

the HMA to less than significant. The Mitigation Plan would also ensure the effectiveness of this mitigation measure (Appendix C).

- **Impact 3.13.3.7-2:** Project-related activities, such as the addition of a fence to the Project Area or noise from blasting or other sources, associated with the Slower, Longer Project Alternative could result in wild horse displacement and changes in wild horse use throughout the HMA for the duration of the Project, which would be twice as long as the Proposed Action.

Significance of the Impact: Impacts from the Slower, Longer Project Alternative would be the same as impacts from the Proposed Action. The mitigation outlined above and in Appendix C would reduce the potential impacts to the distribution of wild horses.

3.13.3.7.1 Residual Adverse Impacts

The Slower, Longer Project Alternative would result in the unavoidable loss of up to 734 acres of wild horse foraging habitat resulting from surface disturbance in the open pit area. Approximately 14,204 acres of foraging habitat would be removed during Project activities. The reclaimed land would have more grass and forb forage and less mature shrub forage.

3.14 Land Use

3.14.1 Regulatory Framework

The NEPA requires the consideration of local plans and policies in the assessment of the social and environmental effects of proposals involving federal lands. Federal, state, and local plans and guidelines that apply to land use authorizations and access within the study area include the following: Shoshone-Eureka RMP; 2010 Eureka County Master Plan, including the updated Natural Resources and Federal or State Land Use (Natural Resource and Land Use Plan) and Economic Development elements; and the Land and Resource Management Plan for the Toiyabe National Forest.

The Shoshone-Eureka RMP serves as the guiding policy document for BLM administered lands surrounding the Project Area. The ROD included the following objective relevant to the Proposed Action:

Assure that mineral exploration, development and extraction are carried out in such a way as to minimize environmental and other resource damage and to provide, where legally possible, for the rehabilitation of lands.

The ROD also included the following Management Decision under Locatable Minerals:

All public lands in the planning areas would be open for mining and prospecting unless withdrawn or restricted from mineral entry.

The Growth Management, Public Facilities and Services and Economic Development elements of the 2010 Eureka County Master Plan outline goals that pertain to the Project and include the following:

- Encourage new development in Eureka County in a planned and orderly manner consistent with maintenance of existing quality of life, environmental attributes, and fiscal resource limits of the County;
- Encourage new development to areas in or proximate to existing communities where public infrastructure can be efficiently provided and a sense of community can be established or improved;
- Provide for the organized planning, funding, construction, and maintenance of infrastructure at locations consistent with planned land uses and with capacities, which are adequate to meet the needs of these planner land uses
- Retain and expand existing business and industry; and
- Diversify and expand the Eureka County economy.

The Natural Resources and Land Use Plan focuses on natural resource management on federal and state administered lands in Eureka County. Primary goals of this element are as follows:

To maintain and improve the soil, vegetation and watershed resources in a manner that perpetuates and sustains a diversity of uses while fully supporting the custom, culture, economic stability and viability of Eureka County and its individual citizens.

Facilitate environmentally responsible exploration, development and reclamation of oil, gas, geothermal, locatable minerals, aggregate and similar resources on federal lands.

Other elements in this Master Plan include policies related to the Project. Page 5-9 of the Economic Development Element contains the following policy related to the Project (County of Eureka 2000):

- Eureka County may identify and pursue mining industry induced industrial development opportunities; and
- Eureka County may encourage the productivity of existing “Building Blocks” beginning with such assets of as work force and natural resources including water, minerals, livestock forage, and wildlife.

The Natural Resource and Land Use Plan is an executable policy for natural resource management and land use on federal and state administered lands in Eureka County. The Plan’s intention is to engage in decision making that pertains to any and all publically owned and managed lands and natural resources within its jurisdiction, as provided under law.

The Eureka County Master Plan, including the Natural Resource and Land Use Plan, were originally developed in response to Nevada Senate Bill 40 (SB 40), which directed the State Land Use Planning Agency to work with local planning entities to prepare local plans and policies regarding the use of federal lands in Nevada. Policies contained within the Master Plan include providing for economic stability, security and growth, social stability, private property rights, local and private management of resources, recreational opportunities, transportation and utility infrastructure, easements and ROWs, and public access to federal and state lands.

Public lands under BLM jurisdiction are managed “...on the basis of multiple use and sustained yield unless otherwise specified by law” (Sec. 102 (a)(7), FLPMA). Sec. 102 (a)(12) of FLPMA also states that, “the public lands be managed in a manner which recognizes the Nation’s need for domestic sources of minerals, food, timber, and fiber from the public lands including

implementation of the Mining and Minerals Policy Act of 1970 (84 Stat. 1876, 30 U.S.C. 21a) as it pertains to the public lands. The Project Area is contained within the BLM's BMD MLFO. The current operational land use plan for this region is the RMP (BLM 1986a). The plan covers 4.3 million acres of BLM-administered public lands in parts of Lander, Eureka, and Nye Counties.

BLM 43 CFR Subpart 3715 regulations address the unlawful use and occupancy of unpatented mining claims for non-mining purposes. The regulation limits such use and occupancy to that which is reasonably incident.

BLM 43 CFR 2800 regulations address the lawful use and occupancy of public lands through the BLM issuance of ROWs.

3.14.2 Affected Environment

3.14.2.1 Study Methods

The baseline data presented below is based on information from the Plan, Eureka County planning documents, and the MLFO files.

3.14.2.2 Existing Conditions

Approximately 79 percent of Eureka County lands are administered by the federal government. BLM manages the vast majority of the land in the county, while the USFS manages a small percentage of land in the southwestern corner of the county. BLM-administered public lands comprise approximately 74 percent, or 1,969,762 acres, of total federally owned lands in Eureka County (Eureka County 2000). Private lands comprise approximately 21 percent of the county. As described in the Master Plan, the single greatest surface land use within the county is open space agricultural, which is comprised of private farmland and ranches and a series of designated grazing allotments managed by the BLM. Mining represents the next largest land use with the bulk of mining activity concentrated in northeastern Eureka County.

Land uses within the Project Area consist primarily of livestock grazing and mineral exploration. The Project Area is located approximately 23 miles northwest of the Town of Eureka, which as of 2009, has a population of 483 people. The nearest residences to the Project are the Roberts Creek Ranch, Alpha Ranch, and residences in Diamond Valley, which are approximately 6.5 miles, 14.5 miles north, and 9.3 miles southeast, respectively, from Mount Hope. Livestock grazing on the Project Area and surrounding ranches in Eureka County is discussed in Section 3.12.

Historical mining occurred within the Project Area from the 1870s through the 1940s. Exxon Minerals Corporation conducted exploration activities in the late 1970s through the early 1980s. Currently, EML is conducting exploration operations within the Project Area. The closest mining operation to the Project Area is the Ruby Hill Mine, which is adjacent to the Town of Eureka, 23 miles southeast of the Project. Most of the other major mines are located approximately 40 miles or more from the Project.

Existing authorizations located within the Project Area are summarized in Table 3.14-1 and shown on Figure 3.14.1.

Table 3.14-1: BLM Rights-of-Way and Other Authorizations within the Project Area

Serial Number	Right-of-Way	Location		Total Width ¹ (feet)
		Township, Range	Sections	
N-63162	Powerline	T20N, R52E	5, 8, 9, 16, 21, 27, 25-28	180
NEV-43007	Highway		19-22, 25, 26	400
NEV-04979	Highway		19-22, 25, 26	400
NEV-06317	Highway		19-22, 25, 26	400
N-56725	Road/Material Site		21, 22, 27, 28	60
N-10758	Telephone Line		20, 25-29, 35, 36	20
N-5253	Powerline		31-36	125
N-82778	Well		26	NA
N-82922	Oil and Gas Lease		4, 5	NA
N-82923	Oil and Gas Lease		6, 7	NA
N-82924	Oil and Gas Lease		8, 9	NA
N-82925	Oil and Gas Lease		15-18	NA
N-82926	Oil and Gas Lease		19-21	NA
CC-021890	Highway		T20N, R53E	4, 5, 8, 9, 16, 21, 27, 28, 34
N-5253	Powerline	31, 32, 33, 34, 35		125
N-5638	Powerline	1, 2, 4, 5, 9, 12-14, 18, 19, 21, 23, 26-31, 34, 35		50
N-5700	Power Substation/Powerline	35		NA
N-10758	Telephone Line	30,31		20
N-19754 03	Waste Water Ponds	35		NA
N-19823	Waste Water Delivery Line	35		50
N-31895	Telephone Line	29, 32		20
N-37190	Telephone Line	4, 5, 9, 16, 21, 27, 28, 33-35		VAR
N-48618	Pump/Pipeline	28, 33, 34		50
N-54498	Road	28, 32, 33		66
N-58497	Buried Fiber Optic Line	4, 5, 9, 16, 21, 27, 34		20
N-60801	Pipeline/Road	32		20
N-60802	Powerline	34, 35		25
N-61422	Road	19, 29, 31		33
N-62543	Gravel Pit	32		NA
N-63162	Powerline	31-36		160
N-66394	Buried Fiber Optic Line	28-30, 33-36		15
N-74176	Powerline	28, 33		25
N-76179	Buried Fiber Optic Line	28-30, 33-36		15
N-79989	GPS Site	31		NA
N-82778	Well	31		NA
N-0 004979	Highway	28-30, 33-36		400
N-0 006317	Highway	28-30, 33-36		400
N-0 006320	Highway	33	400	
N-0 006323	Highway	34	400	
N-67106	Telephone Line	2, 14, 23, 26, 35	20	

Serial Number	Right-of-Way	Location		Total Width ¹ (feet)	
		Township, Range	Sections		
N-76760	Oil and Gas Lease		4, 5	NA	
N-80158	Oil and Gas Lease		25, 26, 36	NA	
N-83410	Oil and Gas Lease		8, 9, 16, 17	NA	
N-83411	Oil and Gas Lease		20, 21, 27, 28	NA	
N-83412	Oil and Gas Lease		29, 32-34	NA	
N-5638	Powerline	T21N, R50E	2-5	25	
N-40118	Well		3	NA	
N-40119	Well		23	NA	
N-47781	Powerline		2-5, 11, 12	25	
N-52399	Road		3-6	66	
N-79395	Oil and Gas Lease		5-8	NA	
N-47781	Powerline	T21N, R51E	7, 8, 13-17	25	
N-79359	Oil and Gas Lease		4-6	NA	
N-79360	Oil and Gas Lease		8, 9, 16, 17	NA	
N-79361	Oil and Gas Lease		20, 21, 28, 29	NA	
N-79362	Oil and Gas Lease		31-33	NA	
N-79400	Oil and Gas Lease		7, 18	NA	
N-79401	Oil and Gas Lease		19, 30	NA	
N-82902	Oil and Gas Lease		14, 16, 24, 26	NA	
N-83372	Oil and Gas Lease		1, 2, 11, 12	NA	
N-78979	Oil and Gas Lease		T21.N, R52E	2-6	NA
N-5638	Powerline			T22N, R49E	26, 27, 35, 36
N-47781	Powerline		26-28, 35, 36		25
N-52399	Road		26, 27, 35, 36		66
N-5638	Powerline	T22N, R50E	31, 32	25	
N-47781	Powerline		31, 32	25	
N-52399	Road		13, 24, 25, 31, 34-36	66	
N-52540	Road		1, 2, 12, 13, 24	VAR	
N-53667	Reservoir		13, 24	NA	
N-63162	Powerline	T22N, R51E	2, 11, 13, 14, 24, 25, 36	160	
N-76363	Oil and Gas Lease		20, 21, 28, 29	NA	
N-76364	Oil and Gas Lease		31-33	NA	
N-79402	Oil and Gas Lease		19, 30	NA	
N-83378	Oil and Gas Lease		16-18	NA	
N-83379	Oil and Gas Lease		22, 27	NA	
N-83380	Oil and Gas Lease		23-26	NA	
N-83381	Oil and Gas Lease		34-36	NA	
CC-022478	Highway		T22N, R52E	6-8, 16, 17, 21-23, 26, 27, 35	400
N-12655	Powerline			16-18, 21-24	25
N-58497	Buried Fiber Optic Line			6-8, 16, 17, 21-23, 26, 36	20
N-0 001471	Highway			6	400

Serial Number	Right-of-Way	Location		Total Width ¹ (feet)
		Township, Range	Sections	
N-63162	Powerline	T23N, R51E	1, 11, 12, 14, 23, 26, 35	160
N-83392	Oil and Gas Lease		23-26	NA
N-83394	Oil and Gas Lease		34, 35, 36	NA
N-58497	Telephone Line	T23N, R52E	6, 7, 18, 19, 30, 31	20
N-0 001471	Highway		6, 7, 18, 19, 30, 31	400
N-0 001417	Material Site		31	NA
N-78976	Oil and Gas Lease		19-21, 28-33	NA

¹NA: Not applicable

VAR: Variable

3.14.3 Environmental Consequences and Mitigation Measures

3.14.3.1 Significance Criteria

The Proposed Action would normally have a significant effect on land use if the following would occur:

- Result in the termination or substantial modification of a land use;
- Conflict with existing land use authorizations;
- Conflict with adopted land use plans and goals of the community where it is located; or
- Disrupt or divide the physical arrangement of an established community.

3.14.3.2 Assessment Methodology

The Proposed Action and alternatives are compared with existing land uses, land use plans, any relevant goals, policies, and decisions of those plans, to determine if they would adversely affect these land uses or conflict with existing land use plans. To evaluate impacts to access, the Proposed Action and alternatives were reviewed against existing conditions and federal and county land use plan policies. The significance criteria were then applied to determine if the adverse effects would be considered significant impacts if the Project or an alternative were implemented.

