Drainage and immediately adjacent to Roberts Creek (SRK 2017; BLM 2017). Impacts to surface water from groundwater pumping are anticipated to be minor, long-term, and localized. No springs or seeps occur within the 10-foot drawdown contour; therefore, there would be no impacts to seeps and springs from the Proposed Action.

4.6.1.2 Surface Water and Groundwater Quality Impacts

Under the Proposed Action, drainages in the area of analysis would be affected by mine facilities, such as the open pit and WRDA that would remove areas that contribute to runoff. Stormwater that would have run onto the proposed facilities area would be routed to a location downgradient of mine facilities and into a natural drainage. Additional stormwater facilities would include two sediment ponds that would address stormwater runoff associated with the proposed yard. Overall, impacts to the ephemeral watershed areas associated with the construction, operation, and closure of the Proposed Action are expected to be negligible, long-term, and localized.

Culverts would need to be installed at two locations along the GBS Haul Road. This includes at the Roberts Creek crossing and the unnamed intermittent drainage. The culverts would be galvanized steel corrugated

metal pipe. Culverts would be removed during reclamation. Impacts from the culvert installations would be minor, short-term, and localized.

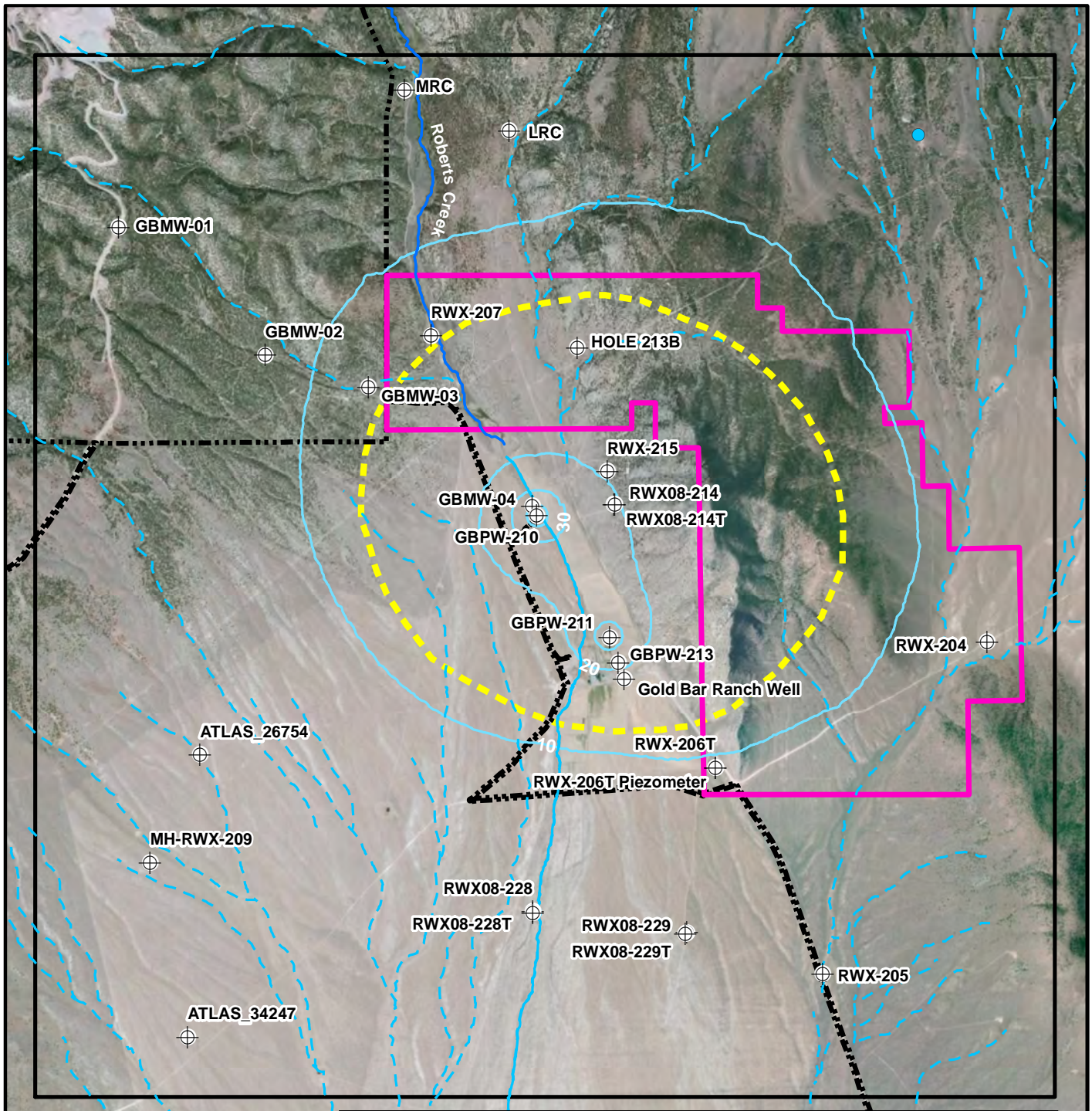
The proposed bottom of the GBS Pit would be above the groundwater table with exploration drilling in the GBS pit area showing no groundwater between 700 and 910 feet below the bottom of the pit elevation. As a result, no pit dewatering or pit lake are anticipated (MMI 2020). During periods of heavy rainfall, small ponds of water may form in the pit bottom but would quickly evaporate or infiltrate once the rainfall ceases. Impacts associated with the GBS Pit would remain internal to the pit and on-site and impacts to surface water or groundwater quality are anticipated to be minor, long-term, and localized.

The Proposed Action would generate approximately 11 Mt of waste rock and alluvial overburden that would be placed in a WRDA. The facility would be unlined but depth to groundwater in the vicinity of the WRDA is more than 1,000 feet. The results of the geochemical characterization indicate that the aggregate for all materials to be placed in the WRDA is net acid-neutralizing and would be classified as non-PAG and presents no foreseeable risk of acid rock drainage (SRK 2020a). While the WRDA is operating and uncovered, waste rock would be subject to leaching by meteoric waters with the potential for neutral pH mobilization of some metals and metalloid oxyanions, primarily arsenic and antimony. Leaching of most metals and metalloid oxyanions from the material would be short-lived. HCT analysis indicates circum-neutral leachate and generally low metals release (SRK 2020a) with impacts expected to be negligible, short-term, and localized.

Due to the net evaporative climate present in the area of analysis, infiltration through the operating WRDA would be limited to approximately 19 percent of rainfall, and upon closure and placement of a revegetated soil cover (12 inches of growth media is anticipated for the GBS WRDA), that infiltration rate would decrease further to less than 11 percent of precipitation. Infiltrating solution from waste rock or seepage would not be anticipated to reach groundwater (SRK 2013; BLM 2017). Monitoring of mined materials placed in the facility and nearby water chemistry would be established per NDEP Water Pollution Control Permit requirements to verify that the facility is not contributing to any water quality degradation. Water quality impacts from placement of mined materials in the waste rock dump would be negligible, long-term, and localized.

4.6.2 No Action Alternative

Under the No Action Alternative, impacts to water resources and geochemistry would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.19) and the Gold Bar Exploration Project Final EA (2019a, Section 3.2).



Source: SRK 2020b

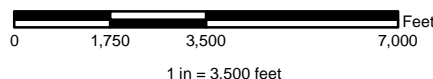
Legend

- Springs
- Intermittent Stream
- Perennial Stream
- ⊕ Wells
- Proposed Gold Bar South Area
- Authorized Gold Bar Proper Area
- Water Resources Area of Analysis
- 10-ft Drawdown Contour (10-Year Pumping Scenario)
- Changes in Water Table Contours (12-Year Pumping Scenario)



Battle Mountain
BLM District
Mount Lewis Field Office

MCEWEN MINING INC. AMENDED MINE PLAN GOLD BAR MINE EA



PREDICTED CHANGES IN WATER TABLE AT END OF 12 YEARS OF PUMPING

FIGURE 4-1

5/24/2021

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A

4.6.3 Relocated Yard Alternative

The Relocated Yard Alternative may reduce potential surface water quality impacts from the laydown yard external to the GBS WRDA which would require additional stormwater control measures to address stormwater runoff at the external yard location. Sediment basins would not be needed to capture stormwater run-off from the yard. Surface disturbance would be reduced by approximately 8.3 acres, which would reduce potential surface water impacts during construction of the yard since it would be in the same footprint as the GBS WRDA. There would be no change to groundwater quality and surface water and groundwater quantity impacts from what was analyzed for the Proposed Action. Impacts from the Relocated Yard Alternative would be the same as the Proposed Action and the primary benefit would be the reduction of disturbance acreage and the elimination of the need for additional stormwater control measures from the external yard under the Proposed Action.

4.6.4 Seasonal Hauling Restrictions Alternative

Impacts under the Seasonal Hauling Restrictions Alternative would be the same as those described for the Proposed Action.

4.7 Geology and Minerals

4.7.1 Proposed Action

Impacts of the Proposed Action on geologic and mineral resources would include: the mining of proven and probable ore reserves of approximately 2.8 Mt, impacting the host lithologies; and the generation and permanent disposal of approximately 11 Mt of waste rock. Additionally, the Proposed Action would result in the alteration of the landscape on approximately 213.3 acres of proposed new surface disturbance.

The proposed GBS Pit and GBS WRDA would permanently alter the natural topographic and geomorphic features of approximately 77.7 acres. The GBS Pit would not be reclaimed and the GBS WRDA would remain as post-reclamation feature on the landscape and would be constructed, regraded, and reclaimed to be consistent with the surrounding topography. Therefore, impacts resulting in alteration of the landscape would be minor, permanent, and localized. Other temporary facilities (i.e., sediment basins, roads, and yards) constructed under the Proposed Action would be reclaimed and would not permanently alter the natural topography or geomorphic features in the area of analysis. Impacts associated with the facilities that would be reclaimed would be minor, short-term, and localized. Impacts to geology and minerals from the authorized facilities would continue as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.6) for an additional two years of mine life.

Placement of the GBS WRDA immediately adjacent to the open pit would impact the future development of mineral resources in that area and would be considered minor, permanent, and localized. The proposed GBS Haul Road would affect surficial in-place geology and mineral resources to the extent that the haul road is constructed using cut and fill techniques to a 76-foot-wide footprint. Impacts would be considered minor, short-term, and localized.

The proposed GBS boundary is in an area of relatively low seismic activity. The closest seismic activity that could exceed design parameters is located approximately 35 miles southeast of the proposed GBS boundary in a fault system that is not structurally connected to the Gold Bar Mine (BLM 2017). Impacts to the Proposed Action due to regional seismic activity would continue to be negligible.

Failure analyses conducted on the proposed GBS Pit and GBS WRDA demonstrated that those facilities would be stable during standard operating conditions, closure conditions, and anticipated seismic conditions. In the event that conditions changed unexpectedly during operations, MMI would modify designs to ensure that factor of safety would be acceptable therefore impacts are expected to be negligible, short-term, and localized.

4.7.2 No Action Alternative

Under the No Action Alternative, impacts to geology and minerals would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.6) and the Gold Bar Exploration Project EA (2019a, p. 8).

4.7.3 Relocated Yard Alternative

Overall, impacts to geology and mineral resources would be the same as the Proposed Action with 8.3 acres of reduced disturbance.

4.7.4 Seasonal Hauling Restrictions Alternative

Impacts under the Seasonal Hauling Restrictions Alternative would be the same as those described for the Proposed Action.

4.8 Historic Trails

4.8.1 Proposed Action

The Proposed Action would result in increased traffic on the Pony Express NHT and those existing road corridors that cross it for the duration of the GBS expansion. Physical access to the trail would not be impeded by the Proposed Action. Increased traffic on the Pony Express NHT has already occurred through on-going ranching activities at the Roberts Creek Ranch and prior permitting of mining and mineral exploration at the Gold Bar Mine and Gold Bar Exploration Project (BLM 2017, 2019a). Effects on the Pony Express NHT from increased use would be minor, short-term, and localized.

The Proposed Action would result in ground disturbance visible from the historic trails area of analysis and would increase the overall visual setting disturbances. Disturbances to the overall setting of the historic trails area of analysis have already occurred through the authorized Gold Bar Mine. Visual setting disturbances would be limited due to natural topography that limits the view of the GBS project along the Pony Express NHT, and through reclamation activities, that would return the area to a more natural vegetation. Effects on the Pony Express NHT resulting from changes to the visual setting would be minor, short-term, and localized.

The Proposed Action would result in increased noise levels as compared to ambient noise conditions. The noise assessment predicted the sound pressure level from the Proposed Action would be 37.8 dBA L_{dn} assuming continuous mining operation over a 24-hour period. Total noise at the Roberts Creek Ranch, including the baseline and GBS project noise would be 42.8 dBA L_{dn} . The Proposed Action is not anticipated to cause outdoor noise levels that would exceed the USEPA-recommended noise standard of 55 dBA L_{dn} . Auditory disturbances resulting from the Proposed Action would cease at the end of mine life. Effects on the Pony Express NHT resulting from changes to the auditory setting would be minor, short-term, and localized. Impacts to historic trails from the GBS project would be addressed through the continued implementation of previously authorized mitigation.

4.8.2 No Action Alternative

Under the No Action Alternative, impacts to historic trails would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.9) and the Gold Bar Exploration Project EA (2019a, p. 7).

4.8.3 Relocated Yard Alternative

Under the Relocated Yard Alternative, no additional visual or auditory changes would occur, nor would public accessibility of the Pony Express NHT diminish, as compared to the Proposed Action. There would be approximately 8.3 acres of decreased disturbance which may reduce visual changes to an extent, though natural topography limits visibility of the GBS project. Overall, impacts to historic trails would be the same as the Proposed Action.

4.8.4 Seasonal Hauling Restrictions Alternative

The decrease in hauling would decrease the auditory disturbances and diminish traffic on the Pony Express NHT during the restricted time periods. As a result, effects on the Pony Express NHT during the lekking season period would be negligible, short-term, and localized. Noise impacts during non-restricted times, as well as other impacts, would be the same as the Proposed Action.

4.9 Land Use, Realty, Access, and Transportation

4.9.1 Proposed Action

The proposed GBS boundary would encompass approximately 2,230 acres of public lands administered by the BLM MLFO. All 213.3 acres of total proposed surface disturbance would occur on public lands. The Proposed Action would result in a short-term, minor, loss of approximately 213.3 acres on public lands for multiple use authorizations for the life of the mine.

The Proposed Action would result in fencing around the proposed yard located adjacent to the GBS WRDA and the sediment basins, thus prohibiting access and use of these locations during the life of the mine. Once mining and reclamation activities are complete, fencing would be removed and access to the public lands would be available for multiple use authorizations, thus minimizing any long-term impacts. The impact to land use from the GBS fencing would be minor, short-term, and localized.

Land use authorization N-52540, which is Eureka County Road, crosses a portion of the proposed GBS haul road. MMI has committed to an ACEPM to work with Eureka County to install appropriate traffic controls at all intersections where the proposed GBS Haul Road intersects existing Eureka County or other public roads to promote public safety and prevent conflicts with the public and hauling traffic, which would reduce impacts to a negligible level.

There are two mining claims not owned or leased by MMI that would fall within the proposed GBS boundary. MMI would be required to allow access within the GBS boundary for claimants to the mining claims not controlled by MMI. MMI would coordinate with the claimants to reduce potential impacts; therefore, the Proposed Action would have a minor, short-term, and localized impact to the mining claims not controlled by MMI in the proposed GBS boundary.

Approximately 51.1 acres of disturbance would not be reclaimed under the Proposed Action. Approximately 162.2 acres of total surface disturbance would be reclaimed and would return to post-reclamation land uses including open space, grazing, dispersed recreation, and wildlife habitat. These post-mining land uses would be consistent with local and BLM land use plans and guidelines. Impacts from the unreclaimed disturbance are anticipated to be minor, permanent, and localized.

Under the Proposed Action, impacts from traffic would be the same as previously authorized in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.10) and would be extended for an additional two years. Traffic associated with processing would continue to occur internal to the GBP and GBS boundaries on the mine roads and haul roads, which would not impact roads external to the mining operations. The GBS haul road would cross Eureka County Road G-215 (N 52540). MMI would need to coordinate with Eureka County during construction and operation to ensure no conflicts would occur.

AADT would not increase as result of the Proposed Action. Impacts to AADT from the Proposed Action would continue as authorized and would be extended for an additional two years. Overall, impacts from traffic would continue to be minor, short-term, and regional.

4.9.2 No Action Alternative

Under the No Action Alternative, impacts to land use, realty, transportation, and access would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.10) and the Gold Bar Exploration Project Final EA (2019a, Section 3.10).

4.9.3 Relocated Yard Alternative

The Relocated Yard Alternative would result in 8.3 fewer acres of proposed surface disturbance on BLM MLFO-administered land, and no impacts would occur in these areas. An additional 0.3 acre would be fenced under the Relocated Yard Alternative, prohibiting access and use of these areas during the life of the mine. Once mining and reclamation activities are complete, fencing would be removed and access to the public lands would be available for multiple use authorizations, thus minimizing the long-term impacts. The Relocated Yard Alternative would not affect any additional land use authorizations beyond those described for the Proposed Action. Approximately 153.6 acres would be reclaimed and would return to

post-reclamation land uses. Unreclaimed disturbance would be the same as described in the Proposed Action. Under the Relocated Yard Alternative, there would be no changes to transportation and access. Overall, impacts to land use, realty, transportation, and access would be the same as the Proposed Action.

4.9.4 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, no additional impacts to land use, realty, transportation, and access would occur; therefore, the impacts would be the same as the Proposed Action.

4.10 Noise

4.10.1 Proposed Action

Noise levels associated with the Proposed Action at the sensitive receptor sites were modeled using data collected at the existing Gold Bar Mine (Saxelby 2021a). Primary noise sources associated with the Proposed Action include the GBS Haul Road, GBS Pit, heap leach pad, and the GBS WRDA.

Predicted noise levels at the Roberts Creek Ranch were modeled at 42.8 dBA L_{dn} (Saxelby 2021a). This would not exceed the EPA recommended noise standard of 55 dBA L_{dn} . Overall, potential impacts to humans from noise would be negligible, short-term, and localized.

Two different noise impact calculation methods were assessed, the analysis of such is summarized in this section, and a detailed description of each method is provided in the Noise SER (BLM 2021m). Per the NDOW Acoustic Impacts and Greater Sage-grouse: A Review of Current Science, Sound Measurement Protocol, and Management Recommendations (NDOW 2018) and Nevada Department of Wildlife Interim Sage-Grouse Noise Protocol Clarifications, March 31, 2020 (NDOW 2020b) both calculation Methods 1 and 2 are allowed but the Method 2 used in the analysis is the less conservative approach. Based on Method 1, predicted noise increases would range from 5.9 to 6.5 dBA at the Three Bars Lek, depending on the time period. Based on Method 2, predicted noise increases would range from 2.3 to 3.4 dBA at the Three Bars Lek, depending on the time period. Increases would not exceed the 10 dBA 2015 ARMPA threshold for all time periods at the Three Bars Lek. Therefore, impacts at the Three Bars Lek would be minor, short-term, and localized.

Based on Method 1 noise modeling predictions, noise increases at the Henderson Pass Lek would be 22.0 to 23.8 dBA and based on Method 2, would be 21.3 to 23.6 dBA, depending on the time period, and would exceed the 10 dBA 2015 ARMPA threshold during all time periods. Per Method 1 results, noise increases at the Roberts Creek 2 Lek would be 15.5 to 16.6 dBA and per Method 2 results, would be 12.9 to 14.4 dBA and would also exceed the 10 dBA 2015 ARMPA threshold during all time periods. More details on the predicted noise level increases at the GRSG lek locations are provided in the Noise SER (BLM 2021m). As a result, noise-related impacts would be anticipated to occur at the Henderson Pass and Roberts Creek 2 leks. MMI has committed to an ACEPM that would restrict access to only the northern GBS Pit access road during the lekking season time period from March 1 to May 15 from 6:00 PM to 9:00 AM to lower the noise levels to or below the 10 dBA 2015 ARMPA threshold to address potential noise impacts to the Henderson Pass and Roberts Creek 2 leks. Additionally, during the seasonal restriction discussed above, MMI has committed to an ACEPM (Section 2.1.14) with which there would be no more than two haul truck round trips per hour and no access to the GBS Pit via the southern haul road would occur during the lekking season time period. Based on modeling conducted for the GBS project, this ACEPM would reduce the noise impacts below the 10 dBA 2015 ARMPA threshold.

Under the Proposed Action, MMI has committed to an ACEPM to reduce noise levels to or below the 10 dBA 2015 ARMPA threshold to minimize noise impacts to the three GRSG lek sensitive sites. As a result of the ACEPM, noise increases at the Henderson Pass and Roberts Creek 2 leks would not exceed the 10 dBA 2015 ARMPA threshold for the lekking season time period and therefore impacts to the Henderson Pass and Roberts Creek 2 leks would be minor to moderate, short-term, and localized. The ACEPM would also reduce noise levels to the Three Bars Lek during the seasonal restriction.

4.10.2 No Action Alternative

Under the No Action Alternative, impacts to noise would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.12) and the Gold Bar Exploration Project EA (2019a, p. 8).

4.10.3 Relocated Yard Alternative

Under the Relocated Yard Alternative, there may be a slight reduction in noise levels because traffic to the yard and WRDA would be combined into one facility; therefore, impacts would likely remain similar to those described for the Proposed Action.

4.10.4 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, no mining would occur during the lekking season time period from March 1 to May 15 from 6:00 PM to 9:00 AM; therefore, noise levels at the sensitive receptors would not increase above the baseline levels during the lekking period. Under the No Action Alternative, noise levels at the Roberts Creek Ranch would be reduced during the lekking season time period from March 1 to May 15 from 6:00 PM to 9:00 AM. Impacts would remain the same as described in the Proposed Action during non-lekking times. Overall, potential impacts to humans from noise would be negligible, short-term, and localized.

Noise levels at the Three Bars, Henderson Pass, and Roberts Creek 2 leks sensitive receptors sites would be reduced during the lekking season time period from March 1 to May 15 from 6:00 PM to 9:00 AM, as no hauling traffic would occur during the lekking period. Therefore, no impacts to leks would occur from the GBS expansion during the specified restriction period. Noise impacts to the leks during non-lekking periods would be the same as described in the Proposed Action.

4.11 Grazing Management

4.11.1 Proposed Action

Under the Proposed Action, a total of 213.3 BLM-administered acres of surface disturbance may impact forage utilized by livestock. Proposed fencing would encompass a total of 4.8 acres within the Roberts Mountain Allotment. Fencing would preclude livestock access during the life of the Proposed Action and reduce potential impacts from interactions with these facilities.

Under the Proposed Action, a total of 51.1 acres of surface disturbance associated with the GBS Pit and pit buffer would be unreclaimed. The pastures in the valley have a separate grazing rotation and stocking rate from those in the mountains, and as such, no permanent reduction in forage (AUMs) would result from the unreclaimed acreage (Burdick 2020). The Proposed Action would result in a loss of forage which would equal a temporary suspension of 5.8 cattle AUMs and 2.5 sheep AUMs in the long term within 213.3 acres of the impacted area until reclamation occurs. Any actual reduction in permitted grazing would be done through a subsequent BLM decision based on livestock carrying capacity and resource conditions (43 CFR 4100.0-5, *Active use*), accounting for actual forage unavailable for grazing. Overall, impacts from the loss of forage would be minor, temporary, and localized.

Impacts to rangeland improvement projects under the Proposed Action include three fence crossings from the construction of the haul road. MMI would work with the grazing permittee to relocate any impacted range improvements. MMI would install a cattle guard along the GBS Haul Road to prevent impacts to cattle crossing along the GBS Haul Road. Impacts to rangeland improvement projects would be minor, short-term, and localized.

Other potential impacts to rangeland resources include potential mortality from livestock-vehicle collisions. However, with the MMI ACEPMs to reduce speed limits and livestock-related training, impacts from vehicle collisions are anticipated to be negligible, short-term, and localized.

Potential impacts to livestock may include changes to livestock distribution or use patterns within pastures due to facility construction or locations. However, livestock would likely habituate to the altered landscape and would continue to utilize the allotment/pastures based on the availability of forage and the location of water or supplement. Impacts to livestock distribution would be negligible, short-term, and localized.

Economic impacts from the potential temporary reduction in AUMs may occur under the Proposed Action if the BLM determines to move forward with an AUM reduction. The Nevada Grazing Statistics Report and Economic Analysis for Federal Lands in Nevada (RCI 2001) valued total economic impacts of one AUM at \$86.58 in 2020 dollars (U.S. Inflation Calculator 2020). In total, \$502.16 in economic impacts would be realized annually based on the temporary loss of 5.8 cattle AUMs and \$216.45 annually based on the temporary loss of 2.5 sheep AUMs from the Proposed Action. Temporary loss of a total of 8.3 AUMs would equate to up to \$5,748.88 based on an eight-year period of combined active mining and post-mining reclamation (assumed to be six years of reclamation after cessation of the two-year mining operations). Interim reclamation may reduce the economic impact of the temporary loss of AUMs.

The economic impact, if realized through AUM reduction, would be negligible, temporary, and localized to the ranching community and agricultural or grazing sector of Nevada's or Eureka County's economy; however, the economic impact to the affected permittees may be minor, long-term (lasting through reclamation), and localized. Less than one percent of AUMs within the Roberts Mountain Allotment affected by the Proposed Action would be lost temporarily. Successful reclamation may also increase the forage quality and quantity because much of the disturbed area is currently pinyon-juniper woodland that would be reseeded with grasses, forbs, and shrubs. The Proposed Action would be in conformance with all relevant State and Federal laws pertaining to livestock grazing.

4.11.2 No Action Alternative

Under the No Action Alternative, impacts to grazing management would occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.7) and the Gold Bar Exploration Project Final EA (2019a, Section 3.6).

4.11.3 Relocated Yard Alternative

Under the Relocated Yard Alternative, 8.3 fewer acres of proposed surface disturbance would occur, resulting in the disturbance of 5.5 cattle AUMs and 2.4 sheep AUMs. Under the Relocated Yard Alternative, a total of 205 acres of total surface disturbance would occur, affecting fewer acres of forage area. Proposed fencing would encompass a total of 5.1 acres within the Roberts Mountain Allotment under this alternative, associated with the yard. Proposed fencing would preclude livestock access and reduce potential impacts from interactions with these facilities.

Under the Relocated Yard Alternative, a total of 51.4 acres of surface disturbance associated with the GBS Pit would be unreclaimed. Impacts from unreclaimed acreage would be the same as the Proposed Action. The Relocated Yard Alternative would result in temporary suspension of 5.5 cattle AUMs and 2.4 sheep AUMs and may reduce forage in the long term within 205 acres of the impacted area until reclamation occurs. Any actual reduction in permitted grazing would be done through a subsequent BLM decision based on livestock carrying capacity and resource conditions (43 CFR 4100.0-5, *Active use*), accounting for actual forage unavailable for grazing. Overall, impacts to AUMs would be minor, temporary, and localized.

In total, \$476.19 in economic impacts would be realized annually based on the temporary loss of 5.5 cattle AUMs and \$207.79 based on the temporary loss of 2.4 sheep AUMs from the Relocated Yard Alternative. Temporary loss of a total of 7.9 AUMs would equate to up to \$5,471.84 based on an eight-year period of combined active mining and post-mining reclamation (assumed to be six years of reclamation after cessation of the two-year mining operations). Interim reclamation may reduce the economic impact of the temporary loss of AUMs. Overall, economic impacts as a result of the Relocated Yard Alternative would be slightly less but similar to the Proposed Action.

4.11.4 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, impacts would be the same as the Proposed Action.

4.12 Recreation

4.12.1 Proposed Action

The proposed GBS boundary would encompass approximately 2,230 acres of public land administered by the BLM MLFO. Disturbance associated with the Proposed Action includes construction and operation of

facilities that would encompass approximately 213.3 acres of new surface disturbance on public land. Implementation of the Proposed Action would have a short-term impact on recreation through the loss of public lands managed for multiple uses, including hunting, and dispersed recreation for the life of the Gold Bar Mine, including closure and reclamation. The Proposed Action would also result in short-term impacts due to access restrictions within the proposed GBS boundary. In areas of active mining (including around the open pit and WRDA), recreation activities would be restricted and would likely result in recreationists using other similar areas surrounding the Gold Bar Mine. In addition, MMI would construct access control points or warning signs at access points into the mine site for public safety, restricting access from these access points into the proposed GBS boundary. The Proposed Action is anticipated to have minor, short-term, localized impacts associated with reduction in available recreation area.

The Proposed Action would result in fencing around the proposed sediment basins and the proposed yard adjacent to the GBS WRDA prohibiting recreation access and use of these locations during the life of the mine. Once mining and reclamation activities are complete, fencing would be removed and access to the public lands would be available for recreation activities, thus minimizing long-term impacts.

Implementation of the Proposed Action would also exclude areas of proposed disturbance from hunting activities within the area of analysis. The proposed GBS expansion disturbance would constitute approximately 213.3 acres or 0.06 percent of the NDOW Hunt Unit 143. As a result, under the Proposed Action, NDOW Hunt Unit 143 would still offer adequate hunt unit areas for hunters within the area of analysis. Impacts to hunting activities are anticipated to be negligible, short-term, and localized. Additionally, upon successful reclamation, successful revegetated areas would provide habitat for wildlife and hunting opportunities are anticipated to return to pre-project levels in the area of analysis.

MMI would reclaim approximately 162.2 acres of the Proposed Action related disturbance and would return to post-reclamation land uses, reducing long-term impacts. The proposed GBS Pit would remain as a post-reclamation features, which would result in a minor, permanent, localized impact to recreation activities within the area of analysis.

There are numerous undeveloped and non-designated campsites along Roberts Creek that are used throughout the summer and during the fall for hunting season. Increased traffic from the proposed expansion may result in impacts to these areas due to increased vehicle noise and increased human presence. Some of the recreationists using these campsites may move to other areas because of the increased traffic from the proposed GBS Haul Road. MMI has committed to ACEPMs to observe speed limits as well as seasonal hauling restrictions and therefore impacts to recreationists along Roberts Creek would be minor, short-term, and localized.

4.12.2 No Action Alternative

Under the No Action Alternative, impacts to recreation would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.14) and the Gold Bar Exploration Project Final EA (2019a, Section 3.11).

4.12.3 Relocated Yard Alternative

The Relocated Yard Alternative would not affect any additional recreation resources beyond those described for the Proposed Action. Approximately 153.6 acres would be reclaimed and would return to post-reclamation land uses. Unreclaimed disturbance would be the same as described in the Proposed Action. Overall, impacts to recreation would be the same as the Proposed Action.

4.12.4 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, noise levels would be reduced during the lekking period and would be a beneficial impact to recreation users in the area of analysis compared to the Proposed Action. Overall, impacts to recreation would be the same as the Proposed Action.

4.13 Social and Economic Values

4.13.1 Proposed Action

4.13.1.1 Population and Demography

The Proposed Action would continue to directly employ 135 employees, consisting of 132 staff and three contractors for an additional two years. No new employees are anticipated beyond those authorized in the Gold Bar Mine Final EIS (BLM 2017). As a result, impacts are not anticipated to change from previous NEPA analysis. The Proposed Action would continue to create an estimated 101 indirect and induced job opportunities within the area of analysis, which would continue for an additional two years under the Proposed Action (BLM 2017). An expectation of an additional two years of employment is unlikely to entice families which have not already relocated to the area of analysis to do so. Overall, the Proposed Action would result in a negligible, short-term, localized impact to population and demographics, primarily occurring in the town of Eureka.

4.13.1.2 Economy and Employment

As stated above, the Proposed Action would continue to employ 135 employees for an additional two years. Approximately 95 employees are expected be locals and 40 are expected to be non-locals (BLM 2017). The Proposed Action would not provide any additional employment opportunities, and as a result, impacts to unemployment rates in the area of analysis would be negligible, short-term, and localized.

4.13.1.3 Income

The estimated average annual payroll for the additional two years, including both salaried and hourly workers combined, would be approximately \$20,205,360. The Proposed Action would also produce annual indirect labor income of \$2,049,319 and an induced labor income of \$55,380 for an additional two years. Total annual output of \$80,808,771 would also continue for an additional two years (IMPLAN 2020). Overall, the effect of the Proposed Action on income in the area of analysis would be beneficial, and impacts would be minor, short-term, and regional.

4.13.1.4 Housing

The Proposed Action would continue to employ the 135 employees, who currently have housing for themselves and their dependents. No additional housing is anticipated to be required as no additional employment is proposed. The Proposed Action is anticipated to have negligible, short-term, localized impacts to housing, primarily occurring in the town of Eureka.

4.13.1.5 Community Facilities and Services

Under the Proposed Action, no additional impacts beyond existing conditions are anticipated to public utilities, including electricity, water, wastewater, and solid waste disposal. Existing impacts may continue for an additional two years under the Proposed Action. MMI would continue to use an annual average of 310 gpm of water for production purposes and would continue to supply potable water using a water tank (BLM 2017). Wastewater would continue to be disposed of in permitted septic tanks and solid wastes would be disposed of in local landfills or at the on-site Class III-waivered landfill (BLM 2017). Impacts are anticipated to be negligible, short-term, and localized.

The Proposed Action is anticipated to have no additional impacts to law enforcement, fire protection, emergency medical services, or other healthcare facilities beyond existing conditions. Existing impacts may continue for an additional two years under the Proposed Action. Impacts are anticipated to be negligible, short-term, and localized.

It is not anticipated the Proposed Action would increase school enrollment beyond what was previously analyzed in the Gold Bar Mine Final EIS, which estimated the Gold Bar Mine may generate approximately 34 school age children and nine non-school age children (BLM 2017). It is possible that the extension of the Gold Bar Mine by an additional two years may result in some of the previously analyzed non-school aged children needing to be enrolled in local schools. However, the two additional years of proposed mining is not anticipated to generate a large increase in school age children beyond what was previously analyzed. Overall, the Proposed Action is anticipated to have negligible to minor, short-term, and localized impacts to community facilities and services.

4.13.1.6 Public Finance

The Proposed Action would continue to generate public revenues from sales and use taxes, net proceeds of mines taxes, *ad valorem* property taxes, and from business taxes for an additional two years. The analysis shows an annual direct impact of approximately \$6,099,596, and annual indirect and induced impacts of approximately \$632,637 in county, state, and federal tax revenue (IMPLAN 2020). Overall, the effect of increased revenue due to taxes and economic activity would be beneficial, and impacts would be minor, short-term, and regional.

4.13.2 No Action Alternative

Under the No Action Alternative, the potential benefits from extending labor income and public finance for an additional two years would not occur. Impacts to social and economic values would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.15) and the Gold Bar Exploration Project Final EA (2019a, p. 8). Additional impacts of the No Action Alternative would be the loss of income and employment for the additional two years if the Proposed Action were not approved.

4.13.3 Relocated Yard Alternative

Under this action alternative, impacts to social and economic values would be the same as the Proposed Action.

4.13.4 Seasonal Hauling Restrictions Alternative

Impacts to social and economic values under this alternative would be the same as the Proposed Action.

4.14 Soils

4.14.1 Proposed Action

The Proposed Action would include soil disturbance for approximately 213.3 acres within the area of analysis. Impacts to soil resources from the Proposed Action would include changes in the physical and chemical properties of the soil resources that would lead to a potential decrease in the quality of the topsoil in disturbed areas, and the potential contamination of soils from spills or leaks of chemicals during transportation, storage, and use. The effect of removing native soil would cause the mixing of soil horizons that could result in the degradation or loss of soil function. This disturbance, as well as long-term storage in stockpiles, may alter soil productivity by affecting its permeability, structure, and microbial activity. These impacts would be minor, long-term, and localized.

Nine of the 15 soil units present in the area of analysis would be impacted by the Proposed Action. Soil unit 770 has the potential to be prime farmland if irrigated, as designated by the Natural Resources Conservation Service; however, only approximately 0.3 acre (less than one percent of the proposed disturbance) would be disturbed within the footprint of the proposed GBS Haul Road.

Reclamation would be completed on approximately 162.2 acres (approximately 76 percent) of the proposed surface disturbance area. Three of the nine soil units disturbed are rated as fair sources of reclamation material. Proposed reclamation activities would include, but are not limited to, grading of final slopes; ripping of compacted soil; application of growth media; and revegetation. In addition, growth medium/cover salvage and storage ACEPMs outlined the Project Options SIR would help reduce impacts. Therefore, the impacts to soil resources from surface disturbance would be minor, long-term, and localized.

Approximately 51.1 acres of soils (less than one percent of the area of analysis) impacted by the Proposed Action would not be reclaimed. Due to the small area within the area of analysis, impacts from the unreclaimed proposed GBS Pit would be minor, permanent, and localized.

Under the Proposed Action, impacts to soils would also include dispersion and mobilization via wind and water erosion. Six of the nine impacted soils (approximately 176.7 acres) would be less susceptible to wind erosion potential. Three of the nine impacted soils (approximately 36.6 acres) would have a wind erodibility rating indicating those soils are more susceptible to wind erosion. Stockpiled soils would be susceptible to an increase in water erosion during meteoric runoff, and an increase in wind erosion would occur as a result of salvage and reclamation operations. The susceptibility to wind erosion would last until stabilizing

vegetation was reestablished. MMI has committed to several ACEPMs to reduce-erosion related impacts; therefore, erosion potential as a result of the Proposed Action would be minor, long-term, and localized.

Soil resources may be impacted by leaks or accidental spills of contaminants. During the mining process, MMI would employ a number of safeguards through monitoring and response. If spills or leaks occur, MMI would employ controls and cleanup measures in accordance with the NDEP-guidelines. Any contamination impacts to soils, should they occur, are anticipated to be minor, short-term, and localized.