3.14.3.3 Proposed Action

3.14.3.3.1 Short-Term and Long-Term Loss of Public Lands

Implementation of the Proposed Action would result in the temporary disturbance or loss of up to 8,318 acres of public lands managed for multiple uses and private land within the 14,204-acre fenced portion of the Project Area over as many as 70 years, which includes the mining and reclamation phases of the Project. The locations of the proposed disturbances and area fenced at the end of mining are identified on Figure 2.1.5, and the surface acreage by mine facility component is identified in Table 2.1-1. The fenced area would be temporarily unavailable for current land uses, which consist primarily of livestock grazing and mineral exploration. As outlined in Section 3.12, the Proposed Action would result in the loss of up to 781 AUMs in the Project Area, which represents a six percent loss of the active grazing preference in the Roberts Mountain and Romano Allotments. As described in Section 2.1.17, EML would reclaim the

Project Area to provide a post-mining surface condition that would be consistent with the expected long-term land uses, wildlife habitat, livestock grazing, and possible future mining-related activities.

The open pit, which comprises 734 acres, would not be reclaimed to the pre-mining land use. Following the cessation of mining and open pit dewatering, ground water would be allowed to enter and accumulate within the open pit, forming a pit lake. The BLM has no plans to develop this water-filled pit for recreational purposes. As described in the Proposed Action, to ensure public safety and prevent vehicular and deter livestock access, reclamation of the open pit would include construction of a physical perimeter barricade.

- **Impact 3.14.3.3-1:** Public lands currently utilized for livestock grazing and mineral exploration would be removed from use as a result of the construction and operation of the Project. The Proposed Action would result in the removal of 14,204 acres from multiple use as a result of the Project facilities and fencing for the life of the Project. In addition, 8,318 acres of disturbance would occur within the fenced portion of the Project Area. Reclamation would be completed for 7,656 acres, or 92 percent, of the disturbed area (Section 2.1.17). Approximately 734 acres of public land in the vicinity of the open pit would not be reclaimed to the pre-mining land use.

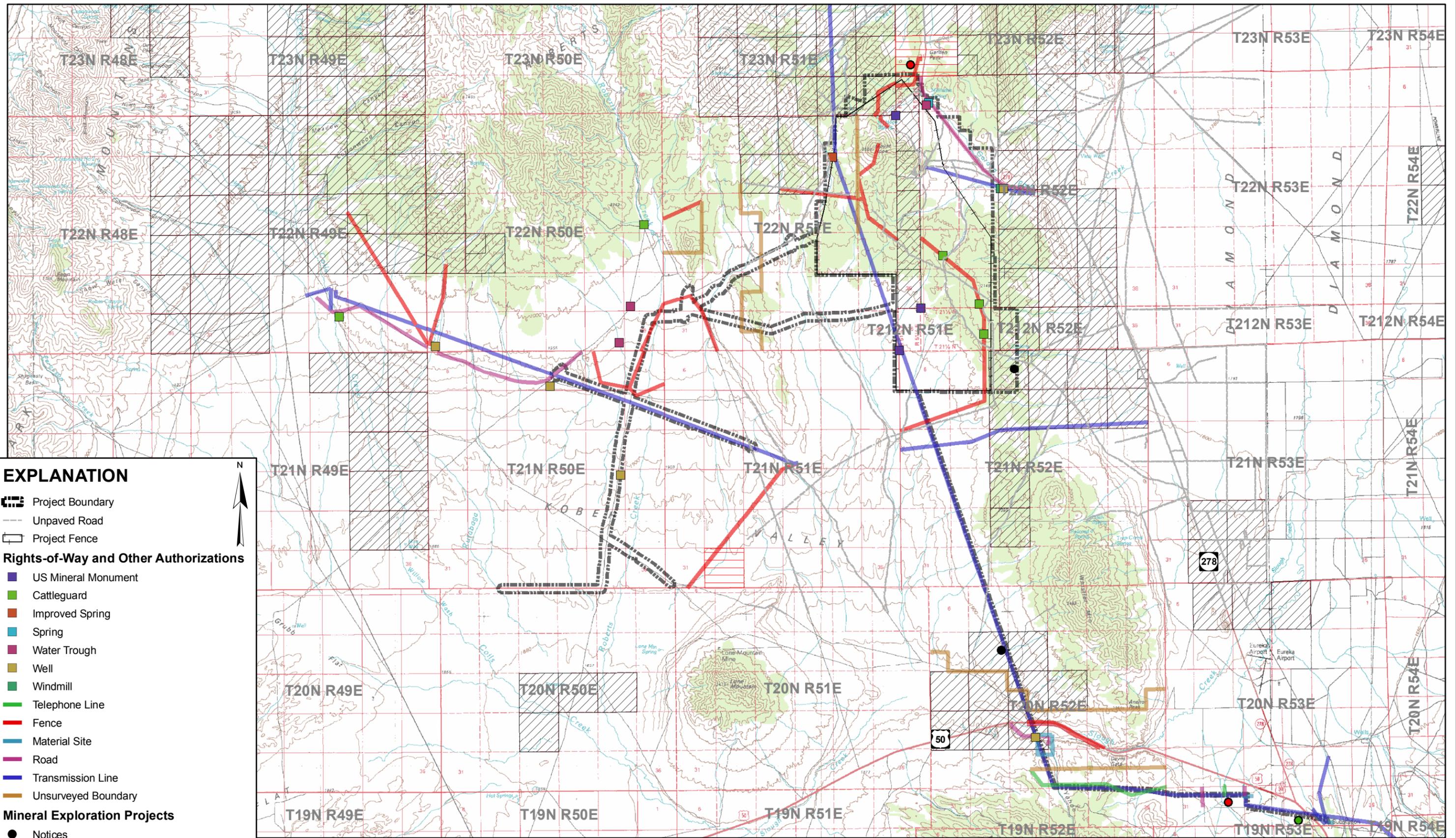
Significance of the Impact: This impact is not considered significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.14.3.3.2 Impacts to Land Use Authorizations

The Proposed Action would not result in any impacts or changes to land ownership within the Project Area. As described in the Proposed Action, the Project would result in some changes to the existing ROWs and other authorizations within the Project Area. ROWs proposed for the Project include the following: a 230-kV transmission line from the Machacek Substation to the Project Substation located near the proposed mill; and a ROW (N-63162) amendment associated with the reroute of the 345-kV Falcon-Gondor transmission line. A power line (ROW N-12655) that extends from SR 278 to the historic Hope Mine would be affected by the construction of the Project processing facilities (Figure 3.14.1). In addition, the BLM has approved three cattle guards and three fences as range improvement and constructed two mineral monuments within the mine area portion of the Project Area that would be altered or removed as part of the Proposed Action (Figure 3.14.1).

The transmission line from Machacek Substation to the Project can be reclaimed after mining. Wells located in the Kobeh Valley Well Field area would be plugged and abandoned at the cessation of mining and reclamation. The Falcon-Gondor transmission line that would be rerouted would be left in place. The BLM would be notified if the ROW or a portion of the ROW would be relinquished by EML. The BLM would subsequently amend the ROW grant as required.

- **Impact 3.14.3.3-2:** Public lands currently occupied by ROWs and other land use authorizations would be altered, which would result in the alteration or removal of up to 15 ROWs and other land use authorizations.



EXPLANATION

- Project Boundary
- Unpaved Road
- Project Fence
- Rights-of-Way and Other Authorizations**
- US Mineral Monument
- Cattleguard
- Improved Spring
- Spring
- Water Trough
- Well
- Windmill
- Telephone Line
- Fence
- Material Site
- Road
- Transmission Line
- Unsurveyed Boundary
- Mineral Exploration Projects**
- Notices
- Plans of Operations
- Gravel Operations
- Oil and Gas Leases**
- Authorized
- Pending



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IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

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

DESIGN: EMLLC	DRAWN: CVD/GSL	REVIEWED: RFD
CHECKED: -	APPROVED: RFD	DATE: 09/07/2011
FILE NAME: p1635_Fig3-14-1_LandUseAuthorizations.mxd		

BUREAU OF LAND MANAGEMENT
MOUNT HOPE PROJECT

DRAWING TITLE:
Land Use Authorizations Within and Adjacent to the Project Area
 Figure 3.14.1

Significance of the Impact: This impact is considered less than significant; however, mitigation measures are considered appropriate.

- **Mitigation Measure 3.14.3.3-2:** EML would, in consultation with the BLM and authorized holders of the affected ROWs, reestablish the structures that would be altered or removed, as appropriate.
- **Effectiveness of Mitigation and Residual Effects:** Implementation of this mitigation measure would be effective at maintaining the impact level as less than significant by reestablishing the authorized structures that would be removed or altered during Project construction and operation.

3.14.3.3.3 Land Use Plans and Goals

The Proposed Action would not conflict with land use plans and regulations currently in place to guide development in Eureka County. These plans and regulations include the following: the Eureka County Master Plan (2010); the Natural Resources and Federal or State Land Use Element of the Eureka County Master Plan; and the BLM's RMP (BLM 1986a). EML's proposed use of public lands under the Proposed Action is reasonably incident under the BLM's occupancy regulations at 43 CFR 3715. The Proposed Action would not otherwise impact land use authorizations.

3.14.3.3.4 Disruption or Division of an Established Community

The Proposed Action would not disrupt or divide the physical arrangement of an established community. As described previously in Section 3.14.2.1.1, Existing Conditions, the closest community to the Project Area is the Town of Eureka, approximately 23 miles southeast of the Project Area. The closest residences to the Project Area are the Roberts and Alpha ranches, approximately five miles northwest and north, respectively. The existing land uses within the Project Area consist primarily of livestock grazing and mineral exploration. Since there is no established community within the Project Area or within the vicinity of the Project Area, the Proposed Action would not disrupt or divide the physical arrangement of an established community.

3.14.3.3.5 Residual Adverse Impacts

The Proposed Action would result in the unavoidable loss of 734 acres of public lands utilized for livestock grazing and mineral exploration resulting from surface disturbance associated with the open pit; however, there would be no residual impacts to land use.

3.14.3.4 No Action Alternative

3.14.3.4.1 Short-Term and Long-Term Loss of Public Lands

Under the No Action Alternative, EML is currently authorized under six Notices to disturb approximately 30 acres of public land as a result of the exploration and development of the Project. Facilities and operations that have been approved but not yet completed would have impacts on land use and access. Public lands managed for multiple uses within the Project Area that have been proposed for surface disturbance and fencing would remain accessible.

No additional public lands would be removed from multiple use management, and impacts to land use would be limited to ongoing permitted mining and exploration activities.

3.14.3.4.2 Impacts to Land Use Authorizations

Under the No Action Alternative, EML is currently authorized under six Notices to disturb approximately 30 acres of public land as a result of the exploration and development of the Project. Continuation of these Notices would be required to adhere to regional and local land use plans and regulations similar to the Proposed Action, which include: the Eureka County Master Plan (2010); the Natural Resources and Federal or State Land Use Element of the Eureka County Master Plan; and the BLM's RMP (BLM 1986a). Therefore, the No Action Alternative would not result in impacts to land use authorizations.

3.14.3.4.3 Land Use Plans and Goals

The No Action Alternative would not conflict with land use plans and regulations currently in place to guide development in Eureka County. These plans and regulations include the following: the Eureka County Master Plan (2010); the Natural Resources and Federal or State Land Use Element of the Eureka County Master Plan; and the BLM's RMP (BLM 1986a). The No Action Alternative would not otherwise impact land use authorizations.

3.14.3.4.4 Disruption or Division of an Established Community

Under the No Action Alternative, EML would continue existing surface disturbing activities within the Project Area. As discussed previously, there is no established community within the Project Area or in the vicinity of the Project Area. Therefore, there would be no impacts to the disruption or division of the physical arrangement of an established community under the No Action Alternative.

3.14.3.4.5 Residual Adverse Impacts

There would be no residual impacts to land use under the No Action Alternative, other than those impacts caused by permitted operations at the Project.

3.14.3.5 Partial Backfill Alternative

3.14.3.5.1 Short-Term and Long-Term Loss of Public Lands

Implementation of the Partial Backfill Alternative would result in the temporary disturbance or loss of up to 8,318 acres of public lands managed for multiple uses and private land within the 14,204-acre fenced portion of the Project Area over as much as 70 years, which include the mining and reclamation phases of the Project. The locations of the proposed disturbances and fenced area are identified on Figure 2.1.5. The end of mining surface acreage by mine facility component is identified in Table 2.1-1. The fenced area would be temporarily unavailable for current land uses, which consist primarily of livestock grazing and mineral exploration. As outlined in Section 3.12, the Partial Backfill Alternative would result in the loss of 781 AUMs in the Project Area, which represents six percent loss of the active grazing preference in the Roberts Mountain and Romano Allotments. As described in Section 2.1.17, EML would reclaim the Project Area to provide a post-mining surface condition that would be consistent with the

expected long-term land uses, wildlife habitat, livestock grazing, and possible future mining-related activities.

The backfilled portion of the open pit would be reclaimed (527 acres), which would leave the remaining open pit highwalls that would not be reclaimed to the pre-mining land use, which comprises 206 acres; however, to ensure public safety and prevent vehicular and deter livestock access, reclamation of the open pit would include construction of a physical perimeter barricade, which is similar to the Proposed Action. As a result, there would be less of an impact to long-term loss of public lands.

- **Impact 3.14.3.5-1:** Public lands currently utilized for livestock grazing and mineral exploration would be removed from use as a result of the construction and operation of the Project. The Proposed Action would result in the removal of 14,204 acres from multiple use as a result of the Project facilities and fencing. In addition, 8,318 acres of disturbance would occur within the fenced portion of the Project Area. Reclamation would be completed for 7,656 acres, or 92 percent, of the disturbed area (Section 2.1.17). Approximately 734 acres of public land in the vicinity of the open pit would be partially reclaimed, but not available to wildlife habitat pre-mining land use.

Significance of the Impact: This impact is not considered significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.14.3.5.2 Impacts to Land Use Authorizations

The Partial Backfill Alternative would not result in any impacts or changes to land ownership within the Project Area. This alternative would result in some changes to the existing ROWs within the Project Area. Changes to the existing ROWs proposed for the Project include the following: a 230-kV transmission line from the Machacek Substation to the Project Substation located near the proposed mill; and a ROW amendment associated with the reroute of the 345-kV Falcon-Gondor transmission line. In addition, the BLM has authorized three windmills, and three fences as range improvements and constructed three mineral monuments within the mine area portion of the Project Area that would be either altered or removed as part of the Proposed Action.

The transmission line from Machacek Substation to the Project can be reclaimed after mining. Wells located in the Kobeh Valley Well Field area would be plugged and abandoned at the cessation of mining and reclamation. The Falcon-Gondor transmission line that would be rerouted would be left in place. The BLM would be notified if the ROW or a portion of the ROW would be relinquished by EML. The BLM could subsequently amend the ROW grant as required.

- **Impact 3.14.3.5-2:** Public lands currently occupied by ROWs and land use authorizations would be altered, which would result in the alteration or removal of up to 15 ROWs and land use authorizations.

Significance of the Impact: This impact is considered less than significant; however, mitigation measures are considered appropriate.

- **Mitigation Measure 3.14.3.5-2:** EML would, in consultation with the BLM and authorized holders of the affected ROWs, reestablish the structures that would be altered or removed, as appropriate.
- **Effectiveness of Mitigation and Residual Effects:** Implementation of this mitigation measure would be effective at maintaining the impact level as less than significant by reestablishing the authorized structures that would be removed or altered during Project construction and operation.

3.14.3.5.3 Land Use Plans and Goals

The Partial Backfill Alternative would not conflict with land use plans and regulations currently in place to guide development in Eureka County. These plans and regulations include the following: the Eureka County Master Plan (2010); the Natural Resources and Federal or State Land Use Element of the Eureka County Master Plan; and the BLM's RMP (BLM 1986a). EML's proposed use of public lands under the Proposed Action is reasonably incident under the BLM's occupancy regulations at 43 CFR 3715. The Proposed Action would not otherwise impact land use authorizations.

3.14.3.5.4 Disruption or Division of an Established Community

The Partial Backfill Alternative would only disturb lands within the Project Area. As previously discussed, there is no established community within the Project Area or within the vicinity of the Project Area. Therefore, the Partial Backfill Alternative would not disrupt or divide the physical arrangement of an established community.

3.14.3.5.5 Residual Adverse Impacts

The Partial Backfill Alternative would result in the unavoidable loss of 734 acres of public lands utilized for livestock grazing and mineral exploration, resulting from surface disturbance of the open pit area.

3.14.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

3.14.3.6.1 Short-Term and Long-Term Loss of Public Lands

Implementation of the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in the temporary disturbance or loss of up to 8,318 acres of public lands managed for multiple uses and private land within the 14,204-acre fenced portion of the Project Area over as much as 70 years, which include the mining and reclamation phases of the Project. The locations of the proposed disturbances and fenced area are identified on Figure 2.1.5. The end of mining surface acreage by mine facility component is identified in Table 2.1-1. The fenced area would be temporarily unavailable for current land uses, which consist primarily of livestock grazing and mineral exploration. As outlined in Section 3.12, the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in the loss of 781 AUMs which represents a six percent loss of the active grazing preference in the Roberts Mountain and Romano Allotments. As described in Section 2.1.17, EML would reclaim the Project Area to provide a post-mining surface condition that would be consistent with the expected long-term land uses, wildlife habitat, livestock grazing, and possible future mining-related activities.

The open pit, which comprises 734 acres, would not be reclaimed to the pre-mining land use. Following the cessation of mining and open pit dewatering, ground water would be allowed to enter and accumulate within the open pit, forming a pit lake. The BLM has no plans to develop this water-filled pit for recreational purposes. As described in the Off-Site Transfer of Ore Concentrate for Processing Alternative, to ensure public safety and prevent vehicular and deter livestock access, reclamation of the open pit would include construction of a physical perimeter barricade. As a result, there would be less of an impact to long-term loss of public lands.

- **Impact 3.14.3.6-1:** Public lands currently utilized for livestock grazing and mineral exploration would be removed from use as a result of the construction and operation of the Project. The Off-Site Transfer of Ore Concentrate for Processing Alternative would result in the removal of 14,204 acres from multiple use as a result of the Project facilities and fencing. In addition, 8,318 acres of disturbance would occur within the fenced portion of the Project Area. Reclamation would be completed for 7,656 acres, or 92 percent, of the disturbed area (Section 2.1.17). Approximately 734 acres of public land in the vicinity of the open pit would not be reclaimed to the pre-mining land use.

Significance of the Impact: This impact is not considered significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.14.3.6.2 Impacts to Land Use Authorizations

The Off-Site Transfer of Ore Concentrate for Processing Alternative would not result in any impacts or changes to land ownership within the Project Area. As described in the Off-Site Transfer of Ore Concentrate for Processing Alternative, the Project would result in some changes to the existing ROWs within the Project Area. Changes to the existing ROWs proposed for the Project include the following: a 230-kV transmission line from the Machacek Substation to the Project Substation located near the proposed mill; and a ROW amendment associated with the reroute of the 345 kV Falcon-Gondor transmission line. In addition, the BLM has authorized three windmills, and three fences as range improvements and constructed three mineral monuments within the mine area portion of the Project Area that would either be altered or removed as part of the Off-Site Transfer of Ore Concentrate for Processing Alternative.

The transmission line from Machacek Substation to the Project can be reclaimed after mining. Wells located in the Kobeh Valley Well Field area would be plugged and abandoned at the cessation of mining and reclamation. The Falcon-Gondor transmission line that would be rerouted would be left in place. The BLM would be notified if the ROW or a portion of the ROW would be relinquished by EML. The BLM could subsequently amend the ROW grant as required

- **Impact 3.14.3.6-2:** Public lands currently occupied by ROWs and land use authorizations would be altered, which would result in the alteration or removal of up to 15 ROWs and land use authorizations.

Significance of the Impact: This impact is considered less than significant; however mitigation measures are considered appropriate.

- **Mitigation Measure 3.14.3.6-2:** EML would, in consultation with the BLM and authorized holders of the affected ROWs, reestablish the structures that would be altered or removed, as appropriate.

- **Effectiveness of Mitigation and Residual Effects:** Implementation of this mitigation measure would be effective at maintaining the impact level as less than significant by reestablishing the authorized structures that would be removed or altered during Project construction and operation.

3.14.3.6.3 Land Use Plans and Goals

The Off-Site Transfer of Ore Concentrate for Processing Alternative would not conflict with land use plans and regulations currently in place to guide development in Eureka County. These plans and regulations include the following: the Eureka County Master Plan (2010); the Natural Resources and Federal or State Land Use Element of the Eureka County Master Plan; and the BLM's RMP (BLM 1986a). EML's proposed use of public lands under the Off-Site Transfer of Ore Concentrate for Processing Alternative is reasonably incident under the BLM's occupancy regulations at 43 CFR 3715. The Off-Site Transfer of Ore Concentrate for Processing Alternative would not otherwise impact land use authorizations.

3.14.3.6.4 Disruption or Division of an Established Community

The Off-Site Transfer of Ore Concentrate for Processing Alternative would only disturb lands within the Project Area. As previously discussed, there is no established community within the Project Area or within the vicinity of the Project Area. Therefore, the Off-Site Transfer of Ore Concentrate for Processing Alternative would not disrupt or divide the physical arrangement of an established community from the Partial Backfill Alternative.

3.14.3.6.5 Residual Adverse Impacts

The Off-Site Transfer of Ore Concentrate for Processing Alternative would result in the unavoidable loss of 734 acres of public lands utilized for livestock grazing and mineral exploration, resulting from surface disturbance of the open pit area.

3.14.3.7 Slower, Longer Project Alternative

Impacts to land use from the Slower, Longer Project Alternative are expected to be similar to impacts from the Proposed Action at the end of the Project; however, impacts from the Slower, Longer Project Alternative would occur over a period approximately twice as long in duration compared to the Proposed Action.

3.14.3.7.1 Short-Term and Long-Term Loss of Public Lands

Implementation of the Slower, Longer Project Alternative would result in the temporary disturbance or loss of up to 8,318 acres of public lands managed for multiple uses and private land within the 14,204-acre fenced portion of the Project Area over as much as 115 years, which include the mining and reclamation phases of the Project. The locations of the proposed disturbances and fenced area are identified on Figure 2.1.5. The end of mining surface acreage by mine facility component is identified in Table 2.1-1. The fenced area would be temporarily unavailable for current land uses, which consist primarily of livestock grazing and mineral exploration. As outlined in Section 3.12, the Slower, Longer Project Alternative would result in the loss of 781 AUMs which represents a six percent loss of the active grazing preference in the Roberts Mountain and Romano Allotments. As described in Section 2.1.17, EML would reclaim

the Project Area to provide a post-mining surface condition that would be consistent with the expected long-term land uses, wildlife habitat, livestock grazing, and possible future mining-related activities.

The open pit, which comprises 734 acres, would not be reclaimed to the pre-mining land use. Following the cessation of mining and open pit dewatering, ground water would be allowed to enter and accumulate within the open pit, forming a pit lake. The BLM has no plans to develop this water-filled pit for recreational purposes. As described in the Slower, Longer Project Alternative, to ensure public safety and prevent vehicular and deter livestock access, reclamation of the open pit would include construction of a physical perimeter barricade. As a result, there would be less of an impact to long-term loss of public lands.

- **Impact 3.14.3.7-1:** Public lands currently utilized for livestock grazing and mineral exploration would be removed from use as a result of the construction and operation of the Project. The Slower, Longer Project Alternative would result in the removal of 14,204 acres from multiple use as a result of the Project facilities and fencing. In addition, 8,318 acres of disturbance would occur within the fenced portion of the Project Area. Reclamation would be completed for 7,656 acres, or 92 percent, of the disturbed area (Section 2.1.17). Approximately 734 acres of public land in the vicinity of the open pit would not be reclaimed to the pre-mining land use.

Significance of the Impact: This impact is not considered significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.14.3.7.2 Impacts to Land Use Authorizations

The Slower, Longer Project Alternative would not result in any impacts or changes to land ownership within the Project Area. As described in the Slower, Longer Project Alternative, the Project would result in some changes to the existing ROWs within the Project Area. Changes to the existing ROWs proposed for the Project include the following: a 230-kV transmission line from the Machacek Substation to the Project Substation located near the proposed mill; and a ROW amendment associated with the reroute of the 345 kV Falcon-Gondor transmission line. In addition, the BLM has authorized three windmills, and three fences as range improvements and constructed three mineral monuments within the mine area portion of the Project Area that would either be altered or removed as part of the Slower, Longer Project Alternative.

The transmission line from Machacek Substation to the Project can be reclaimed after mining. Wells located in the Kobeh Valley Well Field area would be plugged and abandoned at the cessation of mining and reclamation. The Falcon-Gondor transmission line that would be rerouted would be left in place. The BLM would be notified if the ROW or a portion of the ROW would be relinquished by EML. The BLM could subsequently amend the ROW grant as required.

- **Impact 3.14.3.7-2:** Public lands currently utilized for ROWs would be altered, which would result in the alteration or removal of up to 15 ROWs.

Significance of the Impact: This impact is considered less than significant; however, mitigation measures are considered appropriate.

- **Mitigation Measure 3.14.3.7-2:** EML would, in consultation with the BLM and authorized holders of the affected ROWs, reestablish the structures that would be altered or removed, as appropriate.
- **Effectiveness of Mitigation and Residual Effects:** Implementation of this mitigation measure would be effective at maintaining the impact level as less than significant by reestablishing the authorized structures that would be removed or altered during Project construction and operation.

3.14.3.7.3 Land Use Plans and Goals

The Slower, Longer Project Alternative would not conflict with land use plans and regulations currently in place to guide development in Eureka County. These plans and regulations include the following: the Eureka County Master Plan (2010); the Natural Resources and Federal or State Land Use Element of the Eureka County Master Plan; and the BLM's RMP (BLM 1986a). EML's proposed use of public lands under the Slower, Longer Project Alternative is reasonably incident under the BLM's occupancy regulations at 43 CFR 3715. The Slower, Longer Project Alternative would not otherwise impact land use authorizations.

3.14.3.7.4 Disruption or Division of an Established Community

The Slower, Longer Project Alternative would not disrupt or divide the physical arrangement of an established community.

3.14.3.7.5 Residual Adverse Impacts

The Slower, Longer Project Alternative would result in the unavoidable loss of 734 acres of public lands utilized for livestock grazing and mineral exploration, resulting from surface disturbance of the open pit area.

3.15 **Recreation and Wilderness Study Areas**

3.15.1 **Regulatory Framework**

Federal, state, and local laws, regulations, guidelines, and procedures that apply to the management of recreation and wilderness resources include the following: Eureka County Master Plan; Nevada Statewide Comprehensive Outdoor Recreation Plan (SCORP); FLPMA; RMP; Land and Resource Management Plan for the Toiyabe National Forest; Wilderness Act of 1964, as amended; BLM Manual 8560/H-8560-1 (Management of Designated Wilderness Areas); BLM Manual 8561 (Wilderness Management Plans); and Interim Management Policy (IMP) for Lands Under Wilderness Review H-8550-1.