4.14.2 No Action Alternative

Under the No Action Alternative, impacts to soils would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.16) and the Gold Bar Exploration Project Final EA (2019a, Section 3.3).

4.14.3 Relocated Yard Alternative

Under the Relocated Yard Alternative, 8.3 fewer acres of proposed surface disturbance within soil map unit 111 would occur, resulting in fewer surface disturbance impacts to soil map unit 111. Overall, impacts to soils would be the same as the Proposed Action.

4.14.4 Seasonal Hauling Restrictions Alternative

Impacts under the Seasonal Hauling Restrictions Alternative would be the same as those described for the Proposed Action.

4.15 Vegetation, including Noxious and Invasive Non-native Species and Special Status Plants

4.15.1 Proposed Action

The Proposed Action would include removal of up to 213.3 acres of vegetation, including sagebrush and pinyon-juniper habitat. None of the five ecological sites within the proposed GBS boundary are considered unique or rare.

Overall, 162.2 acres (76 percent) of the total proposed disturbance would be reclaimed and revegetated which would minimize the long-term impacts to vegetation communities. Of the proposed facilities, only the GBS Pit would not be reclaimed (approximately 51.1 acres). Reclamation is anticipated to be completed within six years following cessation of mining and residual heap leaching; however, prolonged drought may delay revegetation activities (BLM 2017). Ecological sites are based on site potential and would not necessarily be the benchmark for the reclaimed areas. Reclaimed areas, including areas previously dominated by pinyon-juniper cover, would be primarily dominated by grasses and shrubs following successful reclamation. Phreatophytes, which are groundwater dependent species, would not be impacted by the Proposed Action as the depth to groundwater within the proposed GBS Boundary exceeds phreatophyte rooting depths (BLM 2017). Overall, impacts to vegetation communities from proposed disturbance would be minor, long-term, and localized.

Impacts on vegetation resources from noxious and invasive non-native species would include the establishment and spread of these species during construction or reclamation. The Proposed Action would disturb or remove populations of musk thistle, bull thistle, and black henbane, which would remove the existing weeds from these areas during operations. However, weed seed or rhizomes may be transported in the soil removed in the areas where weeds are existing, and without proper treatment could create further infestations. The Proposed Action would disturb up to 213.3 acres, which would be susceptible to weed invasion. ACEPMs would substantially reduce the spread and establishment of noxious and invasive non-native species from the Proposed Action. These practices include pre-disturbance surveys in areas not previously surveyed in 2019 and 2020 to identify populations or infestations, education of personnel, and adherence to their Noxious Weed Plan (BLM 2020a; MMI 2017). Additionally, all seed mixes and natural erosion products used would be certified weed-free. Weed control practices will be implemented in coordination with the BLM. Other impacts, including the lack of competition from established desired perennial species during initial reclamation providing an opportunity for weed establishment and decreased resilience in native plant communities, would be the same as described in the Gold Bar Mine Final EIS

(BLM 2017, Volume II, Section 4.17). However, successful reclamation would help reduce impacts from noxious and invasive non-native species in the long term. Effects from the Proposed Action on the spread and establishment of noxious and invasive non-native species are expected to be minor, long-term, and localized, given the ACEPMs and compliance with the weed management plan. The Proposed Action would conform with federal and state laws pertaining to noxious weeds.

Effects to special status plant species would include the disturbance of up to 213.3 acres of soil and vegetation communities that may provide potential habitat for Pahute Mesa beardtongue, least phacelia, Beatley's buckwheat, and Eastwood's milkweed. However, no individuals or populations of these species were found during baseline surveys. Other effects may occur from the ground moving activities along or near washes and water accumulating microsites, and along Robert Creek for culvert installation, within the area of analysis which serves as potential habitat for Eastwood's milkweed and least phacelia. MMI has committed to a pre-clearance survey for special status plant species in areas not previously surveyed in 2019 and 2020. Overall, effects to special status plant species from the Proposed Action are expected to be negligible to minor, long-term, and localized. The Proposed Action would be in conformance with the Endangered Species Act and other federal regulations regarding special status plant species.

The Proposed Action would affect 0.2 acre of riparian area (i.e., willows) along Roberts Creek with the construction of the GBS Haul Road and associated culverts. No wetlands would be impacted beyond the riparian area where the culvert installation along Roberts Creek is required. Impacts may include changes in increased sedimentation, changes to overall water quality, removal of riparian dependent plant species, and a potential increase in noxious and invasive non-native species during construction. Increased water-erosion near the constructed culverts may occur but would be offset by ACEPMs and BMPs to decrease erosion and sedimentation from disturbances and high runoff events. Effects are anticipated to be negligible, short-term, and localized.

4.15.2 No Action Alternative

Under the No Action Alternative, impacts to vegetation would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.17) and the Gold Bar Exploration Project Final EA (2019a, Section 3.4).

4.15.3 Relocated Yard Alternative

The Relocated Yard Alternative would result in 8.3 fewer acres of proposed surface disturbance in pinyon-juniper woodland habitat from combining the location of the yard in the GBS boundary with the GBS WRDA. Additionally, there may be a reduction in potential spreading of noxious and invasive non-native species. However, overall, impacts to vegetation, including noxious and invasive non-native species, and special status plants would be the same as the Proposed Action.

4.15.4 Seasonal Hauling Restrictions Alternative

Under the Season Hauling Restrictions Alternative, impacts from spreading noxious and invasive non-native species and dust during the restricted period may be reduced. However, overall impacts to vegetation, including noxious and invasive non-native species, and special status plants would be the same as the Proposed Action.

4.16 Visual Resources

4.16.1 Proposed Action

The Proposed Action would remove vegetation cover, reshaping of soils, mass-grading, and the addition of mine facilities which would introduce form, line, color, and texture elements that contrast with the existing landscape in the area of analysis. The new mine components would have a minor degree of contrast within the area of analysis as the existing Gold Bar Mine is currently an existing feature on the landscape. The new mine components would be constructed similar to the authorized Gold Bar Mine and would repeat the additional form, line, color, and texture as previously authorized. As a result, impacts from the Proposed Action would be minor, long-term to permanent, and localized.

Approximately 51.1 acres of disturbance would not be reclaimed under the Proposed Action. Approximately 162.2 acres of total surface disturbance would be reclaimed, and disturbed areas would be revegetated. The unreclaimed pit would be a permanent form, color, line and texture modification to the existing environment, though it would be consistent with the authorized Gold Bar Mine project pits that would also be left unreclaimed. The GBS WRDA would remain as post-reclamation feature on the landscape that would be regraded and reclaimed to be consistent with the surrounding topography. Reclamation of the new mine components would reduce the degree of contrast against the existing landscape over time and impacts as a result of the Proposed Action would be negligible, permanent, and localized.

4.16.1.1 Viewshed Analysis

Based on the viewshed analysis, the overall visibility from the Proposed Action would include minor changes from the Pony Express Trail; however, existing mine features are currently visible from the trail and the proposed Gold Bar Mine expansion would not constitute a major change to the current viewshed. The proposed facilities may attract the attention of the casual observer but would not dominate the view from the trail as existing disturbance currently exists in the landscape and natural topography limits the view of the GBS project. Therefore, visual impacts to the Pony Express Trail from the Proposed Action would be minor, permanent, and localized.

4.16.1.2 Dark Sky Resources

The operation of mining facilities during nighttime hours would have a different type of impact on visual resources than operations during the day. Lights used on mining equipment and vehicles during nighttime operations and use of stationary lights positioned at various locations within the proposed GBS boundary would be visible. The illumination of the night sky is artificially increased over an uninhabited area and the night sky is therefore adversely impacted. Under the Proposed Action, additional lighting would be visible; however, would only be a slight increase from authorized operations at the Gold Bar Mine. Nighttime lighting would also be extended for an additional two years; however, MMI has committed to reduce impacts to the night sky including the use of shielded stationary lights and dimmers, timers, and motion sensors, where appropriate. Lighting would also be directed onto the work area only and away from adjacent areas not in use, with safety and proper lighting of the active work areas being the primary goal. As a result, impacts to dark sky resources from the Proposed Action are anticipated to be negligible, short-term, and localized.

4.16.2 No Action Alternative

Under the No Action Alternative, impacts to visual resources would continue to occur as described in the EIS (BLM 2017, Volume II, Section 4.18) and the Gold Bar Exploration Project EA (2019a, Section 3.12).

4.16.3 Relocated Laydown Yard Alternative

Relocated Yard Alternative would result in 8.3 fewer acres of proposed surface disturbance which would result in a slight reduction in visual impacts compared to the Proposed Action. Overall, impacts to visual resources would be the same as the Proposed Action, with a reduction in disturbance area affecting the form, color, line and texture of the existing environment.

4.16.4 Seasonal Hauling Restrictions Alternative

Impacts from this alternative would be the same as the Proposed Action.

4.17 Wild Horses

4.17.1 Proposed Action

Impacts of the Proposed Action to wild horses include loss of habitat, a reduction in forage availability, the risk of vehicle collision, displacement from the area of analysis, and possible changes in use patterns principally due to the increased vehicle and haul traffic and mine activities (e.g., mine blasting), and increased presence of humans.

The Proposed Action would have a long-term impact from removal of approximately 213.3 acres of existing vegetation communities within the area of analysis. However, only 156.7 acres of disturbance would be located within an HMA. Approximately 213.3 acres of proposed disturbance would occur within the Roberts Mountain HA, which is not designated in the RMP for long-term management of wild horses (BLM 1986).

Under the Proposed Action, proposed disturbance that would overlap with the Roberts Mountain HMA represents just 0.16 percent of the HMA.

Approximately 162.2 acres (76 percent) of proposed disturbance would be reclaimed. The GBS Pit would be the only unreclaimed feature to remain post-mining. Successful reclamation would enhance the habitat and forage quality for wild horse use. It is possible that wild horses would be attracted to disturbed areas that are reseeded and where forage accessibility is increased such as along roadsides.

The disturbed habitat would likely not be highly valuable to wild horses due to pinyon and juniper cover and terrain; there is likely little reliance on the area for forage. In addition, Roberts Creek is located within the area of analysis and may be used as a water source for wild horses. The GBS Haul Road would require the installation of a culvert at the Roberts Creek crossing, which may restrict access to water at the crossing location but would not restrict access to Roberts Creek outside of the culvert area along the GBS Haul Road. Overall, impacts from the removal of habitat and forage would be minor, long-term to permanent, and localized.

Haul traffic along the proposed GBS Haul Road, which is located partially in a primary use area, may impede wild horse travel within the Roberts Mountain HMA. Potential risks for injury or mortality from vehicle collisions along the GBS Haul Road would be reduced by previously committed ACEPMs that would continue to be implemented under the Proposed Action including speed limit restrictions within the GBS and GBP boundaries, new employee awareness training, signage at wild horse trails, and the use of reflectors. There would be a potential for injury to wild horses if they chose to continue to move through the area once actual mining activities begin at the proposed GBS Pit. MMI would continue to implement ACEPMs to monitor wild horse use in the area. Besides the addition of the GBS Haul Road, traffic entering and leaving the Gold Bar Mine would not change under the Proposed Action; therefore, impacts would continue as described in the Gold Bar Mine Final EIS and would be extended for an additional two years (BLM 2017). Overall, impacts to wild horses from the risk of vehicle collision would be minor, short-term, and localized.

Approximately 4.8 acres of disturbance would be fenced (consisting of the yard and sediment basins), excluding use by wild horses, but also protecting them from potential harm in these areas. All proposed fencing would occur within the Roberts Mountain HMA. The majority of the Proposed Action would not have exclusionary fencing and wild horses would be free to access undisturbed areas within the proposed GBS boundary, as they currently are. Fencing would be removed during reclamation. Overall, impacts from fencing would be negligible, short-term, and localized.

Overall, the Proposed Action may influence wild horse distribution and use patterns from human activity and noise from the GBS project. North-south movement patterns may be affected as horses avoid the proposed GBS Haul Road. It is unclear how much movement would still occur in the region near the proposed GBS Pit and GBS WRDA, and MMI would continue to monitor wild horse sightings as they currently are doing. Wild horses would still be able to move north and south within the HMA using routes in other parts of the HMA. Overall, impacts are anticipated to be minor, long-term, and localized.

It is not expected that the Project would cause the need to reduce the wild horse AML or impact the genetic health of the population.

4.17.2 No Action Alternative

Under the No Action Alternative, impacts to wild horses would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.22) and Gold Bar Exploration Project Final EA (2019a, Section 3.7).

4.17.3 Relocated Yard Alternative

The Relocated Yard Alternative would result in 8.3 fewer acres of proposed surface disturbance within the Roberts Mountain HMA. This habitat would likely not be highly valuable to wild horses due to pinyon and juniper cover. Overall, impacts to wild horses as a result of surface disturbance under the Relocated Yard Alternative would be the same as the Proposed Action with less disturbance acreage.

Under the Relocated Yard Alternative, the laydown yard square footage would increase slightly, and approximately 5.1 acres would be fenced (an increase in 0.3 acre compared to the Proposed Action). As there would only be a slight increase in fencing under the Relocated Yard Alternative, overall impacts to wild horses as a result of fencing would be the same as the Proposed Action.

4.17.4 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, the risk of wild horse collision with vehicles would be reduced during the lekking season time period from March 1 to May 15 from 6:00 PM to 9:00 AM, as no haul trucks would utilize the proposed GBS Haul Road. Impacts to wild horses as a result to traffic would generally be the same as the Proposed Action but would be slightly reduced due to the reduced hauling traffic during the restricted periods. No additional noise impacts to wild horses would occur during the restricted times. Noise impacts to wild horses during the non-restricted hours would be the same as the Proposed Action

4.18 Wildlife

4.18.1 Proposed Action

4.18.1.1 Wildlife Habitat

The Proposed Action would result in new surface disturbance to approximately 42.7 acres of sagebrush and grassland habitat and 170.6 acres of woodland habitat. This habitat would be unavailable for wildlife use and would result in an incremental increase in habitat fragmentation until the successful completion of reclamation.

Approximately 162.2 acres (76 percent) of proposed surface disturbance would be reclaimed and revegetated, which would minimize impacts to vegetation and wildlife communities. Approximately 51.1 acres of proposed disturbance from the proposed open pit would not be reclaimed and would represent a permanent loss of wildlife habitat under the Proposed Action. The removal of vegetation may introduce noxious and invasive non-native species that would degrade the quality of wildlife habitat. MMI would continue to monitor for weed species and implement weed control measures if the spread of noxious weeds is noted. Overall, impacts as a result of direct surface disturbance would be minor, long-term, and localized.

Impacts to wildlife species as a result of groundwater pumping would continue for an additional two years. The minimum and maximum extent of the 10-foot drawdown contour increases by 0.1 and 0.5 mile, respectively, from the 10-year currently authorized groundwater pumping (SRK 2020b). It is not anticipated that impacts would increase beyond those authorized in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.21).

4.18.1.2 General Wildlife

Avian Species, including Migratory Birds and Raptors

The Proposed Action would remove approximately 213.3 acres of avian nesting and foraging habitat. Some of this habitat may become available through interim reclamation, but a majority of this habitat would be unavailable for avian use until the successful completion of reclamation. The Proposed Action disturbance would be reclaimed upon the Gold Bar Mine closure, except for approximately 51.1 acres of new surface disturbance that would not be reclaimed at the end of mining and would be a permanent loss of avian nesting and foraging habitat. Impacts from the loss of nesting and foraging habitat would be minor, long-term to permanent, and localized.

MMI has previously committed to conducting pre-disturbance clearing surveys for areas not previously surveyed and implementing avoidance buffers around active nests (**Appendix C**) (BLM 2017), which would continue under the Proposed Action. If any raptors and/or migratory bird species or new nests are observed, MMI would coordinate with the NDOW and BLM regarding potential actions to take in advance of surface disturbance to minimize potential impacts to these species. With the implementation of the ACEPMs (Section 2.1.14 and as previously authorized [BLM 2017]), impacts to raptors and migratory birds as a result of surface disturbance would be negligible, permanent, and localized. The proposed sediment basins may become an attractant to avian species and may be utilized as stopover sites for migrating avian species. The basins would also be individually fenced to keep out livestock and wild horses. MMI has committed to using smooth or barbed wire above the top portion of fencing to discourage perching. As a result, impacts

from potential increased perching and predation by avian species would be negligible, long-term, and localized.

Increased noise and human presence created by the construction and operation of the Proposed Action may cause avian species to avoid areas adjacent to proposed disturbance and may cause adult and fledged birds to vacate areas adjacent to the proposed disturbance. As previously authorized actions have been in operation at the authorized Gold Bar Mine, noise and human presence has been occurring within the vicinity of the Proposed Action. MMI has committed to sound reduction ACEPMs as described in Section 2.1.14. However, overall noise and human presence would be an increase from existing conditions within the area of analysis. Impacts to avian species from human presence and noise would be anticipated to be minor, long-term, and localized.

Mammal Species

The Proposed Action would remove approximately 213.3 acres of mammal habitat. Some of this habitat may become available through interim reclamation, but a majority of this habitat would be unavailable for use until the successful completion of reclamation. The Proposed Action disturbance would be reclaimed upon the Gold Bar Mine closure, except for approximately 51.1 acres of new surface disturbance that would be a permanent loss of mammal habitat. Impacts from the loss of habitat would be minor, long-term to permanent, and localized.

Small and medium-sized mammals would not be able to relocate as easily as large mammals, and may become injured, crushed, and/or killed by equipment during the construction, maintenance, operation, and reclamation of the Proposed Action. The construction and use of the proposed GBS Haul Road would result in an increased risk of collisions between vehicles and mammals. ACEPMs would reduce this risk by implementing a 35 miles per hour speed limit on all haul roads. The Proposed Action may result in the injury or death of individual mammals but would not be anticipated to impact populations. Impacts to small and medium-sized mammals and habitat from the Proposed Action disturbance would be minor, long-term to permanent, and localized. Larger mammals would likely redistribute to adjacent habitat in the vicinity of the Proposed Action and be minimally disturbed; therefore, impacts would be minor, long-term, and localized.

The Proposed Action would include construction of two sediment basins in the proposed GBS boundary. The basins could become an attractant to mammal species and would be an increased water source for mammal species. MMI has committed to installing exclusionary fencing around the basins that would prevent most wildlife access. Overall, impacts to mammals as a result of the sediment basins are anticipated to be negligible, short-term, and localized.

Big Game Species

The Proposed Action would disturb approximately 213.3 acres of mule deer transition range which is approximately nine percent of habitat within the area of analysis. Approximately 168.9 acres of year-round pronghorn habitat, which is approximately eight percent of habitat within the area of analysis, would be disturbed. Overall, impacts to mule deer and pronghorn due to surface disturbance would be minor, long-term to permanent, and localized.

The Proposed Action would construct mine facilities within a designated mule deer seasonal migration corridor, which links the Roberts Mountains to the Kobeh Valley. Mule deer attempting to migrate using this corridor would likely avoid the mine facilities during the 18-month mine life. Portions of the seasonal migration corridor would be available to mule deer after the successful completion of reclamation. This would be a minor, short-term, localized impact.

The construction and use of the proposed GBS Haul Road would result in an increased risk of collisions between vehicles and big game species. ACEPMs would reduce this risk by implementing a 35 miles per hour speed limit on all haul roads. Berm cuts would also be established at numerous road intersections throughout the haul road that would allow for continued mule deer migration. Established mule deer trails would be identified and warning signs would be posted at appropriate locations along the haul roads to warn drivers of crossing points.

The Proposed Action would add additional noise sources in mule deer and pronghorn habitat created by mine infrastructure. Although there are no thresholds for noise impacts to these species, adverse effects

would likely occur, including increased stress and avoidance of the area. Under previous authorizations, MMI has incorporated noise reduction measures, and this would continue under the Proposed Action, including enhanced generator silencing and construction of berms. Impacts as a result of additional noise would be minor, short-term, and localized.

Impacts from the construction of the two sediment basins would be the same as discussed above for other mammal species.

The Proposed Action would disturb approximately 170.6 acres of preferred pinyon-juniper habitat and 42.7 acres of other habitat available for mountain lions within the proposed GBS boundary. Anthropogenic noise from mine activities may cause individuals to avoid the area. Mountain lions would likely relocate to areas adjacent to the GBS boundary. Additionally, if mining activities cause mule deer populations in the area of analysis to decrease, mountain lions may relocate. Overall, impacts to mountain lions would be minor, long-term, and localized.

4.18.1.3 Special Status Species

Avian Species, Including Migratory Birds and Raptors

Impacts to Brewer's sparrow, ferruginous hawk, pinyon jay, and sage thrasher would be the same as those described for General Wildlife Avian Species, Including Migratory Birds and Raptors. No additional impacts beyond those described for General Wildlife Avian Species, Including Migratory Birds and Raptors are anticipated.

Bald and Golden Eagles

No bald eagle nests have been identified in the GBS boundary or the area of analysis. No impacts to bald eagles are anticipated under the Proposed Action or action alternatives.

Impacts to golden eagles within the area of analysis would be the same as described for avian species and raptors in Section 4.18.12. The area of potential impact for assessing impacts to golden eagles relative to the requirements for an eagle take permit is the GBS disturbance footprint plus a one-mile buffer for proposed mining activity and a two-mile buffer for surface blasting.

The Proposed Action has the potential to affect four golden eagle nests within one territory that is located less than one mile from the proposed GBS disturbance footprint, as described in Section 3.18.2.2. MMI has prepared an ECP and has requested an incidental disturbance-related take permit for golden eagles. The USFWS is considering the applicant's request for incidental take, as allowed under the BGEPA for the purpose of resource development and recovery operations. The USFWS will evaluate the applicant's ECP, which describes MMI's request for incidental take authorization for impacts resulting from the proposed mining operations.

No golden eagle nests have been identified within the GBS disturbance footprint. No golden eagle nests would be physically removed as a result of the Proposed Action. The take of the four nests within the single territory would occur in the form of potential disturbance and surface activities associated with open-pit mining (such as noise, development blasting, and waste rock and ore hauling) because the four nests are within one mile of proposed mining activity and two miles of surface blasting. The disturbance take would be short-term, occurring only during the permitted and proposed mining and mine reclamation activities. Disturbance take of the four nests would likely result in the temporary loss of productivity for the single territory. A viewshed analysis of the four nests subject to take is provided on Figure 6 of the ECP Gold Bar South Project Eureka County, Nevada (Stantec 2020b) to illustrate the portions of anthropogenic activity that would be within line-of-sight.

Burrowing Owl

Approximately 2.3 acres of field-verified potential burrowing owl habitat would be removed by the Proposed Action. MMI has committed to conducting pre-clearance surveys in areas that have not been previously surveyed for burrowing owls prior to surface disturbing activities. If any target species or their sign are observed, MMI would coordinate with the NDOW and BLM regarding potential actions to take in advance of ground disturbance to minimize potential impacts to these species. The removal of potential burrowing owl habitat would be a minor, long-term, and localized impact.

Greater Sage-grouse

Under the Proposed Action, surface disturbance would remove a total of 213.3 acres of the 2015 ARMPA mapped GRSG habitat, including approximately 155.5 acres of Priority Habitat Management Area (PHMA) and 57.8 acres of General Habitat Management Area (GHMA) (BLM 2015b). No leks would be directly disturbed as a result of the Proposed Action. MMI would comply with the Conservation Credit System (CCS) program to ensure net conservation gain. As required by NAC 232.400-232.480, the Proposed Action was analyzed using the CCS Habitat Quantification Tool (HQT) based on the proposed GBS disturbance following habitat field verification. The direct and indirect impacts from the Proposed Action resulted in 2,058 Term Debits and zero Permanent Debits (Sagebrush Ecosystem Program 2021). If the credit obligation were to not be satisfied prior to the Proposed Action activities commencing, a mitigation plan would be developed in coordination with the Sagebrush Ecosystem Technical Team (SETT). The mitigation plan would be subject to approval by the Sagebrush Ecosystem Council and would require at least one-third of the total compensatory mitigation to be offset prior to any ground disturbance. Impacts to GRSG from surface disturbance would be minor, short-term to long-term, and localized. Noise impacts to GRSG are detailed in Section 4.13.

Impacts from the construction of the two sediment basins would be the same as discussed above for other mammal species.

Mammal Species

Pygmy Rabbits

Disturbance associated with the Proposed Action would remove approximately 5.9 acres of field-verified potential pygmy rabbit habitat. MMI has committed to conducting pre-clearance surveys in areas that have not been previously surveyed for pygmy rabbits. If any target species or their sign are observed, MMI would coordinate with the NDOW and BLM regarding potential actions to take in advance of ground disturbance to minimize potential impacts to these species. As a result, impacts to pygmy rabbits as a result of surface disturbance would be negligible to minor, long-term, and localized.

Dark Kangaroo Mouse

No dark kangaroo mice were identified during baseline surveys within the proposed disturbance footprint. However, disturbance associated with the Proposed Action would remove approximately 92.0 acres of potential dark kangaroo mouse habitat. As a result, impacts to kangaroo mice may occur from habitat removal, but would be anticipated to be negligible to minor, long-term, and localized.

Bats

The Proposed Action would remove approximately 213.3 acres of potential bat foraging and roosting habitat. Impacts to bat species from disturbance would be minor, long-term to permanent for unreclaimed disturbance, and localized.

Maternity roosting and/or winter hibernacula habitat is not available due to the lack of caves and historic shafts and adits as well as the lack of facility buildings. The Proposed Action is not anticipated to remove any mapped mines, buildings, caves, or bridges as a result of new, proposed surface disturbance. Therefore, no impacts are anticipated to maternity roosting and/or winter hibernacula habitat.

The construction of the sediment basins would create additional forage for bats that forage above open water, which would be a minor, long-term, and localized beneficial impact. Lighting from the Proposed Action would also attract insects, which would attract foraging bats. MMI has committed to ACEPMs that minimize effects from new light sources. Impacts from additional lighting would affect individuals but not populations and impacts would be minor, long-term, and localized. Bats foraging in close proximity to the Proposed Action facilities may also collide with associated infrastructure. Potential collisions with infrastructure would affect individuals but not populations and would therefore be negligible to minor, long-term, and localized.

4.18.2 No Action Alternative

Under the No Action Alternative, impacts to wildlife would continue to occur as described in the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.21) and the Gold Bar Exploration Project Final EA (2019a, Section 3.5).

4.18.3 Relocated Yard Alternative

The Relocated Yard Alternative would result in 8.3 fewer acres of proposed surface disturbance in pinyon-juniper woodland habitat from combining the location of the yard in the GBS boundary with the GBS WRDA. Overall, approximately 153.6 acres (75 percent) of proposed surface disturbance would be reclaimed and revegetated, which would minimize impacts to vegetation and wildlife communities. Impacts to wildlife as a result of direct surface disturbance would be the same as the Proposed Action.

4.18.3.1 General Wildlife

The Relocated Yard Alternative would result in 8.3 fewer acres of proposed surface disturbance in avian and mammal habitat, mule deer transition range, and year-round pronghorn habitat. Impacts to avian and mammal habitat as a result of direct surface disturbance would be the same as the Proposed Action. In total, 205.0 acres of mule deer habitat would be disturbed (approximately nine percent of habitat within the area of analysis), and 160.6 acres of pronghorn habitat would be disturbed (approximately eight percent of habitat within the area of analysis). The sediment basins which could act as an attractant for avian and mammal species, including big game species, would not be constructed under the Relocated Yard Alternative; therefore, no impacts would occur as a result of sediment basins. Other impacts to avian species, including migratory birds and raptors and mammal species, including big game species, would be the same as the Proposed Action.

4.18.3.2 Special Status Species

Impacts to Brewer's sparrow, ferruginous hawk, pinyon jay, sage thrasher, burrowing owls, golden eagles, and pygmy rabbits would be the same as described for the Proposed Action. Impacts to field-verified burrowing owl and pygmy rabbit habitat would be the same as the Proposed Action.

Greater Sage-Grouse

Under the Relocated Yard Alternative, surface disturbance would remove 8.3 fewer acres of mapped GRSG PHMA, for a total disturbance of 147.2 acres of PHMA and 57.8 acres of GHMA. Because the sediment basins would not be constructed, fencing would be reduced from 2,808 linear feet to 1,844 linear feet under this alternative, which would further reduce perching opportunities for predatory avian species. Overall, impacts to GRSG under the Relocated Yard Alternative would be the same as the Proposed Action.

Under the Relocated Yard Alternative, MMI would comply with the CCS program to ensure net conservation gain as described in the Proposed Action. As stipulated by NAC 232.400-232.480, the Relocated Yard Alternative was analyzed using the CCS HQT based on the proposed GBS disturbance. The 2,058 Term Debits and zero Permanent Debits using the Field Verified HQT value resulting from the analysis of the Proposed Action would be applied under the Relocated Yard Alternative (Sagebrush Ecosystem Program 2021). If the credit obligation were to not be satisfied prior to the Relocated Yard Alternative activities commencing, a mitigation plan would be developed in coordination with the SETT. The mitigation plan would be subject to approval by the Sagebrush Ecosystem Council and would require at least one-third of the total compensatory mitigation to be offset prior to any ground disturbance. Impacts to GRSG from surface disturbance would be minor, short-term to long-term, and localized. Noise impacts to GRSG are detailed in Section 4.13.

Mammals

Approximately 6.7 fewer acres of dark kangaroo mouse habitat would be disturbed under the Relocated Yard Alternative. Overall, impacts to dark kangaroo mice under the Relocated Yard Alternative would be the same as the Proposed Action with less disturbance in potential habitat.

Approximately 8.3 fewer acres of potential bat foraging and roosting habitat would be disturbed under this alternative. Additional foraging habitat over the sediment basins would not be constructed and as a result, no beneficial impact would occur. Other impacts to bats under the Relocated Yard Alternative would be the same as the Proposed Action.

4.18.4 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, noise impacts to all wildlife species would not occur during the lekking season time period (March 1 to May 15 from 6:00 PM to 9:00 AM). Outside of the lekking

season time period, noise impacts would occur as described in the Proposed Action. For a detailed analysis on noise-related impacts, see Section 4.13.

The risk of wildlife collision with vehicles would be reduced during the restricted times as no haul trucks would utilize the proposed GBS Haul Road. Impacts to wildlife as a result of traffic would generally be the same as the Proposed Action. Other impacts to wildlife would be the same as described in the Proposed Action.

4.19 Cumulative Effects Analysis

This section analyzes potential impacts from past, present, and reasonably foreseeable future actions (RFFAs) combined with the action alternatives within the Cumulative Effects Study Area (CESA) specific to the resources for which impacts may be anticipated. This analysis focuses on cumulative impacts of the Proposed Action and the action alternatives within the CESA. Major past and present land uses and disturbances within the resource CESAs that are projected to continue into the future include mineral development and exploration, utilities, infrastructure and public purpose projects, roads, wildland fires, livestock grazing, agriculture, and mining. Dispersed recreation (including hunting, fishing, and off-highway vehicle [OHV] use) and residential development also occur and are expected to continue in portions of the CESA. Past and present actions are including in the affected environment descriptions in Chapter 3 as they are part of the existing environment.

Cumulative impacts are analyzed for resources where an impact above negligible was identified in Chapter 4. If the Proposed Action or action alternatives were determined to have a negligible or no impact, a cumulative analysis was not completed as there would be no impact to add to the environment. Cumulative impacts for Air Quality, Hazardous Materials and Solid Waste, Native American Concerns, Special Status Plant Species, Noxious and Non-Native Invasive Species, and Geochemistry were not included based on the outcome of the analysis in **Sections 4.1** through **4.18**.

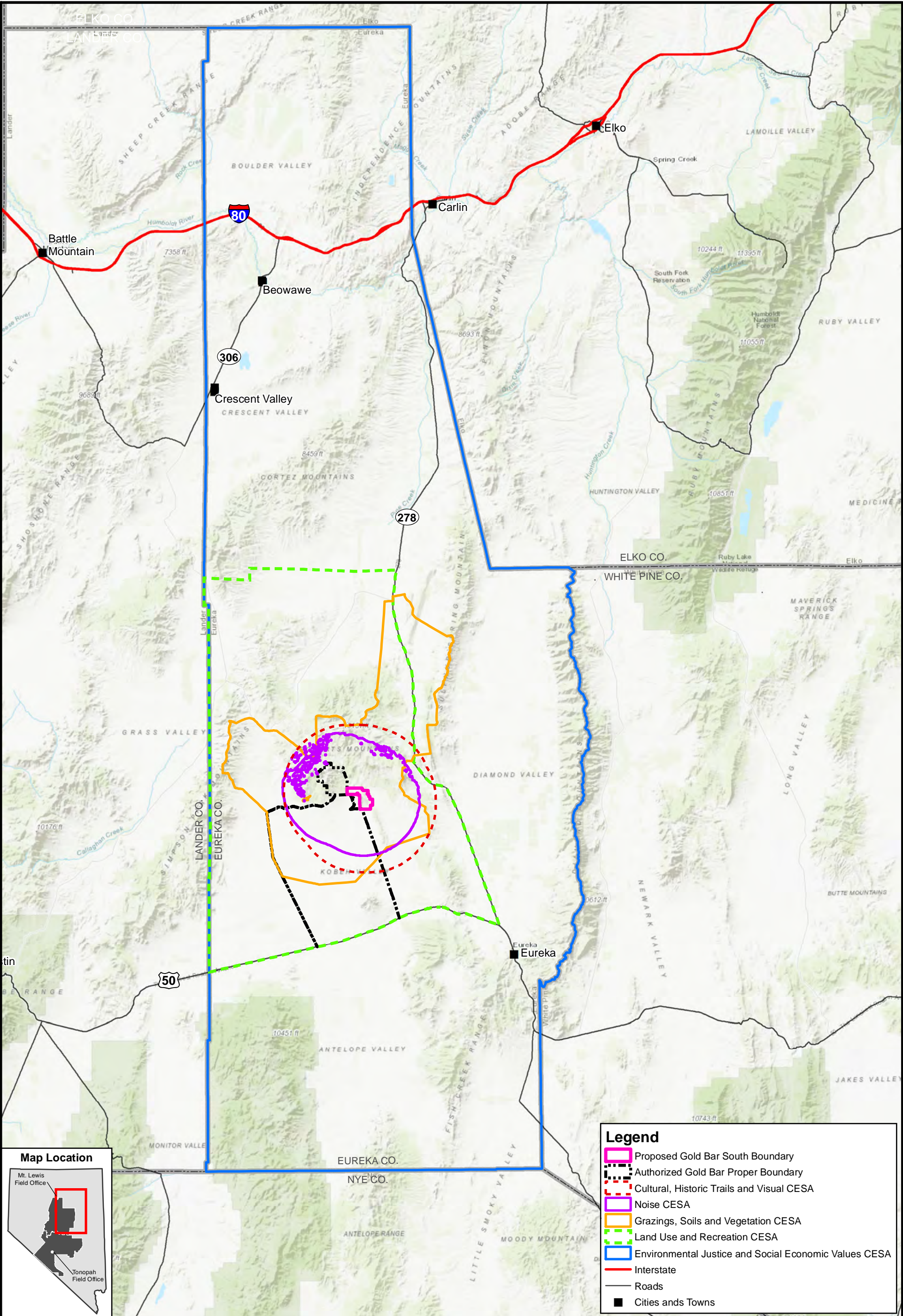
The boundaries of the CESAs vary by resource. Cumulative effects should be evaluated in terms of the specific resource, ecosystem, and human community being impacted. To determine the size of the CESAs, each environmental resource was analyzed to determine the extent to which the environmental effect from the project could be reasonably detected and the geographic area impacted was defined.


The geographical areas considered for the analysis of cumulative effects are illustrated on the CESA figures for each resource. The CESA boundaries vary in size and shape to reflect each evaluated resource, and the CESAs are shown on **Figures 4-2** and **4-3**. **Table 4-4** outlines the CESAs and their sizes.