The Eureka County 1973 Master Plan, updated in 2010, contains a description of land uses, restrictions on development, and recommendations for future land use planning. The Natural Resources and Federal or State Land Use Element updated in 2000 and again in 2010, was originally developed and included into the Plan in response to Nevada Senate Bill 40 (1983) which directs counties to develop plans and strategies for resources that occur within lands managed by federal and state agencies. Hunting, fishing, and outdoor recreation is specifically

addressed in the Natural Resources and Federal or State Land Use Element of the Master Plan, which describes and establishes the following recreation goals:

Provide for multiple recreation uses on Eureka County federal and state administered lands located within its boundaries for residents and visitors to the County. Provide recreational uses including high quality recreational opportunities and experiences at developed and dispersed/undeveloped recreation sites by allowing historic uses and access while maintaining existing amenities and by providing new recreation sites for public enjoyment. Pursue increased public access opportunities in both motorized and non-motorized settings through the acquisition of ROWs or easements across federal administered lands and private lands at the invitation of the property owner. Recognize that multiple recreation uses are mandated by the multiple use concepts and that adequate outdoor recreation resources must be provided on the federal administered areas; keeping open all existing access roads and the ability to maintain those same roads or accesses (Eureka County 2010).

The Nevada SCORP “provides information and recommendations to minimize uncertainty in the decision-making process of allocating outdoor recreation resources. In Nevada, the SCORP is the framework for the presentation and dissemination of outdoor recreation information on a statewide basis” (Nevada Division of State Parks 2010). Completion of the SCORP completed in 2010 is one of the requirements for the state to maintain eligibility for federal financial assistance through the Land and Water Conservation Fund Act of 1965 and the SCORP guides the expenditure of money provided through this program. The SCORP also provides a means for coordination between recreation providers in the state and enables each provider to assess their operations and to consider issues, actions, activities, and needs on a statewide level. The goal of the SCORP is to increase and improve the quality of outdoor recreation opportunities in Nevada (Nevada Division of State Parks 2010). The SCORP also includes specific strategies to address the most pressing outdoor recreational issues. Strategy Four specifically states, “Promote conservation of statewide water resources and wildland areas. Strive to work with partners to gain landscape level conservation: river, riparian and natural water bodies, and land conservation for wildlife and their habitats” (Nevada Division of State Parks 2010, page 27).

As shown in Figure 3.15.1, there are no designated wilderness areas within or adjacent to the study area for recreation and wilderness; however, the Roberts Mountain Wilderness Study Area (WSA) and a portion of the Simpson Park WSA are within the study area. The BLM’s IMP for Lands Under Wilderness Review (BLM 1995) guides management decisions made for specific areas of public lands under wilderness review by Congress. The policy applies to the following: (a) WSAs identified by the wilderness review required by Section 603 of the FLPMA; (b) WSAs established by Congress; and (c) WSAs identified through the land use planning process in Section 202 of FLPMA. The purpose of the IMP is to prevent impairment of the wilderness values, described in Section 2 (c) of the Wilderness Act of 1964 (P.L. 88/577). WSAs are managed under the IMP until such time as Congress makes a determination regarding wilderness designation. The IMP would apply to the WSAs in the study area; however, there are no WSAs located within the Project Area (Figure 3.15.1).

The study area is located primarily on public land within the Shoshone-Eureka Resource Area. A portion of the study area is also located on NFS lands within the Humboldt-Toiyabe National Forest, which is administered by the Austin Ranger District of the USFS. Recreation policies within the Shoshone-Eureka Resource Area and the Humboldt-Toiyabe National Forest are

guided by the BLM's RMP and the USFS's Land and Resource Management Plan for the Toiyabe National Forest, respectively. The majority of the lands within the Project Area and the study area are designated for multiple use.

3.15.2 Affected Environment

3.15.2.1 Study Methods

The baseline data presented below are based on information from public agency maps and reports including the Nevada SCORP and from communications with federal, state, county, and community officials.

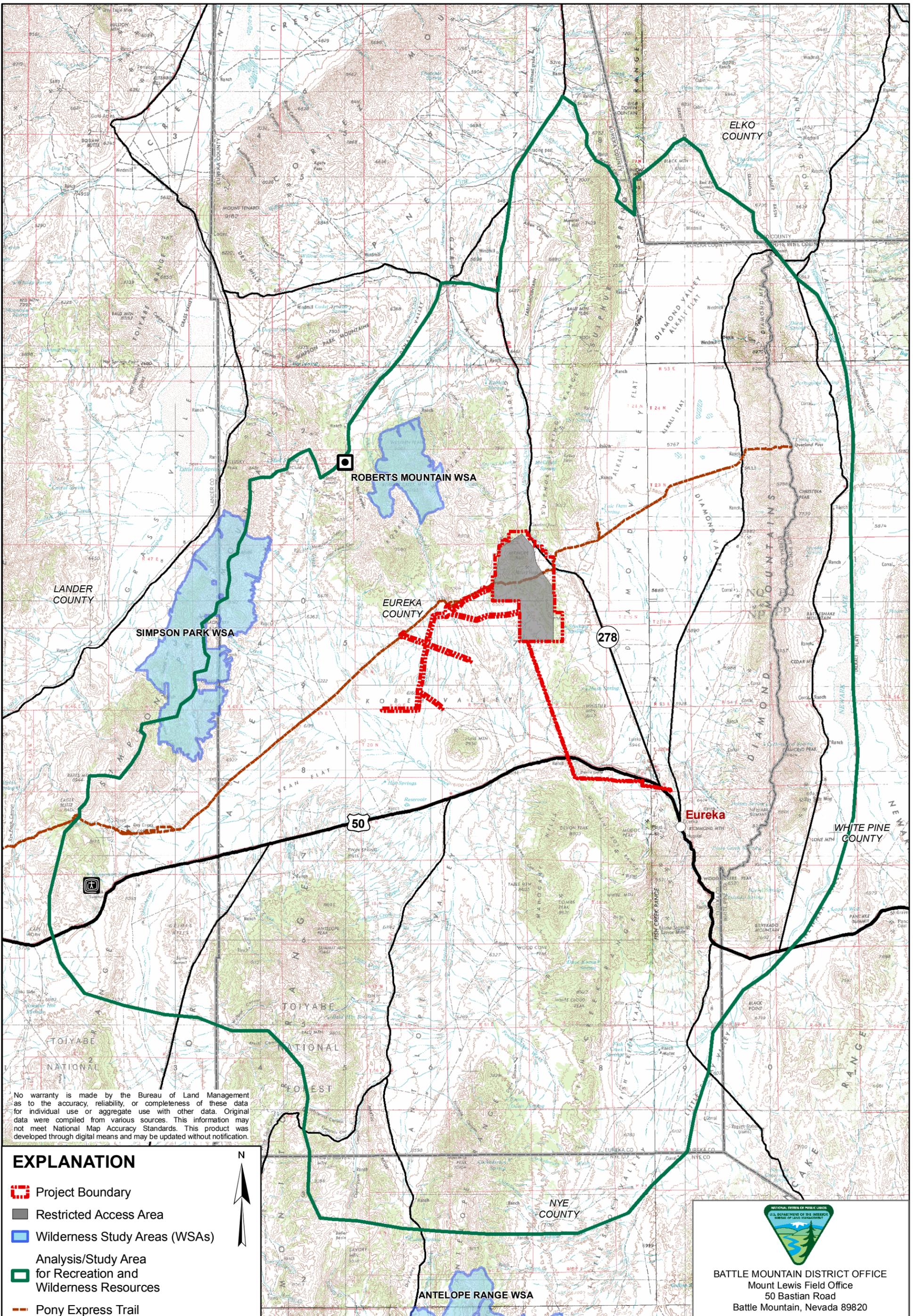
The study area for recreation and wilderness resources is defined as an area generally bounded by the Simpson Park Range, Pine Valley, Newark Valley and approximately 30 miles south of Eureka, which includes the Fish Creek Range, Mahogany Hills, Ninemile Peak, and the northern portions of the Antelope and Monitor Ranges (Figure 3.15.1). This area was based on topography and inclusion of areas typically used by residents of Eureka and Diamond Valley. All federal, state, local, and private recreation areas are included within the study area and are outlined under the existing conditions subsection.

3.15.2.2 Existing Conditions

3.15.2.2.1 Recreation

Dispersed recreation is the predominant type of recreation within the study area and the surrounding region. The area attracts thousands of visitors annually because a wide variety of outdoor recreation activities occur on BLM-administered lands. There is one developed recreation site, Hickison Petroglyph Recreation Site. All other recreation is of a dispersed nature. The most popular recreation activities include sightseeing, pleasure driving, rock collecting, photography, winter sports, off-highway vehicle use, mountain biking, picnicking, camping, fishing, hunting, horseback riding, and hiking. This wide range of opportunities is possible because virtually all of the public lands in the study area are accessible and offer a variety of settings suitable for different recreational activities. Dispersed recreational activities have not required major improvements for recreational purposes, as existing roads and trails are the primary facilities associated with these activities, and visitors usually travel on a previously used or marked motorized vehicle route to reach a recreation site or trailhead. Surface disturbance has occurred as a result of dispersed recreation activities and is evaluated in the cumulative impacts discussion (Chapter 4) to the extent possible. Disturbance from dispersed recreation cannot be readily quantified.

Recreational opportunities are grouped along a continuum of opportunities ranging from intensive vehicle-oriented activities at one end to non-motorized activities undertaken in a primitive setting at the other, although there is often overlap between the two. Table 3.15-1 lists the recreational areas, or portions of recreational areas, within the study area and the estimated annual visitors for 2006.



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

EXPLANATION

- Project Boundary
- Restricted Access Area
- Wilderness Study Areas (WSAs)
- Analysis/Study Area for Recreation and Wilderness Resources
- Pony Express Trail

BLM Recreation Sites

- Hickson Petroglyph Site
- Tonkin Spring



DESIGN: EMLLC	DRAWN: CVD/GSL	REVIEWED: RFD
CHECKED: _____	APPROVED: RFD	DATE: 09/06/2011
FILE NAME: p1635_Fig3-15-1_Wilderness&Rec.mxd		

BUREAU OF LAND MANAGEMENT
MOUNT HOPE PROJECT



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

DRAWING TITLE:
Wilderness Study Areas and Recreation Sites
Figure 3.15.1

Table 3.15-1: Recreational Areas and Estimated Annual Visitors for 2006

Recreation Area	Estimated Annual Visitors
Antelope Range (Portion)	630
Hickison Petroglyph Recreation Site	21,870
Roberts Mountain	968
Roberts Mountain WSA	487
Simpson Park Mountains	739
Simpson Park WSA	150
Tonkin Spring	612
Pony Express National Historic Trail	230
Pony Express National Historic Trail Annual Re-ride	45
Dispersed Recreation	26,000
Total Estimated Recreation Visitors in the Study Area	51,731

High Use Recreation Areas

Hickison Petroglyph Recreation Site

The Hickison Petroglyph Recreation Site is located approximately 24 miles east of Austin, Nevada, along U.S. Highway 50. The site is the most popular recreational destination in the study area with more than 21,000 visitors in 2006. Recreational opportunities at this site include petroglyph viewing, hiking, picnicking, camping, and horseback riding. Originally developed in 1968, the site has 16 camp sites, four picnic sites, three restrooms, and a 0.3 mile interpretive trail. Most visitors stay only 20 to 60 minutes; long enough to visit the petroglyphs. It is estimated that approximately 2,500 visitors a year spend at least one night in the campground. In 2005, 81 percent of the visitors who logged their name in the registration book at the site were from outside of Nevada and six percent were from outside of the U.S. Many visitors have visited the site on more than one occasion. An increasing number of visitors are considering the Hickison Petroglyph Recreation Site their destination rather than as a stopover on their way somewhere else. Recent developments at Hickison include construction of more than 13 miles of equestrian/hiker trails and installation of a trailhead with connector trails to the campground.

Future funding would allow a total of 30 to 50 miles of trail to be built. The trail system would include a portion of the Pony Express National Historic Trail. Additional funding would also allow construction of new camp loops and improvements to existing facilities. Many visitors combine their visit to Hickison with a visit to the nearby Spencer Hot Springs, which is a popular natural hot spring site. Visitor feedback has shown a need for increased hiking/equestrian opportunities in the area.

Roberts Creek, Pete Hanson Creek, and Tonkin Springs

The Roberts Mountains in general, and Roberts Creek, Pete Hanson Creek, and Tonkin Springs in particular, are areas that receive a high level of use from locals and visitors. These areas provide numerous recreational opportunities, including fishing (Roberts Creek and Tonkin Reservoir are stocked by the NDOW), hiking, wildlife viewing, and hunting. Additionally, the Roberts Creek area is easily accessed by Southern Eureka County residents and used particularly

for camping and fishing. Between 2000 and 2009, fishing use on Roberts Creek and Tonkin Reservoir included 17 and 101 anglers per year, respectively, and each angler caught seven and 16 fish respectively.

Organized Events or Special Recreation Permits

In 2006, all but one special recreation permit were for hunting related outfitting and guiding permits in the study area. The other permit was approved for XP Rides to conduct a Pony Express Trail re-ride in June of that year. The re-ride has been an annual event, conducted in June in recent years. The permit involves a re-ride for the entire Pony Express National Historic Trail across a multi-state area. The number of participants within the study area is estimated to be approximately 45 people for each event.

It is estimated that there are one to five guided hunts within the study area every year, each involving two to 25 participants. Due to the fact that permits are issued either statewide or for multiple BLM districts, the number of guided hunts in the area is highly variable and has been factored into the dispersed use visitor statistics.

Hunting

There are a variety of hunting opportunities in the general region. Common species hunted include mule deer, pronghorn antelope (*Antilocarpa americana*), mountain lion (*Puma concolor*), greater sage-grouse, chukar (*Alectoris chukar*), cottontail (*Sylvilagus nuttallii*), quail (*Oreortyx pictus*), pigeon (*Columba livia*), mourning dove (*Zenaidura macroura*), and waterfowl. Bighorn sheep (*Ovis canadensis*) and elk (*Cervus canadensis*) are also hunted in portions of the study area. Public scoping comments for the Project expressed concern over continued access for hunting in or near the Project Area.

The NDOW regulates big game hunting through a quota system, and tags are sold for each big game species in the various hunt units. The study area includes all of Hunt Units 142, 143, 145 and all but a very small portion of Hunt Unit 144. The study area overlaps portions of Hunt Units 65, 155, 161, 162, 163, 164, 131, and 108. The big game status and trend for the Project Area are discussed in Section 3.24 (Wildlife and Fisheries Resources). The big game hunt statistics for the hunt units that are within or that overlap the study area are shown in Table 3.15-2. The hunt unit statistics presented in Table 3.15-1 reflect the average number of animals harvested in each unit. This is a result of the statistics being divided by multiple hunt unit groups provided in the NDOW data (NDOW 2006).

SCORP

The SCORP identified the ten most popular outdoor recreation activities in the Nevada market region, which includes Nevada, California, Oregon, Idaho, Utah, and Arizona. These activities included walking for pleasure, family gatherings, viewing/photographing natural scenery, visiting nature centers, gardening or landscaping, picnicking, sightseeing, driving for pleasure, viewing/photographing wildflowers, and visiting historic sites (Nevada Division of State Parks 2004). Respondents to the SCORP said that the five outdoor recreation areas and facilities that are most needed outside their local community were camping, fishing, parks, hiking, and biking. The SCORP also ranked and weighted the top eight outdoor recreation issues in Nevada. The number one issue identified was public access to public lands for diverse outdoor recreation

(Nevada Division of State Parks 2004). Additionally, SCORP's strategies emphasize water-based recreational opportunities which are provided at Roberts Creek, Pete Hanson, and Tonkin Springs.

Table 3.15-2: 2010 Harvest by Hunt Unit and Group

Hunt Unit	Bighorn Sheep			Elk			Mule Deer			Pronghorn Antelope		
	Tags	Number of Success	Percent of Success	Tags	Number of Success	Percent of Success	Tags	Number of Success	Percent of Success	Tags	Number of Success	Percent of Success
Hunt Units within the Recreation Study Area												
142	0	0	0	0	0	0	378	157	59	34	25	71
143	0	0	0	0	0	0	378	157	49	85	59	40
144 ¹	0	0	0	0	0	0	386	161	53	31	23	74
145	0	0	0	0	0	0	368	151	34	69	49	49
Hunt Units that Overlap the Recreation Study Area												
65	4	4	100	0	0	0	52	33	62	41	25	47
155	0	0	0	0	0	0	125	133	57	105	64	37
161	14	11	82	183	80	51	560	196	43	18	16	70
162	4	4	100	183	80	51	560	196	43	18	16	70
163	4	4	100	183	80	51	561	197	49	70	49	37
164	3	2	67	183	80	51	560	196	43	70	49	37
131	4	4	100	90	51	68	86	47	42	76	54	46
108	0	0	0	30	20	63	4,055	1,048	42	94	55	54

¹A very small portion of the Hunt Unit is outside the Recreation Study Area boundary.

Source: NDOW 2009-2010 Big Game Status (NDOW 2010)

Local and County Recreation Facilities

Tourism and recreation attractions in southern Eureka County include hunting, sightseeing, off-road vehicle use, visits to the Eureka Opera House and Sentinel Museum, wild horse viewing, general interest in the historic mining character of the community, and events such as the county fair, the county youth fair, the high school rodeo and a series of horse shows, softball tournaments, and shooting and archery tournaments. Bicycle racers use the Town of Eureka for overnight stays.

In addition to the many available outdoor recreation opportunities available in southern Eureka County, Eureka County and the Eureka County School District (ECSD) provide a number of developed recreation facilities. The county provides a park in Eureka, which offers barbecue facilities, covered picnic tables, horseshoe pits and a children's playground. The county also provides two baseball diamonds and an indoor swimming pool in Eureka. The school district allows community use of an indoor gymnasium, football field, and a running track when these facilities are not being used for school events.

The Eureka County Rodeo Grounds and Fair Building, located on the west side of Eureka, provides a pavilion with a stage, a fair building, restrooms, concession stand, and large and small arenas (Eureka County 1996). This facility hosts events such as the county fair, the county youth fair, the high school rodeo, and a series of horse shows, softball tournaments, bicycle races and shooting and archery tournaments (Eureka County Economic Development Council 2006).

Of importance to the local community and visitors are Roberts Creek, Pete Hanson Creek, and Tonkin Reservoir, which are important parts of the recreational portfolio. These areas have been used as traditional and historic fishing areas for the residents of Eureka County and others, and provide important water-based recreational and fishing opportunities in areas within close proximity to residents.

3.15.2.2.2 Wilderness Study Areas

Roberts Mountain WSA

The Roberts Mountain WSA is located in the Roberts Mountains approximately 40 miles northwest of Eureka, Nevada (Figure 3.15.1). The WSA includes 15,090 acres of public land with no privately owned inholdings. The Roberts Mountain WSA is irregularly shaped and surrounded on the three sides by major valley systems. The WSA consists of rugged mountainous areas and contains three prominent peaks. The varied topography has led to a variety of vegetative communities in proximity to one another. Vegetation consists of willow, cottonwood, aspen, birch, and dogwood trees in the deep narrow canyons. Mountain mahogany trees and limber pine are found in isolated stands on the barren rock ridges.

The Roberts Mountains are the type locality (the geologic point of first recognition for example) of the Roberts Mountains Thrust, which is a major geologic structure in western North America. The area has been referred to as “the Window of the World” because of the unique view it gives of the complex geologic structure of the region and has been studied by professional geologists and students from across the nation because of its rare qualities and geologic importance.

Simpson Park WSA

The Simpson Park WSA is located in the Simpson Park Mountain Range approximately 50 miles northwest of Eureka, Nevada. The WSA includes 49,670 acres of public land and surrounds two privately owned inholdings totaling 80 acres. The Simpson Park WSA consists of mountainous topography with scattered stands of aspen and mountain mahogany. The WSA is approximately 17 miles long and five miles wide. No special features of geological, ecological, scientific, educational, scenic, or historical value are known to exist in the Simpson Park WSA.

3.15.3 Environmental Consequences and Mitigation Measures

3.15.3.1 Significance Criteria

The Proposed Action or alternatives would be considered to have a significant effect on the environment if the following would occur:

- Conflict with formally established recreational, educational, religious, or scientific uses of the area;
- Result in nonconformance with the Wilderness Act of 1964 or the BLM Interim Management Policy for Lands Under Wilderness Review;
- Substantially degrade or reduce the quantity or quality of the area available for existing or future recreational opportunities; or
- Result in the unmitigated loss of a unique recreational resource.

3.15.3.2 Assessment Methodology

The Proposed Action and alternatives were compared to the recreational planning information obtained from Eureka County, NDSP, and BLM to determine the potential for, and expected severity of, conflicts with existing and planned recreational uses. Potential effects on recreational resources can be categorized as short term (i.e., during the life of the Project) and long term. Short-term loss of recreation would occur in areas subject to surface disturbance and subsequent reclamation. Long-term loss of recreation would occur in areas that would not be reclaimed. The effects are determined to be significant or not significant based on the applicable significance criteria listed in Section 3.15.3.1.

3.15.3.3 Proposed Action

3.15.3.3.1 Short-Term Recreational Opportunities

Implementation of the Proposed Action would directly affect recreation through loss of public lands managed for multiple uses, including dispersed recreation, for the duration of the Project including reclamation (approximately 70 years) within the fenced portion of the Project Area. The portion of the Project Area that would not be accessible to the public, the 14,204 fenced acres that includes the main portion of the Project Area (open pit, WRDF, and TSFs) and the well heads and booster stations, is similar to the surrounding region and does not provide unique recreational opportunities for the area. This area would be reopened to the public as soon as the mine poses no safety risk following reclamation. The restoration of recreational opportunities within the Project Area would depend on the successful reclamation of the land. Large areas of open land outside the Project Area, but within the BLM's MLFO, are available for dispersed recreation. In a portion of central Nevada where most of the surrounding lands are open public lands, the fencing and restricted public use of the Project Area would not greatly limit recreational opportunities. However, those individuals that currently use the Project Area for recreational activities or hunting would be required to use other areas over the life of the Project.

- **Impact 3.15.3.3-1:** Public lands within the fenced portion of the Project Area (14,204 acres) potentially used for dispersed recreation would be removed from use in the short term as a result of the construction and operation of the Project.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.3.2 Long-Term Recreational Opportunities

Under the Proposed Action, 734 acres of the Project Area would be restricted from recreation in the long term for safety and security reasons through the installation of the berms and fencing. This area corresponds to the open pit.

- **Impact 3.15.3.3-2:** A total of 734 acres within the Project Area would be closed to public access and users in the long term.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.3.3 Regional Recreation Effects

The Proposed Action would result in an increased population in the local region and associated increase in demand for recreational opportunities. Dispersed and developed recreation areas would be impacted by increased use and demand.

- **Impact 3.15.3.3-3:** Public lands, developed recreation sites, and community recreation facilities would be impacted by increased use and demand.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.3.4 Wilderness Study Area Effects

The Proposed Action would have no direct impact on wilderness areas or WSAs. The Proposed Action conforms with the Wilderness Act of 1964 and the BLM's IMP for WSAs.

3.15.3.3.5 Indirect Effects

Potential indirect impacts to recreation could occur if ground water pumping activities decrease the flows in Roberts Creek. Decreased flows could limit fishing opportunities and the overall quality of the area for camping and general recreational activities. Other indirect impacts to recreation associated with the Proposed Action may result due to impacts to vegetation, wildlife, or visual resources. Potential impacts to these resources are analyzed in Sections 3.9, 3.24, and 3.7, respectively. Potential impacts and associated mitigation to flows in Roberts Creek are outlined in Section 3.2.

3.15.3.3.6 Residual Adverse Impacts

The Proposed Action would result in the unavoidable loss of up to 14,204 acres in the short term and an unavoidable and adverse loss of 734 acres in the long term of public land managed for multiple uses, including dispersed recreation, resulting from surface disturbance, and access to surrounding recreation areas would be restricted through a portion of the Project Area. As a result of the increased population in the area, there would be an increased demand for recreational areas and facilities; however, due to the proximity of similar public lands, the unavoidable potential impacts are considered less than significant. There would be no residual adverse impacts on wilderness or WSAs.

3.15.3.4 No Action Alternative

3.15.3.4.1 Short-Term Recreational Opportunities

Under the No Action Alternative, the proposed Project would not be developed and associated impacts to recreation would not occur; however, EML would continue to conduct mineral

exploration and data acquisition within the Project Area. Ongoing reclamation would help to minimize impacts to recreation as a result of these activities. The area would remain available for future mineral development, recreational use, or for other purposes as approved by the BLM.

- **Impact 3.15.3.4-1:** Public lands potentially used for dispersed recreation adjacent to the mineral exploration and data acquisition areas would be removed from use for the duration of those activities.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.4.2 Residual Adverse Impacts

The No Action Alternative would result in the unavoidable loss of public land managed for multiple uses, including dispersed recreation, resulting from surface disturbance; however, the loss of recreational areas under this alternative would be minimal. There would be no residual adverse impacts on wilderness or WSAs.

3.15.3.5 Partial Backfill Alternative

3.15.3.5.1 Short-Term Recreational Opportunities

The Partial Backfill Alternative would involve the partial backfilling of the open pit to eliminate the pit lake and the floor of the open pit would be reclaimed with growth media and seeded. Although the Proposed Action would have 734 acres that would remain unvegetated in the open pit, under this alternative approximately 206 acres associated with the remaining open pit highwalls would remain unvegetated following Project completion and reclamation; however, impacts to recreation from this alternative would be the same as the Proposed Action since the fenced area around the Project would be the same.

- **Impact 3.15.3.5-1:** Public lands within the fenced portion of the Project Area (14,204 acres) potentially used for dispersed recreation would be removed from use in the short term as a result of the construction and operation of the Project.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.5.2 Long-Term Recreational Opportunities

Even though the open pit would be partially backfilled and the pit floor revegetated, the 734 acres of the open pit would be restricted from recreation in the long term for safety and security reasons, which is the same as under the Proposed Action.

- **Impact 3.15.3.5-2:** A total of 734 acres within the Project Area would be closed to public access and users in the long term through the installation of the berms and fencing.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.5.3 Regional Recreation Effects

The Partial Backfill Alternative would result in an increased population in the local region and associated increase in demand for recreational opportunities. Dispersed and developed recreation areas would be impacted by increased use and demand.

- **Impact 3.15.3.5-3:** Public lands, developed recreation sites, and community recreation facilities would be impacted by increased use and demand.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.5.4 Wilderness Study Area Effects

The Partial Backfill Alternative would have no direct impact on wilderness areas or WSAs. The Proposed Action conforms with the Wilderness Act of 1964 and the BLM's IMP for WSAs.

3.15.3.5.5 Indirect Effects

Potential indirect impacts to recreation could occur if ground water pumping activities decrease the flows in Roberts Creek. Decreased flows could limit fishing opportunities and the overall quality of the area for camping and general recreational activities. Indirect impacts to recreation associated with the Partial Backfill Alternative may result due to impacts to vegetation, wildlife, or visual resources. Potential impacts to these resources are analyzed in Sections 3.9, 3.24, and 3.7, respectively.

3.15.3.5.6 Residual Adverse Impacts

The Partial Backfill Alternative would result in the unavoidable loss of up to 14,204 acres in the short term and an unavoidable and adverse loss of 734 acres in the long term of public land managed for multiple uses, including dispersed recreation, resulting from surface disturbance, and access to surrounding recreation areas would be restricted through a portion of the Project Area. There would be an increased demand for recreational areas and facilities; however, due to the proximity of similar public lands, the unavoidable potential impacts are considered less than significant. There would be no residual adverse impacts on wilderness or WSAs.

3.15.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

3.15.3.6.1 Short-Term Recreational Opportunities

Although the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in approximately 20 acres less surface disturbance compared to the Proposed Action, impacts to recreation from this alternative would be the same as the Proposed Action since the fenced area of the Project would be the same.