Table 4-4 Reasonably Foreseeable Affected Area by Resource

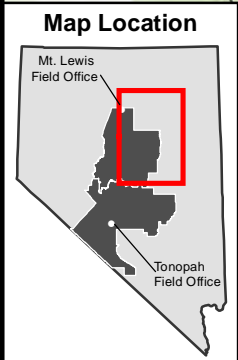
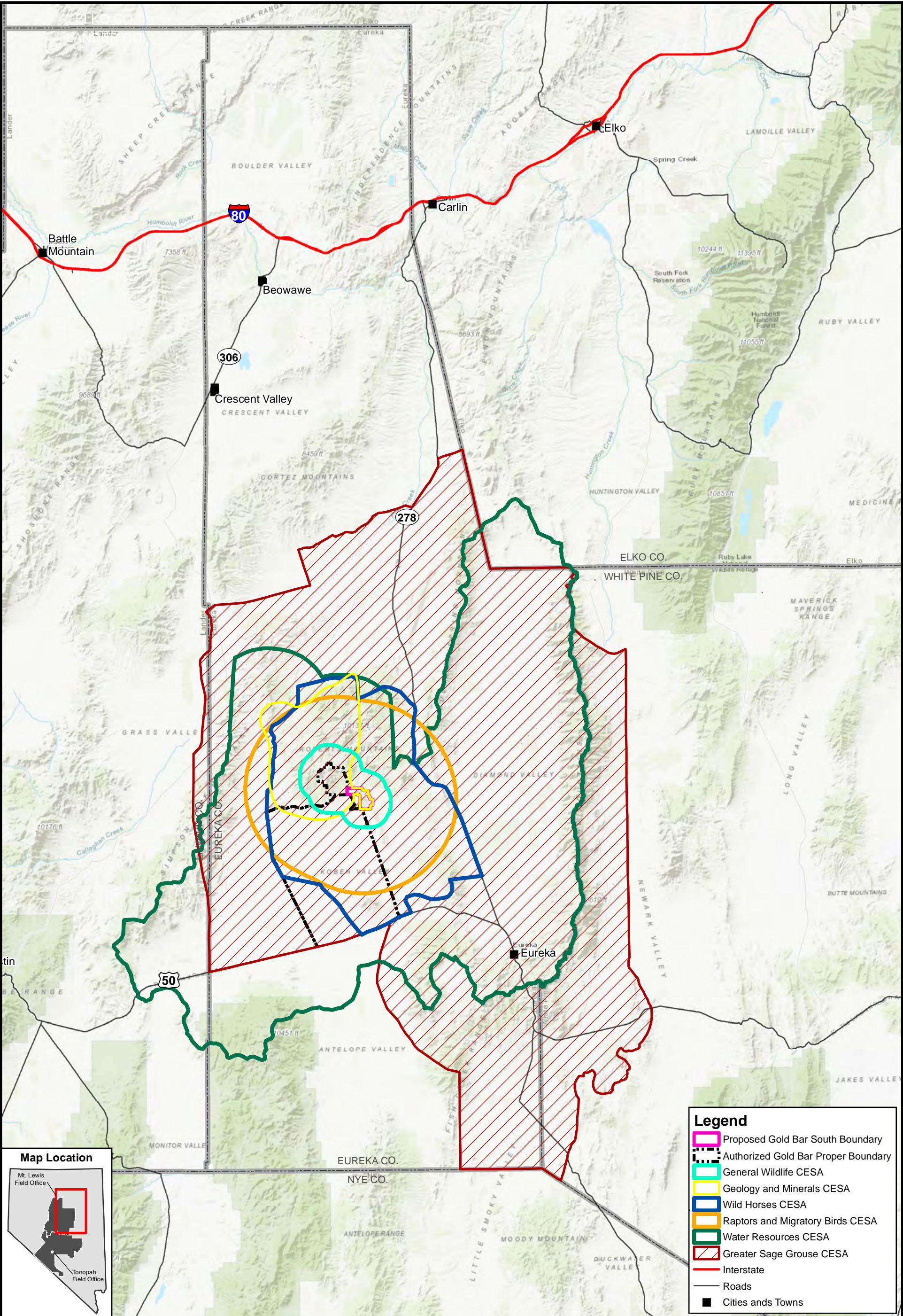
Resource	Cumulative Effects Study Area	Size of Area (acres)	Figure
Cultural Resources	Includes a seven-mile radius around the Plan boundary, which encompasses the direct and indirect APEs.	140,419	4-2
Environmental Justice	Includes all of Eureka County.	2,673,325	4-2
Water Resources	Includes the Kobeh Valley and Diamond Valley Hydrographic Basins, plus a six-mile extent north of the Kobeh Valley Hydrographic Basin.	1,120,249	4-2
Geology and Minerals	Includes the Plan boundary and the Antelope Mining District.	84,812	4-3
Historic Trails	Includes a seven-mile radius around the GBS Plan boundary, which includes the viewshed of the Project.	140,419	4-2
Land Use, Realty, Access, and Transportation	Includes nearby land use authorizations and realty decisions between SR 278 and the Eureka/Lander Line, north of U.S. Highway 50.	651,976	4-2


Resource	Cumulative Effects Study Area	Size of Area (acres)	Figure
Noise	Includes the GBS Plan and GBP boundaries and the area to which noise attenuates to 5 dB as predicted from Project noise modeling.	94,758	4-2
Grazing Management	Includes the Roberts Mountain and Three Bars Allotments, which include the GBS Plan and GBP boundaries and a portion of the Mount Hope Mine.	245,096	4-2
Recreation	Includes nearby land use authorizations and realty decisions between SR 278 and the Eureka/Lander County Line, north of U.S. Highway 50.	651,976	4-2
Social and Economic Values	Includes all of Eureka County.	2,673,325	4-2
Soils	Includes the Roberts Mountain and Three Bars Allotments, which include the GBS Plan and GBP boundaries and a portion of the Mount Hope Mine.	245,096	4-2
Vegetation	Includes the Roberts Mountain and Three Bars Allotments, which include the GBS Plan and GBP boundaries and a portion of the Mount Hope Mine.	245,096	4-2
Visual Resources	Includes a seven-mile radius around the GBS Plan boundary, which includes the viewshed of the Project.	140,419	4-2
Wild Horses	Includes the Roberts Mountain, Whistler Mountain, and portions of the Fish Creeks HMAs, and portions of the Kobeh Valley and Roberts Mountain Has.	281,476	4-3
General Wildlife	Includes the GBS Plan and GBP boundaries plus a two-mile buffer.	40,189	4-3
Big Game	Includes the GBS Plan and GBP boundaries and the overlapping hunt units.	4,600,950	4-3
Raptors and Migratory Birds	Includes a 10-mile buffer around the GBS Plan boundary.	254,080	4-3
Greater sage-grouse	Includes the Diamond and Three Bars Population Management Units (PMUs).	1,631,044	4-3



 <div>Battle Mountain BLM District Mount Lewis Field Office</div>	<div>MCEWEN MINING INC. AMENDED MINE PLAN GOLD BAR MINE</div> <div><div><div></div><div>0</div><div>10</div><div>20</div></div>Miles 1 in = 10 miles</div> <div>N</div>	CUMULATIVE EFFECTS STUDY AREAS PART 1		
		FIGURE 4-2		REVISION A
		1/3/2022		

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.



 <p>Battle Mountain BLM District Mount Lewis Field Office</p>	<p>MCEWEN MINING INC. AMENDED MINE PLAN GOLD BAR MINE</p> <p>0 10 20 Miles</p> <p>1 in = 10 miles</p> <p>N</p>		<p>CUMULATIVE EFFECTS STUDY AREAS PART 2</p>		
			<p>FIGURE 4-3</p>		<p>REVISION</p> <p>A</p>
			<p>1/3/2022</p>		

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

4.19.1 Cultural Resources

4.19.1.1 CESA Boundary Description

The CESA for cultural resources includes a seven-mile radius around the GBS Plan boundary, which includes the GBP boundary and the indirect and direct APEs analyzed in this EA and the Gold Bar Mine Final EIS (BLM 2017, Volume II, Section 4.28) (**Figure 4-2**). The CESA was chosen because it includes the geographic area where impacts to cultural resources from the Proposed Action would most likely occur. The total area of the CESA encompasses 140,419 acres.

4.19.1.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-5**, has resulted from the following activities: mineral development and exploration projects (11,520 acres); utilities, infrastructure, and public purpose projects (470 acres); roads (397 acres); dispersed recreation, and livestock grazing. Additionally, approximately 65 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-5 Past, Present, and RFFAs in the Cultural Resources CESA

Past, Present, and RFFAs, Disturbances and Projects		CESA
CESA Acres		140,419
Past Actions		
Mineral Development and Exploration Past Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		60
Notices		233
Mining and Exploration Projects		1,605
Past Actions Total Disturbance Acres		1,898
Present Actions		
Mineral Development and Exploration Present Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		85
Notices		10
Mining and Exploration Projects		9,526
Utilities, Infrastructure, and Public Purpose Present Actions		
Powerlines		423
Telephone and Fiber Optic Lines		0
Water Pipelines and Water Infrastructure		2
Other		45
Agricultural Areas		0
Present Actions Total Disturbance Acres		10,091
Roads and Railroads Present Actions		
State Routes		45
Local Roads		352
Roads and Railroads Present Actions Total Disturbance Acres		397
RFFAs		
Mineral Development and Exploration RFFA Actions		
Mining and Exploration Projects		119
Utilities, Infrastructure, and Public Purpose Present Actions		
Oil and Gas Pipelines		2
RFFAs Total Disturbance Acres		121
Past, Present, and RFFAs Total Disturbance Acres		12,508
Percent of CESA		9
Fires		65

RFFAs in the CESA would include mineral development and exploration projects (119 acres) and utilities, infrastructure, and public purpose projects (two acres) (**Table 4-5**). Wildland fires in this CESA may occur in the future, as would restoration projects (such as the 3 Bars Ecosystem and Landscape Restoration Project [3 Bars] [BLM 2016]), livestock grazing, and dispersed recreation. Any of these projects with a federal nexus will require compliance with Section 106 of the National Historic Preservation Act to determine if they have effects to historic properties. As part of Section 106, federal agencies are required to consider the views of consulting parties, including SHPO, Native American Tribes, and others.

Past and present actions may have resulted, or may result, in illegal collecting, inadvertent damage, loss, disturbance, theft and/or burial of cultural resources. Cultural resources that may have been, or may be, discovered during past or present projects on public land, or during construction of these projects, would be dealt with through the Memorandum of Agreement that would be executed and the Historic Properties Treatment Plan that would be developed and implemented in consultation with the Nevada SHPO. Activities identified as RFFAs would lead to similar impacts as those identified for past and present actions and would be addressed through resolution of adverse effects or consultation as appropriate.

Additionally, the proposed NV Energy Greenlink North transmission line project is proposed to run just north of U.S. Highway 50 from Ely, Nevada to Yerington, Nevada, which would contribute to future cumulative impacts within the CESA; however, the project is not yet considered a pending future action by the BLM and thus anticipated acreages and the right-of-way (ROW) width are unknown at this time. Impacts from the construction of this project are not anticipated to temporally overlap with the Proposed Action.

4.19.1.3 Cumulative Effects

Of the 140,419 acres covered by the CESA, 12,508 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately nine percent of the CESA.

Proposed Action

Impacts to cultural resources, including those not eligible for the NRHP and NRHP-eligible sites mitigated through data recovery, impact the cultural landscape. The development of the Proposed Action would contribute to these cumulative effects. Minimization of cumulative effects from the Proposed Action would be addressed through avoidance of identified eligible and unevaluated sites. If avoidance is not possible, eligible and unevaluated sites would be mitigated as agreed upon by the BLM and SHPO in the Memorandum of Agreement and the Historic Properties Treatment Plan. Approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (12,508 acres) for a total disturbance of 12,721 acres, which is approximately nine percent of the CESA. The intensity and duration of the cumulative effects would vary depending on the cultural resources and sensitive areas impacted and the mitigation plans in place; however, these impacts would occur over the long term. Cultural resources inventories would be completed for any future proposed development within the CESA with a federal nexus, and potential adverse impacts to any cultural resources would be avoided or mitigated, as appropriate.

Illegal collection of artifacts and inadvertent damage to archaeological sites, has occurred and most likely would continue to occur in the CESA through increased access, development, and increased human presence as a result of past, present, and RFFAs. Cumulative impacts would occur over the long term and could be adverse; however, with the implementation of Memorandum of Agreement and the Historic Properties Treatment Plan, there would be no adverse effects.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to cultural resources would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 12,508 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 12,713 acres, which is a disturbance of approximately nine percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative effects would be the same as those described for the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to cultural resources would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur. There would be no impacts beyond those described in **Section 4.19.1.2** and impacts are anticipated to be negligible to minor, long-term, and localized.

4.19.2 Environmental Justice

4.19.2.1 CESA Boundary Description

The CESA for environmental justice populations includes Eureka County, specifically Census Block Groups 320110001001 and 320110001002 (**Figure 4-2**). The CESA was chosen because the geographic areas are most likely to experience cumulative impacts to an environmental justice population. The total area of the CESA encompasses 2,673,325 acres.

4.19.2.2 Past, Present, and Reasonably Foreseeable Future Actions

Past and present actions within the CESA have resulted in projects that may disproportionately impact environmental justice populations. Past and present disturbance within the CESA includes mining and mineral exploration activity, utility and infrastructure construction, road construction, agriculture operations, livestock grazing, dispersed recreation, and areas of urban development within Eureka County, including the town of Eureka, Crescent Valley, Beowawe, and Diamond Valley. Major mining activities within the CESA boundary include the Ruby Hill Project, the Mount Hope Project, the Tonkin Springs Project (currently in permanent closure), the Buckhorn Project (currently in post-closure monitoring), and portions of the Cortez Complex operations and Nevada Gold Mines' Goldstrike Mine and Gold Quarry Mine. Past and present actions within the CESA may have resulted in impacts to environmental justice populations; however, any project that occurs on public land where NEPA compliance is required would need to analyze and mitigate impacts to environmental justice populations. Development on private land, unless there is a state or federal nexus, is not required to analyze or mitigate impacts to environmental justice populations.

RFFAs in the CESA would be similar to those that are presently occurring and would include mineral exploration and development, utility lines and infrastructure, livestock grazing, dispersed recreation, and restoration projects such as 3 Bars (BLM 2016). Development within the urban areas of the CESA (such as the town of Eureka), are likely to expand in the future as well. Additionally, the proposed NV Energy Greenlink North transmission line project is anticipated to run just north of U.S. Highway 50 from Ely, Nevada to Yerington, Nevada, which would contribute to future cumulative impacts within the CESA; however, the project is not yet considered a pending future action by the BLM and thus anticipated acreages and the ROW width are unknown at this time. Impacts from the construction of this project are not anticipated to temporally overlap with the Proposed Action.

4.19.2.3 Cumulative Effects

Cumulative analysis of environmental justice is not based on overall acres of disturbance but on the incremental impact projects would have on environmental justice populations.

Proposed Action

Impacts from the Proposed Action would not be expected to negatively or disproportionately affect any environmental justice populations. There is no indication that minority populations would be affected from past, present, and RFFAs any differently than other area residents; therefore, negative impacts on environmental justice populations within the CESA from the past, present, and RFFAs, including the Proposed Action, would be considered negligible.

The Proposed Action would contribute to cumulative effects on environmental justice populations within the CESA by providing continued employment opportunities, though the effects would be the same as previously authorized and analyzed. The Proposed Action would also contribute to overall traffic, air pollution, light pollution, and noise pollution for environmental justice populations; however, the effects would not disproportionately affect minority or low-income populations. The cumulative effects on environmental justice populations within the CESA from the past, present, and RFFAs, including the Proposed Action, would be minor, long-term, and localized.

Relocated Yard Alternative

Cumulative impacts to environmental justice populations under the Relocated Yard Alternative would be the same as under the Proposed Action.

Seasonal Hauling Restrictions Alternative

Cumulative impacts to environmental justice populations under the Seasonal Hauling Restrictions Alternative would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to environmental justice populations would not occur. There is no indication that minority populations would be affected from past, present and RFFAs any differently than other area residents; therefore, negative impacts on environmental justice populations within the CESA from the past, present, and RFFAs are not anticipated and positive impacts from the Proposed Action would not be realized.

4.19.3 Water Resources

4.19.3.1 CESA Boundary Description

The CESA for water resources includes the Kobeh Valley Hydrographic Basin (#139) and the Diamond Valley Hydrographic Basin (#153) and extends six miles north of the Kobeh Valley Hydrographic Basin (**Figure 4-3**). This CESA was selected because it includes the anticipated extent of cumulative impacts to water resources. Cumulative impacts to geochemistry were not analyzed as impacts from the Proposed Action are anticipated to be negligible as discussed under **Section 4.6.1.2**. The total area of the CESA encompasses 1,120,249 acres.

4.19.3.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-6**, has resulted from the following activities: mineral development and exploration projects (16,997 acres); utilities, infrastructure, and public purpose projects (4,099 acres); roads (4,495 acres); dispersed recreation, and livestock grazing. Additionally, approximately 70,224 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery. In addition to disturbance acreages past, present, and reasonably foreseeable future water pumping activities occur in the CESA. These include domestic and municipal water use, irrigation use, industrial use including mining activities.

Table 4-6 Past, Present, and RFFAs in the Water Resources and Geochemistry CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	1,120,249
Past Actions	
Mineral Development and Exploration Past Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	1,148
Notices	776
Mining and Exploration Projects	1,644
Public Purpose	298
Past Actions Total Disturbance Acres	3,865
Present Actions	
Mineral Development and Exploration Present Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	2,617
Notices	40
Mining and Exploration Projects	10,773
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	2,374
Communication Facilities	66
Telephone and Fiber Optic Lines	289
Water Pipelines and Water Infrastructure	441

Past, Present, and RFFAs, Disturbances and Projects	CESA
Oil and Gas Pipelines	7
Public Purpose	86
Other	538
Agricultural Areas	26,225
Present Actions Total Disturbance Acres	43,456
Roads and Railroads Present Actions	
State Routes	287
Local Roads	3,613
US Highways	595
Roads and Railroads Present Actions Total Disturbance Acres	4,495
RFFAs	
Mineral Development and Exploration RFFA Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	40
Notices	2
Mining and Exploration Projects	1,222
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	2,737
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	4,003
Past, Present, and RFFAs Total Disturbance Acres	55,819
Percent of CESA	5
Fires	70,224

Wildland fires are a major disturbance to water resources. These can impact surface water quality by removing the vegetation layer and increasing erosion and downstream turbidity. Storms can cause mass losses of sediment along eroded embankments, alternating the course of hydrological systems. Wildland fires also can change the ecosystem, replacing shrub habitat with grasslands. Shrubs are more resistant to erosion, but grasslands are more adaptable to changing environmental conditions.

Mining also the potential for cumulative impacts to water quality and quantity. Individually insignificant dewatering of numerous mine pits or underground facilities can cause CESA-wide changes in both groundwater and surface water quantity. Exposure of naturally occurring geochemical conditions can cause harmful constituents to enter the watershed through inadvertent release. Waste rock poses a threat for erosion and sedimentation to the watershed. Individual mine impacts may be minor to negligible, while cumulative mining activity can pose potential for significant impacts to water quality in the CESA.

Previous construction activities associated with utilities, infrastructure projects, and roads may have used water during construction, and the largest potential post-construction effect likely is related to erosion and sedimentation associated with access roads or reclaimed disturbances. All roads can present water quality impacts due to inadvertent spills or releases during vehicular accidents. Unpaved roads, such as those crossing public lands and those within recreation sites in the CESA, can also be a source of increased erosion and sedimentation. Paved roads may cause water quality issues resulting

Rangeland management is an important disturbance to, and utilizer of, water resources throughout the CESA. Rangeland management relies on predictable subsurface and surface water quantity and quality to sustain activities. This source can contribute to changes in water quality through the additions of nitrogen and other constituents. Livestock may also trample vegetation around water sources, degrading surface water quality through the subsequent erosion.

RFFAs in the CESA would include material and mineral mining, development, and exploration projects (1,264 acres) and utilities, infrastructure, and public purpose projects (2,739) (**Table 4-6**). Wildland fires in this CESA may also occur in the future, as would restoration projects (such as 3 Bars [BLM 2016]), livestock

grazing, and dispersed recreation. These activities would have similar impacts as stated for past and present actions.

Although the authorized but not yet constructed Mount Hope Project is not currently operational, it would include groundwater pumping to meet the project water requirements and is anticipated to impact water quality and quantity. The groundwater drawdown is predicted to exceed 10 feet over a large portion of Kobeh Valley, which would have long-term impacts (estimated at 100 years from post mining operations at Mount Hope) to approximately seven wells with active groundwater rights, two perennial stream segments (Roberts Creek and South Fork of Henderson Creek), and 22 perennial or potentially perennial spring sites (BLM 2012). Mitigation is proposed for the Mount Hope Project to reduce impacts to water quality and quantity.

Oil and gas development within the water quality and quantity CESA typically uses water and has the potential to degrade both surface water and groundwater if drilling fluids are not properly managed, or if wells are not properly developed. New roads are often constructed in association with oil and gas development, with the same potential consequences as previously mentioned.

Additionally, the proposed NV Energy Greenlink North transmission line project to run just north of U.S. Highway 50 from Ely, Nevada to Yerington, Nevada, which would contribute to future cumulative impacts within the CESA; however, the project is not yet considered a pending future action by the BLM and thus anticipated acreages and the ROW width are unknown at this time. Impacts from the construction of this project are not anticipated to temporally overlap with the Proposed Action.

4.19.3.3 Cumulative Effects

Of the 1,120,249 acres covered by the CESA, 55,819 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately five percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (55,819 acres) for a total disturbance of 56,032 acres, which is approximately five percent of the CESA. Cumulative effects from the Proposed Action in combination with the past, present, and RFFAs within the CESA would include increased water use, which may result in a reduction of base flow to perennial streams or springs and may impact groundwater wells and water rights within the CESA. However, groundwater pumping associated with the Proposed Action is not anticipated to affect base flow to perennial streams or springs as they are not connected to the deep alluvial groundwater system utilized by the production wells. Additional cumulative impacts may include increased erosion and sedimentation impacting surface water quality.

Under the Proposed Action, the groundwater drawdown associated with the pumping of the production well for an additional two years is anticipated to increase the 10-foot drawdown contour by 0.1 to 0.5 miles (SRK 2020b) over the previously authorized scenario (BLM 2017). It is unlikely that the production well pumping would occur concurrently with the dewatering activities of the authorized but not yet constructed Mount Hope Project (BLM 2012). If these pumping activities do occur concurrently, cumulative impacts to groundwater drawdown including pumping of the production well for the existing Gold Bar Mine, including the additional two years of pumping from the Proposed Action, are anticipated to be similar to those disclosed in the Gold Bar Mine Project Final EIS (BLM 2017, Volume II, Section 4.43.6), due to the minimal difference in the predicted drawdown from the Proposed Action. Cumulative impacts to groundwater drawdown are expected to be moderate due to the status of the Mount Hope Project as an RFFA, but the Proposed Action is not anticipated to contribute to this cumulative impact.

Impacts to groundwater from past, present, and RFFAs combined with the Proposed Action would be moderate, particularly because of the cumulative impact from groundwater pumping associated with the Mount Hope Project, which would result in an additional estimated 10-foot drawdown at the Roberts Creek Ranch well for approximately 100 years, affecting private wells including those that are currently awaiting approval by the State Engineer. Cumulative impacts from the Proposed Action on groundwater quality or surface water quality are not expected.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to water resources would be marginally less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 55,819 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 56,024 acres, which is a disturbance of approximately five percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts in combination with past, present, and RFFAs would be the same as described for the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to water resources would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not impact additional water resources; therefore, impacts would still be anticipated to be minor, long-term, and localized.

4.19.4 Geology and Minerals

4.19.4.1 CESA Boundary Description

The CESA for geology and minerals includes the Antelope Mining District and the GBS Plan boundary (**Figure 4-3**). This CESA was selected because it includes the area of potential cumulative impacts to geology and mineral resources. The total area of the CESA encompasses 84,812 acres.

4.19.4.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-7**, has resulted from the following activities: mineral development and exploration projects (3,562 acres); utilities, infrastructure, and public purpose projects (108 acres); roads (173 acres); dispersed recreation, and livestock grazing. Additionally, approximately 2,292 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-7 Past, Present, and RFFAs in the Geology and Minerals CESA

Past, Present, and RFFAs, Disturbances and Projects		CESA
CESA Acres		84,812
Past Actions		
Mineral Development and Exploration Past Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		2
Notices		251
Mining and Exploration Projects		1,606
Past Actions Total Disturbance Acres		1,859
Present Actions		
Mineral Development and Exploration Present Actions		
Notices		14
Mining and Exploration Projects		1,689
Utilities, Infrastructure, and Public Purpose Present Actions		
Powerlines		40
Water Pipelines and Water Infrastructure		28
Other		40
Agricultural Areas		0
Present Actions Total Disturbance Acres		1,810

Past, Present, and RFFAs, Disturbances and Projects	CESA
Roads and Railroads Present Actions	
Local Roads	173
Roads and Railroads Present Actions Total Disturbance Acres	173
RFFAs	
Mineral Development and Exploration RFFA Actions	
Mining and Exploration Projects	119
Utilities, Infrastructure, and Public Purpose Present Actions	
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	121
Past, Present, and RFFAs Total Disturbance Acres	3,964
Percent of CESA	5
Fires	2,292

Mineral development and exploration activities within the CESA typically have the largest impacts on geology and mineral resources as they contribute to mineral resource depletion, removal of mineral resources from availability for development, topographic changes, and affect geotechnical stability. Other actions with potential effects on geology include utility lines and roads. While these activities also disturb surface acreage, they typically conform closely to the local topography and have negligible, if any impacts on geology and mineral resources.

RFFAs within the CESA would include mineral exploration and development (119 acres) and utilities, infrastructure, and public purpose projects (two acres), and dispersed recreation (**Table 4-7**). Wildland fires in this CESA may occur in the future. Restoration projects within the CESA may also occur in the future, such as 3 Bars (BLM 2016), which may impact potential access to mining claims or access to areas for mineral exploration and development. Mining activities under RFFAs would lead to similar impacts as stated for past and present actions, as they would include removal of mineral resources from mineral exploration and development.

4.19.4.3 Cumulative Effects

Of the 84,812 acres covered by the CESA, 3,964 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately five percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (3,964 acres) for a total disturbance of 4,177 acres, which is approximately five percent of the CESA. Ore has been, or would likely be removed from the past, present, and RFFAs, and access to claims and mineral exploration may be impacted by future restoration projects such as 3 Bars (BLM 2016); however, access restrictions would be resolved prior to the start of restoration treatments. Ore would be removed from Project area reserves as part of the Proposed Action, which would result in a cumulative loss of mineral reserves; however, approximately 2.8 Mt per year of ore (estimated at 5.6 Mt over the additional two years of mining under the Proposed Action) is proposed for extraction, which is a small amount of the overall regional and geologic resource that may be available within the 84,812-acre CESA. Considering past, present, and RFFA disturbances in the geology and mineral resources CESA combined with the Proposed Action, cumulative effects on geology and mineral resources would be a minor cumulative impact to the total potential ore reserves within the CESA.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to geology and minerals would be marginally less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 3,964 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 4,169 acres, which is a disturbance of approximately five percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts in combination with past, present, and RFFAs would be the same as described for the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to geology and minerals would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not impact additional geology and mineral resources; therefore, impacts would still be anticipated to be minor, long-term, and localized.

4.19.5 Historic Trails

4.19.5.1 CESA Boundary Description

The CESA for historic trails includes a seven-mile radius around the GBS Plan boundary, which includes the GBP boundary and the viewshed of the Project (**Figure 4-2**). The CESA was chosen because it includes the geographic area where impacts to historic trails from the Proposed Action would most likely occur. The Pony Express NHT is the only historic trail within the CESA and is shown on Figure 2-1 of the Historic Trails SER for the Amended Plan of Operations for the Gold Bar Mine (BLM 2021k). The total area of the CESA encompasses 140,419 acres.

4.19.5.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-8**, has resulted from the following activities: mineral development and exploration projects (11,520 acres); utilities, infrastructure, and public purpose projects (470 acres); roads (397 acres); dispersed recreation, and livestock grazing. Additionally, approximately 65 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-8 Past, Present, and RFFAs in the Historic Trails CESA

Past, Present, and RFFAs, Disturbances and Projects		CESA
CESA Acres		140,419
Past Actions		
Mineral Development and Exploration Past Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		60
Notices		233
Mining and Exploration Projects		1,605
Past Actions Total Disturbance Acres		1,898
Present Actions		
Mineral Development and Exploration Present Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		85
Notices		10
Mining and Exploration Projects		9,526
Utilities, Infrastructure, and Public Purpose Present Actions		
Powerlines		423
Telephone and Fiber Optic Lines		0
Water Pipelines and Water Infrastructure		2
Other		45
Agricultural Areas		0
Present Actions Total Disturbance Acres		10,091
Roads and Railroads Present Actions		
State Routes		45
Local Roads		352
Roads and Railroads Present Actions Total Disturbance Acres		397

Past, Present, and RFFAs, Disturbances and Projects	CESA
RFFAs	
Mineral Development and Exploration RFFA Actions	
Mining and Exploration Projects	119
Utilities, Infrastructure, and Public Purpose Present Actions	
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	121
Past, Present, and RFFAs Total Disturbance Acres	12,508
Percent of CESA	9
Fires	65

Past and present actions within the CESA may have resulted, or may result, in visual or auditory impacts to the setting of the Pony Express NHT.

RFFAs in the CESA would include mineral development and exploration projects (119 acres) and utilities, infrastructure, and public purpose projects (two acres) (**Table 4-8**). Wildland fires in this CESA may occur in the future, as would restoration projects such as 3 Bars (BLM 2016), livestock grazing, and dispersed recreation. Impacts from RFFAs would be similar to those stated for past and present actions.

4.19.5.3 Cumulative Effects

Of the 140,419 acres covered by the CESA, 12,508 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately nine percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (12,508 acres) for a total disturbance of 12,721 acres, which is approximately nine percent of the CESA. Cumulative effects to historic trails within the CESA from past, present, and RFFAs in combination with the Proposed Action would include introduction of different forms, lines, colors, noise, and texture elements that contrast with features of the existing landscape through areas of vegetation clearance, soil disturbance, and facility construction. Many components of the Proposed Action would be visible from the Pony Express NHT, which would result in cumulative impacts to the visual and recreational setting of the Pony Express NHT through modifications of the form, line, color, and texture elements that are currently viewed from the trail.

There is a considerable amount of past mining related disturbance that is currently affecting the visual and recreational setting of the Pony Express NHT, as well as two ranch houses (the Three Bar Ranch and the Roberts Creek Ranch). As a result, the addition of the Proposed Action would be similar to the existing visual setting as similar disturbances currently impact the form, line, color, and texture of the viewshed of the Pony Express NHT. Once the Proposed Action facilities are reclaimed, save for the open pit, the impact to the visual and recreational setting of the Pony Express NHT would be considerably reduced and would likely return to near pre-Project conditions.

The cumulative actions described above occur at varying distances from the Pony Express NHT, with some being very close (such as the Falcon to Gonder Powerline and the Mount Hope Project) and others being further in distance from the trail (such as urban development). These varying degrees of distances result in some of the cumulative disturbances stated above having little, if any, impacts to the visual and recreational setting of the Pony Express NHT due to the distance from the trail. Urban development likely has no visual impact from the Pony Express NHT because there is a significant distance between urban development and the trail. Mineral development actions (such as the authorized but not yet constructed Mount Hope Project), and the utilities and infrastructure activities (such as the Falcon to Gonder powerline and the Machacek to Mount Hope Powerline) have resulted or may result in cumulative impacts to the form, line, color, and texture elements of the visual setting of the trail. The cumulative impact from the Proposed Action when combined with past, present, and RFFAs would be minor.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to historic trails would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 12,508 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 12,713 acres, which is a disturbance of approximately nine percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the historic trails CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to the Pony Express NHT would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact historic trails; therefore, impacts would still be anticipated to be minor during operations and negligible after reclamation occurs.

4.19.6 Land Use, Realty, Access, and Transportation

4.19.6.1 CESA Boundary Description

The CESA for land use, access, realty, and transportation includes the portion of Eureka County that is within the Shoshone-Eureka RMP with nearby land use authorizations and realty decisions between SR 278 and the Eureka/Lander Line, north of U.S. Highway 50, and project access roads (**Figure 4-2**). The CESA was chosen because it includes the geographic area and extent where cumulative impacts to land use, realty, access, and transportation are most likely to occur as a result of the Proposed Action. The total area of the CESA encompasses 651,976 acres.

4.19.6.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-9**, has resulted from the following activities: mineral development and exploration projects (15,509 acres); utilities, infrastructure, and public purpose projects (1,958 acres); roads (2,525 acres); agriculture and livestock grazing (1,609 acres); and dispersed recreation. Additionally, approximately 93,713 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-9 Past, Present, and RFFAs in the Land Use, Realty, Access, and Transportation CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	651,976
Past Actions	
Mineral Development and Exploration Past Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	739
Notices	670
Mining and Exploration Projects	1,606
Public Purpose	40
Past Actions Total Disturbance Acres	3,055
Present Actions	
Mineral Development and Exploration Present Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	1,206
Notices	25
Mining and Exploration Projects	11,263
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	1,620

Past, Present, and RFFAs, Disturbances and Projects	CESA
Communication Facilities	1
Telephone and Fiber Optic Lines	165
Water Pipelines and Water Infrastructure	78
Public Purpose	6
Other	48
Agricultural Areas	1,609
Present Actions Total Disturbance Acres	16,022
Roads and Railroads Present Actions	
State Routes	152
Local Roads	2,040
US Highways	333
Railroads	0
Roads and Railroads Present Actions Total Disturbance Acres	2,525
RFFAs	
Mineral Development and Exploration RFFA Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	40
Notices	1
Mining and Exploration Projects	11,173
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	1,917
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	13,133
Past, Present, and RFFAs Total Disturbance Acres	34,735
Percent of CESA	5
Fires	93,713

Within the CESA, there is existing disturbance associated with past and present mineral development and exploration activities. Future disturbance from the authorized but not yet constructed Mount Hope Project would be adjacent to the Proposed Action and within the CESA. Generally, land use impacts from restricted access on the mines when not in operation are minimal and short-term. Impacts from mining and exploration operations may be long-term if left unreclaimed (such as open pits); however, impacts are typically short-term until reclamation is completed and access and use of the area is restored to pre-project conditions.

Mining activities often have impacts to the transportation system by increasing traffic on the surrounding road network. Traffic generation depends on the size and intensity of operations of the facilities. As stated above, the Mount Hope Project is not yet generating any traffic related impacts within the CESA.

Land use, access, and transportation impacts from utilities and infrastructure are generally short-term, with impacts mainly occurring during construction; however, easements or ROWs associated with the utility lines and other infrastructure within the CESA (such as the Sierra Pacific powerlines, Mt. Wheeler Phase 3 Powerline, or Silver State East Fiber Optic Project) can limit non-compatible land uses within the area of the easement or ROW. In addition, utility lines often require routine maintenance, which could increase traffic within the CESA. Public purpose projects within the CESA include the Eureka County Volunteer Fire Station at Devils Gate, the use of which restricts other land uses within the boundaries of the facility.

Impacts to land use, access, and transportation resulting from roads are long-term. Construction of roads allows improved access to land uses within the CESA. Additional and improved roads are a result of needs for improved access. Impacts may alter current and future traffic patterns.

Urban development has a significant effect on land use and access since it often permanent removes the developed areas for other land uses. Urban development has increased traffic on the transportation system and road network within the CESA. Transportation increases depend on the overall size and density of the urban development, but these areas generally have a more concentrated population, which increases traffic levels when compared to more rural, undeveloped areas. Urban development within the CESA is limited.

Wildland fires may affect land uses such as dispersed recreation and livestock grazing after they occur as the burned areas may no longer be suitable to serve as livestock forage areas, or they may have modified the recreation experience and setting. Agricultural cropping affects land use as well because it removes large areas from being used for other multiple use authorizations or land uses. Agricultural operations also contribute to increased traffic levels within the CESA, although the likelihood of such traffic increase is low. Livestock grazing affects land use primarily through restricted access that may occur due to range fencing.

RFFAs in the CESA would include mineral development and exploration projects (11,214 acres) and utilities, infrastructure, and public purpose projects (1,919 acres) (**Table 4-9**). Wildland fires in this CESA may occur in the future, as would restoration projects, livestock grazing and agricultural cropping, and dispersed recreation. These activities are anticipated to lead to similar impacts as stated for past and present actions. Future restoration treatments within the CESA, such as 3 Bars (BLM 2016), could restrict access to land uses and may increase traffic on roadways; however, future restoration is anticipated to have negligible impacts on ROW past, present, and future ROW authorizations. The largest portion of disturbance associated with mining actions is from the authorized but not yet constructed or operational Mount Hope Project, which could potentially be operational in the future and would result in land use and traffic impacts.

Additionally, the proposed NV Energy Greenlink North transmission line project is anticipated to run just north of U.S. Highway 50 from Ely, Nevada to Yerington, Nevada, which would contribute to future cumulative impacts within the CESA; however, the project is not yet considered a pending future action by the BLM and thus anticipated acreages and the ROW width are unknown at this time. Impacts from the construction of this project are not anticipated to temporally overlap with the Proposed Action.

4.19.6.3 Cumulative Effects

Of the 651,976 acres covered by the CESA, 34,735 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately five percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (34,735 acres) for a total disturbance of 34,948 acres, which is approximately five percent of the CESA. Cumulative effects from past, present, and RFFAs in combination with the Proposed Action would include traffic increases on the transportation network within the CESA, loss of public land for multiple use authorizations for the life of the Project, and access restrictions to land use within the CESA (including for livestock grazing and dispersed recreation). Approximately 51 acres would not be reclaimed, which would increase long-term impacts to land use; however, this is less than one percent of the total area of the CESA. Cumulative effects from past, present, and RFFAs including the Proposed Action would be minor.

Although the Mount Hope Project is authorized, it is not yet constructed and operational; however, when under construction, it would significantly increase traffic along some of the transportation routes within the CESA, especially through Diamond Valley along SR 278 and around the town of Eureka along U.S. Highway 50 (which is outside of this CESA). After construction, traffic generation from the Mount Hope Project is expected to reduce greatly. Cumulative impacts from the Proposed Action and past, present, and RFFAs including the Mount Hope Project would be moderate to major with increased traffic along SR 278 and U.S. Highway 50; however, the Mount Hope Project is not anticipated to be constructed or operational during the life of the Proposed Action and therefore cumulative impacts would not temporally overlap.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to land use, realty, access, and transportation would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard

Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 34,735 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 34,940 acres, which is a disturbance of approximately five percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the land use, realty, access, and transportation CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to land use, realty, access, and transportation would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact land use, realty, access, and transportation; therefore, impacts would still be anticipated to be minor, long-term, and localized.

4.19.7 Noise

4.19.7.1 CESA Boundary Description

The CESA for noise includes the GBS Plan and GBP boundaries and the area to which noise attenuates to 5 dB as predicted from Project noise modeling (**Figure 4-2**). The CESA was chosen because it includes the geographic extent within which cumulative noise impacts are most likely to occur as a result of the Proposed Action on GRSG populations as well as other sensitive receptors such as nearby communities or residences. Noise impacts within the CESA are less a result of acreage disturbance and more a result of the types of equipment and level of use associated with past, present, and RFFAs in combination with the Proposed Action. The total area of the CESA encompasses 94,758 acres.