- **Impact 3.15.3.6-1:** Public lands within the fenced portion of the Project Area (14,204 acres) potentially used for dispersed recreation would be removed from use in the short term as a result of the construction and operation of the Project.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.6.2 Long-Term Recreational Opportunities

Under the Off-Site Transfer of Ore Concentrate for Processing Alternative, 734 acres of the Project Area would be restricted from recreation in the long term for safety and security reasons. This area corresponds to the open pit.

- **Impact 3.15.3.6-2:** A total of 734 acres within the Project Area would be closed to public access and users in the long term through the installation of the berms and fencing.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.6.3 Regional Recreation Effects

The Off-Site Transfer of Ore Concentrate for Processing Alternative would result in an increased population in the local region and associated increase in demand for recreational opportunities. Dispersed and developed recreation areas would be impacted by increased use and demand.

- **Impact 3.15.3.6-3:** Public lands, developed recreation sites, and community recreation facilities would be impacted by increased use and demand.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.6.4 Wilderness Study Area Effects

The Off-Site Transfer of Ore Concentrate for Processing Alternative would have no direct impact on wilderness areas or WSAs. The Proposed Action conforms with the Wilderness Act of 1964 and the BLM's IMP for WSAs.

3.15.3.6.5 Indirect Effects

Potential indirect impacts to recreation could occur if ground water pumping activities decrease the flows in Roberts Creek. Decreased flows could limit fishing opportunities and the overall quality of the area for camping and general recreational activities. Indirect impacts to recreation associated with the Off-Site Transfer of Ore Concentrate for Processing Alternative may result due to impacts to vegetation, wildlife, or visual resources. Potential impacts to these resources are analyzed in Sections 3.9, 3.24, and 3.7, respectively.

3.15.3.6.6 Residual Adverse Impacts

The Off-Site Transfer of Ore Concentrate for Processing Alternative would result in the unavoidable loss of up to 14,204 acres in the short-term and an unavoidable and adverse loss of 734 acres in the long-term of public land managed for multiple uses, including dispersed recreation, resulting from surface disturbance, and access to surrounding recreation areas would be restricted through a portion of the Project Area. There would be an increased demand for recreational areas and facilities; however, due to the proximity of similar public lands, the unavoidable potential impacts are considered less than significant. There would be no residual adverse impacts on wilderness or WSAs.

3.15.3.7 Slower, Longer Project Alternative

Impacts to recreation from the Slower, Longer Project Alternative are expected to be similar to impacts from the Proposed Action at the end of the Project; however, impacts from the Slower, Longer Project Alternative would occur over a period approximately twice as long in duration compared to the Proposed Action.

3.15.3.7.1 Short-Term Recreational Opportunities

- **Impact 3.15.3.7-1:** Public lands within the fenced portion of the Project Area (14,204 acres) potentially used for dispersed recreation would be removed from use in the short-term as a result of the construction and operation of the Project.

Significance of the Impact: The impact is not considered significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.7.2 Long-Term Recreational Opportunities

Under the Slower, Longer Project Alternative, 734 acres of the Project Area would be restricted from recreation in the long-term for safety and security reasons. This area corresponds to the open pit.

- **Impact 3.15.3.7-2:** A total of 734 acres within the Project Area would be closed to public access and users in the long-term.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.7.3 Regional Recreation Effects

The Slower, Longer Project Alternative would result in an increased population in the local region and associated increase in demand for recreational opportunities. Dispersed and developed recreation areas would be impacted by increased use and demand.

- **Impact 3.15.3.7-3:** Public lands, developed recreation sites, and community recreation facilities would be impacted by increased use and demand.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.15.3.1. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.15.3.7.4 Wilderness Study Area Effects

The Slower, Longer Project Alternative would have no direct impact on wilderness areas or WSAs. The Slower, Longer Project Alternative conforms with the Wilderness Act of 1964 and the BLM's IMP for WSAs.

3.15.3.7.5 Indirect Effects

Potential indirect impacts to recreation could occur if ground water pumping activities decrease the flows in Roberts Creek. Decreased flows could limit fishing opportunities and the overall quality of the area for camping and general recreational activities. Indirect impacts to recreation associated with the Slower, Longer Project Alternative may result due to impacts to vegetation, wildlife, or visual resources. Potential impacts to these resources are analyzed in Sections 3.9, 3.24, and 3.7, respectively.

3.15.3.7.6 Residual Adverse Impacts

The Slower, Longer Project Alternative would result in the unavoidable loss of up to 14,204 acres in the short-term and an unavoidable and adverse loss of 734 acres in the long-term of public land managed for multiple uses, including dispersed recreation, resulting from surface disturbance, and access to surrounding recreation areas would be restricted through a portion of the Project Area. There would be an increased demand for recreational areas and facilities; however, due to the proximity of similar public lands, the unavoidable potential impacts are considered less than significant. There would be no residual adverse impacts on wilderness or WSAs.

3.16 Auditory Resources

3.16.1 Regulatory Framework

The State of Nevada and Eureka County do not have auditory resources criteria or standards for evaluating auditory resource impacts associated with mining operations; therefore, auditory resource impacts would be evaluated in this document according to the estimated degree of disturbance to the nearest sensitive receptor sites. The BLM and the NPS do not have auditory criteria or standards.

3.16.2 Affected Environment

This section explains the terminology used to describe sound levels and auditory resources, as well as the existing noise conditions at selected locations near the Project. Hearing a sound occurs when rapid variations in air pressure are stimulating or moving the ear drum (tympanic membrane), and this mechanical movement, in turn, stimulates various components of the peripheral and central auditory system. Noise is a sound which is unwanted or not desired and which may disrupt or degrade human activities. Air pressure variations are measured as the

change in sound pressure exerted on the diaphragm of a microphone attached to a sound level meter.

Sound is measured in units of decibels (dB) and for environmental purposes usually is measured in units of decibels A-weighted (dBA). A-weighting refers to an electronic technique which simulates the relative response of the human auditory system to the various frequencies comprising all sounds. The sound levels are described in units of dBA, unless stated otherwise. The sound measurement scale is not linear, it is logarithmic. A logarithmic scale is used because sound levels can span over a very large range and the logarithmic scale permits use of relatively small numbers. For example, sound pressures of approximately 115 dBA are not uncommon in nightclubs or near loudspeakers at rock concerts. A sound pressure at 115 dBA is equal to 10,000,000 micropascals. In contrast, zero dBA is the threshold of human hearing, which is equivalent to 20 micropascals. Thus, a range of approximately ten million pressure units can be described with only 115 dB units. This range is specific to this example, but sound pressure levels of 140 dBA and above have been recorded near rocket engines.

Logarithmic scales cannot be added arithmetically. For example, one sound at 80 dB plus another sound at 80 dB would not equal 160 dB. The combined 80 dB sounds would result in a total sound level of approximately 83 dB because sound is measured on a logarithmic scale. The combined total sound level from two sources is only 40.3 dBA if one sound is at 40 dBA and the second sound is at 29 dBA. The following are rules that may be helpful in understanding this analysis:

- In general, one sound must be at least three dB louder than another sound for people to reliably determine that one sound source is louder than a second source; and
- A sound that is approximately ten dB louder than a second sound would be perceived as being about twice as loud as the second sound.

Federal recommendations for acceptable noise levels at residential receivers are generally in the range of 55 dB L_{dn} to 65 dB L_{dn} (L_{dn} = level day/night), based upon the recommendations contained in the EPA "Levels Document" (1974) and upon the 65 dB L_{dn} criterion applied by the U.S. Department of Housing and Urban Development and other federal agencies. These criteria are typically applied to noise from transportation noise sources, but may be used to assess the compatibility of other noise sources relative to residential land uses, provided that consideration is given to potential disturbances due to impulsive sound, tonal content (whistles, music, etc.), and the prevalence of nighttime activities.

For other noise sources, especially those that may occur over short periods of the day or night, it is common to apply noise criteria based upon hourly noise levels, making a distinction between noise levels produced during daytime and nighttime hours. Acceptable hourly noise levels in residential areas are usually considered to be in the range of 50 to 55 dB (average) during daytime hours and 45 to 50 dB (average) during nighttime hours; the lower noise level limits would be appropriate in areas that currently have low ambient noise levels. Hourly noise standards are usually expressed in terms of average (L_{eq}) or median (L_{50}) noise levels, and they often are corrected for the presence of impulsive sounds and tonal content.

Table 3.16-1 shows the approximate sound levels associated with various common sources. Note that the range of sound levels is 75 dBA (from 25 to 100 dBA) and ranges between the very quiet (rustling leaves) to a loud auto horn. The measured sound level decreases with increasing

distance between a sound source and the sound-measuring device or the listener. Distances are specified for some sources in Table 3.16-1.

At relatively high levels, noise can be a nuisance because it may interfere with daytime activities such as hearing and understanding speech, it may disrupt sleep, or more generally degrade the quality of life; however, there is no simple answer to the question of “how much noise is too much?” In part, the answer depends on the loudness of the noise relative to ambient or background noise level, when it occurs, what the listener is doing, what the noise source is, and the listener’s attitude toward the source. Nonetheless, some reasonably accurate estimates of how communities of people may respond to noise can be made based on measurements and predictions of the A-weighted noise levels expected at some locations. These estimates are based on a fairly large number of scientific studies of community responses to noise at many average noise levels from a wide variety of noise sources (Harris 1991; Kryter 1985; and May 1978). The studies and empirically validated techniques for estimating (predicting) noise levels at receptors (Edison Electric Institute 1984) are used in predicting and evaluating noise effects on humans.

Table 3.16-1: Relative Scale of Various Noise Sources

Noise Level (dBA) ^a	Common Indoor Noise Levels	Common Outdoor Noise Levels
110	Rock band	--
105	--	Jet flyover at 1,000 feet
100	Inside New York subway train	--
95	--	Gas lawn mower at 3 feet
90	Food blender at 3 feet	--
80	Garbage disposal at 3 feet, or shouting at 3 feet	Noisy urban daytime
70	Vacuum cleaner at 10 feet	Gas lawn mower at 100 feet
65	Normal speech at 3 feet	Commercial area, heavy traffic at 300 feet
60	Large business office	--
50	Dishwasher in next room	Quiet urban daytime
40	Small theater, large conference room	Quiet urban nighttime
35	--	Quiet suburban nighttime
33	Library	--
28	Bedroom at night	--
25	Concert hall (background)	Quiet rural nighttime
15	Broadcast and recording studio	--
5	Threshold of hearing	--

^a A-weighted decibel sound scale.

3.16.2.1 Study Methods

The Project noise impact analysis for the Project applied measured noise levels and frequency content of representative noise sources to the Environmental Noise Model (ENM). The ENM is a commercially-available noise propagation model that accepts input of noise levels and frequency content for a number of sources, located on an appropriate base map. In this case, a generalized model was used that assumed a level ground situation, and thus the modeling did not account for

topography in the Project Area which results in a more conservative analysis. The ENM predicts noise propagation in terms of noise levels at selected receivers, or in terms of noise contours, accounting for the effects of atmospheric and ground absorption of sound.

Noise level data for the sources expected to be used at the Project were obtained from noise measurements conducted by Brown-Buntin Associates, Inc. (BBA) at aggregate and asphalt plants in California and Nevada.

The equipment used for most of the noise measurements was a Larson Davis Model 824 precision integrating sound level meter and frequency analyzer fitted with a Larson Davis Model 2541 free-field microphone, meeting the specifications of the American National Standards Institute (ANSI) for Type 1 sound measurement systems. The noise measurement system was calibrated before use with a Larson Davis Model CA-250 acoustical calibrator certified by its manufacturer to be consistent with reference values maintained by the National Bureau of Standards.

To prepare the data for use in the ENM, the measured noise levels were entered into the ENM in terms of octave band sound pressure levels, referring to the measurement distance. The ENM was then calibrated for each source to predict the same values as were measured in the field. For most noise sources, the data were entered as hourly equivalent noise levels (L_{eq}). For sound sources that were not continuous in nature, such as passing trucks, the data were entered as Sound Exposure levels (SEL), and adjustments were made to derive the L_{eq} based upon the projected numbers of operations per hour at the Project.

The noise sources were placed on the ENM base map at representative heights above the ground surface, based upon the equipment observed at similar project sites. The receiver sites selected for this analysis generally describe the nearest residential areas or sites of potential concern. Ambient noise levels were assigned to each site based upon the noise measurement results obtained at the nearest ambient noise monitoring sites. This method allows comparison of predicted Project-related and representative ambient noise levels.

The ENM accounts for atmospheric absorption of sound, considering the factors of temperature, relative humidity, and absorption of sound by the ground. The noise level predictions made for this Project assume a uniform atmosphere with no wind. It is recognized that variations in atmospheric conditions may cause the actual Project noise levels to be either higher or lower than predicted by the ENM.

The effects of changes in temperature and humidity upon sound propagation are generally slight, so that variations in predicted noise levels within the range of temperature and relative humidity found in the Project Area would not be substantial.

Winds can affect sound propagation, generally by increasing noise levels downwind, and decreasing noise levels upwind; however, wind effects are difficult to predict reliably, as the range of wind speeds and directions experienced during even one night can be quite broad.

In the noise modeling process, the mining noise sources (power shovel, bulldozers, excavator, trucks and loaders) were placed in the approximate center of the assumed mining area. The processing equipment was placed on the base map as shown by the operations plan. The modeling assumed a flat earth scenario, where all equipment was placed at appropriate heights

above the existing grade, and where no topographic shielding (by topography or excavations) was present.

It is recognized that the mining equipment may be placed at any point in the mining area, and would therefore be either closer to, or farther from, any given sensitive receiver location at different times during the mine development. As a result, the predicted noise levels would increase or decrease as a function of distance. Similarly, the equipment may be placed closer to, or farther from, the sides of the excavation, which would either enhance or reduce the insertion loss (shielding) and consequent noise level reduction provided by topographic barriers. Preparation of detailed noise models for all possible configurations of mining is clearly impractical.