4.19.7.2 Past, Present, and Reasonably Foreseeable Future Actions

Within the CESA, present disturbance results from activities including mining at the Gold Bar Mine and exploratory drilling associated with the Gold Bar Exploration Project, resulting in some level of noise impacts to the surrounding areas (including vehicle noise and heavy equipment/vehicle noise, generator noise, aggregate crushing noises, and blasting noise). Noise impacts from utilities, infrastructure, and public purpose projects generally occur during construction of the utilities and infrastructure, such as construction of powerlines. Maintenance of utilities has resulted and would continue to result in very little noticeable noise levels. Roads within the CESA likely result in some level of noise impact due to vehicle traffic on the road, and OHV traffic may also result in noise impacts. Existing noise conditions were captured in the data collected in the Noise SER for the Amended Plan of Operations for the Gold Bar Mine (BLM 2021m).

RFFAs in the CESA would include mineral development and exploration projects and utilities and infrastructure projects. Wildland fires in this CESA may occur in the future, as would restoration projects such as 3 Bars (BLM 2016), livestock grazing, and dispersed recreation, but would have minimal noise impacts.

4.19.7.3 Cumulative Effects

The noise CESA encompasses 94,758 acres. Due to the nature of the CESA, existing and on-going impacts to noise were captured in the baseline conditions discussed in the Noise SER for the Amended Plan of Operations for the Gold Bar Mine (BLM 2021m) and **Section 3.10**.

Proposed Action

Noise levels within the CESA are expected to increase from the Proposed Action in combination with past, present, and RFFAs. Primary noise sources from the Proposed Action include mining, processing, and hauling activities. Although the Proposed Action would increase the frequency of the noise associated with hauling, overall ambient noise levels are not expected to increase beyond already authorized conditions in combination with past, present, and RFFAs. A modeled noise increase is expected over ambient conditions at the sensitive receptors (discussed in **Section 3.10**); however, modeled noise levels would include baseline conditions of past and present projects and would not exceed thresholds identified in the 2015 ARPMA (BLM 2015a) when the specific ACEPMs are implemented, including seasonal hauling restrictions.

Impacts to sensitive receptors from past, present, and RFFAs in combination with the Proposed Action would be minor, short-term, and localized.

While the authorized Mount Hope Project is currently not operational, should operations commence, the mine would add additional noise sources within the CESA that would increase existing noise conditions. However, the anticipated future construction and operations of the mine are not expected to temporally overlap with the Proposed Action; cumulative noise impacts with the future action would not occur.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action because noise impacts within the CESA are less a result of acreage disturbance and are more associated with types of equipment and level of use associated with past, present, and RFFAs in combination with the Relocated Yard Alternative; therefore, the surface disturbance of 8.3 acres less than the Proposed Action would not result in a difference in cumulative noise impacts within the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the noise CESA would be negligible as seasonal hauling restrictions would be in place and noise impacts to the sensitive receptors (lek sites) would be mitigated.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated noise impacts would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not contribute to additional noise impacts; therefore, impacts would still be anticipated to be minor, long-term, and localized.

4.19.8 Grazing Management

4.19.8.1 CESA Boundary Description

The CESA for soils includes the Roberts Mountain and Three Bars Allotments, which include the GBS Plan and GBP boundaries and a portion of the Mount Hope Project (**Figure 4-2**). The CESA was chosen because it includes the geographic area where cumulative impacts to grazing management and the existing allotments are most likely to occur as a result of the Proposed Action. The total area of the CESA encompasses 245,096 acres.

4.19.8.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-10**, has resulted from the following activities: mineral development and exploration projects (12,154 acres); utilities, infrastructure, and public purpose projects (655 acres); roads (743 acres); dispersed recreation, and livestock grazing. Additionally, approximately 14,212 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-10 Past, Present, and RFFAs in the Grazing Management CESA

Past, Present, and RFFAs, Disturbances and Projects		CESA
CESA Acres		245,096
Past Actions		
Mineral Development and Exploration Past Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		165
Notices		306
Mining and Exploration Projects		1,606
Past Actions Total Disturbance Acres		2,077
Present Actions		
Mineral Development and Exploration Present Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		334

Past, Present, and RFFAs, Disturbances and Projects	CESA
Notices	17
Mining and Exploration Projects	9,726
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	612
Telephone and Fiber Optic Lines	0
Water Pipelines and Water Infrastructure	1
Other	42
Agricultural Areas	0
Present Actions Total Disturbance Acres	10,732
Roads and Railroads Present Actions	
State Routes	159
Local Roads	584
Roads and Railroads Present Actions Total Disturbance Acres	743
RFFAs	
Mineral Development and Exploration RFFA Actions	
Mining and Exploration Projects	119
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	161
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	281
Past, Present, and RFFAs Total Disturbance Acres	13,834
Percent of CESA	6
Fires	14,212

Mineral development and exploration activities within the CESA directly remove land from grazing and range use and increases the likelihood of spreading non-native, invasive species, and noxious weeds throughout the duration of mining activities. The spread of noxious weeds and non-native invasive species further reduce the amount of usable range and available forage in the long-term. This loss of grazing area may result in the loss of AUMs. Grazing area and AUMs would be expected to return after reclamation occurs. In addition, past and present actions may have resulted in removal or destruction of grazing improvements, such as cattle guards and range fencing.

The utilities, infrastructure, and public purpose projects within the CESA include ground disturbance and vegetation clearing, which impacts livestock grazing and forage area; however, construction of powerlines, telephones, or fiber optic transmission lines does not typically result in a loss of access to grazing areas. If the disturbances associated with such utility lines are not reclaimed or if revegetation does not establish after reclamation, the spread of noxious weeds and non-native, invasive species would likely occur and reduce grazing area quality within the CESA.

Disturbance associated with roads within the CESA provide opportunity for the spread of noxious weeds and non-native invasive species since road disturbance is often slower to reestablish native vegetation due to soil compaction and weed species are generally the first to establish. Additionally, OHVs often spread seeds of noxious weeds and non-native invasive species. The establishment and spread of weed species reduces the availability and quality of forage area for livestock grazing. Use of these roads may also have resulted in vehicle-related mortality to livestock. Dispersed recreation also has the potential to spread weed species.

RFFAs in the CESA would include mineral development and exploration projects (119 acres) and utilities and infrastructure (162 acres) (**Table 4-10**). Wildland fires in this CESA may occur in the future, as would restoration projects, livestock grazing, and dispersed recreation. Although authorized, the Mount Hope Project is not yet constructed and operational and is herein considered a potential RFFA. The mine would

include perimeter fencing which would result in additional livestock grazing restrictions within the CESA. The Mount Hope Project is anticipated to result in the permanent loss of 32 AUMs and the long-term loss of 781 AUMs, including within the Roberts Mountain Allotment; however, the Mount Hope Project would minimally overlap with the grazing management CESA as it is mostly located outside of the CESA to the east. Potential future restoration projects, such as 3 Bars (BLM 2016), within the CESA could result in loss of forage and water availability and quality.

4.19.8.3 Cumulative Effects

Of the 245,096 acres covered by the CESA, 13,834 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately six percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (13,834 acres) for a total disturbance of 14,047 acres, which is approximately six percent of the CESA. Cumulative effects to grazing management within the CESA from past, present, and RFFAs in combination with the Proposed Action would include potential reduction in forage availability and suitability and the removal of or destruction of range improvements.

The Proposed Action would result in a temporary suspension of 5.8 cattle AUMs and 2.5 sheep AUMs in the long term within 213.3 acres of the impacted area until reclamation occurs but would not result in a permanent loss of AUMs and is a nominal percentage of the total AUMs within the CESA boundary. Successful reclamation may increase the forage quality and quantity within the Project area through reseeding with grasses, forbs, and shrubs on previously disturbed areas, or areas that were previously pinyon-juniper. Additionally, future restoration projects such as 3 Bars (BLM 2016) could affect livestock in the CESA by exposing them to treatment that could harm their health, interfere with their movements, cause changes in vegetation that could positively or negatively alter the carrying capacity of the allotments, or limit their access to water. Alternately, vegetation management activities could improve the amount and quality of forage, potentially increasing the available forage in the CESA. The Proposed Action in combination with past, present, and RFFAs would result in minor cumulative impacts when considering all AUMs within the CESA. The Mount Hope Project is not anticipated to temporally overlap with the Proposed Action; thus, cumulative impacts from the loss of AUMs associated with the Mount Hope Project in combination with the Proposed Action would not occur.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to grazing management would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 13,864 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 14,039 acres, which is a disturbance of approximately six percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the grazing management CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to grazing management would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact grazing management; therefore, impacts would still be anticipated to be minor, long-term, and localized when considering all AUMs within the CESA.

4.19.9 Recreation

4.19.9.1 CESA Boundary Description

The CESA for soils includes the portion of Eureka County that is within the Shoshone-Eureka RMP with nearby land use authorizations between SR 278 and the Eureka/Lander Line, north of U.S. Highway 50,

and project access roads (**Figure 4-2**). The CESA was chosen because it includes the geographic area where cumulative impacts to recreation opportunities are most likely to occur as a result of the Proposed Action. The total area of the CESA encompasses 651,976 acres.

4.19.9.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-11**, has resulted from the following activities: mineral development and exploration projects (15,509 acres); utilities, infrastructure, and public purpose projects (1,958 acres); roads (2,525 acres); dispersed recreation, and livestock grazing. Additionally, approximately 93,713 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-11 Past, Present, and RFFAs in the Recreation CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	651,976
Past Actions	
Mineral Development and Exploration Past Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	739
Notices	670
Mining and Exploration Projects	1,606
Public Purpose	40
Past Actions Total Disturbance Acres	3,055
Present Actions	
Mineral Development and Exploration Present Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	1,206
Notices	25
Mining and Exploration Projects	11,263
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	1,620
Communication Facilities	1
Telephone and Fiber Optic Lines	165
Water Pipelines and Water Infrastructure	78
Public Purpose	6
Other	48
Agricultural Areas	1,609
Present Actions Total Disturbance Acres	16,022
Roads and Railroads Present Actions	
State Routes	152
Local Roads	2,040
US Highways	333
Railroads	0
Roads and Railroads Present Actions Total Disturbance Acres	2,525
RFFAs	
Mineral Development and Exploration RFFA Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	40
Notices	1
Mining and Exploration Projects	11,173
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	1,917
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	13,133

Past, Present, and RFFAs, Disturbances and Projects	CESA
Past, Present, and RFFAs Total Disturbance Acres	34,735
Percent of CESA	5
Fires	93,713

Mineral development and exploration operations in the CESA often limit public access to areas previously used for dispersed recreation. In addition, they may reduce the recreational value and modify the recreational setting when vegetation and/or wildlife are affected and may result in visual and noise impacts for those recreation users seeking experiences of isolation and solitude. These actions may also displace recreationists to surrounding areas. The Mount Hope Project is within the CESA, but is currently not an operating mine, so impacts to recreation resources from restricted access are not presently occurring. Impacts to recreation resources from mining and exploration operations may be long-term if left unreclaimed (such as open pits); however, impacts are typically short-term until reclamation is completed and access and use of the area is restored to pre-Project conditions. In addition, mining activities may increase the population of an area by bringing in mine employees and workers to the areas which may increase the use of recreation areas within the CESA.

Past and present disturbance associated with utilities, infrastructure, and public purpose projects in the CESA include powerlines, telephone and fiber optic lines, water, and sewer infrastructure. Lands occupied by utilities and infrastructure are generally still available for dispersed recreation activities, but the recreation setting may have changed due to the presence of man-made features such as powerlines and telephone poles. These facilities often include maintenance roads which may increase OHV use in the area and allow vehicular access to areas that previously had little, if any, OHV traffic. Public purpose projects such as the Eureka County Volunteer Fire Station at Devils Gate has resulted in the site no longer being available for dispersed recreation.

Road disturbance within the CESA provides access to recreation areas and can also become a form of recreation. For those seeking solitude and a primitive outdoor experience, development of roads can impact the recreation experience by modifying the recreation setting with the visual appearance and noise of road traffic, as well as the increased vehicular traffic.

Urban development may restrict access for recreational use and create visual impacts for those seeking solitude and a primitive outdoor experience. A portion of Diamond Valley falls within the CESA, but the area does not have designated recreation areas and is primarily a sparsely populated, agricultural community. Dispersed recreation would be restricted around the agricultural cropping areas in Diamond Valley.

Wildland fires would temporarily affect the area available for dispersed recreation and would impact the recreation setting until revegetation and/or reclamation occurs on the burned area; however, wildland fires do not typically restrict access for recreation activities.

Livestock grazing is not inconsistent with dispersed recreation, and impacts are largely from restricted access to potential recreation areas that may occur from range fencing.

RFFAs in the CESA would include mineral development and exploration projects (11,214 acres) and utilities, infrastructure, and public purpose projects (1,919 acres) (**Table 4-11**). Wildland fires in this CESA may occur in the future, as would restoration projects such as 3 Bars (BLM 2016), livestock grazing, and dispersed recreation. RFFAs would result in similar impacts to recreation as stated for past and present actions. The largest portion of disturbance associated with future mining actions is from the Mount Hope Project, which is currently authorized but not operational and may begin construction and production in the future. The mine would result in potential impacts to recreation such as access restrictions and modification of the recreational setting of the area.

Additionally, the proposed NV Energy Greenlink North transmission line project is anticipated to run just north of U.S. Highway 50 from Ely, Nevada to Yerington, Nevada, which would contribute to future cumulative impacts within the CESA; however, the project is not yet considered a pending future action by the BLM and thus anticipated acreages and the ROW width are unknown at this time. Impacts from the

construction of this project are not anticipated to temporally overlap with the Proposed Action and would not result in restricted access for recreation.

4.19.9.3 Cumulative Effects

Of the 651,976 acres covered by the CESA, 34,735 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately five percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (34,735 acres) for a total disturbance of 34,948 acres, which is approximately five percent of the CESA. Cumulative impacts to recreation from past, present, and RFFAs in combination with the Proposed Action would be short-term, except for mining features that are not reclaimed, such as open pits. Transmission lines and above ground utilities would result in long-term visual impacts to recreation resources. Impacts from past, present, and RFFAs would include restricted access to recreation areas, displacement of recreationists to surrounding areas, potential increase in the population of recreationists, and impacts to the recreation setting. The Proposed Action would restrict access to areas that are fenced for active mining operations and would leave approximately 51 acres unreclaimed. Some recreationists may be displaced to surrounding areas during mining operations, and the recreation setting may be impacted; however, there is already a significant amount of disturbance affecting recreation, and after reclamation occurs, dispersed recreation would return to near pre-Project conditions. The Proposed Action in combination with the past, present, and RFFAs is less than one percent of the CESA, so cumulative impacts from the Proposed Action would be minor during operations, and negligible after reclamation occurs.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to recreation would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 34,735 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 34,940 acres, which is a disturbance of approximately five percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the recreation CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to recreation would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact recreation; impacts would still be minor during operations and negligible after reclamation occurs.

4.19.10 Social and Economic Values

4.19.10.1 CESA Boundary Description

The CESA for social and economics values includes Eureka County, Nevada (**Figure 4-2**). The CESA was chosen because individuals and businesses that would be cumulatively affected by the Proposed Action and alternatives are situated within Eureka County. The total area of the CESA encompasses 2,673,325 acres.

4.19.10.2 Past, Present, and Reasonably Foreseeable Future Actions

The social and economic structure of the CESA is the same as discussed in the Social and Economic Values SER for the Gold Bar Amended Mine Plan of Operations (BLM 2021p); all data on socioeconomic conditions, fiscal conditions, public services, and utilities apply to the CESA analysis as the CESA is the same as the area of analysis. Eureka County's mining sector employment comprises approximately 95.3 percent of the total countywide employment in that sector. Agriculture is also an important part of the Eureka County economy, with Diamond Valley being a large contributor of agricultural operations. Mining activities

within the CESA boundary include the Ruby Hill Project, the Tonkin Springs Project (currently in permanent closure), the Buckhorn Project (currently in post-closure monitoring), and portions of the Cortez Mine operations and Nevada Gold Mines' Goldstrike Mine and Gold Quarry Mine. The Mount Hope Project is an authorized mine within Eureka County; however, it is not currently active and is not generating socioeconomic impacts in present conditions.

RFFAs include mineral exploration and new and continuing mining operations. Future mining operations within the CESA include exploration and some existing mining operations expansions. The mining operations discussed above are expected to continue operations and potentially expand. The Mount Hope project would likely begin operation sometime in the future. Over the first 24 months of construction and operations, direct on-site employment would result in an average of approximately 567 jobs, with a three-month peak of approximately 775 combined construction and operations workers (BLM 2012). Other projects may include oil, gas, and geothermal development, utility construction, communication facilities, and potential urban development within the population centers of Eureka County. Other potential mining activities that may occur within Eureka County, or may affect the socioeconomic setting of the county, in the future include the Norse Windfall Exploration Project, the Windfall Project, the Prospect Mountain Exploration Drilling Project, the Gold Canyon Mine, the Gibellini Mine, the Goldrush Mine, and the Golden Lake Exploration Project. The RFFAs are anticipated to result in similar impacts to those discussed for past and present actions.

Future restoration projects could occur within the CESA. Restoration treatment projects, such as 3 Bars (BLM 2016) could result in increases in the required amount of livestock management. Successful treatment projects could also result in long-term benefits associated with potential increase in available forage following reclamation (BLM 2017).

Additionally, the proposed NV Energy Greenlink North transmission line project is anticipated to run just north of U.S. Highway 50 from Ely, Nevada to Yerington, Nevada, which would contribute to future cumulative impacts within the CESA; however, the project is not yet considered a pending future action by the BLM and thus anticipated acreages and the ROW width are unknown at this time. Impacts from the construction of this project are not anticipated to temporally overlap with the Proposed Action.

4.19.10.3 Cumulative Effects

Cumulative analysis of social and economic values is not based on overall acres of disturbance but on the incremental impact projects would have on social and economic values within the CESA. The past and present land uses in the CESA have had a direct effect on social and economic values through changes to employment (both type and number of jobs), changes in housing availability, and changes to the overall population.

Proposed Action

The Proposed Action would contribute to the cumulative effects for the social and economic values in the CESA. This would include providing employment, and increasing demand for housing, income, community facilities, and local government. Increased tax revenues would provide financing to meet some of these demands, although there would likely be a significant time lag between demand and supply for long lead items (i.e., school or utility capacity). The past, present, and RFFAs including the Proposed Action would have a significant positive impact on Eureka County in terms of employment and tax revenue but may present problems such as inadequate housing and increased demand for sewage treatment, water, and other county services which may need additional capacity. When combined with past, present, and RFFAs in the CESA, the Proposed Action would result in minor cumulative impacts to social and economic values. If all mines that are considered RFFA were to go into operation around the same time, the socioeconomic impacts may be moderate to major, primarily resulting from shortages in housing, labor, and the increased demand on public services and public revenue.

Relocated Yard Alternative

Cumulative impacts to social and economic values under the Seasonal Hauling Restrictions Alternative would be the same as under the Proposed Action.

Seasonal Hauling Restrictions Alternative

Cumulative impacts to social and economic values under the Seasonal Hauling Restrictions Alternative would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to social and economic values would not occur. Cumulative impacts to social and economic values under the No Action Alternative would be less than those under the Proposed Action Alternative but are still anticipated to be minor, long-term, and localized. If all mines that are considered RFFA were to go into operation around the same time, the socioeconomic impacts may be moderate to major, primarily resulting from shortages in housing, labor, and the increased demand on public services and public revenue.

4.19.11 Soils

4.19.11.1 CESA Boundary Description

The CESA for soils includes the Roberts Mountain and Three Bars Allotments, which include the GBS Plan and GBP boundaries and a portion of the Mount Hope Project (**Figure 4-2**). The CESA was chosen because it includes the geographic area where cumulative impacts to soils are most likely to occur as a result of the Proposed Action. The total area of the CESA encompasses 245,096 acres.

4.19.11.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-12**, has resulted from the following activities: mineral development and exploration projects (12,154 acres); utilities, infrastructure, and public purpose projects (655 acres); roads (743 acres); dispersed recreation, and livestock grazing. Additionally, approximately 14,212 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-12 Past, Present, and RFFAs in the Soils CESA

Past, Present, and RFFAs, Disturbances and Projects		CESA
CESA Acres		245,096
Past Actions		
Mineral Development and Exploration Past Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		165
Notices		306
Mining and Exploration Projects		1,606
Past Actions Total Disturbance Acres		2,077
Present Actions		
Mineral Development and Exploration Present Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		334
Notices		17
Mining and Exploration Projects		9,726
Utilities, Infrastructure, and Public Purpose Present Actions		
Powerlines		612
Telephone and Fiber Optic Lines		0
Water Pipelines and Water Infrastructure		1
Other		42
Agricultural Areas		0
Present Actions Total Disturbance Acres		10,732
Roads and Railroads Present Actions		
State Routes		159
Local Roads		584
Roads and Railroads Present Actions Total Disturbance Acres		743
RFFAs		

Past, Present, and RFFAs, Disturbances and Projects	CESA
Mineral Development and Exploration RFFA Actions	
Mining and Exploration Projects	119
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	161
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	281
Past, Present, and RFFAs Total Disturbance Acres	13,834
Percent of CESA	6
Fires	14,212

Past and present mineral development and exploration activities within the soils CESA have not all been actively reclaimed; however, natural reclamation of vegetation species has likely occurred at the site of past activities over time, which has resulted in various levels of revegetation, which is important for soil stability and erosion prevention. Impacts of past and present mineral development and exploration may be long-term since soil is physically removed and then replaced during reclamation. If an area is not reclaimed, or soils are not salvaged, existing soils may be buried. The primary effect of mining on soil resources is a temporary decrease in overall soil quality, reduction in soil production capabilities for vegetation and wildlife, potentially increased soil erosion, and subsequently, an increase in sediment in downstream surface waters.

Disturbance to soil resources associated with utility and infrastructure projects (such as the Sierra Pacific or Falcon to Gonder powerlines) involves construction of access roads, as well as temporary staging areas, which leads to soil compaction and removal of vegetation.

Road construction has a long-term effect on soil resources. Effects from unimproved roads include compaction of the ground, burial of soils and altering water flow on the soil surface. U.S. Highways and State Routes are paved with asphalt or concrete, which permanently affects the soil in the area and increases runoff from the impermeable surface, which further has the potential to increase erosion of adjacent soils.

Wildland fires remove vegetation, which creates the potential to increase the risk of soil erosion. Extremely hot fires have the ability to change the top layers of the soil by altering the soil structure.

RFFAs in the CESA would include mineral development and exploration projects (119 acres) and utilities, infrastructure, and public purpose projects (162 acres) (**Table 4-12**). Wildland fires in this CESA may occur in the future, as would restoration projects and dispersed recreation. Impacts from RFFAs would be similar to those stated for past and present actions. Future potential restoration projects could increase erosion and soil compaction and reduce organic matter cover, which would change the soil properties and chemistry leading to changes in soil productivity.

4.19.11.3 Cumulative Effects

Of the 245,096 acres covered by the CESA, 13,834 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately six percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (13,834 acres) for a total disturbance of 14,047 acres, which is approximately six percent of the CESA. Cumulative effects to soil resources under the Proposed Action, combined with the past, present, and RFFAs, would be long-term and minor to moderate due to construction activities and topsoil salvage. All past, present, and RFFAs within the soils CESA would likely have, or would most likely employ, BMPs to reduce erosion, which would reduce cumulative impacts to soils. Restoration projects could have adverse effects on soil conditions and productivity, but overall would be less severe than wildlife and erosion that would result from the lack of

restoration (BLM 2017). Overall, cumulative impacts that would affect soils within the CESA would be minor to moderate depending on the success of reclamation of mine related disturbance over time.

Additionally, while the authorized Mount Hope Project would contribute cumulatively to the surface disturbance and potential compaction and erosion to soils within the CESA, the mine is not yet constructed and is not anticipated to temporally overlap with the Proposed Action; therefore, cumulative impacts would not occur from the Mount Hope Project in combination with the Proposed Action.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to soils would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 13,834 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 14,039 acres, which is a disturbance of approximately six percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the soils CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to soils would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not impact soils additionally; therefore, impacts would still be anticipated to be minor to moderate, long-term, and localized depending on the success of reclamation over time.

4.19.12 Vegetation

4.19.12.1 CESA Boundary Description

The CESA for vegetation includes the Roberts Mountain and Three Bars Allotments, which include the GBS Plan and GBP boundaries and a portion of the Mount Hope Project (**Figure 4-2**). The CESA was chosen because it includes the geographic area where cumulative impacts to vegetation species are most likely to occur as a result of the Proposed Action. Cumulative impacts to noxious and invasive non-native species and special status plants were not analyzed as impacts from the Proposed Action are anticipated to be negligible as discussed under **Section 4.15.1**. The total area of the CESA encompasses 245,096 acres.

4.19.12.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-13**, has resulted from the following activities: mineral development and exploration projects (12,154 acres); utilities, infrastructure, and public purpose projects (655 acres); roads (743 acres); dispersed recreation, and livestock grazing. Additionally, approximately 14,212 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery

Table 4-13 Past, Present, and RFFAs in the Vegetation CESA

Past, Present, and RFFAs, Disturbances and Projects		CESA
CESA Acres		245,096
Past Actions		
Mineral Development and Exploration Past Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		165
Notices		306
Mining and Exploration Projects		1,606
Past Actions Total Disturbance Acres		2,077
Present Actions		
Mineral Development and Exploration Present Actions		

Past, Present, and RFFAs, Disturbances and Projects	CESA
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	334
Notices	17
Mining and Exploration Projects	9,726
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	612
Telephone and Fiber Optic Lines	0
Water Pipelines and Water Infrastructure	1
Other	42
Agricultural Areas	0
Present Actions Total Disturbance Acres	10,732
Roads and Railroads Present Actions	
State Routes	159
Local Roads	584
Roads and Railroads Present Actions Total Disturbance Acres	743
RFFAs	
Mineral Development and Exploration RFFA Actions	
Mining and Exploration Projects	119
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	161
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	281
Past, Present, and RFFAs Total Disturbance Acres	13,834
Percent of CESA	6
Fires	14,212

Impacts to vegetation species from mineral development and exploration activities in the CESA include vegetation removal. While some of these past projects have not been actively reclaimed, natural re-establishment of vegetation has occurred over time resulting in various levels of revegetation. Present mineral development and exploration actions are subject to reclamation requirements. Impacts from mineral development and exploration can be long-term. Re-establishment of vegetation would eventually occur on mining disturbances, whether through the revegetation measures required for specific projects or through natural revegetation.

Within the vegetation CESA, disturbance associated with utilities, infrastructure, public purpose projects included native vegetation removal during construction. After construction of utility and infrastructure projects, access roads remain for maintenance, which creates a long-term impact to vegetation in the CESA.

Disturbance associated with roads in the CESA have affected vegetation since the road area includes vegetation removal, and areas disturbed by vehicles are often slower to re-establish because the soils have been compacted. Other activities such as grazing and agriculture cropping also affect vegetation. Grazing results in habitat removal/conversion and affect wildland fire regimes. Proper rotation and stocking rates can minimize these impacts to vegetation. Agricultural cropping removes native vegetation and replaces it with crops.

RFFAs in the CESA would include mineral development and exploration projects (119 acres) and utilities, infrastructure, and public purpose projects (162 acres) (**Table 4-13**). Wildland fires in this CESA may occur in the future, as would restoration projects and dispersed recreation. Impacts from RFFAs would be similar to those stated for past and present actions. Future restoration and treatment projects, such as 3 Bars (BLM 2016) in the CESA could result in temporary loss of desirable and mature vegetation but would be expected

to increase the extent of native plant communities therefore having a beneficial impact in the CESA (BLM 2017).

4.19.12.3 Cumulative Effects

Of the 245,096 acres covered by the CESA, 13,864 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately six percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (13,834 acres) for a total disturbance of 14,047 acres, which is approximately six percent of the CESA. Considering past, present, and RFFA disturbance in the vegetation CESA combined with the Proposed Action, cumulative effects would be minor.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to vegetation species would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 13,834 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 14,039 acres, which is a disturbance of approximately six percent of the CESA

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the vegetation CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to vegetation would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact vegetation species; therefore, impacts would still be anticipated to be minor, long-term, and localized.

4.19.13 Visual Resources

4.19.13.1 CESA Boundary Description

The CESA for visual resources includes a seven-mile radius around the GBS Plan boundary, which includes the GBP boundary and the viewshed of the Project (**Figure 4-2**). The CESA was chosen because it includes the geographic area where the Project facilities would be visible under the Proposed Action and the potential area where cumulative impacts to visual resource would occur. The total area of the CESA encompasses 140,419 acres.

4.19.13.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-14**, has resulted from the following activities: mineral development and exploration projects (11,520 acres); utilities, infrastructure, and public purpose projects (470 acres); roads (397 acres); dispersed recreation, and livestock grazing. Additionally, approximately 65 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-14 Past, Present, and RFFAs in the Visual Resources CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	140,419
Past Actions	
Mineral Development and Exploration Past Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	60
Notices	233

Past, Present, and RFFAs, Disturbances and Projects		CESA
Mining and Exploration Projects		1,605
Past Actions Total Disturbance Acres		1,898
Present Actions		
Mineral Development and Exploration Present Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		85
Notices		10
Mining and Exploration Projects		9,526
Utilities, Infrastructure, and Public Purpose Present Actions		
Powerlines		423
Telephone and Fiber Optic Lines		0
Water Pipelines and Water Infrastructure		2
Other		45
Agricultural Areas		0
Present Actions Total Disturbance Acres		10,091
Roads and Railroads Present Actions		
State Routes		45
Local Roads		352
Roads and Railroads Present Actions Total Disturbance Acres		397
RFFAs		
Mineral Development and Exploration RFFA Actions		
Mining and Exploration Projects		119
Utilities, Infrastructure, and Public Purpose Present Actions		
Oil and Gas Pipelines		2
RFFAs Total Disturbance Acres		121
Past, Present, and RFFAs Total Disturbance Acres		12,508
Percent of CESA		9
Fires		65

Past and present mineral development and exploration within the CESA have introduced line, form, color, and texture elements that contrast with the existing landscape. Past disturbances are in various stages of natural vegetation, which reduces the overall visual impact from past disturbances. Present disturbances would most likely require reclamation, which would help to reduce visual impacts within the CESA; however, present operations are currently impacting the visual landscape of the CESA.

Unless buried below the surface, utilities and other linear projects introduce form and line elements, such as powerlines and power poles, that contrast with the surrounding features of the existing landscape. These form and line elements result in long-term visual impacts to the existing landscape. Buried utility lines result in a short-term visual impact by removing vegetation, which would result in impacts to the texture and form of the landscape. After reclamation, the majority of surface disturbance resulting from utility and infrastructure (both buried and above-ground) blends in more with the existing landscape, and reclamation reduces the long-term visual impact from surface disturbance of utilities and infrastructure.

Roads have introduced form, line, and texture elements that contrast with the features of the existing landscape. Roads within the CESA create curvilinear, continuous lines with varying textures depending on the road surfacing.

Urban development within the CESA introduces form, line, color, and texture elements that contrast with the features of the existing landscape. These impacts are often permanent modifications to the landscape. Agricultural cropping within the CESA, particularly around Diamond Valley, would add different form, line, color, and texture elements to the existing landscape.

RFFAs in the CESA would include mineral development and exploration projects (119 acres) and utilities, infrastructure, and public purpose projects (two acres) (**Table 4-14**). Wildland fires in this CESA may occur in the future, as would restoration projects, livestock grazing, and dispersed recreation. Impacts from RFFAs would be similar to those stated for past and present actions.

4.19.13.3 Cumulative Effects

Of the 140,419 acres covered by the CESA, 12,508 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately nine percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (12,508 acres) for a total disturbance of 12,721 acres, which is approximately nine percent of the CESA. Cumulative effects from the Proposed Action in combination with the past, present, and RFFAs to visual resources within the CESA would include line, form, color, and texture elements that would contrast with the existing landscape. Past and present actions on BLM-administered land would be subject to reclamation, which would reduce long-term impacts; however, there are likely unreclaimed features associated with past and present mining activities and utilities impacting the long-term visual landscape. The Proposed Action would have a moderate degree of contrast with the existing visual landscape during operations. As reclamation would be completed among the majority of disturbance from the Proposed Action, visual impacts would be reduced in the long term; however, unreclaimed features would result in long-term visual impacts from the Proposed Action. Potential restoration treatment projects within the CESA also have the potential to disturb surface features of the landscape and impact scenic values in the short term, but treatment projects are designed to restore the natural landscape and would therefore improve the scenic quality of the landscape in the long term (BLM 2017). The cumulative effects from the Proposed Action in addition to the past, present, and RFFAs on the visual resources CESA would be minor to moderate in the short term during operations, and negligible to minor in the long term and would primarily be associated with unreclaimed features.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to visual resources would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 12,508 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 12,713 acres, which is a disturbance of approximately nine percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the visual resources CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to visual resources would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not impact additional visual resources; therefore, impacts would still be anticipated to be minor to moderate in the short term and negligible to minor in the long term and would primarily be associated with unreclaimed features.

4.19.14 Wild Horses

4.19.14.1 CESA Boundary Description

The CESA for wild horses includes the Roberts Mountain, Whistler Mountain, and portions of the Fish Creek HMAs, as well as portions of the Kobeh Valley and Roberts Mountain HAs, which includes the GBS Plan and GBP boundaries, where wild horses exist based on past inventories and where they could be potentially affected by the Project (**Figure 4-3**). The total area of the CESA encompasses 281,476 acres.

4.19.14.2 Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-15**, has resulted from the following activities: mineral development and exploration projects (12,574 acres); utilities, infrastructure, and public purpose projects (1,022 acres); roads (879 acres); dispersed recreation, and livestock grazing. Additionally, approximately 8,251 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-15 Past, Present, and RFFAs in the Wild Horses CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	281,476
Past Actions	
Mineral Development and Exploration Past Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	73
Notices	347
Mining and Exploration Projects	1,606
Public Purpose	40
Past Actions Total Disturbance Acres	2,066
Present Actions	
Mineral Development and Exploration Present Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	502
Notices	22
Mining and Exploration Projects	10,024
Utilities, Infrastructure, and Public Purpose Present Actions	
Airports	0
Powerlines	790
Telephone and Fiber Optic Lines	116
Water Pipelines and Water Infrastructure	31
Other	45
Agricultural Areas	0
Present Actions Total Disturbance Acres	11,529
Roads and Railroads Present Actions	
State Routes	131
Local Roads	742
US Highways	6
Roads and Railroads Present Actions Total Disturbance Acres	879
RFFAs	
Mineral Development and Exploration RFFA Actions	
Mining and Exploration Projects	119
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	1,757
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	1,877
Past, Present, and RFFAs Total Disturbance Acres	16,352
Percent of CESA	6
Fires	8,251

Past activities that have affected wild horses include wild horse gathers and removal operations in the Roberts Mountain and Fish Creek HMAs and the Roberts Mountain and Kobeh Valley HAs. Gathers and removal of excess wild horses reduces the population size and changes, at least temporarily, use and distribution patterns and can impact genetic variability. Four gather operations have been completed within

the Roberts Mountain HMA, which have included the Roberts Mountain HA. Numerous gathers of the Fish Creek HMA has been completed, with population growth suppression (fertility control) administered to mares released to the range in 1998 and 2015. Additional detail on previous wild horse gathers that have occurred in the area can be found in the Wild Horses SER (BLM 2021s) and the Gold Bar Mine Project Final EIS (BLM 2017, Volume II, Section 4.46).

Mineral development and exploration operations remove vegetation from lands that may be used as cover and forage area for wild horses. Surface disturbance can fragment areas of wild horse use. In addition, surface disturbance and vegetation clearing increase the likelihood of spreading noxious weeds and non-native invasive species, which may further reduce available forage area. Noise and increased human activity from these operations may displace herds to adjacent areas.

Impacts to wild horses from utilities, infrastructure and public purpose projects are generally limited to the initial construction of the utilities and infrastructure. These impacts include vegetation removal which may reduce some forage area, and the potential spread of noxious weeds and non-native invasive species. During construction, the noise and increased human activity may displace herds to adjacent area; however, after construction is completed and revegetation occurs on disturbed areas, impacts from utilities would be reduced substantially. Impacts from roads on wild horses includes the potential for increased vehicle related mortalities and potential displacement from increased human presence. Vegetation is also cleared for road construction, which decreases forage area to a minor extent. Vehicles traveling on the roads may also spread noxious weeds and non-native invasive species which would affect wild horse forage area.

RFFAs in the CESA would include mineral development and exploration projects (119 acres) and utilities, infrastructure, and public purpose projects (1,758 acres) (**Table 4-15**). Wildland fires in this CESA may occur in the future, as would restoration projects, livestock grazing, and dispersed recreation. Restoration activities could have short-term impacts on wild horses by exposing them to treatments that could harm their health, interfere with their movements, cause changes in vegetation that could alter the carrying capacity of the HMAs, or limit their access to water, which could ultimately affect their genetic health. Restoration projects could also include vegetation enhancement projects and fuels reduction throughout the Roberts Mountain Complex that would improve habitat for wild horses and reduce risk of wildfire. Long-term vegetation management activities would improve the amount and quality of forage, and potentially increase the carrying capacity of the HMAs (BLM 2017). Impacts from RFFAs would be similar to those stated for past and present actions. Completion of gather operations to reduce population size, achieve the AML, remove excess wild horses from outside the HMA, and implementation of population growth suppression (fertility control) are expected to occur.

While the authorized Mount Hope Project has not yet been constructed and is not currently operational, when construction and operations are initiated, approximately 14,204 acres of the Roberts Mountain and Whistler HMAs would be fenced (BLM 2012), which will have long-term and major effects to wild horses in the vicinity of the Mount Hope Project through displacement and loss of habitat. Changes in distribution and use of the HMAs would be expected and would be cumulative to those effects that occur under the Proposed Action; however, impacts to wild horses as a result of the Proposed Action are not expected to temporally overlap with those under the Mount Hope Project.

Additionally, the proposed NV Energy Greenlink North transmission line project is anticipated to run just north of U.S. Highway 50 from Ely, Nevada to Yerington, Nevada, which would contribute to future cumulative impacts within the CESA; however, the project is not yet considered a pending future action by the BLM and thus anticipated acreages and the ROW width are unknown at this time. Impacts from the construction of this project are not anticipated to temporally overlap with the Proposed Action.

4.19.14.3 Cumulative Effects

Of the 281,476 acres covered by the CESA, 16,352 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately six percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (16,352 acres) for a total disturbance of 16,565 acres, which is approximately six percent of the CESA. Impacts from past,

present, and RFFAs in combination with the Proposed Action would result in a cumulative loss or fragmentation of wild horse forage area, a potential increase in vehicle-related mortalities, and displacement of wild horses to adjacent areas during operations.

Past, present, and RFFAs in combination with the Proposed Action could result in moderate to major cumulative impacts to wild horses, primarily from localized habitat fragmentation, reduction in forage area, loss of habitat, and displacement of wild horses to adjacent areas. On a regional scale within the Roberts Mountain HMA and HA, the Proposed Action is anticipated to result in minor cumulative impacts. Cumulative impacts that would alter the carrying capacity of the HMAs, limit wild horse access to water, or affect genetic health of wild horses are not anticipated under the Proposed Action. Some of the cumulative impacts may be offset by habitat improvement projects and improved range condition due to maintaining the wild horse population at AML and potential changes to livestock management systems.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to visual resources would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 16,352 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 16,557 acres, which is a disturbance of approximately six percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the wild horses CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to wild horses would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact wild horses; therefore, impacts would still be anticipated to be minor, long-term, and localized.

4.19.15 Wildlife

Wildlife CESAs were separated into four CESA boundaries to encompass all potential cumulative impacts across a range of species: general wildlife, big game, raptors and migratory birds, and GRSG. Each CESA is discussed separately in the following sections.

4.19.15.1 General Wildlife

CESA Boundary Description

The CESA for general wildlife includes the GBS Plan and GBP boundaries plus a two-mile radius. The CESA was chosen based on the range of general wildlife species that could potentially be cumulatively impacted from the Project (**Figure 4-3**). The total area of the CESA encompasses 40,189 acres.

Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-16**, has resulted from the following activities: mineral development and exploration projects (9,734 acres); utilities, infrastructure, and public purpose projects (40 acres); roads (74 acres); dispersed recreation, and livestock grazing. Zero acres within the CESA have been affected by recent and past wildland fires.

Table 4-16 Past, Present, and RFFAs in the General Wildlife CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	40,189
Past Actions	
Mineral Development and Exploration Past Actions	
Notices	172

Past, Present, and RFFAs, Disturbances and Projects		CESA
Mining and Exploration Projects		29
Past Actions Total Disturbance Acres		201
Present Actions		
Mineral Development and Exploration Present Actions		
Notices		7
Mining and Exploration Projects		9,526
Utilities, Infrastructure, and Public Purpose Present Actions		
Powerlines		0
Other		40
Agricultural Areas		0
Present Actions Total Disturbance Acres		9,573
Roads and Railroads Present Actions		
Local Roads		74
Roads and Railroads Present Actions Total Disturbance Acres		74
RFFAs		
Mineral Development and Exploration RFFA Actions		
Mining and Exploration Projects		119
Utilities, Infrastructure, and Public Purpose Present Actions		
Oil and Gas Pipelines		2
RFFAs Total Disturbance Acres		121
Past, Present, and RFFAs Total Disturbance Acres		9,969
Percent of CESA		25
Fires		0

Past and present activities from mineral development and exploration activities and utility and infrastructure, in the CESA have resulted in removal of vegetation, dispersal or displacement of local populations, and fragmentation of certain wildlife habitats and populations. Removal of vegetation understory may impact nesting success and predation. Powerlines have potentially increased areas for predator perching, which may have impacts on prey species.

Road construction and use disturbs wildlife habitat by removing vegetation, compacting soils, displacing individuals, and long-term impacts resulting from habitat fragmentation and direct mortality from vehicle collisions.

Other activities such as grazing and agriculture cropping also have potential consequences to wildlife. Wildlife is affected by livestock grazing due to competition for forage, trampling of smaller species by larger grazing animals, and habitat removal/conversion. Reduction to grass understory can also impact nesting success, increase predation, and affect wildland fire regimes. Proper rotation and stocking rates can minimize these impacts to wildlife. Agricultural cropping has impacts to wildlife by removing available habitat, increasing predation, and fragmenting populations.

Human presence tends to disturb many species of wildlife throughout their habitats. Past and present recreational uses in the area include hunting, fishing, OHV use, cycling, and camping. Human disturbance during periods of the year when wildlife species are otherwise stressed, due to a lack of forage and/or harsh weather (as occurs during the winter season), can further stress wildlife and may increase mortality. Wildland fires may have resulted in loss of forage area, establishment of invasive weeds, and displacement from loss of habitat for wildlife species.

RFFAs in the CESA would include mineral development and exploration projects (119 acres) and utilities and infrastructure (two acres) (**Table 4-16**). Wildland fires in this CESA may occur in the future, as would restoration projects, livestock grazing, and dispersed recreation. These activities would lead to similar impacts as stated for past and present actions. Future restoration projects within the CESA could lead to

impacts such as vehicle related mortalities, increased noise, loss of habitat, displacement, and habitat fragmentation; however, they may improve habitat quality, seasonal movements, and enhance water quality and quantity for big general wildlife species within the CESA (BLM 2017).

Cumulative Effects

Of the 40,189 acres covered by the CESA, 9,969 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately 25 percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (9,969 acres) for a total disturbance of 10,182 acres, which is approximately 25 percent of the CESA. Cumulative impacts on general wildlife from past, present, and RFFAs in combination with the Proposed Action would result in cumulative displacement and habitat fragmentation, as well as short-term to long-term disturbance and removal of habitat and forage area. Displacement and habitat fragmentation decreases survival rates of affected individuals to some degree and increases competition. The additional presence of roads may increase mortality from vehicle collisions. If disturbance areas are not properly reclaimed, invasive weeds may establish which would have additional long-term impacts on general wildlife habitat. The Proposed Action, in combination with past, present, and RFFAs, would result in minor cumulative impacts to general wildlife within the CESA due to the presence of adjacent similar habitat.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to general wildlife would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 9,969 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 10,174 acres, which is a disturbance of approximately 25 percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the general wildlife CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to general wildlife would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact general wildlife species; therefore, impacts would still be anticipated to be negligible to minor.

4.19.15.2 Big Game

CESA Boundary Description

The CESA for big game species includes the GBS Plan and GBP boundaries and Hunt Management Units 141-145 and 151-156. The CESA was chosen based on the range of big game species, such as mule deer and pronghorn antelope, that could potentially be cumulatively impacted from the Project (**Figure 4-3**). The total area of the CESA encompasses 4,600,950 acres.

Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-17**, has resulted from the following activities: mineral development and exploration projects (74,531 acres); utilities, infrastructure, and public purpose projects (15,906 acres); roads (20,354 acres); dispersed recreation, and livestock grazing. Additionally, approximately 849,858 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-17 Past, Present, and RFFAs in the Big Game CESA

Past, Present, and RFFAs, Disturbances and Projects		CESA
CESA Acres		4,600,950
Past Actions		
Mineral Development and Exploration Past Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		4,435
Notices		2,943
Mining and Exploration Projects		3,241
Public Purpose		782
Past Actions Total Disturbance Acres		11,401
Present Actions		
Mineral Development and Exploration Present Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		6,781
Notices		133
Mining and Exploration Projects		56,998
Utilities, Infrastructure, and Public Purpose Present Actions		
Airports		363
Powerlines		8,419
Communication Facilities		306
Telephone and Fiber Optic Lines		1,653
Water Pipelines and Water Infrastructure		708
Oil and Gas Pipelines		309
Oil and Gas and Geothermal Infrastructure		2,023
Public Purpose		106
Other		1,236
Agricultural Areas		51,936
Present Actions Total Disturbance Acres		130,973
Roads and Railroads Present Actions		
County Route		40
Interstate		1,528
State Routes		2,076
Local Roads		14,188
US Highways		581
Railroads		1,941
Roads and Railroads Present Actions Total Disturbance Acres		20,354
RFFAs		
Mineral Development and Exploration RFFA Actions		
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits		126
Notices		21
Mining and Exploration Projects		23,771
Utilities, Infrastructure, and Public Purpose Present Actions		
Powerlines		4,797
Communication Facilities		3
Oil, Gas, Geo, and Wind Infrastructure		28,254
Oil and Gas Pipelines		4
Water Pipelines and Water Infrastructure		9
RFFAs Total Disturbance Acres		56,983
Past, Present, and RFFAs Total Disturbance Acres		219,711
Percent of CESA		5
Fires		849,858

Past and present disturbances from mineral development and exploration and utilities, infrastructure, and public purpose projects in the CESA have resulted in displacement of individuals and populations, loss and fragmentation of big game habitat, and potential reduction in quality of the habitat for forage. Construction of public use facilities such as the Crescent Valley Airport, the Eureka Sewage Treatment Facility, and the Eureka County Volunteer Fire Department at Devils Gate contributed to reduced available habitat for forage within the sites from construction.

Road construction and use, and railroads in the CESA have the potential to fragment big game habitat and may lead to increased mortalities within their habitats. In general, roads lead to increased direct mortality from vehicle collisions.

Big game species may be affected by livestock grazing due to competition for forage, and habitat removal/conversion, and from agricultural cropping due to loss of habitat and forage area.

Urban development in the CESA often permanently removes habitat and may result in fragmentation and displacement which could result in major impacts to big game habitat. Several urban areas exist within the big game CESA, including the towns of Eureka, Austin, and Battle Mountain and Diamond Valley (**Figure 4-3**), that likely contribute to habitat fragmentation and displacement of big game habitat.

Past and present recreational uses in the CESA include hunting, fishing, OHV use, cycling, and camping, as well as designated recreation areas such as the Hickison Petroglyph Recreation Area and the Mill Creek Recreation Area. Human disturbance during periods of the year when big game species are otherwise stressed, due to a lack of forage and/or harsh weather (as occurs during the winter season), can further stress wildlife and may increase mortality. In general, human presence disturbs many big game species throughout their habitats.

Wildland fires may have resulted in loss of forage area, establishment of invasive weeds, and displacement from loss of habitat for big game species.

RFFAs in the CESA would include mineral development and exploration projects (23,917 acres) and utilities, infrastructure, and public purpose projects (33,066 acres) (**Table 4-17**). Wildland fires in this CESA may occur in the future, as would restoration projects, livestock grazing, and dispersed recreation. These activities would lead to similar impacts as stated for past and present actions. Future restoration projects within the CESA could lead to impacts such as vehicle related mortalities, increased noise, loss of habitat, displacement, and habitat fragmentation; however, they may improve habitat quality, seasonal movements, and enhance water quality and quantity for big game species within the CESA (BLM 2017).

Cumulative Effects

Of the 4,600,950 acres covered by the CESA, 219,711 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately five percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (219,711 acres) for a total disturbance of 219,924 acres, which is approximately five percent of the CESA. Impacts from past, present, and RFFAs in combination with the Proposed Action would result in cumulative displacement and habitat fragmentation, as well as short-term to long-term disturbance and removal of habitat and forage area. Displacement and habitat fragmentation decreases survival rates of affected individuals to some degree and increases competition. The additional presence of roads may increase mortality from vehicle collisions. If disturbance areas are not reclaimed properly, invasive weeds may establish which would impact the available forage area and habitat for big game species.

The Proposed Action may increase vehicle related mortalities as a result of Project access roads; however, the Proposed Action is located outside of pronghorn distribution, and migration corridors would likely not be impacted. As a result, the Proposed Action, in combination with past, present, and RFFAs, would result in negligible cumulative effects to pronghorn antelope.

Past, present, and RFFAs with large areas of surface disturbance combined with the Proposed Action would contribute to fragmentation of a designated mule deer seasonal migration corridor. Mule deer attempting to migrate using this corridor would likely avoid disturbed and/or active mining areas. Portions of the seasonal migration corridor would be available to mule deer after the successful completion of reclamation of past, present, and RFFAs. In addition, increased vehicle related mortality from access roads from past, present, RFFAs, and the Proposed Action would increase human presence within the CESA. Reclamation would occur to facilitate habitat recovery, but habitat type would change from woodland to grassland and sagebrush steppe habitat, which may have long-term impacts on mule deer habitat. The Proposed Action in combination with past, present, and RFFAs would result in minor cumulative effects to mule deer and mule deer migration within the CESA.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to big game species would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 219,711 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 219,916 acres, which is a disturbance of approximately five percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the big game CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to big game species would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact big game species; therefore, impacts would still be anticipated to be negligible.

4.19.15.3 Raptors and Migratory Birds

CESA Boundary Description

The CESA for raptors and migratory birds includes the GBS Plan and GBP boundaries plus a 10-mile radius and is the same as the area of analysis discussed in **Section 3.18.2.2**. The CESA was chosen based on the range of raptors and migratory birds that could potentially be cumulatively impacted from the Project (**Figure 4-3**). The total area of the CESA encompasses 254,080 acres.

Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-18**, has resulted from the following activities: mineral development and exploration projects (12,461 acres); utilities, infrastructure, and public purpose projects (695 acres); roads (808 acres); dispersed recreation, and livestock grazing. Additionally, approximately 4,949 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-18 Past, Present, and RFFAs in the Raptors and Migratory Birds CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	254,080
Past Actions	
Mineral Development and Exploration Past Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	73
Notices	336
Mining and Exploration Projects	1,606
Past Actions Total Disturbance Acres	2,015

Past, Present, and RFFAs, Disturbances and Projects	CESA
Present Actions	
Mineral Development and Exploration Present Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	429
Notices	22
Mining and Exploration Projects	9,995
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	582
Telephone and Fiber Optic Lines	37
Water Pipelines and Water Infrastructure	31
Other	45
Agricultural Areas	0
Present Actions Total Disturbance Acres	11,141
Roads and Railroads Present Actions	
State Routes	106
Local Roads	702
Roads and Railroads Present Actions Total Disturbance Acres	808
RFFAs	
Mineral Development and Exploration RFFA Actions	
Mining and Exploration Projects	119
Utilities, Infrastructure, and Public Purpose Present Actions	
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	121
Past, Present, and RFFAs Total Disturbance Acres	14,085
Percent of CESA	6
Fires	4,949

Past and present activities from mineral development and exploration activities and utility and infrastructure, in the CESA have resulted in removal of vegetation, dispersal or displacement of local populations, and fragmentation of certain wildlife habitats and populations. Removal of vegetation understory may impact nesting success and predation. Power lines have potentially increased areas for perching for raptors and migratory birds.

Road construction and use disturbs wildlife habitat by removing vegetation, compacting soils, displacing individuals, and long-term impacts resulting from habitat fragmentation and direct mortality from vehicle collisions.

Other activities such as grazing and agriculture cropping also have potential consequences to raptors and migratory birds. Raptors and migratory birds are affected by livestock grazing and agricultural cropping due to prey species competing for forage, trampling of smaller species by larger grazing animals, and habitat removal/conversion. Reduction to grass understory can also impact nesting success, increase predation opportunities for raptors and migratory birds, and affect wildland fire regimes. Proper rotation and stocking rates can minimize these impacts.

Human presence tends to disturb many species of raptors and migratory birds throughout their habitats. Past and present recreational uses in the area include hunting, fishing, OHV use, cycling, and camping. Human disturbance during periods of the year when raptors and migratory bird species are otherwise stressed, due to a lack of forage and/or harsh weather (as occurs during the winter season), can further stress raptors and migratory bird species and may increase mortality. Wildland fires may have resulted in loss of forage area, establishment of invasive weeds, and displacement from loss of habitat for raptors and migratory bird species.

RFFAs in the CESA would include mineral development and exploration projects (119 acres) and utilities, infrastructure, and public purpose projects (two acres) (**Table 4-18**). Wildland fires in this CESA may occur in the future, as would restoration projects, livestock grazing, and dispersed recreation. These activities would lead to similar impacts as stated for past and present actions. Future restoration projects within the CESA could lead to impacts such as vehicle related mortalities, increased noise, loss of habitat, displacement, and habitat fragmentation; however, they may improve habitat quality, seasonal movements, and enhance water quality and quantity for raptors and migratory bird species within the CESA (BLM 2017).

Cumulative Effects

Of the 254,080 acres covered by the CESA, 14,085 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately six percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (14,085 acres) for a total disturbance of 14,298 acres, which is approximately six percent of the CESA. Cumulative impacts on raptors and migratory birds from past, present, and RFFAs in combination with the Proposed Action would result in cumulative displacement and habitat fragmentation, as well as short-term to long-term disturbance and removal of habitat and forage area. Displacement and habitat fragmentation decreases survival rates of affected individuals to some degree and increases competition. The additional presence of roads may increase mortality from vehicle collisions. If disturbance areas are not properly reclaimed, invasive weeds may establish which would have additional long-term impacts on habitat for raptors and migratory birds.

Land clearing activities associated with past present, and RFFAs including the Proposed Action would disturb several types of raptors and migratory bird habitat, which may result in mortality from trampling or crushing, habitat removal, habitat fragmentation and displacement. These activities would increase noise levels due to heavy equipment operation and would increase vehicular and human presence along roads and land clearing areas, but ACEPMs would help reduce cumulative impacts to raptors and migratory birds resulting from the Proposed Action. The Proposed Action, in combination with past, present, and RFFAs, would result in negligible to minor cumulative impacts to raptors and migratory birds within the CESA.

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to raptors and migratory birds would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 14,085 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 14,290 acres, which is a disturbance of approximately six percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the raptors and migratory birds CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to raptors and migratory birds would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact raptors and migratory birds; therefore, impacts would still be anticipated to be negligible to minor.

4.19.15.4 Greater Sage-grouse

CESA Boundary Description

The CESA for GRSG includes the GBS Plan and GBP boundaries and the Diamond Valley and Three Bar PMUs. The CESA was chosen based on the presence of GRSG habitat and populations that could potentially be cumulatively impacted from the Project (**Figure 4-3**). The total area of the CESA encompasses 1,631,044 acres.

Past, Present, and Reasonably Foreseeable Future Actions

Within this CESA, past and present disturbance, as detailed in **Table 4-19**, has resulted from the following activities: mineral development and exploration projects (19,875 acres); utilities, infrastructure, and public purpose projects (5,942 acres); roads (7,140 acres); dispersed recreation, and livestock grazing. Additionally, approximately 167,899 acres within the CESA have been affected by recent and past wildland fires, resulting in various stages of disturbance and vegetation recovery.

Table 4-19 Past, Present, and RFFAs in the Greater Sage-grouse CESA

Past, Present, and RFFAs, Disturbances and Projects	CESA
CESA Acres	1,631,044
Past Actions	
Mineral Development and Exploration Past Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	1,925
Notices	1,022
Mining and Exploration Projects	1,780
Public Purpose	298
Past Actions Total Disturbance Acres	5,026
Present Actions	
Mineral Development and Exploration Present Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	3,483
Notices	46
Mining and Exploration Projects	11,618
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	3,787
Communication Facilities	63
Telephone and Fiber Optic Lines	626
Water Pipelines and Water Infrastructure	448
Oil and Gas Pipelines	7
Oil and Gas and Geothermal Infrastructure	480
Public Purpose	86
Other	147
Agricultural Areas	30,328
Present Actions Total Disturbance Acres	51,118
Roads and Railroads Present Actions	
State Routes	952
Local Roads	5,622
US Highways	566
Railroads	0
Roads and Railroads Present Actions Total Disturbance Acres	7,140
RFFAs	
Mineral Development and Exploration RFFA Actions	
Sand and Gravel Operations, Materials Sites and Community Sand and Gravel Pits	40
Notices	5
Mining and Exploration Projects	13,012
Utilities, Infrastructure, and Public Purpose Present Actions	
Powerlines	3,052
Oil, Gas, Geo, and Wind Infrastructure	11,035
Oil and Gas Pipelines	2
RFFAs Total Disturbance Acres	27,145
Past, Present, and RFFAs Total Disturbance Acres	90,430
Percent of CESA	6
Fires	167,899

Past and present disturbances from mineral development and exploration and oil and gas development activities in the CESA may have resulted in fragmentation and displacement of GRSG populations and fragmentation of their habitats. Direct mortalities and further habitat fragmentation from roads associated with these activities may have also occurred. GRSG are thought to leave suitable habitat where anthropogenic noise is chronic and more so if it is intermittent (Blickley et al., 2012). Sounds are essential to GRSG courtship displays, and leks in particular are susceptible to impacts from noise since they are locales that are used annually over decades and are central to the bird's reproduction. Effects from past and present mineral development and exploration likely have resulted in increased ambient noise levels, which may disturb greater sage-grouse breeding, nesting, and brood rearing behavior. Past and present disturbances from utilities and infrastructure activities in the CESA have resulted in disruption of GRSG populations and their habitats. In addition, past and present construction of powerlines have potentially increased areas for predator perching which may have impacts on prey species such as GRSG.

Road construction and use in the CESA tends to fragment habitat and leads to increased mortalities for GRSG. Mortalities may be direct from vehicle collisions or indirect from habitat fragmentation effects or other repercussions such as increased ambient noise levels, which may lead to habitat avoidance.

GRSG can be affected by livestock grazing due to competition for forage, water, and habitat removal/conversion. Proper rotation and stocking rates can minimize impacts to wildlife.

Development of urban areas (Eureka and Diamond Valley) has resulted in removal of vegetation and loss of potential habitat and forage for GRSG; however, the limited area of urban development within the CESA has likely had minor effects to GRSG.

Wildland fire destroys GRSG habitat and potentially leads to conversion from sagebrush dominant vegetation cover types to invasive annual grassland monocultures, which have little or no value to the species. Wildfire fragments GRSG habitats and leads to increased direct and indirect mortalities of GRSG within their habitats. Reseeding and reclamation activities after wildland fires occur may have positive results on GRSG habitats although the effects from these activities are often not realized for many years until desirable plants have had an opportunity to become established.

Human presence from dispersed recreation tends to disturb many species of wildlife, GRSG, throughout their habitats.

RFFAs in the CESA would include mineral development and exploration projects (13,057 acres) and utilities, infrastructure, and public purpose projects (14,088 acres) (**Table 4-19**). Wildland fires in this CESA may occur in the future, as would restoration projects, livestock grazing, and dispersed recreation. These activities would lead to similar impacts as stated for past and present actions. Future restoration projects within the CESA could lead to impacts such as vehicle related mortalities, increased noise, loss of habitat, displacement, and habitat fragmentation; however, they may improve habitat quality, seasonal movements, and enhance water quality and quantity for GRSG within the CESA (BLM 2017).

Additionally, the proposed NV Energy Greenlink North transmission line project is anticipated run just north of U.S. Highway 50 from Ely, Nevada to Yerington, Nevada, which would contribute to future cumulative impacts within the CESA; however, the project is not yet considered a pending future action by the BLM and thus anticipated acreages and the ROW width are unknown at this time. Impacts from the construction of this project are not anticipated to temporally overlap with the Proposed Action.

Cumulative Effects

Of the 1,631,044 acres covered by the CESA, 90,430 acres of disturbance are associated with past, present, and RFFA disturbances, which is a disturbance of approximately six percent of the CESA.

Proposed Action

Under the Proposed Action, approval of the GBS expansion would increase disturbance within the CESA by 213.3 acres in addition to disturbance associated with past, present, and RFFAs (90,430 acres) for a total disturbance of 90,643 acres, which is approximately six percent of the CESA. Impacts from past, present, and RFFAs in combination with the Proposed Action would result in cumulative displacement and

habitat fragmentation, as well as short-term to long-term disturbance and removal of habitat and forage area. Displacement and habitat fragmentation decreases survival rates (decreased breeding, nesting, and brood survival) of affected individuals. Cumulative impacts would result from increased ambient noise levels and direct mortalities associated with collisions with vehicles, fences, and transmission lines.

The Proposed Action would result in impacts by habitat removal and fragmentation and increased noise during construction and mining operations. Cumulative vehicle traffic may result in increased mortality due to collisions and may result in the possibility that leks would be abandoned; however, the seasonal timing restriction ACEPM associated with the Proposed Action reduces the potential impact. Direct impacts from disturbance associated with the Proposed Action as well as indirect impacts would be offset through mitigation through the use of the CCS Program. The Proposed Action, in combination with past, present, and RFFAs, would result in minor cumulative impacts to GRSG within the CESA, as a result of increased noise, habitat removal, and fragmentation

Relocated Yard Alternative

Under the Relocated Yard Alternative, cumulative effects would be the same as those described for the Proposed Action, except that potential disturbance to GRSG would be less because approximately 8.3 fewer acres of disturbance would occur. Under the Relocated Yard Alternative, disturbance within the CESA would increase by 205 acres, in addition to the 90,430 acres of disturbance associated with past, present, and RFFA disturbances, for a total disturbance of 90,435 acres, which is a disturbance of approximately six percent of the CESA.

Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, cumulative impacts combined with the past, present, and RFFAs within the GRSG CESA would be the same as under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the proposed GBS expansion would not be developed and the associated impacts to GRSG would not occur. Overall, cumulative effects to this CESA from the No Action Alternative would be less than the Proposed Action since additional surface disturbance from that alternative would not occur and thus would not additionally impact GRSG; therefore, impacts would still be anticipated to be minor, long-term, and localized.

4.20 Mitigation

This section identifies applicable mitigation measures for the Project. Mitigation would be fully supported and covered financially by MMI. Commitment to the CCS Program was the only identified mitigation measure for the Project and is discussed for each alternative below.

4.20.1 Proposed Action

Impacts from surface disturbance under the Proposed Action to GRSG would be offset by use of the CCS program. MMI would use the CCS program to ensure net conservation gain of GRSG. As stipulated by NAC 232.400-232.480, the Proposed Action was analyzed using the CCS HQT to calculate a debit obligation based on the proposed GBS disturbance following habitat field verification. The CCS uses the HQT to assess and quantify habitat function and determine the number of credits necessary to offset the impacts of a proposed project and to achieve a net conservation gain for GRSG as required by the ARMPA. The impacts from the Proposed Action resulted in 2,058 Term Debits and zero Permanent Debits (Sagebrush Ecosystem Program 2021), as discussed above in **Section 4.18.1**. The conservative approach of the CCS, combined with the reserve account, tracking, reporting, and adaptive management, ensures that a net conservation gain for GRSG impacts is realized for the Project and compares impacts and conservation of habitat using the same metric. Commitment to the purchase of CCS credits through this mitigation measure would ensure that net conservation gain is achieved for GRSG and impacts to GRSG habitat are mitigated. MMI would coordinate with the SETT to purchase the required CCS credits.

4.20.2 Relocated Yard Alternative

Under the Relocated Yard Alternative, mitigation requirements would be the same as for the Proposed Action.

4.20.3 Seasonal Hauling Restrictions Alternative

Under the Seasonal Hauling Restrictions Alternative, mitigation requirements would be the same as for the Proposed Action.

4.20.4 No Action Alternative

Under the No Action Alternative, previously authorized mitigation through implementation of a proponent driven mitigation plan to provide mitigation for GRSG within the impacted Three Bar PMU, as described under the Gold Bar Mine Final EIS and Record of Decision (BLM 2017) would remain in place.

5.0 Consultation, Coordination, and List of Preparers

5.1 Persons, Groups, Organizations, and Agencies Consulted

To prepare this EA, the following entities were coordinated with:

- USFWS;
- Nevada Department of Conservation and Natural Resources;
- NDEP;
- NDOW; and
- Eureka County.

5.2 Preparers and Reviewers

Table 5-1 BLM Interdisciplinary Team

Name	Title and/or Document Area of Responsibility
Gene Gilseth	Planning and Environmental Coordinator/Project Manager
Franklin Giles	Air Quality
Andrew Monastero	Cultural Resources
Jess Harvey	Native American Concerns and Public Outreach
Rachelle Peppers	Wildlife Resources, Noise
Delmetria Taylor	Hazardous Materials and Solid Wastes, Geology and Minerals
Justin Ferris	Water Resources and Geochemistry
Anna O'Brien	Noxious Weeds, Invasive Species, Non-Native Species
Cassie Ault	Lands and Realty
Danielle Harvey	Geographic Information Systems (GIS)
Julie Suhr Pierce	Environmental Justice, Social and Economic Values
Robert Burdick	Soils, Grazing
K.C. Shedden	Vegetation, including Noxious and Invasive, Non-native Species and Special Status Plants
Andrew Monastero	Historic Trails
Shawna Richardson	Wild Horses

Table 5-2 Stantec Consulting Services Inc.

Name	Title
Kristi Schaff	Project Manager
Shelby Hockaday	Project Manager
Jen Sojka	Lead Author
Chris Johnson	GIS Specialist Lead
Josh Vittori	Biological Lead

5.3 Native American Communication and Consultation

This section describes the government-to-government communication and consultation conducted between tribal entities and the federal agency (BLM) considered relevant to the Proposed Action and action alternatives.

Formal government-to-government consultation is ongoing for the Proposed Action. The following tribal entities have been contacted and asked to participate in identifying potential areas of concern that may be associated with the project:

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

The Duckwater Shoshone Tribe and Ely Shoshone Tribe requested a site visit to the GBS boundary with the BLM. The BLM conducted a site visit with the Ely Shoshone Tribe on May 10, 2021. Due to unforeseen circumstances, Duckwater Shoshone tribal members were unable to attend the May 10, 2021 site visit, but the BLM conducted an additional site visit with the Duckwater Shoshone Tribe on July 13, 2021. Consultation between the BLM and contacted bands and tribes will be ongoing through the life of the project, including reclamation.

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Appendix A
Public Comments and Responses

Gold Bar Mine Amended Mine Plan of Operations Project Draft Environmental Assessment Public Comments and Responses

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1	1.1	NDOW	<p>The Nevada Department of Wildlife (NDOW) thanks you for the opportunity to provide input on the Gold Bar South Environmental Assessment (EA). We understand that the project proposal is to expand the Gold Bar Mine boundary to 7,792 acres, including facilities such as an open pit and waste rock dump.</p> <p>The Department supports the approval of the, “Seasonal Hauling Restrictions Alternative” to reduce noise impacts to greater sage-grouse (GRSG) populations in proximity of the Gold Bar South expansion.</p> <p>Given that this project is located within GRSG habitat, please ensure that the Sagebrush Ecosystem Technical Team (SETT) has been contacted regarding the Conservation Credit System (CCS), as state law requires proponents to mitigate for anthropogenic disturbances five (5) acres or more in size in GRSG habitat. Please keep in mind that not all projects evaluated through the CCS will require mitigation; however, it is the authority of the SETT through utilization of the CCS to make that determination. Once the SETT has evaluated the project impacts, they will provide a letter to both the proponent and to BLM for records, whether mitigation is needed or not.</p> <p>For more detailed comments on the Gold Bar South EA, please find the Departments comments below.</p> <p>Should you need clarification on any of the information provided, or require additional information, please contact Lindsey Lesmeister at llesmeister@ndow.org or (775) 777-2368.</p>	<p>Thank you for expressing NDOW’s support of the Seasonal Hauling Restrictions Alternative. Regarding coordination with the SETT for following mitigation requirements under the CCS, MMI and the BLM have coordinated to ensure net conservation gain. The CCS Habitat Quantification Tool was utilized to determine the debits and credits associated with the Proposed Action and Action Alternatives, as discussed in the Draft EA under Section 4.19 Wildlife. Final quantification of debits and credits has been included in the Final EA following the SETT’s confirmation of the field verification results.</p>
1	1.2	NDOW	<p>(Chapter 2, pg. 2-10)</p> <p>Mule deer stipulation: This EPM is a good start, but should-sloping of the toe slope of the waste rock dump.</p>	<p>The following ACEPM included in the EA would include concurrent sloping of the entire waste rock dump including the toe slope:</p> <p>To aid in mule deer migration, as dump lifts within the Gold Bar South area are finalized, they will be re-sloped to a final grade of approximately 3:1 within six months to a year (depending on timing and activity restrictions for GRSG).</p>
1	1.3	NDOW	<p>(Chapter 4, pg. 4-14)</p>	<p>With the ACEPM for the noise reduction measures and the commitment to mitigate potential impacts to GRSG through the</p>

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			Under 4.11.1, It is stated that the ACEPM would reduce the noise levels at both Henderson Pass Lek and Roberts Creek 2 Lek below the 10 dBA threshold. NDOW would suggest that a robust noise monitoring program be developed to validate the model results since the noise exceedances are so large it would behoove the proponent to be able to show that the implemented ACEPM is actually meeting the standard below the 10 dBA threshold.	use of the CCS program, no additional monitoring has been determined necessary.
1	1.4	NDOW	(Chapter 4, pg. 4-15) 4.11.4- NDOW is in full support of the seasonal hauling restrictions alternative since Roberts Creek 2 and Henderson Pass lek will greatly exceed the 10 dBA threshold from project related impacts and there has been no verification of the proponent ACEPM to reduce noise, NDOW would suggest selecting this alternative to provide protection to lekking sage grouse.	The BLM appreciates NDOW's suggestion regarding support of the Seasonal Hauling Restrictions Alternative. As discussed in the Draft EA under Section 4.11.1, Method 2 modeling predictions show that noise increases under the Proposed Action would exceed the 10 dBA threshold. Because of these predicted noise impacts, MMI has committed to restricting access to only the northern GBS Pit access road during the lekking season time period from March 1 to May 15 from 6pm to 9am to lower the noise levels to or below the 10 dBA threshold to address the potential noise impacts to the Roberts Creek 2 and Henderson Pass leks. As a result of this ACEPM, noise increases at the two sensitive leks would not exceed the 10 dBA threshold under either alternative.
1	1.5	NDOW	(Chapter 4, pg. 4-25) 4.19.1.2- Please explain in detail exclusionary fencing because paragraphs prior explained the use of barbed wire.	Two types of fencing would be utilized throughout the project. Exclusionary fencing such as chain-link fence would be installed around the two sediment basins to prevent most wildlife access to the basins and in other locations as previously authorized. The remainder of the fencing would be barbed wire type fence with a smooth or barbed wire top.
1	1.6	NDOW	(Chapter 4, pg. 4-25) NDOW also provided a suggestion of backfilling the pit, can you please provide clarification as to why this was dismissed?	Backfilling the pit has been added in Section 2.5 Alternatives Considered but Eliminated from Detailed Analysis with the text regarding why this alternative was eliminated from detailed analysis. In addition, in order to minimize impacts, per NDOW's suggestion, the ACEPM has been added regarding re-sloping the dump lifts within the Gold Bar South area, as they are finalized, to a final grade of approximately 3:1 within six months to one year, depending on timing and activity restrictions for Greater sage-grouse. This ACEPM is included in the Draft EA under Section 2.2.14.
1	1.7	NDOW	Where is the analysis of close casual factors? Considering the Gold Bar South is an expansion of Gold Bar proper mine it would behoove the proponent to adequately address the full analysis.	Close causal relationships of projects within the areas of analysis have been disclosed in the Draft EA under Sections 3 Affected Environment. These authorized actions are part of the existing environment disclosed in this section. For clarity, the following

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				<p>language has been included in the Draft EA under Section 4.0 Environmental Consequences:</p> <p>“The impacts discussed in this chapter are specifically analyzed for the Proposed Action and would be in addition to the existing impacts previously disclosed for the Gold Bar Mine and the close causal impacts of the authorized but not yet constructed Mount Hope Mine under the Gold Bar Mine Final EIS (BLM 2017). There are no pending authorizations in the project area.”</p> <p>Additionally, a clearer cumulative analysis has been included in Section 4.19 of the Revised Draft EA.</p>
2	2.1	EPA	<p>The U.S. Environmental Protection Agency has reviewed the above-referenced document pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.</p> <p>This Draft EA analyzes the potential environmental impacts that would result from extending the Gold Bar Mine boundary south to increase total surface disturbance to approximately 1,400 acres, increase exploration activity, add a new open pit, waste rock dump and haul roads, and extend the life of the mine an additional two years (p. 2-1). Two alternatives, the Relocated Yard Alternative and the Seasonal Hauling Restrictions Alternative, are analyzed. Relocating the Yard to the waste rock area would reduce surface disturbance and the length of the haul road. As discussed further below, the seasonal hauling restrictions would be minimization or mitigation strategies if significant, adverse effects to sage grouse cannot be avoided (p. 2-10). As the BLM prepares the Final EA and considers a Finding of No Significant Impact or the necessity for further analysis, the EPA offers the following recommendations:</p> <p><u>Greater Sage Grouse</u></p> <p>The BLM has amended management plans throughout the range of the Greater Sage Grouse and recently reemphasized the importance of ensuring that project impacts are avoided or minimized to safeguard landscapes within Priority Habitat Management Areas.¹ This project could cause land disturbance and noise impacts on 155 acres of Priority Sage Grouse Habitat Management Areas (p. 4-26).</p>	<p>As discussed in the Draft EA under Section 4.11.1, NDOW Method 2 modeling predictions show that noise increases under the Proposed Action would exceed the 10 dBA 2015 ARMPA threshold at two Greater sage-grouse sensitive lek sites: the Roberts Creek 2 and Henderson Pass leks. Because of these predicted noise impacts, MMI has committed to restricting access to only the northern GBS Pit access road during the lekking season time period from March 1 to May 15 from 6pm to 9am to lower the noise levels to or below the 10 dBA 2015 ARMPA threshold to address the potential noise impacts to the Roberts Creek 2 and Henderson Pass leks. As a result of this ACEPM, noise increases at the two sensitive leks would not exceed the 10 dBA threshold. MMI would continue to consult with the BLM, NDOW, the SETT, and the USFWS as necessary to ensure that appropriate noise minimization efforts are implemented throughout the life of the project in order to not exceed the 10 dBA 2-15 ARMPA noise threshold at the identified sensitive leks.</p> <p>Additionally, for clarity related to close causal impacts in the area, the following language has been included in the Draft EA under Section 4.0 Environmental Consequences:</p> <p>“The impacts discussed in this chapter are specifically analyzed for the Proposed Action and would be in addition to the existing impacts previously disclosed for the Gold Bar Mine and the close causal impacts of the authorized but not yet constructed Mount Hope Mine under the Gold Bar Mine Final EIS (BLM 2017).”</p>

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			<p>Two sites - the Roberts Creek 2 Lek and Henderson Pass Lek - represent noise sensitive sites within the area of analysis (Noise SER p. 2-3). The EPA notes the “Option” or “Alternative” to place various timing and seasonal restrictions on certain project activities during active lekking hours. According to the Noise SER, lekking activity happens primarily between the hours of 4:00 AM to 9:00 AM, and 6:00 PM to 10:00 AM (Noise SER p. 2-3). Additionally, existing and proposed Applicant-Committed Environmental Protection Measures to minimize adverse noise impacts include the use of diesel generator silencing equipment, the construction of berms along haul road segments to muffle noise and limiting blasting during atmospheric inversions (Project Options SER p. 2-24).</p> <p>Recommendations:</p> <ul style="list-style-type: none"> • Continue to consult with the US Fish and Wildlife Service, Nevada Division of Wildlife, and the Sagebrush Ecosystem Technical Team to address the adequacy of noise abatement and disturbance minimization measures to fully avoid, mitigate or offset adverse impacts to the resident sage grouse population, considering the potential for additional noise sources within the area of analysis which could impact occupied priority habitat, e.g., Mt. Hope Mine operations (Noise SER p. 2-4). <p>¹ https://www.federalregister.gov/documents/2021/08/13/2021-17359/notice-to-re-initiate-proposed-withdrawal-sagebrush-focal-areas</p>	<p>Additionally, a clearer cumulative analysis has been included in Section 4.19 of the Revised Draft EA.</p>
2	2.2	EPA	<ul style="list-style-type: none"> • Identify revisions to project design which would avoid adverse impacts to sage grouse nests or priority habitat within the affected area of analysis, before minimization, mitigation or other off-setting measures would be necessary. 	<p>As this is an amendment to an existing plan, the project design is driven by the location of the mineral resource and the existing facilities. The amended plan is the addition of a pit, waste rock disposal area, and haul road. The location of the pit is driven by the location of the mineral resource. The location of the ore body that immediately overlaps Greater sage-grouse habitat, as well as economic factors that contribute to the profitable extraction of the minerals contained therein, are such that impacts to habitat are unavoidable. The utilization of the existing process facilities to process or with only the addition of the haul road for access limits potential additional disturbance necessary. The waste rock</p>

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				disposal areas have been designed adjacent to the pit to limit any additional hauling or creation of additional roads for access.
2	2.3	EPA	<ul style="list-style-type: none"> Revise the stated restrictions so that they are not internally inconsistent between the Draft EA, Noise, Wildlife, and Project Options SERs (Compare, e.g., the provisions of the PO SER at p. 5-1 with p. 2-24 and Wildlife SER at p. 1-2). To provide clarity, perhaps in table form, identify what segments of which roads will be closed, when, and for what purpose, e.g., ore hauling, light vehicle traffic, heavy vehicle deliveries. 	<p>The ACEPMs included on pg. 2-24 of the Project Options SIR noting travel timing restrictions between 5:30am to 10:00am are existing previously authorized ACEPMs for the Gold Bar Mine. The Proposed Action includes a new ACEPM for hauling traffic to be restricted to the northern GBS Pit access road during the lekking season time period from March 1 to May 15 from 6:00pm to 9:00am. No southern GBS Pit access would occur during the lekking season time period and MMI would only utilize the northern GBS Pit access road to access the proposed GBS pit to the GBS Waste Rock Disposal Area. There would be no more than two haul truck round trips per hour with the implementation of this ACEPM to minimize noise impacts.</p> <p>Under the Seasonal Hauling Restrictions Alternative, no haul trucks would be utilized within the proposed GBS boundary during the lekking season time period. All documents have been reviewed to ensure that the listed lekking season time period from March 1 to May 15 from 6:00pm to 9:00am is consistent throughout each.</p>
2	2.4	EPA	<ul style="list-style-type: none"> For ease of implementation and enforcement, consider aligning timing restrictions for all mine-related activities to coincide with active lekking hours, (4:00 AM to 9:00 AM), and (6:00 PM to 10:00 AM) or explain why that would not be feasible. 	All seasonal restrictions mentioned in the Draft EA and associated SERs, both under the Seasonal Hauling Restrictions Alternative and related to the ACEPM for seasonal restriction of access to the northern GBS Pit access road during the lekking season, would be implemented during the lekking season time period from March 1 to May 15 from 6:00pm to 9:00am.
2	2.5	EPA	<ul style="list-style-type: none"> Consider appropriate closure and speed limit signage on public roads as may be recommended by the resource agencies. 	The Draft EA includes an ACEPM for a 35 miles per hour speed limit that would be implemented on all haul roads and roads within the project boundaries.