The noise modeling assumptions provide a generalized depiction of mining and milling facility noise levels, based upon the available source noise emission data. The modeled noise levels provide a conservative basis for judging the likely noise impacts of this Project.

In addition to the analysis using the ENM, there are qualitative issues related to auditory effects. These include the consistency and duration of the noise.

The closest noise-sensitive receptors where noise from the existing and proposed operations is or could be heard are assessed in this section. These receptors include the following:

- Alpha Ranch;
- Roberts Creek Ranch;
- Risi Ranch;
- Diamond Valley residences.

3.16.2.2 Existing Conditions

Ambient noise levels were collected at the Alpha and Roberts Creek Ranches and the results are listed in Table 3.16-2. The ambient noise levels were very low at 20 and 21 dB, respectively. The noise levels are typical of isolated desert areas. Other locations, such as the Risi Ranch or the Diamond Valley residences which are a similar distance from the Project Area would likely have similar or higher ambient noise levels due to the traffic traversing SR 278, U.S. Highway 50, and other roads in the area.

Table 3.16-2: Bases for Ambient Hourly Noise Level Assumptions

Receiver	Description	Ambient L ₅₀ , dB	Date of Ambient Measurements	Time Period
1	Alpha Ranch	21	September 10, 2007	0800-1200
2	Roberts Creek Ranch	20	September 11, 2007	0800-1200

3.16.3 Environmental Consequences and Mitigation Measures

3.16.3.1 Significance Criteria

Noise impacts from mining would be considered significant if the Proposed Action would result in noise levels in excess of 55 dBA, as measured outside the Project Area at a sensitive receptor

site. Noise impacts from blasting would be considered significant if the Proposed Action resulted in the following:

- Maximum noise levels in excess of 70 dBA measured at a sensitive receptor site;
- Ground vibration as a result of blasting that could initiate or extend observable cosmetic cracking of structures at a sensitive receptor site; or
- A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.

3.16.3.2 Assessment Methodology

Noise impacts were evaluated according to the estimated degree of disturbance to the nearest sensitive receptor sites.

3.16.3.3 Proposed Action

Noise levels associated with the Project would be related to mining and construction operations and blasting activities. The ENM was run to predict hourly noise levels assuming that the mining and processing equipment was in continuous use.

The ambient noise level data for Alpha and Roberts Creek Ranches listed in Table 3.16-2 were carefully reviewed to select conservative bases for comparison to the relatively steady-state noise levels produced by the proposed mining operation (as perceived at a distance). For this purpose, the "ambient noise level" was assumed to be represented by the measured hourly median noise levels (L_{50}) at the quietest part of the day.

The assumed ambient noise level was the arithmetic average of the hourly median noise levels of the quietest contiguous four-hour period of the quietest day. This describes the noise level experienced during the quietest time of the day. Table 3.16-3 lists the measurement locations and time periods used to establish the "quiet hours" ambient noise levels for the noise impact analysis, and the dominant noise sources at each location.

Table 3.16-3 lists the predicted average Project-related noise levels at each of the selected noise receptor monitoring location, and provides a comparison to the measured ambient hourly noise levels described by Table 3.16-2.

For assessment of noise levels in terms of the Day-Night Level (L_{dn}), it was necessary to make certain assumptions about the hours of operation for the Project. For this analysis, it was assumed that the Project would be in operation 24 hours on any given day. Given this assumption, the L_{dn} values would be 6.4 dB higher than the L_{eq} values shown by Table 3.16-3. Similarly, 6.4 dB should be added to the L_{eq} noise contours, so that, for example, the 45 dB L_{eq} contour represents 51.4 dB L_{dn} .

Table 3.16-3: Comparison of Predicted and Ambient Hourly Noise Levels

Receiver	Description	Project L_{eq} , dB	Ambient L_{50} , dB	Project + Ambient, dB	Change, dB
1	Alpha Ranch	<10	21	21	0
2	Roberts Creek Ranch	13	20	21	1

The ambient L_{dn} value was the energy-average of the daily L_{dn} values observed during the continuous noise measurement periods. Table 3.16-4 lists the predicted L_{dn} values for the Project operations and provides a comparison to the average measured ambient L_{dn} values.

Table 3.16-4: Comparison of Predicted and Ambient Day-Night Levels

Receiver	Description	Project L_{eq} , dB	Ambient L_{50} , dB	Project + Ambient, dB	Change, dB
1	Alpha Ranch	16	43.8	43.8	0
2	Roberts Creek Ranch	19	43.7	45.7	2

3.16.3.3.1 Noise Associated with the Water System Booster Station

The water for the mine would be pumped from wells using submersible pumps, which are typically inaudible at the ground surface. The water would then be pumped to the mine site using a booster station, which would have four 600-Hp pump motors. These pumps would be above ground. Based upon accepted engineering methods, the noise level of a single pump would be about 96 dBA at a distance of three feet. A group of four pumps could produce a noise level as high as 55 dBA at a distance of 2,000 feet and 40 dBA at a distance of 3,000 feet. The booster pump station would be located at the north end of the Kobeh Valley, greater than 2,000 and 5,000 feet from the nearest sensitive receptors, greater sage-grouse leaks and Roberts Creek Ranch, respectively (Figure 2.1.7).

3.16.3.3.2 Traffic Noise

Traffic noise from SR 278 is an existing noise source in the Project Area. Noise levels due to Project-related traffic on SR 278 were predicted using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108).

For the traffic noise impact analysis, it was assumed that a representative noise exposure would occur at a reference distance of 50 feet from the centerline of SR 278, which roughly corresponds to the nearest possible residential receivers. The ADT volume for year 2006 with the addition of construction traffic is predicted to be 313 vehicles north of the Project Area and 797 vehicles south of the Project Area. Assuming normal mining operations, the ADT volume is predicted to be 316 vehicles north of the Project Area and 700 vehicles south of the Project Area. Truck mix was adjusted to match the predicted ADT volumes for heavy trucks during construction and operational conditions. Day-night distribution of traffic noise was again assumed to be 87 percent (day) and 13 percent (night). Average vehicle speed was assumed to be 65 mph.

Table 3.16-5 lists the traffic noise modeling results for the year 2006 with the Project during construction and operational phases in terms of the L_{dn} . Table 3.16-6 shows reference noise emission levels and usage factors for construction equipment.

Table 3.16-5: Highway 278 Traffic Noise Levels Project Conditions

Positions Relative to Project Area	Predicted L _{dn} , dB, at 50 feet from Centerline				Distances from Centerline to L _{dn} Contours, feet		
	Autos	Medium Trucks	Heavy Trucks	Total	60 dB	65dB	70dB
<i>Construction Phase</i>							
North	54.5	51.5	53.4	58.1	37	17	8
South	58.7	55.5	56.0	61.7	65	30	14
<i>Operations Phase</i>							
North	54.1	52.3	56.1	59.2	44	21	10
South	58.1	54.5	56.2	61.3	61	28	13

Table 3.16-6: Reference Noise Emission Levels and Usage Factors for Construction Equipment

Equipment Description	Impact Device ?	Typical Use Factor %	Predicted L _{max} @ 50 ft (dBA, slow)	Average Measured L _{max} @ 50 ft (dBA, slow)	No. of Data Samples
All Other Equipment > 5 HP	No	50	85	-- NA --	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Boring Jack Power Unit	No	50	80	83	1
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader 19	No	40	85	-- NA --	0
Horizontal Boring Hydraulic Jack	No	25	80	82	6
Jackhammer	Yes	20	85	89	133
Mounted Impact Hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarifier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	40	55	75	1
Pneumatic Tools	No	50	85	85	90

Equipment Description	Impact Device ?	Typical Use Factor %	Predicted L_{max} @ 50 ft (dBA, slow)	Average Measured L_{max} @ 50 ft (dBA, slow)	No. of Data Samples
Roller	No	20	85	80	16
Sand Blasting (Single Nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Tractor	No	40	84	-- NA --	0
Ventilation Fan	No	100	85	79	13
Warning Horn	No	5	85	83	12
Welder / Torch	No	40	73	74	5

Source: FHWA Roadway Construction Noise Model, February 15, 2006

3.16.3.3.3 Construction Noise

Construction of the open pit and processing facilities would require use of a variety of engine-powered equipment on the site. Construction is expected to occur over a period of 18 to 20 months. In the first two months, it is anticipated that construction would occur on a 24-hour basis. The remaining construction would occur during daylight hours (7 a.m. to 6 p.m.), but could occur at night during the last four months of construction.

The noise levels associated with typical construction equipment are shown in Table 3.16-6. During the construction phase of the Project, noise from construction equipment would dominate the noise environment in the immediate area.

Maximum noise levels from different types of equipment under different operating conditions could range from 70 dB to 90 dB at a distance of 50 feet. The actual noise effects at any given sensitive receiver location near the Project Area would be the result of a series of construction tasks. For example, bulldozers would rough out the roadway and building pads. Bulldozers and loaders would move the loose materials to haul trucks, which would either leave the site or transfer materials to areas needing fill. Scrapers and graders would level the site. Other equipment would deliver and install materials and utilities. Compressors and generators could be used at any time.

3.16.3.3.4 Blasting Noise

Blasting would be conducted to break up the rock for hauling and processing. Although blasts are perceived to be one large explosion, mining blasts are actually a series of smaller, single-hole explosions. Each hole is sequentially delayed and detonated independently of the other holes. Less noise and ground vibrations are generated because several small blasts (delays) are detonated in sequence rather than as one large instantaneous blast. Blasting can be further controlled by varying the amount of explosive, the type of delay, the delay sequence, and the type of explosives. In general, blasting is controlled to minimize dispersal of the rock fragments, and to ensure the safety of the workers. Blasting is also controlled to prevent damage to nearby structures, including any on-site construction trailers.

Airborne overpressures produced by blasting are typically measured in terms of the overall peak sound pressure level, without applying the A-weighting filter. The dominant frequencies of sound pressures associated with blasting lie in the low frequency range of 2 Hz to 25 Hz, and the

acoustical energy is concentrated below approximately five Hz. Audible sound, in contrast, is usually assumed to begin at 20 Hz, ranging up to 20,000 Hz. People hear best at frequencies in the range of 1,000 Hz to 4,000 Hz, and people hear poorly at the low frequencies associated with blast overpressures.

The A-weighting adjustment factor for sound at 25 Hz (the upper limit of the dominant blast frequencies) is -44.7 dB. There are no published A-weighting correction factors below 12.5 Hz (where the A-weighting correction factor is -63.4 dB). These factors indicate that very high blast overpressures would be required to generate sound pressure levels that would be audible in an outdoor environment.

Assuming that the Project is designed so that a worst-case blast would not exceed 0.01 psi, and that all the energy of a blast would be concentrated at 25 Hz, the highest possible peak A-weighted sound pressure level due to a blast at the property line would be 65 dB, and the maximum noise level would likely be in the range of 55 to 60 dB. The maximum sound pressure level is lower than the peak level because peak and maximum levels are measured differently.

Blasting noise levels are difficult to predict in terms of A-weighted sound pressure levels because of their frequency content and brief duration. No noise propagation models are known to exist to predict the audible noise due to blasting; the ENM does not predict sound propagation for frequencies below 25 Hz.

The audible sound associated with blasting is reported to be the result of escaping gases and falling (slumping) rock. Subjectively, audible blasting sound has been described as similar to the closing of a car trunk, or to rolling thunder. While these terms are subjective rather than quantitative, the described sounds are relatively benign.

Blasting takes place only during daylight hours and is conducted under strict MSHA safety procedures. As the open pit increases in depth, the noise from blasting is increasingly reflected upward by the open pit walls, thus further reducing the noise level.

- **Impact 3.16.3.3-1:** Ambient noise levels associated with the Proposed Action could be increased and affect ambient noise levels at the nearest ranch houses and residences.

Significance of the Impact: The predicted changes in hourly ambient noise levels at the nearest ranch houses are 1 dB or less. The impact would be similar at the residences in Diamond Valley because of the similar distances from the Project activities. This impact would be considered less than significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.3-2:** Project-related noise levels associated with the Proposed Action could be increased to noise levels that would be less than 55 dBA as measured at a sensitive receptor site.

Significance of the Impact: The impact would be considered less than significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.3-3:** The Proposed Action would cause increases in traffic noise levels.

Significance of the Impact: The predicted changes in traffic noise levels are less than 3 dB where the existing traffic noise level exceeds 60 dB L_{dn} ; therefore, the predicted changes in traffic noise levels due to the Proposed Action would be less than significant. The predicted Project-related mining and processing noise level in the vicinity of the Project access road and SR 278 is approximately 39 dB L_{dn} . This level of noise would not cause a significant change in ambient noise levels at that location in terms of L_{dn} , since the existing traffic noise would be nearly 20 dB higher than the mining and processing noise level. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.3-4:** The Proposed Action would cause increases in noise levels that could impact local residences through construction activities or poorly maintained construction equipment. The maximum noise levels received at the nearest ranch house, which is approximately two miles away from the nearest areas where grading would occur, would be reduced by approximately 23 dB as compared to the values shown on Table 3.16-6, ignoring sound absorption or any shielding provided by topography; therefore, maximum construction noise levels at the nearest ranch house would be in the range of approximately 47 to 67 dB. In practice, considering the topography of the Project Area, much of the construction equipment would be shielded from view of the nearest ranch house by topography. In those cases, the construction noise levels would be further reduced by 5 to 10 dB or greater.

Significance of the Impact: Noise levels produced by construction activities or poorly maintained construction equipment in the vicinity of the Roberts Creek Ranch house or greater sage-grouse leks could be significant if such activities occurred at nighttime or if the noise level exceeds 55 dB.