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2	2.6	EPA	<p><u>Golden Eagles</u> Project activities may cause potential negative impacts to golden eagle breeding and nesting activities. (p.4-8) Four golden eagle nests (RCR-01, RCR-02, RCR-03, RCR-04) constituting one golden eagle territory, have been documented within one mile of the proposed GBS disturbance footprint. The EPA is aware² that the USFWS is reviewing the proponent's Eagle Conservation Plan and will make an independent analysis and decision connected to the proponent's application for an Eagle Take Permit.</p> <p><i>Recommendation:</i> The EPA recommends continued consultation with the USFWS and incorporation of all protective avoidance, mitigation or off-setting provisions of the Eagle Conservation Plan and Eagle Take Permit, if issued, before BLM amends the Mine Plan of Operations.</p> <p>² Communication with BLM's Eugene Gilseth, August 23, 2021.</p>	MMI and the BLM will continue to consult with the USFWS on the required analysis for the pending eagle take permit as well as analysis of the Proponent's Eagle Conservation Plan.
2	2.7	EPA	<p><u>Water Quantity and Quality</u> The area of analysis includes several mining and mineral exploration activities, including the nearby authorized Mt. Hope Mine (not yet constructed). The Draft EA says impacts to water would be closely connected with Mt. Hope's water use (p.2-1). In the Mt. Hope FEIS, the EPA recommended that alternative, mitigation water sources be found to compensate for surface water loss, impacts to grazing and wildlife resources, and the restoration of historic yields. Although not identified as a reasonably foreseeable future action in this Draft EA, the March 2019 Lease Sale EA notes that regional oil and gas exploration, drilling, and production would require "appreciable" amounts of water - up to 800,00 to 10 million gallons (Lease Sale EA, p. 17, 28-29).</p> <p><i>Recommendations:</i> The amount of water rights allocated to this project has been identified in the Draft EA, but it is not clear if that is the same amount of water that is needed for project operations. Disclose the total amount of water needed for Gold Bar operations, identify the source(s) of this water and the method(s) by which it would be delivered, e.g., truck, pipeline. Estimate of the amount of water that would be needed for all existing, authorized and reasonably foreseeable mining, ranching and oil and gas operations, if each</p>	The Proposed Action would not require dewatering. Water for the Proposed Action would be sourced from the existing primary production well and a secondary production well, which would then be pumped to a 500,000-gallon storage tank for use. MMI is currently authorized to pump 500-acre feet of water per year with a maximum diversion rate of 448.8 gallons per minute (gpm), or 310 gpm average over one year. Under the Proposed Action, the same amount of groundwater as the previously authorized pumping would be used for an additional two years. The existing and authorized water uses are discussed in the affected environment section of the EA and have been taken into account while analyzing potential impacts.

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			were developed. Identify the impacts of such withdrawals to the source areas and existing beneficial uses.	
2	2.8	EPA	<p>The Draft EA states that placement of the pit and waste rock disposal area (WRDA) would remove natural drainages and so would require construction of stormwater diversion facilities (pgs. 4-6, 4-7). The Draft EA indicates that arsenic and antimony can leach at concentrations above NDEP Profile I reference values (Draft EA p. 2-2, 2-7; Water SER p. 3-6) and may be mobilized in the WRDA by meteoric waters before closure and reclamation. The Draft EA does not provide the level of detail sufficient to assess whether antimony or arsenic levels can be attenuated or mitigated to levels below Nevada groundwater standards for surface or groundwaters downgradient from the mine.</p> <p><i>Recommendation:</i> The EPA recommends that a Water Quality Monitoring and Mitigation Plan, established under NDEP's Water Pollution Control Permit to ensure that the facility is not contributing to water quality degradation, be appended to the Final EA. This can be supported by the proponent's commitment to enter in to a 'private agreement' with the Roberts Creek Ranch if it is determined that any impacts to the Ranch water rights or use would occur' (PO p.2-22),</p>	A Water Management Plan that includes water quality monitoring and mined materials sampling for waste rock and leach pad ore is available and included as Appendix C of the Gold Bar Project Amended Mine Plan of Operations (NVN091037) and Nevada Reclamation Permit (0384) Application.
2	2.9	EPA	<p><u>Environmental Justice</u> All federal agencies are directed to identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations and develop strategies for providing minority and low-income communities with access to public information and public participation under Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."</p> <p><i>Recommendation:</i> Even though the Draft EA concludes that minority and low-income groups are not disproportionately affected, the EPA recommends that the Final EA show how these groups have or can provide input into the NEPA process. For the Final EA, outline BLM's efforts to inform these communities about the project and the potential impacts it will have on their communities including notices, mailings, presentations, translations, community interviews,</p>	The public comment period wherein the Draft EA and associated SERs were published for review by members of the public includes availability of Project documents for review by all with the availability to review electronically or request hard copies from the agency.

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			surveys, telephone hotlines, question and answer sessions, meetings, and on-site information.	
2	2.10	EPA	<p>The EPA commends the BLM for its consultation efforts made to date and in outlining some Tribal concerns in the Draft EA (p. 3-5):</p> <ul style="list-style-type: none"> • Potential impacts to sensitive cultural resources; • Potential impacts to Greater Sage Grouse; • Potential impacts to Tribal hunting areas for big game and upland bird species; • Potential impacts to the quality of plants and plant gathering sites used for ceremonial, medicinal, and food purposes; and • Potential impacts to Native American burial sites <p>Recommendation: In the Final EA, discuss how the above input and concerns have informed the decisions and project design and operations considerations for the project. Include additional commitments if warranted.</p>	This is a list of potential regional concerns brought up during tribal consultation on other projects. While six tribes were notified of the Project, the BLM received responses for involvement from the Ely Shoshone and Duckwater Shoshone Tribes. To date, the consultation for this project that has taken place with the tribes has not brought up any specific concerns regarding the Proposed Action. Tribal consultations conducted by the BLM have been consistent with the provisions of 43 CFR § 7.7 and 16 U.S.C. 470cc.
2	2.11	EPA	<p>The Draft EA and Native American SER state that “Places of traditional religious and cultural importance, traditional cultural properties, and sacred sites have not been identified in the area of analysis for the Proposed Action; therefore, adverse effects to these property types would not occur.” (p. 4-5, Native American SER p. 3-2). The conclusion that impacts to Native American traditional values would be “negligible to minor, short-term, and localized” (p. 4-5) is unsupported when the concerns above have not been analyzed or otherwise addressed.</p> <p>Recommendation: Continue active government to government dialogue to identify impacts to tribal, cultural, or other treaty resources and how the BLM would avoid or minimize adverse effects on the physical integrity, accessibility, or use of cultural resources or archaeological sites, including traditional cultural properties and sacred springs, throughout the project area. We encourage the BLM to append any Memoranda of Agreements to the Final EA, after coordination with affected tribes to redact sensitive or protected information.</p> <p>The EPA appreciates the opportunity to review this Draft EA. When the Final EA is released, please forward an electronic copy to</p>	Native American consultation is always considered ongoing as it will take place though the life of the project including reclamation. The BLM did not receive specific information from the Ely Shoshone or Duckwater Shoshone Tribes (those which participated in consultations) on Traditional Cultural Properties or Sacred Sites within the Project Area. The identified mitigation measures, including assumptions and conclusions regarding adverse effects, are consistent with the information received during consultations with the Ely Shoshone and Duckwater Shoshone Tribes. The Gold Bar Memorandum of Agreement (MOA) and Historic Properties Treatment Plan (HPTP) have been updated and tribal consultation was conducted per 43 CFR § 7.7 and 16 U.S.C. 470cc.

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			Robin Truitt, the lead reviewer for this project, at Truitt.Robin@epa.gov. If you have any questions, please contact me at (415) 947-4167, or Robin at (415) 972-3742.	
3	3.1	Western Watersheds Project/Center for Biological Diversity	<p>Western Watersheds Project (WWP) and the Center for Biological Diversity (Center) thank you for this opportunity to provide comments on the Gold Bar South Environmental Assessment (EA or Project) (DOI-BLM-NV-B010-2021-0016-EA) during the Project's National Environmental Policy Act (NEPA) process.</p> <p>Western Watersheds Project is a non-profit organization with more than 12,000 members and supporters. Our mission is to protect and restore western watersheds and wildlife through education, public policy initiatives and legal advocacy. Western Watersheds Project and its staff and members use and enjoy America's public lands and their wildlife, cultural and natural resources for health, recreational, scientific, spiritual, educational, aesthetic, and other purposes, including in Nevada. Western Watersheds Project also has a direct interest in mineral development that occurs in areas with sensitive wildlife populations such as greater sage-grouse and golden eagles.</p> <p>The Center for Biological Diversity is a non-profit environmental organization dedicated to the protection of native species and their habitats in the Western Hemisphere through science, policy, and environmental law. The Center has over 1.7 million members and supporters throughout Nevada and the United States, including supporters who live in near the project site, and who utilize public lands for recreation and other uses. The Center's Nevada program focuses on the protection of wildlife and endangered species, the preservation of public lands, and the sustainability of Nevada's groundwater resources.</p>	Thank you for submitting your combined organization comments and your involvement in the NEPA process for the proposed project.
3	3.2	Western Watersheds Project/Center for Biological Diversity	<p>1. An EIS Is Required</p> <p>Although the EA avoids detailed discussion of nearly all environmental impacts, repeatedly directing the reader to various "supplemental information reports" ("SIRs") outside of the EA's text, even a preliminary review of the resources affected by the proposed action shows that BLM must prepare an environmental impact statement ("EIS"). BLM cannot authorize the proposed action or the "relocated yard alternative" based on a Finding of No Significant Impact ("FONSI").</p>	In line with the recently revised CEQ guidance (2020) for implementing regulations of NEPA, which does not mandate particular results or substantive outcomes but rather requires Federal agencies to consider environmental impacts of proposed actions, the BLM has determined that an EA is the appropriate level of NEPA review for the Proposed Action. Per Section 1501.3(2) of CEQ Docket CEQ-2019-0003, an EA is appropriate should the reviewing Federal agency determine that a proposed action is not likely to have significant effects (both short- and long-term) to the human environment. Additionally, in following

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			The obligation to prepare an EIS flows from NEPA itself, not the CEQ regulations. See, e.g. Calvert Cliffs Coordinating Committee v. United States Atomic Energy Commission, 449 F.2d 1109 (D.C. Cir. 1971). An agency must prepare an EIS of “substantial questions are raised as to whether a project . . . may cause significant degradation of some human environmental factor.” Greenpeace Action v. Franklin, 14 F.3d 1342 (9th Cir. 1992) (quoting LaFlamme v. FERC, 852 F.2d 389 (9th Cir. 1988)). It need not be shown that “significant effects will in fact occur,” but if “substantial questions” are raised as to “whether a project must have a significant effect, an EIS must be prepared.” Id.; see also Foundation for N. Am. Wild Sheep v. USDA, 681 F.2d 1172 (9th Cir. 1982) (stating that an EIS is required where it is shown “that the proposed project may significantly degrade some human environmental factor”).	Section 1501.5(c)(1) and 1501.6(a) in the same CEQ regulatory guidance docket for preparing an EA, the BLM has determined that it has provided sufficient evidence and analysis to deem preparation of an EA followed by issuance of a FONSI appropriate for the Proposed Action.
3	3.3	Western Watersheds Project/Center for Biological Diversity	Here, the EA reveals that the project will have potentially significant direct, indirect, and cumulative impacts on several important resources. For instance, the EA states that 13 cultural resources sites may be directly impacted by the project, while a total of 592 may be indirectly impacted. EA at 3-4. Among these, 232 are eligible for listing in the National Register of Historic Places (“NRHP”). Id. The EA claims that the project will not have significant impacts to any of these sites, but that statement is entirely unsupported because BLM has not completed its cultural resource evaluation, particularly with respect to Native American cultural concerns. As the EA states elsewhere, consultation with affected tribes is “ongoing,” and there are several resources of concern, including “sensitive cultural resources,” greater sage-grouse, big game, upland bird species, ceremonial, medicinal, and traditional food plants, and burial sites. EA at 3-5. BLM cannot claim “no significant impacts” before its consultation process is complete.	Impacts to cultural resources identified in the EA are proposed for mitigation as outlined in the MOA between BLM, SHPO, and MMI. Further, the BLM’s recommendations regarding potentially significant impacts are summarized in the amended MOA and updated Gold Bar HPTP. The Nevada State Historic Preservation Office concurred with both documents on June 4, 2021 and August 24, 2021. Adherence to the mitigation measures described in the amended MOA and updated HPTP will ensure that eligible or unevaluated sites in the Project Area are not adversely affected. The BLM’s determination that no significant impacts would occur as a result of the Proposed Action is informed by the amended MOA and updated HPTP and the ongoing tribal consultation that has been conducted per 43 CFR § 7.7 and 16 U.S.C. 470cc. Section 3.2 of the Cultural Resources SER and Section 4.2.1 of the EA discuss the MOA. Native American consultation is always considered ongoing as it will take place though the life of the project including reclamation. To date, the consultation that has taken place with the tribes has not brought up any concerns regarding the proposed project. Section 5.3 of the EA and 2.3.1 of the Native American Consultation SER have been updated with the additional Native American Consultation completed to date.
3	3.4	Western Watersheds	For similar reasons, the project may have significant impacts on environmental justice. The EA states that there is an “American	See response to comment 3.4.

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		Project/Center for Biological Diversity	Indian environmental justice” population in the project area. While the EA claims there will be “no impact” to this population, this statement cannot be reconciled with BLM’s earlier statement that consultation with affected tribes is “ongoing” with respect to several resources of concern.	
3	3.5	Western Watersheds Project/Center for Biological Diversity	The EA also reveals the potential for impacts from spills and leaks of hazardous wastes. As the EA states, “[h]azardous materials are currently used daily in conjunction with mining activities to operate and maintain equipment and in the mining and processing activities.” EA at 3-4. The EA goes on to discuss several potentially significant impacts to air, water, soil, vegetation, and wildlife that may result from the use of these hazardous materials. See EA at 4-5. The potentially catastrophic harms to local air and water resources, as well as local wildlife populations, must be fully disclosed and analyzed in an EIS.	Use of hazardous materials in conjunction with mining activities are currently authorized under the Gold Bar Mine Project Final EIS. The Proposed Action would not affect the duration of use of such hazardous materials and as such, the resultant potential impacts to the resources identified would not be exacerbated by the Proposed Action in addition to the previously authorized activities. With the ACEPMs in place authorized in the Gold Bar Mine Project Final EIS, a spill or release of hazardous materials is not anticipated.
3	3.6	Western Watersheds Project/Center for Biological Diversity	More broadly, BLM must acknowledge the potential harm to water resources, which are critically important to both communities and ecosystems in the nation’s driest state. According to the EA, there are “thirteen primary drainages and numerous tributaries and ephemeral channels” within the project area, including Denay Creek, Henderson Creek, Roberts Creek, Rutabaga Creek, Tyrone Creek, and U’ans-in-dame Creek. EA at 3-6. There are also sixty-one seep and spring sites within five miles of the proposed project boundary. Id. Both surface water and groundwater may be contaminated from mining activities. See EA at 3-6. Due to the scarcity of water resources in this area, any impact to them from mining is clearly “significant” and should be fully analyzed in an EIS.	<p>Potential impacts to both water quantity and water quality have been discussed in Section 4.6 of the EA and Section 3 of the Water Resources SER.</p> <p>Potential impacts to water quantity are limited as there is no dewatering associated with the proposed project and the only pumping of water is the extended pumping of the existing production well for an additional two years. Based on hydrologic modeling conducted by SRK Consulting for the Proposed Action in 2020 and discussed in Section 4.6.1.1 of the EA, the minimum and maximum extent of a 10-foot drawdown contour increases by 0.1 and 0.5 mile from the currently authorized 10-year groundwater pumping. It is not anticipated that the drawdown resulting from the Proposed Action would impact operational pumping of the nearby Roberts Creek Ranch well; however, MMI has previously committed to an ACEPM to enter into a private agreement with the Roberts Creek Ranch should impacts to the Ranch water rights or use occur. Based on the hydrologic modeling, impacts to the alluvial aquifer from the extended pumping of the existing production well are not expected to be significant in terms of appreciably lowering water levels. As discussed in the same section, groundwater pumping for an additional two years under the Proposed Action would not impact Roberts Creek or its riparian vegetation, or the other intermittent</p>

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				<p>and ephemeral channels in the vicinity of the Project area, as Roberts Creek is disconnected from the deep groundwater system.</p> <p>Potential impacts to water quality are limited. Stormwater facilities, including two sediment ponds, would address stormwater runoff associated with the proposed yard under the Proposed Action. Culverts would also be installed along the GBS Haul Road at the Roberts Creek crossing and the unnamed intermittent drainage. Additionally, no pit dewatering or pit lake are anticipated. Results from the geochemical characterization show that the aggregate for all materials to be placed in the WRDA would be classified as non-potentially acid generating. Monitoring of mined materials placed in the facility and nearby water chemistry would be established per NDEP Water Pollution Control Permit requirements in order to verify that the facility is not contributing to water quality degradation.</p>
3	3.7	Western Watersheds Project/Center for Biological Diversity	<p>The project also threatens to harm sensitive wildlife and plant species, including but not limited to bald and golden eagles, greater sage-grouse, pygmy rabbit, several species of bats, and at least twelve BLM special status plants. BLM's own sensitive species policy recognizes the importance of these species and directs that agency to "ensure that actions requiring [BLM] authorization or approval . . . are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species, either under the provisions of the ESA or other provisions of [BLM sensitive species] policy." BLM Manual 6840. BLM must also manage sensitive species and their habitats "to minimize or eliminate threats affecting the status of the species or to improve the condition of the species habitat," by, among other things, "prioritizing Bureau sensitive species and their habitats for conservation action." BLM Manual 6840.2(C)(5). In other words, BLM implement "practices to reduce or eliminate threats affecting the status of the species, or improve the condition of the species' habitat on BLM-administered lands." BLM Manual 6840, Glossary.</p>	<p>For all the sensitive species identified, features to minimize the impacts have been built into the project in coordination with the BLM. In many cases, this includes pre-construction surveys and agency coordination if species are identified. Species such as Greater Sage-grouse have mitigation commitments to achieve net conservation gain of the species. In the case of Bald and Golden Eagles, MMI has applied for a incidental take permit with the USFWS to mitigate the impacts.</p>
3	3.8	Western Watersheds Project/Center for Biological Diversity	<p>BLM claims throughout the EA that it will avoid significant impacts through mitigation, but the EA fails to adequately describe the proposed mitigation measures, or include assurances that they will be sufficiently effective and enforceable. Indeed, BLM does little more than list the mitigation actions it may undertake. This is inadequate and cannot lawfully support a FONSI. "A mere listing</p>	<p>Additional details of finalized mitigation including the MOA for cultural resources and finalized debit calculations required for the State of Nevada CCS have been added to the document.</p>

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			of mitigation measures is insufficient to qualify as the reasoned discussion required by . . . NEPA.” Northwest Indian Cemetery Protective Assoc. v. Peterson, 795 F.2d 688 (9th Cir. 1986), rev’d on other grounds by Lyng v. Northwest Indian Cemetery Protective Assoc., 485 U.S. 439 (1988). Without “analytical data to support the proposed mitigation measures,” BLM’s discussion amounts to such a “mere listing.” See Idaho Sporting Cong. v. Thomas, 137 F13d 1146 (9th Cir 1998); see also Klamath-Siskiyou Wildlands Ctr. v. Thomas, 137 F.3d 1146 (9th Cir 2004) (“NEPA documents are inadequate if they contain only narratives of expert opinions”).	
3	3.9	Western Watersheds Project/Center for Biological Diversity	BLM’s discussion of proposed mitigation is particularly problematic regarding greater sage-grouse. The EA discloses that the project will remove over 2000 acres of sage-grouse habitat, including over 150 acres of Priority Habitat Management Area (PHMA), but it is not clear how these impacts will be mitigated. See EA at 4-26. BLM states that it will rely on the State of Nevada’s Conservation Credit System, or CCS, for mitigation, but nowhere in the EA or associated documents does BLM describe how the CCS works, or how BLM will achieve the “net conservation gain” required under the 2015 Approved Resource Management Plan Amendment for Nevada and Northwestern California (ARMPA). For instance, what actions will be conducted to mitigate this project’s impacts? Where will those actions occur? How will they be funded? Who will carry them out? And how will conservation or mitigation “success” be assessed? The EA leaves these and many other questions unanswered.	The CCS has been developed through interagency coordination as a mitigation method to achieve net conservation gain for Greater Sage-grouse through the methods required by the program. A description of the CCS is provided in Sections 2.2.12 of the Wildlife SER with the commitment specific to the Proposed Project identified in Section 2.2.12. In addition, the commitments specific to the Proposed Action are identified in Section 4.19.1 of the EA. The mitigation requirements have been updated with the finalized numbers provided by the SETT on September 7, 2021. The development of the CCS through the interdisciplinary SETT team was developed to ensure net conservation gain would be achieved with the use of the program, and credit transfers are overseen by the state SETT system.
3	3.10	Western Watersheds Project/Center for Biological Diversity	Further, the possibility of beneficial off-site mitigation for the regional sage-grouse population does nothing to prevent locally significant impacts to a highly imperiled species. Regardless of what off-site actions are conducted under the CCS program to mitigate this project’s impacts, BLM must fully analyze the impacts to the affected sage-grouse population. This includes the elimination or endangerment of active leks, which cannot be replaced through mitigation actions. With sage-grouse numbers plummeting across the Great Basin, BLM cannot simply eliminate 200 acres of habitat and claim, without evidence, that these impacts will be insignificant.	Through the analysis including the implementation of several ACEPMs identified in Sections 2.2.13 and 2.2.14, elimination of a lek was not identified as an expected impact from the Proposed Action. As discussed in comment response 3.9, the CCS has been developed to achieve net conservation gain of the species.
3	3.11	Western Watersheds Project/Center	For all of these reasons, BLM must prepare an EIS that fully discloses and analyzes the project’s direct, indirect, and cumulative environmental impacts. To the extent that BLM plans to undertake	See comment responses 3.1 through 3.11.

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		for Biological Diversity	mitigation actions, those must also be described and supported by verifiable data.	
3	3.12	Western Watersheds Project/Center for Biological Diversity	<p>2. Cumulative Impacts Analysis Is Required</p> <p>The EA fails to evaluate the Project's cumulative impacts, which is contrary to Secretarial Order 3399, recent case law, and BLM's NEPA Handbook.</p> <p>On April 16, 2021, Secretary of the Interior Deb Haaland issued Secretarial Order 3399 ("Department-Wide Approach to the Climate Crisis and Restoring Transparency and Integrity to the Decision-Making Process"). Section 5(a) states:</p> <p style="padding-left: 40px;">Applying NEPA. Bureaus/Offices will not apply the 2020 [Council on Environmental Quality NEPA] Rule in a manner that would change the application or level of NEPA that would have been applied to a proposed action before the 2020 Rule went into effect on September 14, 2020. Bureaus/Offices will continue to follow the Department's NEPA regulations at 43 C.F.R. Part 46, Department Manual procedures (516 DM Ch. 1-15), and guidance and instruction from the Office of Environmental Policy and Compliance. If Bureaus/Offices believe that the Department's NEPA regulations irreconcilably conflict with the 2020 Rule, they will elevate issues to the relevant Assistant Secretary and to CEQ.</p> <p>Secretarial Order 3399 at unnumbered pages 3-4, emphasis added. This is significant because the 2020 CEQ NEPA rule removed cumulative effects as an impact that must be analyzed during NEPA, but cumulative effects analysis is included in the prior CEQ NEPA rule.¹ By omitting cumulative effects analysis from the Project's EA, BLM has changed the application of NEPA compared to how NEPA would have been applied to the Project's proposed action before the 2020 CEQ NEPA Rule went into effect, which is contrary to the Secretarial Order.</p> <p>In addition, on June 29, 2021, the Council on Environmental Quality (CEQ) published a notice in the Federal Register extending a deadline for revising agency NEPA procedures by two years, to September 14, 2023. Federal Register Vol. 86, No. 122 at 34155. A</p>	A clearer cumulative analysis has been included in Section 4.19 of the Revised Draft EA where resource specific cumulative effects study areas (CESAs) have been defined and past, present, and reasonably foreseeable future projects within the CESAs are now discussed in this section.

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			<p>June 21, 2021 court decision that dismissed litigation against the 2020 CEQ NEPA Rule states, “Before the 2020 [CEQ NEPA] Rule can be applied to any particular federal action, each federal agency must adopt its own NEPA procedures.” Furthermore, the court decision states, “Defense counsel has represented that following the change in Administrations, CEQ has directed agencies not to devote resources to establishing their own NEPA procedures because it expects to provide further guidance on the 2020 Rule, which it is actively reconsidering.” Wild Virginia et al. v. CEQ et al. at 27. To date, BLM has not revised its agency NEPA procedures to reflect the 2020 CEQ NEPA rule. BLM’s existing NEPA handbook directs BLM offices to analyze cumulative effects. BLM NEPA Handbook at 57 to 61.</p> <p>Given all of the above, BLM must revise the Project’s NEPA documentation to include cumulative impacts analysis. Subjects to be analyzed for cumulative impacts include air quality, climate change, cultural resources, hazardous and solid wastes, surface and groundwater resources, recreation, rangeland management/livestock grazing, soils, special-status species (including but not limited to greater sage-grouse and golden eagles), vegetation, visual resources, and wildlife.</p> <p>Cumulative impacts analysis should also include but not be limited to the following approved, existing and reasonably foreseeable projects:</p> <ul style="list-style-type: none"> • Gold Bar Mine (the original project) • Ormat’s McGinness Hills series of geothermal power plants • Mt. Hope Mine • Goldrush Mine • South Railroad Exploration and Mine <p>¹ See 40 CFR 1508.1(g)(3): “Cumulative impact, defined in 40 CFR 1508.7 (1978), is repealed.” (2020 CEQ NEPA Rule). (Attachment C).</p>	
3	3.13	Western Watersheds Project/Center for Biological Diversity	<p>3. Additional Greater Sage-Grouse Concerns</p> <p>In addition to the concerns about the EA’s analysis of impacts to greater sage-grouse raised in Section 1 of this letter, we note the following:</p>	As stated in Section 2.2.1 of the Draft EA, the 51.1 acres of new surface disturbance under the Proposed Action is associated with the proposed GBS Pit and pit buffer. The Gold Bar Lek Monitoring and Mining Noise Analysis (Saxelby 2021a) notes the Proposed Action includes the GBS Pit calculated at 27.6 acres

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			There is a major discrepancy between the EA and the project's baseline noise analysis. The EA states that the proposed action's open pit will disturb 51.1 acres, but the April 2021 Gold Bar Lek Monitoring and Mining Noise Analysis report says that the new open pit will disturb only 27.6 acres. EA at 2-1 and Saxelby 2021a at 2. Since the noise analysis was apparently done for a substantially smaller mine pit, the mine's noise estimates are inadequate to assess the impacts to sage-grouse and may underestimate the amount of noise and length of time during which construction noise will occur. But even with being calculated for a smaller mine pit, the Project's noise estimates still exceed what is allowable under the 2015 ARMPA. See Saxelby 2021a at 17. The EA suggests different seasonal hauling alternatives and other measures related to noise, but does not contain evidence that these would reduce noise enough to meet the 2015 grouse plan standard. For BLM to approve the Project, the noise analysis must be conducted for an accurate open pit size and Project noise must conform to the 2015 grouse plan.	<p>along with a 200-foot buffer (approximately 25.6 acres). Thus, the baseline noise analysis conducted includes the full proposed 51.1 acres of new surface disturbance for the GBS pit.</p> <p>The Proposed Action would conform with the 2015 ARMPA by not exceeding the 10 dBA noise threshold with implementation of the ACEPMs.</p>
3	3.14	Western Watersheds Project/Center for Biological Diversity	<p>Furthermore, the EA does not consider noise impacts to the four Nevada Department of Wildlife (NDOW) trend leks within the Project's two-mile buffer (Kobeh Valley 2, Kobeh Valley 3, Kobeh Valley 4, and Lone Mountain 5) that were removed from the lek counts that the Project's contractor (Western Biological) did for this Project.² What will noise levels be at these four leks and will they exceed the ARMPA's noise limits? What were NDOW's lek counts at these four leks?</p> <p>²See Western Biological at unnumbered page 4/53: "Initially, BLM identified 14 leks within the two-mile buffer. However, NDOW has several trend leks in the area and requested that four of the leks (Kobeh Valley 2, Kobeh Valley 3, and Kobeh Valley 4, and Lone Mountain 5) identified by BLM be removed from the scope of work to avoid any interference with the NDOW trend lek counts. As a result, only 10 leks were surveyed by WB."</p>	<p>Per NDOW's 2018 guidance document <i>Acoustic Impacts and Greater Sage-grouse: A Review of Current Science, Sound Measurement Protocols, and Management Recommendations</i>, a 5-kilometer (3.1-mile) buffer area is recommended for sound monitoring on active and pending leks for applying the 10 dBA noise limit. The two leks located within the 3.1-mile buffer area, the Roberts Creek 2 and Henderson Pass leks, are neither active nor pending leks, but were included in the baseline noise monitoring and EA analysis as they are located within the buffer area. As noted in Section 3.11 of the EA, the Three Bars Lek was also included in analysis for consistency with previous monitoring and to represent pre-development noise levels as it is located approximately 5 miles from existing mining operations and is not close to other substantial sources of anthropogenic noise. Following NDOW's guidance for noise monitoring, the four trend leks were not included in the analysis as they are not located within 3.1 miles of the Proposed Action.</p>
3	3.15	Western Watersheds Project/Center for Biological Diversity	Other greater sage-grouse topics that need to be included in the Project's NEPA analysis include the name of the applicable sage-grouse Population Management Unit; historic and current population trends for that PMU; whether any ARMPA soft or hard trigger levels have been reached and if so, whether those are for	The Population Management Unit is identified in Section 2.3.3.2 of the Wildlife SER. Population trends of the PMU and ARMPA soft and hard triggers for the PMU are outside of the scope of this analysis.

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			habitat or population; and finally, if trigger levels have been reached, what adaptive management measures BLM has implemented or plans to implement and how that those measures will be affected by this Project. All of these are important in order for BLM to make a well-informed decision about this Project.	
3	3.16	Western Watersheds Project/Center for Biological Diversity	4. Conclusion Thank you again for this opportunity to assist BLM during the NEPA process. We respectfully request to be notified of all future public comment opportunities related to the Gold Bar and Gold Bar South Mines, the availability of any NEPA analysis BLM undertakes in relationship to them, and BLM's decisions related to them, per 40 CFR § 1506.6.	Thank you for your comment, you have been added to the mailing list.

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1	1.0	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>Subject: Supplemental Comments on the Gold Bar South Environmental Assessment(DOI BLM-NV-B010-2021-0016-EA)</p> <p>Dear Mr. Gilseth and Mr. Sherve:</p> <p>Western Watersheds Project (WWP) and the Center for Biological Diversity (Center) submitthese comments on the Gold Bar South Mine Project and Gold Bar South Environmental Assessment (EA or Project) (DOI-BLM-NV-B010-2021-0016-EA) to supplement WWP/Center’s September 1, 2021 comments. These supplemental comments are submitted foryour consideration as part of your review of the Project and are to be included in the administrative record for the EA and Project.</p> <p>These comments are necessary in light of new information obtained by WWP/Center after reviewing documents in your office pertaining to the Project’s cumulative impacts, baseline conditions, mitigation, and related Project impacts and conditions. Much of this information wasnot provided to the public during the previous comment period and as such warrants these supplemental comments.</p> <p>WWP staff (Kelly Fuller) visited the Mt. Lewis Field Office on Oct. 28, 2021 and viewed books5-8 of the case file (the most recent records) and discovered the following information warranting supplemental public comment:</p> <ol style="list-style-type: none"> (1) since the mine was approved, McEwen Mining Inc. (MMI) asked to impact more areas,and BLM approved Determinations of NEPA Adequacy (DNAs) with no public review; (2) in 2018, MMI requested, and BLM approved, more time to decide upon and implementtheir proponent-driven sage-grouse mitigation for the Gold Bar mine. The Gold Bar Record of Decision stated that treatment activities related to the sage-grouse mitigationplan would be completed within two years of receiving approval of the project from BLM;¹ 	<p>Thank you for your comment letter submission. All introductory comments noted within Comment ID 1.0 are separated out in the rows and corresponding responses that follow.</p>

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			<p>(3) in January 2019, there were problems with the event pond liner and a leak was suspected.² There were problems again in 2020 that caused leaking and had to be repaired;³</p> <p>(4) in January 2019, the mine received a temporary permit from the state to release approximately 4,150,000 gallons from the event pond into an adjacent wash that drains to Roberts Creek to make room for incoming precipitation/snow;⁴</p> <p>(5) on March 7, 2019 there was a leak of approximately 450 gallons of barren solution from the heap leach pad into the adjacent maintenance road where it mixed with meteoric water. MMI dug up the contaminated soil and put it on the heap leach pad. The leaked solution nearest the leak source had a cyanide level of 77mg/l, well above accepted limits.⁵</p> <p>(6) On April 5-6, 2019, the mine released an estimated 635,000 gallons of cyanide solution into a dry wash, under a temporary permit from the state. MMI estimated the concentration was 4.3 mg/L. BLM was not notified of the release until April 10. On April 21, 2019, the mine released cyanide solution again, this time at a concentration of 0.016 mg/L. MMI filed a Corrective Action Plan with NDEP in July 2019, but No Camping Allowed signs were not scheduled to be installed in the dry wash where the release occurred until June 2020, more than a year after the two releases had taken place.⁶</p> <p>(7) in mid-August 2019, an excavator entered an off-limits cultural resources exclusion area, drove a bulldozer across two cultural resources sites and drilled two geotechnical holes into them, likely damaging the qualities of the sites that could qualify them for the National Register of Historic Places. BLM was not notified until January 10, 2020. There was no follow up document in the Gold Bar mine case file indicating whether those sites had indeed been damaged so badly that they no longer qualified for the National Register of Historic Places, and the case file did not contain a Notice of Non-Compliance;</p> <p>(8) in September 2020, BLM approved McEwen Mining's</p>	

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			<p>greater sage-grouse mitigation plan, which was to pay a contractor to conduct vegetation treatments analyzed in the Three Bars Ecosystem Final Environmental Impacts Statement. However, the Gold Bar ROD stated that treatment related to the sage-grouse mitigation plan would be completed within two years.⁸ BLM extended the time using a DNA, without analyzing any impacts to sage-grouse that could occur because of missing the ROD's two-year deadline. Confusingly, this approval states, "All conditions of approval set forth in previous decisions pertaining to operations at the Gold Bar Mine (NVN-091037) remain in full force and effect" (page 2 of 6). At the time this approval was granted, the mine was already out of compliance with the ROD's two-year completion requirement;⁹</p> <p>(9) a November 3, 2020 BLM Inspection Report for the Gold Bar Mine documented that the contractor MMI hired to perform vegetation treatment in order to satisfy the Gold Bar Mine's sage-grouse mitigation plan failed to meet the applicable requirements. Some parts were done incorrectly, others were not done at all, and the report noted "dishonest reporting," possibly in relation to trees that appeared to have been felled years earlier apparently being counted as part of the mitigation for the Gold Bar Mine.¹⁰ There is no follow up document in the case file to show what was done about it, and the case file did not contain a Notice of Non-Compliance. On November 24, 2021, Jon Sherve informed WWP staffer Kelly Fuller that the failed mitigation still hasn't been fixed and that McEwen Mining was going to begin phase 2 of the mitigation without having completed Phase 1; and</p> <p>(10) on January 26, 2021, MMI notified NDEP's Bureau of Mining Regulation and Reclamation that it was increasing its rate of mining by roughly 20%, from 2,880,000 tons per year to 3.5 million tons per year.¹¹</p> <p>All of this critical information, as well as other important information noted herein, was not provided to the public.</p>	

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			<p>Therefore, WWP and the Center provide these comments, which highlight the inadequacies of BLM's review and proposed approval of the Project.</p> <p><u>Footnotes:</u> ¹ See 12.21.18 BLM approval of additional time for Gold Bar sage grouse mitigation. <i>See also</i> Gold Bar Record of Decision at 16.</p> <p>² See Q2 2019 Water Pollution Control Permit TNEV2015119 Report at page 3 of 5.</p> <p>³ See 10.15.20 Daily Progress Report, 12.17.20 Event Pond Update, Q4 2020 Water Pollution Control Permit TNEV2015119 Report, and 5.12.20 10-day Report + Q1 2020 Water Pollution Control Permit TNEV2015119 Report.</p> <p>⁴ See Q2 2019 Water Pollution Control Permit Monitoring Report at page 4 of 5 and 12.4.18BLM Concurrence.</p> <p>⁵ See Release Report for March 7, 2019 and 3.15.19 Inspection Report.</p> <p>⁶ See 4.10.19 Spill Report Memo, Gold Bar Corrective Action Plan, Q2 2019 Water Pollution Control Permit TNEV2015119 Report, and Q2 2019 Water Pollution Control Permit TNEV2018123 Report.</p> <p>⁷ See 1.10.20 Email and letters documenting cultural resources site damage.</p> <p>⁸ See Gold Bar Record of Decision at 16.</p> <p>⁹ See 9.9.20 Decision: Amendment to the Plan of Operations Approved (Approval of the Gold Bar Mine's Sage-grouse Mitigation Plan).</p> <p>¹⁰ See 11.3.20 Inspection Report. "Dishonest reporting" is noted on page 4.</p> <p>¹¹ See 1.26.21 letter to NDEP</p>	
1	1.1	Western Watersheds	<p><u>Failure to Adequately Analyze Cumulative Impacts</u></p> <p>As noted in the previous comments, BLM's Draft EA fails to</p>	The document has been updated to include a clearer cumulative analysis in Section 4.19 of the Revised Draft EA.

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		Project/ Center for Biological Diversity (WWP/ CBD)	fully consider the cumulative impacts from all past, present, and reasonably foreseeable activities in the area, on all potentially affected resources such as water quality and quantity, air quality, wildlife, recreation, economic, and cultural resources. This includes the nearby Mt. Hope Mine Project and approved oil and gas leasing.	
1	1.1.1	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>For example, in addition to essentially ignoring the cumulative impacts from the Mt. Hope Project, the EA ignores the reasonably foreseeable impacts from well over 100 oil and gas leases approved by BLM in the very same area. These emissions are significant. There are well over 100 “Authorized Oil and Gas Leases” within the area. <i>See</i> Mt. Hope AQ CESA. Mt. Hope Final EIS Figure 4.3.5.¹² Yet the Gold Bar South EA neglects to mention any of these. Recent BLM NEPA analyses for oil and gas leasing, including from the very same BLM office here, include quantified estimates and analysis of potential air pollutant emissions from future exploration and development of oil and gas leases – estimates and analysis lacking from any of the air quality discussion in the EA. BLM included these calculations in its review of these leases despite the fact that oil and gas leases themselves do not approve any drilling, or pollutant emissions. <i>See</i> April 2019 Lease Sale Environmental Assessment (EA) for over 40 new leases within the BLM’s air quality cumulative impacts area (attached). <i>Compare</i> 2012 Mt. Hope FEIS Figure 4.3.5 (showing existing oil and gas leasing within the CESA) with BLM April 2019 Leasing EA at 12, showing new lease parcels in the area. <i>See also</i> BLM July 25, 2019 Decision Record approving the 2019 lease sale (attached).</p> <p>Footnotes: ¹² <i>See</i> Mt. Hope Final EIS Figure 4.3.5. Although we have included this document on the disc, all BLM Mt. Lewis Field Office documents regarding the Mt. Hope Project are already in the possession of the BLM and are included in the administrative record for BLM’s consideration of the Gold Bar South Project. If BLM does not believe this to be case, it should immediately inform the signatories to these comments.</p>	Close causal relationships of projects within the areas of analysis have been disclosed in the Draft EA under Sections 3 Affected Environment and in the introduction of Section 4 Environmental Consequences, and a clearer cumulative analysis has been disclosed in Section 4.19 of the Revised Draft EA. As the Proposed Action is an expansion of the previously authorized Gold Bar Proper (Gold Bar Mine Final EIS, BLM 2017), this EA analyzes the Proposed Action only and does not include analysis of previously authorized mines. Cumulative impacts to air quality were not analyzed in this EA as impacts to air quality under the Proposed Action would be negligible, as discussed in Section 4.1.

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1	1.1.2	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>The fact that BLM's proposed approval of the Gold Bar South Project does not authorize oil and gas leasing does not mean that BLM can ignore the indirect and cumulative impacts that will foreseeably result from activities on these current BLM leases. Nor does the fact that leasing does not initially approve actual oil and gas operations mean that BLM is not capable of analyzing foreseeable air emissions – indeed, BLM did so in its own Lease Sale EA. Federal courts regularly require BLM to analyze potential future air emissions that may result from oil and gas leasing, including both the indirect and cumulative emissions. <i>See, e.g., San Juan Citizens Alliance v. BLM</i>, 326 F.Supp.3d 1227 (D.N.M. 2018); <i>Wild Earth Guardians v. Zinke</i>, 368 F.Supp.3d 41 (D.D.C. 2019)</p>	As discussed under Section 4.1 Air Quality of the EA, impacts to air quality from the Proposed Action were considered negligible therefore cumulative impacts for air quality were not included in the analysis.
1	1.1.3	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>The U.S. EPA criticized BLM, at Mt. Hope, for failing to consider what BLM itself admits in the 2019 Lease Sale EA are the reasonably foreseeable potential air pollution emissions that can be expected to result from activities on the leases:</p> <p style="padding-left: 40px;">The EPA continues to recommend that the BLM consider nearby sources and reasonably foreseeable future actions as a part of assessing cumulative air quality impacts associated with the proposed molybdenum [<i>sic</i>] mine. EPA notes that a recent BLM March 2019 Competitive Oil and Gas Lease Sale Environmental Assessment (Lease Sale EA) estimated approximately 25 wells could be developed within the next ten years in the district, and a map of proposed oil and gas lease parcel locations within the Lease Sale EA shows at least 15 of the parcels offered for sale are within 10 miles of the Mt. Hope Mine. Even though the Final SEIS states that potential oil and gas development emissions need not be considered because of the “reduced likelihood” that applications for permits to drill will be filed (FSEIS p. 36 and Response to Comment C-9), the Lease Sale EA provides current information that anticipates an increase in overall criteria pollutants, hazardous air pollutants, and greenhouse gas emissions.</p>	The current, pending EA analyzes the potential impacts of the Gold Bar South project, a proposed expansion of the Gold Bar Mine. The Gold Bar Mine and its associated impact analysis was previously authorized as a result of the 2017 Gold Bar Mine Final EIS. As discussed under Section 4.1 Air Quality of the EA, impacts to air quality from the Proposed Action were considered negligible therefore cumulative impacts for air quality were not included in the analysis.

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			2019 EPA letter to BLM, at 1 (emphasis added) (attached). Many of the proposed leases are on the same side of Highway 278. 2019 Lease Sale EA Figure 2. BLM here neglected to mention any of these serious concerns regarding the Gold Bar existing or proposed activities.	
1	1.1.4	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>Because of the potential for cumulative air pollution emissions from activities on these proposed leases that “anticipates an increase in overall criteria pollutants, hazardous air pollution, and greenhouse gas emissions,” “EPA recommends that BLM update the Mount Hope cumulative impact analysis, and provide updated conclusions in the ROD, to reflect total anticipated cumulative increases in each criteria air pollutant and hazardous air pollutant when considering the proposed mine operating along with 25 anticipated oil or natural gas wells.” EPA letter. The same holds true for the Gold Bar South Project, which is within the same air quality cumulative impacts area.</p> <p>In that 2019 Lease Sale EA, BLM prepared a detailed “Air emissions inventory for a representative oil and gas well” to estimate air pollution emissions from a typical well. 2019 Lease Sale EA 22 (Table 3). To estimate potential air emissions from the leasing, BLM prepared a “Reasonably Foreseeable Development (RFD) Scenario.” “The RFD scenario (Appendix G) predicts a maximum of 25 wells in the Battle Mountain District. The number in any given area is unknown but potential emissions would be multiplied appropriately.” <u>Id.</u></p> <p>BLM estimated that one “representative oil and gas well in the western U.S.” could reasonably be expected to emit 15.6 tons per year of NOx. 6.9 tons per year of PM10, and 10.4 tons per year of Hazardous Air Pollutants (HAPs), among at least a dozen other pollutants. <u>Id.</u> As EPA noted, the BLM Leasing EA “estimated approximately 25 wells could be developed within the next ten years” in the area. 2019 EPA letter 1, AR066756, citing the Lease Sale EA.</p> <p>Despite the fact that the same BLM office prepared these emission estimates for a typical oil and gas lease, and recognized that these emissions are reasonably foreseeable to occur, the Gold Bar South</p>	The Proposed Action is an expansion of the previously authorized Gold Bar Mine; impacts to air quality have been analyzed for both the Proposed Action and to include the authorized Gold Bar Mine under the No Action Alternative, which included analysis of close causal relationships for impacts to air emissions. Cumulative impacts to air quality were not analyzed in this EA as impacts to air quality under the Proposed Action would be negligible, as discussed in Section 4.1.

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			EA failed to mention, let alone estimate or analyze, these cumulative emissions.	
1	1.1.5	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>In addition to ignoring the cumulative air pollution from the acknowledged reasonably foreseeable oil and gas operations around Gold Bar and Mt. Hope, BLM also failed to consider the impacts from these operations on critical water supplies. BLM never considered all the cumulative impacts on water resources that may occur as a result of the significant water removals caused by predicted drilling on the leases, or the groundwater impacts from the Mt. Hope Project. EPA specifically alerted BLM to this omission and NEPA deficiency:</p> <p style="text-align: center;"><i>Cumulative Impacts</i> Potential impacts to water resources from oil and gas development are acknowledged as “potentially severe” in terms of further drawdown of water levels. EPA notes that the March 2019 Lease Sale EA identified that oil and gas exploration, drilling, and production could include well stimulation and hydraulic fracturing which uses “appreciable” amounts of water, up to 800,000-10 million gallons (Lease Sale EA, p. 17, 28-29).</p> <p>EPA Sept. 23, 2019 letter to BLM, at 2 (emphasis added). “EPA notes that a recent BLM March 2019 Competitive Oil and Gas Lease Sale Environmental Assessment (Lease Sale EA) estimated approximately 25 wells could be developed within the next ten years in the district, and a map of proposed oil and gas lease parcel locations within the Lease Sale EA shows at least 15 of the parcels offered for sale are within 10 miles of the Mt. Hope Mine.” EPA letter at 1. The map of proposed leases (Lease Sale EA at 12, Figure 2), when compared with the 2012 Mt. Hope FEIS, shows over 40 new proposed leases north of Highway 50 within the “Cumulative Action Scenario – Projected Water Table Drawdown” for the Mt. Hope Project. FEIS Figure 4.4.1 (attached).</p>	The Gold Bar Mine and its associated impact analysis, including close causal relationships to the Mount Hope Project, was previously authorized as a result of the 2017 Gold Bar Mine Final EIS; as such, the authorization is considered “as is” and no additional analysis is being conducted for the Gold Bar Mine or for the previously authorized Mount Hope Project. Additionally, impacts from existing oil and gas leases are not analyzed in this EA for the Proposed Action as they are not considered reasonably foreseeable future actions as the leases have not yet been permitted or analyzed for development of an action.

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			At Mt. Hope, in the same area as Gold Bar, “EPA recommends the ROD disclose and discuss the significance of these cumulative aquatic resource effects and what restrictions, buffers, engineering controls or other mitigations would be most appropriate to protect scarce waterresources.” <u>Id.</u> Yet BLM never analyzed these cumulative impacts, or even mentioned the proposed leasing and anticipated drilling and other impacts.	
1	1.1.6	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	Here, the Gold Bar South Draft EA and proposed Plan of Operations acknowledge that an additional two years of extensive groundwater pumping/dewatering would occur. BLM cannot ignore the direct, indirect, and cumulative impacts from this pumping, especially in light of the massive dewatering approved for the Mt. Hope Project and the projected groundwater impacts from development of the oil/gas leases in the very same area.	As discussed in Section 4.6.1.1 of the EA, the Proposed Action does not include mining below the local groundwater table and does not include pumping for dewatering purposes; the GBS expansion would extend the production well pumping needed for mining operations by two additional years. Cumulative impacts are disclosed in Section 4.19 of the Revised Draft EA. As discussed in the Gold Bar Mine Project Final EIS, groundwater pumping associated with the Mount Hope project would result in an additional estimated 10-foot drawdown at the Roberts Creek Ranch well for approximately 100 years, which would affect private wells (BLM 2017). It is not anticipated that during the two-year construction and operation timeline of the Proposed Action that the Gold Bar South expansion would overlap with the authorized pumping timeline of the Mount Hope Mine as the mine has not yet been constructed.
1	1.1.7	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>In addition, the Gold Bar South Draft EA does not include the cumulative effects of the reasonably foreseeable Greenlink North high-voltage transmission line, which would run roughly along Highway 50 through central Nevada.¹³ The Nevada Public Utilities Commission has given NV Energy approval for starting design, permitting and land acquisition.¹⁴ New transmission lines attract renewable energy projects.</p> <p>Footnotes: ¹³ See map on page 2 of NV Energy’s October 2020 Greenlink Project Report.</p> <p>¹⁴ See PUCN Approves NV Energy’s Greenlink Nevada Transmission and Renewable</p>	Close causal relationships of projects within the areas of analysis have been disclosed in the Draft EA under Sections 3 Affected Environment and a clearer cumulative analysis has been included as Section 4.19 of the Revised Draft EA. The Greenlink North transmission line project is not yet considered a Pending action by the BLM and thus anticipated cumulative impacts are unknown at this time and disclosure of such has been included in Section 4.19.
1	1.1.8	Western Watersheds Project/ Center	Furthermore, the Gold Bar Mine’s case file shows that there have been cyanide solution spills and planned discharges (which BLM was notified of in a not-always-timely manner),	With the implementation of spill control ACEPMs, discussed under Section 4.4.1 of the EA, and with the Proponent’s Spill Contingency Plan, which includes procedures for the response,

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		for Biological Diversity (WWP/ CBD)	discharges of large quantities of water from the event pond, and leaks in the event pond liner. At times, these discharges have left the mine's boundaries and been directed into dry washes that drain into Roberts Creek. The Gold Bar South Draft EA not only does not mention these events that have already occurred, but it also states that spills of hazardous materials would not leave the project site: "Should a major spill occur during operations and maintenance, it would not be expected to affect a large area or spread off-site, and therefore impacts would be anticipated to be negligible to minor, short-term and localized." Draft EA at 4-4. Given what has already occurred at the Gold Bar Mine, which resulted in the posting of "No Camping Allowed" signs in a dry wash outside the Gold Bar project area more than a year after the wash was used to channel a large discharge of cyanide solution, this is not a credible statement. The cumulative impacts of adding the Gold Bar South project's potential to create new spills, discharges, and leaks to those that have already happened at the Gold Bar mine and may happen again, must be analyzed. The track record of the Gold Bar Mine cannot be ignored.	containment, and safe cleanup of any spills or discharges of substances that may potentially degrade the environment, impacts as a result of spills would be minimized and negligible. The EA analyzes potential impacts from the Proposed Action (Gold Bar South Project) and does not include additional analysis for the previously authorized Gold Bar Mine Project.
1	1.2.1	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p><u>Failure to Fully Analyze the Project's Baseline Conditions</u></p> <p>As noted in the previous comments, the Draft EA violates NEPA and FLPMA by failing to properly analyze background/baseline conditions for air quality, water quality and quantity, wildlife, recreation, cultural, and other resources. Regarding background/baseline levels, BLM is required to "describe the environment of the areas to be affected or created by the alternatives under consideration." 40 CFR §1502.15. "Without establishing the baseline conditions which exist ... before a project begins, there is simply no way to determine what effect the project will have on the environment, and consequently, no way to comply with NEPA." <u>Great Basin Resource Watch</u>, 844 F.3d at 1101, <i>quoting Half Moon Bay Fisherman's Mktg. Ass'n. v. Carlucci</i>, 857 F.2d 505, 510 (9th Cir. 1988). "[W]ithout [baseline] data, an agency cannot carefully consider information about significant environment impacts. Thus, the agency fails to consider an important aspect of the problem, resulting in an arbitrary and capricious decision." <u>N.</u></p>	<p>Baseline conditions are described for each resource throughout Chapter 3 of the Draft EA. Additional information, as noted throughout the Draft EA, for each resource is available in the accompanying resource-specific Supplemental Environmental Reports. Figure 2-3 of the Draft EA shows the proposed facilities under the Relocated Yard Alternative. There is no Figure 2-4 within the Draft EA.</p> <p>While a population trigger has been implemented for the Three Bar PMU (within which the Proposed Action is located), population trends of the PMU and ARMPA soft and hard triggers for the PMU are outside of the scope of this EA's analysis. Jahner et al.'s (2016) research on fine-scale genetic structure among GRSG leks in central Nevada does not include data on GRSG leks within the Gold Bar South wildlife or GRSG areas of analysis; therefore, it is not relevant to the area of analysis or GRSG CESA boundary and is outside the scope of this EA's analysis.</p>

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			<p><u>Plains Resource Council, Inc. v. Surface Transp. Bd.</u>, 668 F.3d 1067, 1085 (9th Cir. 2011).</p> <p>The draft EA contains little, if any, data regarding the existing baseline levels of water and air, wildlife, and other conditions at the site of proposed Gold Bar South expansion. For example, the draft EA admits that the “baseline” information for groundwater is all from the existing Gold Bar site, and there is no baseline data from the Gold Bar South site. See Draft EA Figure 2-3, 2-4 (and accompanying text). The same is true for wildlife, as there are no adequate surveys of existing population of sage grouse and other affected species.¹⁵</p> <p>Footnotes: ¹⁵ Two sage-grouse issues that need particular consideration are the sage-grouse plan population trigger that has been reached locally and sage-grouse genetic connectivity. See Fall 2019 Adaptive Management Trigger Summary and Fine-scale genetic structure among greatersage-grouse leks in central Nevada.</p>	

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1	1.3.1	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p><u>Failure to Adequately Analyze Mitigation and Related Project Impacts</u></p> <p>NEPA requires BLM to fully analyze mitigation measures, their effectiveness, and any impacts that might result from their implementation. NEPA requires BLM to: (1) “include appropriate mitigation measures not already included in the proposed action or alternatives,” 40 CFR §1502.14(f); and (2)“include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(f)).” 40 CFR §1502.16(h).</p> <p>Putting off an analysis of possible mitigation measures until after a project has been approved, and after adverse environmental impacts have started to occur, runs counter to NEPA’s goal of ensuring informed agency decision making. <i>See Robertson</i>, 490 U.S. at 353, 109 S.Ct. 1835 (“Without [a reasonably complete] discussion [of mitigation], neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.”).</p> <p><u>Great Basin Resource Watch v. BLM</u>, 844 F.3d 1095, 1107 (9th Cir. 2016).</p>	<p>All previously authorized ACEPMs for the Gold Bar Mine and new proposed ACEPMs for the Gold Bar South Project are provided in Appendix C and Section 2.2.14 of the Draft EA, respectively. As noted in the Section 1.3 of the Draft EA, the decision to be made includes the potential for the BLM to approve the amended Plan with additional mitigation needed to prevent unnecessary or undue degradation and reduce or eliminate the effects of the Proposed Action or Action Alternatives. With the implementation of ACEPMs, the BLM has determined that no unnecessary or undue degradation would occur therefore no additional mitigation measures other than the commitment to participate in the CCS Program have been proposed. Resource specific ACEPMs and best management practices are discussed where relevant within the separate resource sections throughout Chapter 4 of the Draft EA.</p>
1	1.3.2	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>Furthermore, some mitigation measures included in the Gold Bar Record of Decision have been delayed, done incorrectly or not done at all. There is also no record in the case file of certain other mitigation measures having been implemented. First, the mine’s sage-grouse mitigation was repeatedly delayed. Although BLM approved the Gold Bar Mine’s Plan of Operation in November 2017, more than a year later, in December 2018, BLM gave MMI additional time to choose and complete the sage-grouse mitigation. That delay was compounded because BLM didnot approve the Gold Bar mine’s sage-grouse mitigation plan until September 2020, almost three years after the mine was approved, even though the Gold Bar ROD stated that treatments related to the sage-grouse mitigation plan would be completed within two years from the Gold Bar mine’s approval. Second, less than two months after BLM approved the sage-grouse mitigation plan, a BLM employee filed an Inspection Report showing that portions of the sage-grouse mitigation had been done incorrectly or not at all. The Inspection Report also noted “dishonest reporting” and failure to involve BLM.¹⁶</p>	<p>The EA analyzes potential impacts from the Proposed Action (Gold Bar South Project) and does not include additional analysis for the previously authorized Gold Bar Mine Project.</p>

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			Footnotes: ¹⁶ See 11.3.20 Inspection Report, especially page 4.	
1	1.3.3	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>Third, the Gold Bar Record of Decision requires that if there is an “unanticipated impact situation” involving cultural resources:</p> <p style="padding-left: 40px;">all project-related activities within 100 meters (or approximately 328 feet) of the discovery/impact will cease immediately and MMI will secure the location to prevent vandalism or other damage, and would notify the BLM Authorized Officer and an authorized officer of the Duckwater-Shoshone Tribe immediately.</p> <p>Activity at the location would be suspended until after the discovery has been evaluated, any necessary EPMs are completed and the BLM Authorized Officer has issued a written Notice to Proceed.</p> <p>Gold Bar ROD at 11. Yet when a mine excavator entered a cultural resources exclusion zone in mid-August 2019, driving a bulldozer across two cultural resources sites and drilling two geotechnical holes, BLM was not notified until January 10, 2020.¹⁷ The case files have no record of the Duckwater Shoshone Tribe being notified, nor any follow up document showing what had been done subsequently. Fourth, the ROD requires MMI to conduct annual sage-grouse lek monitoring and annual raptor surveys.¹⁸ The case files do not contain records showing that these requirements are being implemented. The lek monitoring reports¹⁹ are especially important not only for BLM to assess the Gold Bar mine’s impacts on sage-grouse before approving Gold Bar South, but also because the mine’s sage-grouse mitigation plan has been delayed multiple years.²⁰ There are many sage-grouse leks within a two-mile buffer of the Gold Bar mine’s access roads, and those same access roads will be used by Gold Bar South, increasing risk of lek abandonment due to noise.²¹ The annual raptor surveys are similarly important for showing how birds protected by the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act (BGEPA) are being affected by the mine before BLM approves Gold Bar South, and also because MMI has applied to U.S. Fish and Wildlife Service (FWS) for an eagle take permit because of disturbance to eagles that will be caused by the Gold Bar South project.²²</p>	<p>The EA analyzes potential impacts from the Proposed Action (Gold Bar South Project) and does not include additional analysis for the previously authorized Gold Bar Mine Project.</p> <p>Native American consultation is always considered ongoing as it will take place though the life of the project including reclamation. To date, the consultation that has taken place with the tribes has not brought up any concerns regarding the proposed project.</p> <p>Through the analysis including the implementation of several ACEPMs identified in Sections 2.2.13 and 2.2.14, elimination of a lek was not identified as an expected impact from the Proposed Action. The Proponent has committed to implementing the Conservation Credit System program, and the credit obligations calculated for the project are disclosed under Section 4.18.1.3 of the Draft EA. Additionally, if the credit obligation were to not be satisfied prior to activities commencing under the Proposed Action, a mitigation plan would be developed by the Proponent in coordination with the Sagebrush Ecosystem Technical Team, which would be subject to approval by the Sagebrush Ecosystem Council. The Proponent has also committed to an ACEPM to restrict access to the northern Gold Bar South Pit access road during the lekking season time period (March 1 to May 15, 6:00pm to 9:00am) to lower noise levels below the 10 dBA ARMPA threshold. Also, during the seasonal restriction, haul truck round trips would be limited to two per hour. With the implementation of these ACEPMs, noise impacts to Greater sage-grouse would be below the 10 dBA threshold. It is anticipated that implementation of the previously authorized and proposed ACEPMs would be successful and additional mitigation measures beyond the commitment to participate in the CCS Program would not be required as no unnecessary or undue degradation would occur.</p> <p>Analysis of the impacts to golden eagles from the Proponent’s eagle take permit application for the Project will be analyzed separately by the USFWS.</p>

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			<p>Here, as BLM’s files show, the purported mitigation measures from the initial Gold Bar site have yet to be implemented. Thus, BLM cannot assert that the current project, let alone combined with the new Gold Bar South Project, may not cause “unnecessary or undue degradation” under FLPMA.</p> <p>Footnotes: ¹⁷ See 1.10.20 Email and letters documenting cultural resources site damage.</p> <p>¹⁸ See Gold Bar Record of Decision at 9 and 31.</p> <p>¹⁹ As we noted in our earlier comment letter, Western Biological’s 2020 Lek Survey Report does not include data for four NDOW trend leks that are in the same area, but BLM must also consider the NDOW lek monitoring data in its decision. However, the case file does not include NDOW’s lek monitoring data for the same years.</p> <p>²⁰ We note that the Duckwater Shoshone Tribe’s April 11, 2017 comments on the Gold Bar Mine included Indigenous Traditional Ecological Knowledge (“Tribal people have talked about the sage grouse leave an area when there has been mines built”) and other concerns about sage-grouse, including potential impacts to tribal hunting. See Duckwater Shoshone Tribe Gold Bar Comments at 2,4,5,7.</p> <p>²¹ See Leks Along Gold Bar Access Roads map. This document comes from the Gold Bar Mine’s case file. See also: The Effects of Management Practices on Grassland Birds—Greater Sage-Grouse (<i>Centrocercus urophasianus</i>), Experimental Chronic Noise Is Related to Elevated Fecal Corticosteroid Metabolites in Lekking Male Greater Sage-Grouse (<i>Centrocercus urophasianus</i>), Greater Sage-grouse (<i>Centrocercus urophasianus</i>) Conservation Objectives: Final Report, Greater sage-grouse population ecology studies to inform land management actions in sagebrush ecosystems, Greater Sage-Grouse Response to Bentonite Mining, Greater Sage- Grouse Response to the Physical Footprint of Energy Development, Oil and Gas Development in Western North America: Effects on Sagebrush Steppe Avifauna with Particular Emphasis on Sage-grouse, Potential Acoustic Masking of Greater Sage-Grouse (<i>Centrocercus urophasianus</i>) Display Components by Chronic Industrial Noise, and Recommended management strategies to limit anthropogenic noise impacts on greater sage-grouse in Wyoming.</p> <p>²² We note that the Gold Bar South EA does not contain enough</p>	

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			information about eagles and the proposed eagle take permit to satisfy NEPA and BGEPA implementing regulations, nor does it allow the public to review the proposed permit requirements and mitigation. Relevant regulatory guidance and research includes Bald and Golden Eagles Population demographics and estimation of sustainable take in the United States, 2016 update; Conservation significance of alternative nests of golden eagles; Eagle Conservation Plan Guidance, Ecosystem processes, land cover, climate, and human settlement shape dynamic distributions for golden eagle across the western US; Interim Golden Eagle Inventory and Monitoring Protocols and Other Recommendations; Programmatic Environmental Impact Statement for the Eagle Rule Revision; Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada; and A Survey of Golden Eagles (<i>Aquila chrysaetos</i>) in the Western U.S., Mid-winter 2017.	
1	1.4.1	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p><u>BLM Violated FLPMA</u></p> <p>FLPMA requires that the BLM “take any action necessary to prevent unnecessary or undue degradation of the lands.” 43 U.S.C. §1732(b). This is the “prevent UUD” standard. This duty to “prevent undue degradation” is “the heart of FLPMA [that] amends and supercedes the Mining Law.” <u>Mineral Policy Center v. Norton</u>, 292 F.Supp.2d 30, 42 (D.D.C. 2003). BLM cannot approve a mining project that would cause UUD. 43 C.F.R. §3809.411(d)(3)(iii). “FLPMA’s requirement that the Secretary prevent UUD supplements requirements imposed by other federal laws and by state law.” <u>Center for Biological Diversity v. Dept. of Interior</u>, 623 F.3d 633, 644 (9th Cir. 2010).</p> <p>As part of this duty, BLM must ensure that all operations comply with the Performance Standards found at §3809.420. See 43 C.F.R. §3809.5 (definition of UUD, specifying that failing to comply with the Performance Standards set forth at §3809.420 constitutes UUD).</p> <p>In light of the existing failure to comply with all the mitigation and other requirements in the initial project approvals, which were based on BLM’s determination that compliance with all requirements was necessary to ensure against UUD, BLM cannot find that the project(s) comply with FLPMA. Thus, unless all mitigation and other requirements from the previous decisions</p>	The EA analyzes potential impacts from the Proposed Action (Gold Bar South Project) and does not include additional analysis for the previously authorized Gold Bar Mine Project. Additionally, the BLM has determined that no unnecessary or undue degradation would occur as a result of the Gold Bar South expansion; therefore, no additional mitigation measures beyond the commitment to participate in the CCS Program are required.

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			have been met, at a minimum, any expansion would constitute UUD.	
1	1.4.2	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p>BLM has the duty under FLPMA to mitigate adverse impacts:</p> <p>Although other Federal and State agencies regulate various aspects of mining under other statutes, BLM has its own responsibilities under FLPMA and the mining laws to protect the resources and values of the public lands from unnecessary or undue degradation.</p> <p>...</p> <p>[S]ections 302(b) and 303(a) of FLPMA, 43 U.S.C. 1732(b) and 1733(a), and the mining laws, 30 U.S.C. 22, provide the BLM with the authority to require mitigation. Mitigation measures fall squarely within the actions the Secretary can direct to prevent unnecessary or undue degradation of the public lands. An impact that can be mitigated, but is not, is clearly unnecessary.</p> <p>65 Fed.Reg. 69998, 70053 (November 21, 2000)(Preamble to BLM's 43 C.F.R. Part 3809 mining regulations)(emphasis added).</p> <p>Also, as noted above, BLM cannot credibly ensure that the existing Gold Bar and proposed expansion comply with the strict air quality standards and UUD requirements. As just one example, the air quality analysis for the Gold Bar South project admits that substantial air pollution from the two Gold Bar projects alone will consume 46% of the allowable PM2.5 24-hour NAAQS (and 41% of the PM2.5 annual standard). For NO2, the Gold Bar Projects will consume 67% of the allowable 1-hour standard. (Air Quality Supplemental Environmental Report for the Amended Mine Plan of Operations for the Gold Bar Mine (blm.gov)). This is all without considering the significant emissions from the nearby Mt. Hope Project, oil and gas, and other activities in the area.</p> <p>BLM has yet to adequately analyze, and thus cannot ensure, that the Gold Bar South expansion, when combined with the existing Gold Bar Project, the Mt. Hope Project, the projected emissions</p>	<p>The BLM has determined that no unnecessary or undue degradation would occur as a result of the Gold Bar South expansion. Close causal relationships of projects within the areas of analysis have been disclosed in the Revised Draft EA under Sections 3 Affected Environment and a clearer cumulative analysis has been included in Section 4.19. As noted in the Section 1.3 of the Revised Draft EA, the decision to be made includes the potential for the BLM to approve the amended Plan with additional mitigation needed to prevent unnecessary or undue degradation and reduce or eliminate the effects of the Proposed Action or Action Alternatives. The BLM has determined that additional mitigation would not be required beyond the commitment to participate in the CCS Program to prevent unnecessary and undue degradation with implementation of the ACEPMs.</p>

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			from the oil and gas leases, as well as other industrial, transportation, agricultural, and other activities in the area, comply with the Clean Air Act standards and the associated FLPMA mandates.	
1	1.4.3	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	In addition, as noted in our previous comments, BLM's determination that it complied with its FLPMA requirements to ensure that all Resource Management Plan (RMP) provisions would be met is wrong. For example, BLM asserts that the Gold Bar South expansion, and all cumulative activities in the area, will comply with the strict mandates in the ARMPA and related greater sage-grouse habitat FLPMA requirements. Yet no evidence is provided. At best, BLM is under the mistaken assumption that MMI's filing of claims under the 1872 Mining Law overrides BLM's duty under FLPMA to ensure that all RMP and related requirements are met. That is wrong, as BLM cannot assume that MMI has valid statutory rights under the Mining Law without verifying that such as assumption is supported by evidence in the record, which is lacking here. <i>See Center for Biological Diversity v. U.S. Fish and Wildlife Service</i> , 409 F.Supp.3d 738, 754 (D. Ariz. 2019). <u>Additional FLPMA and Other Concerns</u>	As described under Section 1.2 of the Draft EA, the BLM's purpose is to provide MMI the opportunity to extract mineral deposits on its mining claims on public lands, as provided under the General Mining Law of 1872, and to analyze the environmental effects associated with the proponent's Proposed Action and action alternatives to lessen any impacts to environmental resources, when necessary, as mandated by NEPA. As an expansion of the previously authorized Gold Bar Proper, the Proposed Action also complies with the following 2015 ARMPA-required design features and management decisions, as included under Appendix A of the Gold Bar Mine Project FEIS: Mineral Resources Management Decisions for Locatable Minerals 15, 17, and 18; and, Management Decisions Special Status Species (SSS) 1, SSS 2, SSS 2B, and SSS 3A.
1	1.5.1	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	Lastly, there is no mention of the requirement that MMI obtain a FLPMA Right-of-Way (ROW) for the new road and the associated special use/ROW permit, required under FLPMA Title V and its implementing regulations. BLM is under the mistaken assumption that MMI is entitled to the haul road as a statutory right under the 1872 Mining Law. While a mining claimant may have certain rights under the Mining Law, as noted above, they must meet the prerequisites for those rights, which neither MMI nor BLM have shown here. <i>See Center for Biological Diversity v. U.S. Fish and Wildlife Service</i> , 409 F.Supp.3d 738 (D. Ariz. 2019). The same is true for the new waste dump and other infrastructure that would be located on lands that do not contain the requisite discovery of a valuable mineral deposit or otherwise shown to comply with all requirements for assumed "rights" under the Mining Law. As such, BLM has wide discretion over these operations and is not constrained by MMI's assertion of "rights" under the Mining Law or limited to applying just the 43 CFR Part	The proposed haul road and GBS associated facilities are a part of the Plan boundary in accordance with 43 CFR 3809 Surface Management regulations; therefore, a Right-of-Way is not required.