- **Mitigation Measure 3.16.3.3-4:** Construction in the vicinity of the Roberts Creek Ranch house and greater sage-grouse leks (see Section 12.3 of Appendix C) would be limited to daylight hours and non-lekking times of the year. Construction equipment used in the vicinity of residences would be fitted with the best available technology manufacturers' noise control equipment, including engine exhaust silencers and acoustical enclosures. Noise control equipment would be maintained in good working order. Implementation of this mitigation measure would result in a less than significant impact.
- **Effectiveness of Mitigation and Residual Effects:** The implementation of this mitigation measure would be effective at reducing the potential impact to less than significant by controlling the generation of the noise.
- **Impact 3.16.3.3-5:** Noise caused by blasting during construction and mining could cause annoyance if residents were startled by unexpected blasts, or if blasting overpressures caused rattling of residence windows. The Proposed Action would not otherwise impact auditory resources associated with blasting.

Significance of the Impact: This impact is not considered significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.16.3.3.5 Residual Adverse Impacts

There are no residual adverse impacts associated with the Proposed Action because noise would cease once the Project activities terminate.

3.16.3.4 No Action Alternative

Under the No Action Alternative, EML would not be authorized to develop the Mount Hope Project and mine the Mount Hope ore body as currently defined under the Proposed Action. The No Action Alternative would result from the BLM disallowing the activities proposed under the Plan (EML 2006); however, EML would be able to continue exploration activities as outlined in previously submitted Notices. Refer to Section 1.3 for a discussion of the existing Notice level activities. The area would remain available for future mineral development or for other purposes as approved by the BLM.

3.16.3.4.1 Noise Impacts

Under the No Action Alternative, none of the impacts associated with the Proposed Action would occur. Any noise generated by exploration activities under Notice-level activities would be below the level of significance.

3.16.3.4.2 Residual Adverse Impacts

Under the No Action Alternative there would be no residual adverse impacts.

3.16.3.5 Partial Backfill Alternative

Under this alternative, the Proposed Action would be developed and have the same surface disturbance footprint; however, at the end of the mining in the open pit, the open pit would be partially backfilled to eliminate the potential for a pit lake. The open pit would be backfilled to an elevation that varies from northwest to southeast across the open pit from approximately 7,300 to 6,850 feet amsl. The backfilling would commence in year 32 and be completed in approximately 13 years. The partial backfilling would be accomplished by the same fleet and personnel that completed the mining.

3.16.3.5.1 Noise Impacts

The noise related impacts under the Partial Backfill Alternative would be similar to that described for the Proposed Action, except that the duration of the mining related noise would last for 13 years longer. The Partial Backfill Alternative requires that a portion of the waste rock removed during mining be dumped back into the open pit to the point that would eliminate the potential for a pit lake. The equipment required for moving and dumping waste rock would remain on site longer than under the Proposed Action.

- **Impact 3.16.3.5-1:** Ambient noise levels associated with the Partial Backfill Alternative could be increased and affect ambient noise levels at the nearest ranch houses or residences.

Significance of the Impact: The predicted changes in hourly ambient noise levels at the nearest ranch houses are 1 dB or less. The impact would be similar at the residences in Diamond Valley. This impact would be considered less than significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.5-2:** Project-related noise levels associated with the Partial Backfill Alternative could be increased to noise levels that are less than 55 dBA as measured at a sensitive receptor site.

Significance of the Impact: The impact would be considered less than significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.5-3:** The Partial Backfill Alternative would cause increases in traffic noise levels.

Significance of the Impact: The predicted changes in traffic noise levels are less than 3 dB where the existing traffic noise level exceeds 60 dB L_{dn} ; therefore, the predicted changes in traffic noise levels due to the Partial Backfill Alternative would be less than significant. The predicted Project-related mining and processing noise level in the vicinity of the Project access road and SR 278 is approximately 39 dB L_{dn} . This level of noise would not cause a significant change in ambient noise levels at that location in terms of L_{dn} , since the existing traffic noise would be nearly 20 dB higher than the mining and processing noise level. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.5-4:** The Partial Backfill Alternative would cause increases in noise levels that could impact local residences through construction activities or poorly maintained construction equipment. The maximum noise levels received at the nearest ranch house, which is approximately two miles away from the nearest areas where grading would occur, would be reduced by approximately 23 dB as compared to the values shown on Table 3.16-6, ignoring sound absorption or any shielding provided by topography; therefore, maximum construction noise levels at the nearest ranch house would be in the range of approximately 47 to 67 dB. In practice, considering the topography of the Project Area, much of the construction equipment would be shielded from view of the nearest ranch house by topography. In those cases, the construction noise levels would be further reduced by five to 10 dB or greater.

Significance of the Impact: Noise levels produced by construction activities or poorly maintained construction equipment in the vicinity of the Roberts Creek Ranch house or greater sage-grouse leks could be significant if such activities occurred at nighttime or if the noise level exceeds 55 dB.

- **Mitigation Measure 3.16.3.5-4:** Construction in the vicinity of the Roberts Creek Ranch house or greater sage-grouse leks (see Section 12.3 of Appendix C) would be limited to daylight hours and non-lekking times of the year. Construction equipment used in the vicinity of residences would be fitted with the best available technology manufacturers' noise control equipment, including engine exhaust silencers and acoustical enclosures. Noise control equipment would be maintained in good working order.

- **Effectiveness of Mitigation and Residual Effects:** The implementation of this mitigation measure would be effective at reducing the potential impact to less than significant by controlling the generation of the noise.
- **Impact 3.16.3.5-5:** Noise caused by blasting during construction and mining could cause annoyance if residents were startled by unexpected blasts, or if blasting overpressures caused rattling of residence windows. The Partial Backfill Alternative would not otherwise impact auditory resources associated with blasting.

Significance of the Impact: This impact is not considered significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.16.3.5.2 Residual Adverse Impacts

There are no residual adverse impacts associated with the Partial Backfill Alternative.

3.16.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

Under this alternative, the open pit, WRDFs, and TSFs would be developed as outlined under the Proposed Action; however, the ore processing facilities would include only the milling operations and production of the molybdenum sulfide concentrate. The TMO and FeMo portions of the processing facility would not be constructed, and as a result, the surface disturbance footprint would be approximately 20 acres less than under the Proposed Action. In addition, the leaching of the concentrate would likely not be done on site. The production of molybdenum sulfide concentrate would occur at an average rate of approximately 45.8 million pounds per year. This material would be stored at the Project Area in a concentrate storage structure adjacent to the mill. The molybdenum sulfide concentrate would be loaded from this storage facility into street-legal haul trucks with covered containers and transported on the public transportation system to either an existing or new TMO facility.

3.16.3.6.1 Noise Impacts

The noise related impacts under the Off-Site Transfer of Ore Concentrate for Processing Alternative would be similar to but less than the Proposed Action. There would be less noise from the processing facilities because of the elimination of the roaster portion of the process; however, all the other noise levels would be the same since there would be a similar number of trucks hauling ore concentrate under this alternative, versus trucks hauling TMO under the Proposed Action.

- **Impact 3.16.3.6-1:** Ambient noise levels associated with the Off-Site Transfer of Ore Concentrate for Processing Alternative could be increased and affect ambient noise levels at the nearest ranch houses or residences.

Significance of the Impact: The predicted changes in hourly ambient noise levels at the nearest ranch houses are 1 dB or less. The impact would be similar at the residences in Diamond Valley. This impact would be considered less than significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.6-2:** Project-related noise levels associated with the Off-Site Transfer of Ore Concentrate for Processing Alternative could be increased to noise levels to less than 55 dBA as measured at a sensitive receptor site.

Significance of the Impact: The impact would be considered less than significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.6-3:** The Off-Site Transfer of Ore Concentrate for Processing Alternative would cause increases in traffic noise levels.

Significance of the Impact: The predicted changes in traffic noise levels are less than 3 dB where the existing traffic noise level exceeds 60 dB L_{dn} ; therefore, the predicted changes in traffic noise levels due to the Off-Site Transfer of Ore Concentrate for Processing Alternative would be less than significant. The predicted Project-related mining and processing noise level in the vicinity of the Project access road and SR 278 is approximately 39 dB L_{dn} . This level of noise would not cause a significant change in ambient noise levels at that location in terms of L_{dn} , since the existing traffic noise would be nearly 20 dB higher than the mining and processing noise level. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.6-4:** The Off-Site Transfer of Ore Concentrate for Processing Alternative would cause increases in noise levels that could impact local residences through construction activities or poorly maintained construction equipment. The maximum noise levels received at the nearest ranch house, which is approximately two miles away from the nearest areas where grading would occur, would be reduced by approximately 23 dB as compared to the values shown on Table 3.16-6, ignoring sound absorption or any shielding provided by topography; therefore, maximum construction noise levels at the nearest ranch house would be in the range of approximately 47 to 67 dB. In practice, considering the topography of the Project Area, much of the construction equipment would be shielded from view of the nearest ranch house by topography. In those cases, the construction noise levels would be further reduced by five to 10 dB or greater.

Significance of the Impact: Noise levels produced by construction activities or poorly maintained construction equipment in the vicinity of the Roberts Creek Ranch house or greater sage-grouse leks could be significant if such activities occurred at nighttime or if the noise level exceeds 55 dB.

- **Mitigation Measure 3.16.3.6-4:** Construction in the vicinity of the Roberts Creek Ranch house or greater sage-grouse leks (see Section 12.3 of Appendix C) would be limited to daylight hours and non-lekking times of the year. Construction equipment used in the vicinity of residences would be fitted with the best available technology manufacturers' noise control equipment, including engine exhaust silencers and acoustical enclosures. Noise control equipment would be maintained in good working order.
- **Effectiveness of Mitigation and Residual Effects:** The implementation of this mitigation measure would be effective at reducing the potential impact to less than significant by controlling the generation of the noise.

- **Impact 3.16.3.6-5:** Noise caused by blasting during construction and mining could cause annoyance if residents were startled by unexpected blasts, or if blasting overpressures caused rattling of residence windows. The Off-Site Transfer of Ore Concentrate for Processing Alternative would not otherwise impact auditory resources associated with blasting.

Significance of the Impact: This impact is not considered significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.16.3.6.2 Residual Adverse Impacts

There are no residual adverse impacts from noise as a result of the Off-Site Transfer of Ore Concentrate for Processing Alternative.

3.16.3.7 Slower, Longer Project Alternative

Impacts to auditory resources as a result of the Slower, Longer Project Alternative are expected to be similar to those described for the Proposed Action because of the same noise-making activities and the similar noise generation by those activities.

3.16.3.7.1 Noise Impacts

- **Impact 3.16.3.7-1:** Ambient noise levels associated with the Slower, Longer Project Alternative could be increased and affect ambient noise levels at the nearest ranch houses.

Significance of the Impact: The predicted changes in hourly ambient noise levels at the nearest ranch houses are 1 dB or less and would be considered less than significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.7-2:** Project-related noise levels associated with the Slower, Longer Project Alternative could be increased to noise levels in excess of 55 dBA measured at a sensitive receptor site.

Significance of the Impact: The impact would be considered less than significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.7-3:** The Slower, Longer Project Alternative would cause increases in traffic noise levels.

Significance of the Impact: The predicted changes in traffic noise levels are less than 3 dB where the existing traffic noise level exceeds 60 dB L_{dn} ; therefore, the predicted changes in traffic noise levels due to the Slower, Longer Project Alternative would be less than significant. The predicted Project-related mining and processing noise level in the vicinity of the Project access road and SR 278 is approximately 39 dB L_{dn} . This level of noise would not cause a significant change in ambient noise levels at that location in terms of L_{dn} , since the existing traffic noise would be nearly 20 dB higher than the mining and processing noise level. Based on the conclusions from the analysis, no additional mitigation is proposed.

- **Impact 3.16.3.7-4:** The Slower, Longer Project Alternative would cause increases in noise levels that could impact local residences through construction activities or poorly maintained construction equipment. The maximum noise levels received at the nearest ranch house, which is approximately two miles away from the nearest areas where grading would occur, would be reduced by approximately 23 dB as compared to the values shown on Table 3.16-6, ignoring sound absorption or any shielding provided by topography; therefore, maximum construction noise levels at the nearest ranch house would be in the range of approximately 47 to 67 dB. In practice, considering the topography of the Project Area, much of the construction equipment would be shielded from view of the nearest ranch house by topography. In those cases, the construction noise levels would be further reduced by 5 to 10 dB or greater.

Significance of the Impact: Noise levels produced by construction activities or poorly maintained construction equipment in the vicinity of the Roberts Creek Ranch house could be significant if such activities occurred at nighttime or if the noise level exceeds 55 dB.

- **Mitigation Measure 3.16.3.7-4:** Construction in the vicinity of the Roberts Creek Ranch house or greater sage-grouse leks (see Section 12.3 of Appendix C) would be limited to daylight hours. Construction equipment used in the vicinity of residences would be fitted with the best available technology manufacturers' noise control equipment, including engine exhaust silencers and acoustical enclosures. Noise control equipment would be maintained in good working order. Implementation of this mitigation measure would result in a less than significant impact.
- **Effectiveness of Mitigation and Residual Effects:** The implementation of this mitigation measure would be effective at reducing the potential impact to less than significant by controlling the generation of the noise.
- **Impact 3.16.3.7-5:** Noise caused by blasting during construction and mining could cause annoyance if residents were startled by unexpected blasts, or if blasting overpressures caused rattling of residence windows. The Slower, Longer Project Alternative would not otherwise impact auditory resources associated with blasting.

Significance of the Impact: This impact is not considered significant. Based on the conclusions from the analysis, no additional mitigation is proposed.

3.16.3.7.2 Residual Adverse Impacts

There are no residual adverse impacts associated with the Slower, Longer Project Alternative.

3.17 Socioeconomic Values

3.17.1 Regulatory Framework

The NEPA requires consideration of local plans and policies in the assessment of the social and economic effects of proposed activities involving federal lands (43 CFR 1506.2). Federal, state, and local plans and guidelines that apply to social and economic values within the Socioeconomic Values and Environmental Justice Study Area (Study Area), include the