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			3809 regulations. <i>Id. See also Mineral Policy Center v. Norton</i> , 292 F.Supp.2d 30, 47-48 (D.D.C. 2003).	
1	1.5.2	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	Further, regarding the culverts and other construction in Roberts Creek, as shown in Draft EA Figure 2-2, Roberts Creek is a perennial stream and thus the construction requires a Clean Water Act Section 404 discharge permit. Under the CWA and FLPMA, BLM cannot approve any activity that does not comply with these requirements. As such, BLM cannot approve the PoO until all CWA requirements have been met.	As detailed in the Water Resources and Geochemistry SER, field investigations to evaluate the potential jurisdictional status of channels and wetlands within and adjacent to the Gold Bar South water resources area of analysis were performed in 2007 and revisited in 2012 and 2017. The results of the study concluded that all the drainage features assessed terminate prior to reaching another jurisdictional drainage and, therefore, are not subject to federal jurisdiction under Section 404 of the CWA (ID number SPK-2012-01282).
1	1.6.1	Western Watersheds Project/ Center for Biological Diversity (WWP/ CBD)	<p><u>Conclusion</u></p> <p>Thank you for the opportunity to comment upon the Gold Bar South Project and have these comments and attachments submitted for your consideration.</p> <p>Sincerely yours,</p> <p>Kelly Fuller, Energy and Mining Campaign Director Western Watersheds Project P.O. Box 779 Depoe Bay, OR 97341 (928) 322-8449 kfuller@westernwatersheds.org /s/ Scott Lake Scott Lake, Nevada Staff Attorney Center for Biological Diversity P.O. Box 6205 Reno, NV 89513-6205 (802) 299-7495 slake@biologicaldiversity.org</p> <p>References Cited ----- . Undated. Leks Along Gold Bar Access Roads Map.</p> <p>Blickley, J.L. and Patricelli, G.L. 2012. Potential Acoustic Masking of Greater Sage-Grouse (<i>Centrocercus urophasianus</i>) Display Components by Chronic Industrial Noise. Ornithological Monographs Volume (2012). No. 74, 23-35.</p>	Thank you for your comment.

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Letter ID #	Comment ID #	Name/Entity	Comment	Response
			<p>Blickley, J.L., et al. 2012. Experimental Chronic Noise Is Related to Elevated Fecal Corticosteroid Metabolites in Lekking Male Greater Sage-Grouse (<i>Centrocercus urophasianus</i>). PLoS ONE 7(11): e50462. doi:10.1371/journal.pone.0050462.</p> <p>Braun, C.E., et al. Undated. Oil and Gas Development in Western North America: Effects on Sagebrush Steppe Avifauna with Particular Emphasis on Sage-grouse.</p> <p>Bureau of Land Management. October 2012. Mt. Hope Project Final Environmental Impact Statement. Figure 4.3.5.</p> <p>Bureau of Land Management. 11.7.17. Gold Bar Mine Project Record of Decision and Plan of Operations Approval.</p> <p>Bureau of Land Management. 12.4.18. BLM concurrence.</p> <p>Bureau of Land Management. 12.21.18 BLM approval of additional time for Gold Bar sage grouse mitigation.</p>	

APPENDIX B

Acres of Facilities Not Reclaimed

Appendix B – Acres of Facilities Not Reclaimed

Table B-1 Authorized Facilities Not Reclaimed

Authorized Facilities Not Reclaimed	Acres		
	Public	Private	Total
Pits ¹	37.9	114.3	152.2
Ponds ²	3.3	0.0	3.3
Roads ³	9.2	0.4	9.5
Stormwater Diversion Channels ⁴	2.0	0.0	2.0
Total	52.5	114.7	167.1

Sources: BLM 2017; MMI 2020

¹ Authorized pit buffers total 70.4 acres, and if pit buffers are disturbed during operations, they would be considered unreclaimed.

² Ponds would be converted to E- or ET-cells during closure to address passive management of draindown solutions.

³ Roads would be reclaimed to 12-foot width.

⁴ Stormwater Diversion Channels would be approximately 12 feet in width, including slopes.

Table B-2 Authorized and Proposed Facilities Not Reclaimed

Facilities Not Reclaimed	Authorized Disturbance (acres)		Proposed Disturbance (acres)		Total
	Public	Private	Public	Public	
Pits ¹	37.9	114.3	27.1	0.0	179.4
Ponds ²	3.3	0.0	0.0	0.0	3.3
Roads ³	9.2	0.4	0.0	0.0	9.5
Stormwater Diversion Channels ⁴	2.0	0.0	0.0	0.0	2.0
Total	52.5	114.7	27.1	0.0	194.2

Source: BLM 2017

¹ Authorized pit buffers total 70.4 acres. Proposed pit buffer totals 24.0 acres. If pit buffers are disturbed during operations, they would be considered unreclaimed.

² Ponds would be converted to E- or ET-cells during closure to address passive management of draindown solutions.

³ Roads would be reclaimed to 12-foot width.

⁴ Stormwater Diversion Channels would be approximately 12 feet in width, including slopes.

APPENDIX C

Authorized Applicant-Committed Environmental Protection Measures

Appendix C – Authorized Applicant-Committed Environmental Protection Measures

A.1 General

- Speed limits are posted at 35 miles per hour on haul roads and 45 miles per hour on access roads.
- Speed limits within the open pits and inside fenced process areas are based on site-specific safety requirements and are set based on factors such as ramp slopes, ramp widths, and curve radius.
- New hire and annual refresher training for all employees and contractors includes wildlife protection training that specifically addresses the commitment of MMI to implement the faunal protection program. MMI worked with the Nevada Department of Wildlife (NDOW) in the development of training materials.
- Site-specific training also includes internal contact numbers for reporting sick or injured animals in the GBP boundary, as well as reporting procedures to the BLM and NDOW for any wildlife and wild horse mortalities. NDOW Industrial Artificial Pond Permit requirements include reporting by the next business day any mortalities of wildlife species protected under the Migratory Bird Treaty Act, all game animals, game birds, sensitive, threatened or endangered species, and which are associated with chemical-containing tanks or impoundments.
- MMI has installed an eight-foot-tall, wildlife exclusion perimeter fence around all open waters to prevent access by larger terrestrial wildlife, wild horses, and other ungulates. The minimum standard fence is eight feet high, the bottom four feet of which are composed of woven or mesh wire, including no greater than two-inch mesh on the bottom two feet and a maximum of eight-inch mesh on the top. The bottom has been placed tight to the ground level to prevent animals from securing access under the fence. The remainder of the fence above the woven or mesh wire is smooth or barbed wire with a spacing of 10 inches, 12 inches, and 14 inches beginning from the top of the woven or mesh wire. When cyclone or chain-link fence has been used, then the fences were eight feet tall and tight to the ground. These fences are inspected and maintained to preclude wildlife access.
- Fences in the process area are continuous, with no breaks, except for gates, which are kept closed; and smooth or barbed wire is used above the top horizontal portion of fencing to discourage perching.
- All lined ponds were constructed with escape ramps consisting of textured liner to assist in a safe footing during egress, should any wildlife manage to gain access and inadvertently fall into one of the ponds.
- Leach lines on the HLF are managed to preclude surface ponding on the heap surface that could attract avian or terrestrial resources to potentially toxic leach solutions.
- Hazardous material storage includes secondary containment to preclude contamination of surface or groundwater resources that animals could access.
- Drill pad siting has provided for topography to help shield noise within the “maximum footprint area” for a given site.
- MMI is considering obtaining a Raven Depredation Permit from the United States Fish and Wildlife Service or submitting for coverage under an NDOW permit, as determined to be necessary.
- During all phases of the Gold Bar Mine, all food, solid waste, and other trash have been placed in closed containers.

- MMI prohibits employees, contractors, and sub-contractors from feeding wildlife or wild horses, or making food available for scavenging wildlife.

A.2 Air Quality

The Gold Bar Mine is operated to control both gaseous and particulate emissions and to meet all state and federal regulatory standards. Appropriate air quality permits were obtained from the NDEP Bureau of Air Pollution Control. Specific air quality protection measures include:

- A fugitive dust control for all mine operations. In general, the fugitive dust control program provides for water application on haul roads and other disturbed areas; chemical dust suppressant application (such as Lignin sulfate or magnesium chloride) where appropriate; and other dust control measures, as per accepted and reasonable industry practice. Also, disturbed areas have been seeded with an interim seed mix to minimize fugitive dust emissions from un-vegetated surfaces where appropriate.
- The dust generated from the use of roads and excavation activities is minimized to the extent reasonable and practicable by using BMPs such as minimizing vehicular traffic and using prudent vehicle speeds.
- Fugitive emissions in the process area are controlled at the crusher and conveyor drop points through the use of bag houses and/or water sprays, where necessary. Other process areas requiring dust and/or emission controls include the cement/lime silos, ADR plant, the various ancillary screening and sizing processes, agglomerator, refinery, generators, and the laboratory. The agglomerator is permitted as a zero-emissions unit due to the inherent nature of the agglomeration process (binding of fine materials with cement). Appropriate emission control equipment is installed and is operated in accordance with an NDEP-issued Air Quality Operating Permit.
- Equipment and machinery are maintained in good working condition to minimize emissions.

A.3 Water Resources

Specific water quality protection measures include:

- Process components have been designed, constructed, and operated in accordance with NDEP regulations and include engineered liner systems.
- The proposed process facilities are zero-discharge, and the heap leach ponds have an engineered liner and leak detection systems in accordance with NAC 445A design criteria.
- MMI implements the Water Management Plan (Appendix C of MMI 2020) in compliance with 43 CFR 3809.401(b)(2)(iii)) (MMI 2020). This plan identifies more specific control measures and monitoring requirements. MMI samples groundwater on a quarterly basis from monitoring wells located within the perimeter of the site's process facilities. Groundwater sampling is conducted using NDEP- and Environmental Protection Agency-approved sampling methodologies. Water purged from the well during sampling is managed at the wellhead. All groundwater purged from wells within the process area is managed within the process area.
- All artificial or man-made bodies of water that contain any chemical in solution at levels lethal to wildlife (e.g., barren and pregnant solution ponds) are covered or contained in a manner that would prevent access by birds and bats in accordance with the NDOW Industrial Artificial Pond Permit. All covers or containers are maintained in a manner that would continue to preclude access by wildlife for as long as the pond or containment can hold water. Any chemical-laden fluids that are the result of any process and that are impounded in a pond that is too large to cover or contain are rendered non-lethal to wildlife. The chemical concentration is measured at a non-lethal level at the point where the fluid flows from a pipe into the pond or open conveyance system. Chemical neutralization and dilution are among methods that would be used to reduce chemical concentration.

- MMI would enter into a private agreement with the Roberts Creek Ranch if it is determined that any impacts to the Ranch water rights or use would occur.

A.4 Geology and Minerals

- To minimize the potential for oxidation and solute generation from waste rock, MMI adheres to the classification, handling, management, sampling and reporting procedures for the various types of waste rock anticipated to be encountered during GBP operations as specified in Appendix B of the amended Plan (MMI 2020). Specifically, procedures for the management of designated waste, or waste rock that demonstrates a potential to generate acid with a potential for constituent release, or is net neutralizing with a potential for constituent release, are outlined in Appendix B of the amended Plan (MMI 2020).

A.5 Erosion and Sediment Control

BMPs are used to limit erosion and reduce sediment in precipitation runoff from Gold Bar Mine facilities and disturbed areas during construction, operations, and initial stages of reclamation.

Because there are no waters of the United States in or around the GBP boundary (JBR 2012; USACE 2013, 2018), MMI is not specifically required to manage stormwater discharges in accordance with provisions set forth in the NDEP Stormwater General Permit NVR300000, nor is MMI required to submit a Stormwater Pollution Prevention Plan to the NDEP. However, as a general corporate environmental policy, and good environmental stewardship, MMI has adhered to the policies and guidelines set forth in NVR300000 to ensure that appropriate stormwater BMPs are employed at the Gold Bar Mine. As per NVR300000, BMPs for the Gold Bar Mine include “erosion and sediment controls, conveyance, stormwater diversions, and treatment structures, and any procedure or faculty used to minimize the exposure of pollutants to stormwater or to remove pollutants from stormwater.” Specific BMPs include, but would not be limited to:

- Erosion and sediment control structures such as diversions (e.g., runoff interceptor trenches, check dams, or swales), siltation or filter berms, filter or silt fences, filter strips, sediment barriers, and/or sediment basins;
- Collection and conveyance structures, such as rock lined ditches and/or swales;
- Vegetative soil stabilization practices such as seeding, mulching, and/or brush layering and matting;
- Non-vegetative soil stabilization practices such as rock and gravel mulches, jute and/or synthetic netting;
- Slope stabilization practices such as slope shaping, and the use of retaining structures and riprap; and
- Infiltration systems such as infiltration trenches and/or basins.

Following construction activities, areas such as cut and fill slopes and embankments and growth media/cover stockpiles would be seeded as soon as practicable and safe. Concurrent reclamation is maximized to the extent practicable to accelerate revegetation of disturbed areas. All sediment and erosion control measures are routinely inspected, and maintenance/repairs performed, as needed.

Specific erosion and sediment control protection measures include:

- The surfaces of the growth media stockpiles have been shaped after construction with overall slopes of approximately 3H:1V to reduce erosion.
- To further minimize wind and water erosion, the growth media stockpiles have been seeded after shaping with an interim seed mix developed in conjunction with the BLM.
- Diversion channels and/or berms have been constructed around the growth media stockpiles, as needed, to prevent erosion from overland runoff.

- BMPs such as straw wattles or staked straw bales are used as necessary to contain sediment liberated from direct precipitation.

A.6 Wildlife

- In compliance with the Migratory Bird Treaty Act, land clearing and surface disturbance is avoided within 0.25 miles of any active raptor nests from March 1 to July 31 and is timed to prevent destruction of active bird nests or birds' young. In addition, disturbance activities are avoided during the avian breeding season (April 1 through July 31). If surface-disturbing activities are unavoidable during the avian breeding and nesting season, MMI would commission a qualified avian biologist to survey areas proposed for disturbance for the presence of active nests immediately prior to the disturbance activities. 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 conducted. If active nests or burrows are located around the Gold Bar Mine, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) would be delineated and the buffer area avoided to prevent destruction or disturbance to nests or birds until they are no longer actively breeding or rearing young. The site characteristics to be used to determine the size of the buffer area are: 1) topographic screening; 2) distance from disturbance to nest; 3) the size and quality of foraging habitat surrounding the nest; 4) sensitivity of the species to nest disturbances; and 5) the protection status of the species.
- Annual raptor surveys would be conducted for the GBP boundary and a two-mile buffer. The survey would be performed in accordance with the United States Fish and Wildlife Service Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance (Pagel et al. 2010). This guidance states that a project should be surveyed at least twice for nesting raptors during the breeding season and that surveys should be conducted at least 30 days apart. If nest building activities or behavior or nesting raptors are identified, MMI would coordinate with the BLM biologist and the NDOW on appropriate avoidance distances, as determined by the species identified. The avoidance areas would be in place until a qualified biologist has determined the young have fledged.
- The buildings and process facilities including the warehouse/shop, office, laboratory, ADR plant, crushing facilities, HLF, and ponds are fenced to specifications outlined in the BLM Handbook 1741-1, as applicable. Solution ponds are fenced, in accordance with the required NDOW Industrial Artificial Pond Permit, with eight-foot-high chain link or field fencing. Primary ponds liners are single-sided textured geomembrane with the textured side up to facilitate wildlife egress. Bird balls are also used on the ponds to protect wildlife, where required. Operators have been trained to monitor the mining and process areas for the presence of larger wildlife such as mule deer (*Odocoileus hemionus*) and antelope (*Antilocapra americana*). Mortality information is provided to NDOW, as necessary. MMI has established wildlife protection policies that prohibit feeding or harassment of wildlife within the GBP boundary.

A.6.1 Greater Sage-Grouse

- Flight diverters have been installed on any fencing within 3.1 miles of a lek using the Natural Resources Conservation Service program to determine best locations for diverters.
- Noise has been reduced through installation of an enhanced generator silencing package on the generators that meets the specifications used in the JC Brennan noise model (as cited in MMI 2020);
- Berms have been constructed along the haul roads in conformance with MSHA requirements that are also assisting in the attenuation of noise along the haul roads.
- A blasting plan has been developed and included in the Plan to specifically limit blasting during atmospheric conditions (inversions) that could propagate blasting noise beyond the mine area.
- A Noxious Weed Plan has been developed and included in the Plan to prescribe methods to prevent and control the spread of noxious weeds during and following construction of the Gold Bar Mine.

- A reclamation/revegetation plan has been developed and included in the Plan. The reclamation/revegetation plan was prepared for all project-related disturbance, including the high elevation waste rock dumps, to specifically address the unique challenges resulting from the edaphic, geologic, and physiographic conditions of the area. The revegetation plan is specifically focused on the enhancement of greater sage-grouse habitat in areas that were either previously disturbed and unreclaimed or woodland dominated.
- New hire and annual refresher training for all employees and contractors includes greater sage-grouse specific protection training that specifically addresses the commitment of MMI to implement the protection program and the need for all employees to avoid harassment and disturbance of greater sage-grouse, especially during the breeding season. MMI has worked with NDOW to develop training materials.
- Overhead power lines within four miles of active and pending active leks have been constructed with anti-perching devices, where applicable. Actions have been completed in consideration of the latest Avian Power Line Interaction Committee guidelines with assistance of BLM and NDOW for the appropriate predatory bird anti-perching devices.
- Hazardous material storage includes secondary containment to preclude contamination of surface water or groundwater resources that animals could access.
- Travel timing restrictions are implemented during lekking season (March 1 – May 15) on Roberts Creek Road, between 5:30 AM and 10:00 AM for light vehicle traffic, and heavy vehicle deliveries on Three Bars Road occur after 10:00 AM.
- Road work, road maintenance-related work, gravel pit work or any surface-disturbing actions within four miles of an active or pending lek are subject to timing restrictions during lekking season (March 1 – May 15); i.e., no surface disturbance takes place between 5:30 AM and 10:00 AM or after 5:30 PM.
- MMI conducts lek attendance monitoring, following NDOW monitoring protocols, for all leks within a two-mile distance of Three Bars and Roberts Creek access roads. Leks found to be unoccupied after three successive years of monitoring would be proposed to the BLM and NDOW to be designated as inactive, and monitoring of those leks would be suspended. If no adverse impact to active leks is demonstrated after five years of monitoring, MMI would be able to request suspension of all lek monitoring.

A.6.2 General Wildlife

- Established mule deer trails have been identified by qualified biologists, and warning signs have been posted at appropriate locations along the haul roads to warn drivers of crossing points.

A.6.3 Burrowing Owls

- If surface disturbance is to occur during the raptor nesting season, burrowing owl (*Athene cunicularia*) pre-construction surveys would be conducted prior to ground-disturbing activities. If occupied burrows are encountered, an avoidance buffer would be placed around the burrow to avoid adverse impacts. MMI would coordinate with the BLM and the NDOW to determine the appropriate avoidance buffer and the appropriate additional measures if removal of the burrow is necessary.

A.6.4 Pygmy Rabbits

- Pygmy rabbit (*Brachylagus idahoensis*) pre-construction surveys would be conducted prior to ground-disturbing activities. If occupied burrows/colonies are encountered, consultation with the BLM and the NDOW to determine the appropriate avoidance buffer. If removal of the burrow/colony is required, other measures would take place, MMI would coordinate with the BLM and the NDOW to determine the appropriate measures.

A.7 Wild Horses and Livestock

No activities block access by wild horses and burros to water as there are no perennial surface waters present within the GBP boundary. Any conflicts or concerns about wild horses in the GBP boundary are immediately forwarded to the applicable BLM Wild Horse and Burro Specialist.

Specific wild horse and livestock protection measures include:

A.7.1 Wild Horses

- New hire and annual refresher training for all employees and contractors includes wild horse protection training that specifically addresses the commitment of MMI to implement the protection program. MMI worked with the BLM in the development of training materials.
- Site-specific training for the mining and processing areas includes the protection measures specifically developed for each work area that also includes internal contact numbers for reporting wild horse sightings in the GBP boundary as well as reporting procedures to BLM for wild horse mortalities, should they occur.
- Established wild horse trails have been identified by BLM-qualified biologists, and warning signs have been posted at appropriate locations along haul roads to warn drivers of crossing points.
- Reflectors specifically designed to reduce wild horse collisions have been placed along haul roads where necessary. Reflectors have been mounted on posts near the side of the road; when a car passes, light from the headlights is directed at right-angles and seen by the horses as a series of sequential flashing lights, thus startling the horses and causing them to wait until the vehicle passes. Similarly, reflectors have also been placed along the perimeter of active mine areas as necessary to deter access by horses.
- Selective brush berms have been placed to limit or detour wild horse access to haul roads in areas of high risk. Brush berms are located in areas that are known to be used by wild horses as a road crossing.
- Berms constructed along haul roads would include openings at major trails to encourage road crossing at these locations where signage can warn drivers. Berms would be constructed per MSHA regulations.
- The BLM Wild Horse Specialist (775-635-4000) is contacted if any wild horses are observed to be lame or sick, or if foals appear to be orphaned, or if any vehicle/wild horse collisions occur.
- Wild horse movement through the GBP boundary, when observed by MMI and other site personnel, is recorded by the Environmental Manager for use in the refinement of engineering and management protection measures during operations.
- Established horse trail crossings have been identified by a qualified biologist, and warning signs are posted along pit and waste rock dump access roads to warn drivers of the presence of horses.

A.7.2 Livestock

- New hire and annual refresher training for all employees and contractors includes livestock protection training that specifically addresses the commitment of MMI to implement the protection program.
- Site-specific training also includes internal contact numbers for reporting sick or injured animals in the GBP boundary as well as reporting procedures to the local rancher and/or Eureka County Sheriff's office.
- Any siting of livestock in the active mine area is reported internally, and a notification of the local ranch to move the livestock from the active mine areas is made.
- Established livestock crossing locations would be identified by a BLM-qualified specialist or biologist, and warning signs would be posted at appropriate locations along haul roads, pit, and waste rock dump access roads to warn drivers of crossing points and the potential presence of livestock.

- MMI would coordinate with affected grazing permittees within the GBP boundary to enter into a private agreement to compensate for any loss of Animal Unit Months resulting from mine disturbance and use.

A.8 Cultural Resources

Avoidance is the BLM-preferred management response for preventing impacts to historic properties [a historic property is any prehistoric or historic site eligible to the National Register of Historic Places] or unevaluated cultural resources. If avoidance is not possible, or is not adequate to prevent adverse effects, MMI would undertake prescribed data recovery from such sites.

Specific cultural resource protection measures include:

- A treatment plan has been developed, and mitigation activities have been completed and approved by the BLM and the Nevada State Historic Preservation Office prior to construction activities in the area of any eligible cultural sites.
- If previously unidentified cultural resources are discovered or an unanticipated impact situation occurs, all Gold Bar Mine-related activities within 100 meters (or approximately 328 feet) of the discovery/impact would cease immediately and MMI would secure the location to prevent vandalism or other damage and notify the BLM Authorized Officer immediately.
- Cultural monitors from the Duckwater Tribe have been notified of cultural mitigation activities and construction activities with sufficient advanced notice to be on site during these activities.

A.9 Public Safety and Accessibility

- Public safety is maintained throughout the life of the Gold Bar Mine and all equipment and facilities are maintained in a safe and orderly manner. To protect public safety, all activities are conducted in conformance with applicable federal and state health and safety requirements. Public access control points have been established where pre-existing roads and trails enter the active mining areas (Figure 5 of the amended Plan) to ensure public safety is maintained (MMI 2020). These control points are at the GBP boundary and consist of a combination of signs warning of the active mining and other physical barriers to restrict access.

A.10 Protection of Visual Resources

To protect visual resources, specific protection measures apply throughout the life of the mine:

- Light fixtures are placed at the lowest practical height and are directed to the ground and/or work areas to avoid being cast skyward or over long distances.
- Berms required for haul roads naturally block vehicle lights emanating from haul roads and the pit areas that may be directed toward public roads during travel. In the pits and WRDAs, the lights and equipment are naturally shielded by the pit walls and distance. In the GBP boundary, the lights are naturally shielded by distance from U.S. Highway 50, which is over 20 miles away.
- Light fixtures incorporate shields and/or louvers, where possible, and are full cut-off type.
- Buildings have been painted or stained to produce flat-toned, non-reflective surfaces using the BLM color chart for color selection.
- The use of dimmers, timers, and motion sensors have been installed where appropriate.
- Fugitive dust is minimized in order to reduce “sky glow,” by reducing the light reflectance from the dust particles.

A.11 Protection of Survey Monuments

- To the extent practicable, MMI protects all survey monuments, witness corners, reference monuments, bearing trees, and line trees against unnecessary or undue destruction or damage. If, during operations, any monuments, corners, or accessories are destroyed, MMI would immediately

report the matter to the authorized officer. Prior to destruction or damage during surface disturbing activities, MMI would contact the BLM to develop a plan for any necessary restoration or re-establishment activity of the affected monument. MMI bears the cost for any restoration or re-establishment activities.

A.12 Health and Safety and Emergency Response

- The development of the Gold Bar Mine would comply with environmental and health and safety regulations of all governmental agencies, including, but not limited to the MSHA, NDEP, the Nevada Division of Industrial Relations - Mine Safety and Training Section (NDIR), the Nevada State Engineer's Office (SEO), and the Nevada Bureau of Mines and Geology.
- The NDEP has jurisdiction over air quality, discharges to groundwater, surface water impacts, solid waste disposal, and liquid waste disposal (sanitary facilities). The MSHA and NDIR have jurisdiction over health and safety within the mine; the SEO is concerned with tailings dam construction and operation (not applicable to this project), and the administration of water rights. The NDEP-BMRR is responsible for issuing a mining permit and all issues related to mine operations and reclamation.
- Appropriate dust collection and noise abatement equipment has been installed at the mine. Noise levels in both the mine area and process area are also subject to MSHA regulations.
- Drinking water supply storage containers are enclosed in order to preserve the water's potable quality. Within the mine and process areas, vehicular traffic and human movement is controlled through the use of fences, locked gates, signs, and supervisory personnel. Fencing also discourages access by wildlife and/or livestock.

A.13 Fire Protection

- As specified by MSHA, MMI has instituted a fire protection training program and would have a rehearsed fire suppression plan. A fire protection system has been installed that would incorporate Eureka County and/or State of Nevada code requirements in the administration and warehouse complexes, truck shop (not yet constructed), crushing plant, and process plant. A 500,000-gallon freshwater tank is located near the agglomerator, on the west side of the leach pad and a 50,000-gallon fire water tank above the truck shop provides adequate water pressure for the operations and fire suppression system. A fuel break has been constructed around the facilities. Water trucks, used for dust suppression, are available in the event of a fire.
- MMI would promptly comply with any emergency directives and requirements of Eureka County and the BLM pertaining to industrial operations during the fire season.
- Light vehicles traveling outside of the main mining areas and along roads that traverse vegetated rangeland during fire season would carry a small water supply in order to control sparks that may be generated by exhaust. Vehicle catalytic converters would be inspected often and cleaned of all brush and grass debris.
- When conducting welding operations, they would be conducted in an area free of or mostly free of vegetation. A minimum of 10 gallons of water and a shovel would be on hand to extinguish any fires created from the sparks. Extra personnel would be at the welding site to watch for fires created by welding sparks.

A.14 Invasive, Non-native Species

Specific invasive, non-native protection measures include:

- A noxious weed survey has been completed and continues to be completed prior to any earth-moving disturbance. Areas of concern for noxious weeds have been flagged by a weed specialist or qualified biologist to alert all personnel to avoid those areas, as practicable.
- Information and training regarding noxious weeds management and identification is provided to all personnel affiliated with the implementation and maintenance of the Gold Bar Mine.

- The Noxious Weed Plan for the Gold Bar Mine (Appendix D of the amended Plan) has been implemented during construction and operations (MMI 2020). The plan contains a risk assessment, management strategies, provisions for annual monitoring and treatment evaluation, and provisions for treatment. The results from annual monitoring are the basis for updating the plan and developing annual treatment programs.
- All vehicle and heavy equipment that may have been exposed to noxious weeds are cleaned with a power or high-pressure washer prior to entering or leaving the GBP boundary. Vehicle cleaning minimizes the transport of vehicle-borne weed seed, roots, or rhizomes.
- To minimize the transport of soil-borne noxious weed seeds, roots or rhizomes infested soils or material has been stockpiled adjacent to the areas from which they were stripped. Appropriate measures have been taken to avoid wind or water erosion of the affected stockpile.
- All interim and final seed mixes, hay, and straw products are certified weed-free.
- Weed monitoring is conducted for the life of the operation or until the site is released and the reclamation financial surety is released. If the spread of noxious weeds is noted, weed control procedures are determined in consultation with BLM personnel and are in compliance with BLM handbooks and applicable laws and regulations.
- Mixing of herbicides and rinsing of herbicide containers and spray equipment is conducted only in areas that are a safe distance from environmentally sensitive areas and points of entry to bodies of water (storm drains, irrigation ditches, streams, lakes, or wells).

A.15 Materials and Waste Management

- Operations at the Gold Bar Mine would result in the generation of nonhazardous and hazardous materials. The majority of waste generated during mining and beneficiation is “mine waste,” including spent ore and waste rock, which is currently excluded from regulation under the Resource Conservation and Recovery Act (RCRA) through the Bevill Amendment (§ 3001(b)(3)(A)(i-iii)). The management of these excluded wastes is discussed in Section 2.7 of the amended Plan (MMI 2020). The management of regulated solid and hazardous wastes is discussed in the following sections.

A.15.1 Sanitary and Solid Waste Disposal

- Nonhazardous solid wastes generated at the site include wastepaper, wood, scrap metal, and other domestic trash. These materials are disposed of in the on-site Class III-waivered landfill (Figure 3 of the amended Plan) (MMI 2020).
- Sanitary liquid wastes are handled and disposed of through septic tanks/leach fields permitted by the NDEP. Used oil and lubricants is collected and transported off site by a buyer/contractor for recycling. Reagent drums are recycled by the reagent supplier. Scrap metal is sold to a dealer and transported off site.
- Nonhazardous solid wastes from the laboratory are either placed in bins and disposed of at a local landfill or disposed of in the on-site Class III-waivered landfill. Other wastes from the laboratory that exhibit a hazardous characteristic, including off specification commercial chemicals and assay wastes, are managed as hazardous waste.
- Employee training includes appropriate disposal practices such as the allowable wastes that can be disposed of in the on-site landfill, management of used filters, oily rags, fluorescent light bulbs, aerosol cans, and other regulated substances. Used solvent, liquids drained from aerosol cans, accumulations of mercury fluorescent lights and used antifreeze may be regulated pursuant to RCRA.

A.15.2 Hazardous Materials Management

- The term “hazardous materials” is defined in 49 CFR § 172.101; hazardous substances are defined in 40 CFR § 302.4 and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA) Title

III. Hazardous materials are transported to the Gold Bar Mine by United States Department of Transportation (USDOT)-regulated transporters and stored on site in USDOT-approved containers. Spill containment structures are provided for storage containers. Hazardous materials are managed in accordance with regulations identified in 40 CFR § 262 Standards Applicable to Generators of Hazardous Waste.

- Hazardous materials and substances that may be transported, stored, and used at the Gold Bar Mine in quantities less than the Threshold Planning Quantity designated by SARA Title III for emergency planning include blasting components, petroleum products, and small quantities of solvents for laboratory use. Small quantities of hazardous materials not included in the above list may also be managed at the Gold Bar Mine; such materials are contained in commercially produced paints, office products, and automotive maintenance products.
- Blasting components, including ANFO, are stored on site. Prill (without fuel oil) is stored in a silo located near the truck shop. Explosive agents, boosters, and blasting caps are stored away from the plant site within a secured explosives storage area in a small draw approximately half-way up the main haul road between HLF and the mine. All explosive materials are stored in compliance with MSHA, Nevada State Mine Inspector's regulations, and United States Department of Homeland Security requirements. The locations of the prill silo and the explosive storage area are indicated on Figure 3 of the amended Plan (MMI 2020).
- Management of hazardous materials at the Gold Bar Mine complies with all applicable federal, state, and local requirements, including the inventorying and reporting requirements of Title III of CERCLA, also known as the Emergency Planning and Community Right to Know Act.
- All petroleum products and reagents used in the process are stored in above ground tanks within a secondary containment area capable of holding 110 percent of the volume of the largest vessel in the area. A Spill Contingency Plan (SCP), as required by 43 CFR § 3809.401(b)(2)(vi), and addressing the general topics presented below, is presented in Appendix E of the amended Plan (MMI 2020). The SCP is reviewed and updated regularly and whenever major changes are made in the management of these materials. Inspection and maintenance schedules and procedures are set forth in sections of the SCP.
- Fuel and oil for diesel- and gas-powered equipment is stored in above-ground, sealed tanks generally in the processing facilities area. The tanks have been installed in lined containments. The storage area is surrounded by berms to provide secondary containment for the largest vessel in case of rupture. Surface piping leads from each tank to the fuel dispensing area. The refueling hoses are equipped with overflow prevention devices and secondary containment.
- Hazardous wastes are managed in the designated hazardous waste storage area prior to their shipment to an off-site licensed disposal facility (per state and federal RCRA regulations). These materials may include waste paints and thinners. Spent cleaning solvents and used oils are returned to recycling facilities. Used oil and lubricants are collected and hauled off site by a buyer/contractor for recycling. Solvents are collected by a contractor and recycled off site.

A.15.3 Petroleum Contaminated Soils

- Petroleum contaminated soils resulting from spills or leaks of hydrocarbons are removed from the spill site and placed in containment for treatment or disposal in accordance with NDEP guidelines.

A.16 Paleontological Resources

- Paleontological resources constitute a fragile and non-renewable scientific record of the history of life on earth. The Gold Bar Mine may have an unintended adverse effect on such resources. MMI notes that fossils are not part of the mineral estate. Paleontological resources are protected by the Paleontological Resources Protection Act (OPLA-PRP: Omnibus Public Land Management Act of 2009 Paleontological Resources Preservation Subtitle 123 Stat. 1172, 16 U.S.C. 470aaa et seq.) which establishes criminal and civil penalties. MMI is aware that if paleontological resources are found in direct association with cultural resources, then such occurrences are subject to Archaeological Resource Protection Act (43 CFR 7.4, 7.14, 7.15, 7.16) provisions. The Paleontological Resources Protection Act requires that the nature and location of paleontological

resources on public lands be kept confidential. If paleontological resources were discovered, MMI would cease operations in the vicinity of the discovery and ensure adequate protection to the discovery, then notify the BLM immediately, by telephone, with written confirmation to follow. Notification would be made to Authorized Officer, MLFO, 50 Bastian Road, Battle Mountain, NV, 89820, (775-635-4000). No activity in the vicinity of the discovery would resume until MMI has been issued a Notice to Proceed by the BLM Authorized Officer.

- If vertebrate fossils are encountered during any phase and any area of the Gold Bar Mine, work would immediately stop within 50 feet of the locality and the BLM would be immediately notified. Work would not resume until a Notice to Proceed is issued by the BLM Authorized Officer.

A.17 Reagent Management

- Reagents that are used during operations are discussed in Section 2.11 of the amended Plan (MMI 2020). Reagents are delivered by truck from commercial sources to the mine site for off-loading, storing, mixing, handling, and feeding. Reagents that are received dry are mixed in agitation tanks and pumped to either outdoor storage tanks or liquid storage tanks from which they are metered into the process solution stream.
- Potential reagent spills are contained by curbs in the reagent mixing and storage areas. The ADR building has a sealed concrete secondary containment foundation. A floor sump pump is used to return any spilled material either to the storage tank or into the leach circuit, as necessary. Safety Data Sheets for the reagents are readily available, in accordance with MSHA's Hazard Communication for the Mining Industry (30 CFR 47).

A.18 Monitoring

- Baseline monitoring of existing environmental conditions has been completed to collect local and regional baseline information and provide the basis for monitoring of regional impacts that may result from construction, operation, and closure/reclamation of the mine and process facilities. The Gold Bar Mine's monitoring plan, as required by 43 CFR 3809.401(b)(4), is included as Appendix J of the amended Plan (MMI 2020).

A.19 Growth Media/Cover Salvage and Storage

- Available growth media and cover material disturbed during construction or operation has been salvaged and stockpiled. Based on growth media investigations and salvage source evaluations completed at the Gold Bar Mine, as described in the report in Appendix F and Appendix P of the amended Plan (MMI 2020), it is anticipated that approximately 81,123,413 cubic feet of material could be salvaged from within the authorized disturbance within the GBP boundary and an additional approximately 8,567,775 cubic feet of material could be salvaged from the proposed disturbance within the GBS area. Following stripping, growth media and cover has been stockpiled within the authorized growth media stockpile areas as indicated on Figure 3 of the amended Plan (MMI 2020).
- MMI has completed testing potential sources of growth media in the areas of the pits and waste rock dumps to maximize the inventory of available materials. The results of this evaluation are provided in Appendix P of the amended Plan that identifies additional geologic materials within the disturbance footprint that serve as alternate sources of growth media (MMI 2020).
- The surfaces of the stockpiles have been shaped after construction with overall slopes of 3H:1V to reduce erosion. To further minimize wind and water erosion, the growth media stockpiles have been seeded after shaping with an interim seed mix developed in conjunction with the BLM. Diversion channels and/or berms have been constructed around the stockpiles, as needed, to prevent erosion from overland runoff. BMPs such as straw wattles or staked straw bales are used as necessary to contain sediment liberated from direct precipitation