

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

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**Environmental Assessment  
DOI-BLM-CA-D050-2017-0037-EA  
October 2017**

**Perdito Exploration Project  
Environmental Assessment**

*Location:*  
Inyo County

*Applicant/Address:*  
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**LIST OF ACRONYMS AND ABBREVIATIONS**

%	percent
ACEC	Area of Critical Environmental Concern
APE	Area of Potential Effect
bgs	below ground surface
BHP	BHP Minerals
BLM	Bureau of Land Management
BMPs	Best Management Practices
CDCA	California Desert Conservation Area
CDCA Plan	California Desert Conservation Area Management Plan of 1980
Cedar Creek	Cedar Creek Associates, Inc.
CEQ	Council on Environmental Quality
CESA	cumulative effect study area
CFR	Code of Federal Regulations
CMA	conservation management action
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalence
DRECP	Desert Renewable Energy Conservation Plan of 2016
EA	Environmental Assessment
EPA	Environmental Protection Agency
FLPMA	Federal Land Policy and Management Act of 1976
GHG	greenhouse gas
GPS	global positioning system
GTLF	ground transportation linear features
GWP	global warming potential
KDV trail	Keeler-Death Valley Trail
KOP	Key Observation Point
LUPA	Land Use Plan Amendment
NLCS	National Land Conservation System
NEMO	Northern and Eastern Mojave Management Plan of 2002
NEPA	National Environmental Policy Act of 1969
NO <sub>x</sub>	nitrous oxides
NRHP	National Register of Historic Places

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OHV	off-highway vehicle
Project	Perdito Exploration Project
RC	reverse circulation
ROW	right-of-way
Silver Standard	Silver Standard US Holdings Inc.
SQRU	Scenic Quality Rating Unit
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USC	United States Code
VRM	Visual Resource Management
WIU	Wilderness Inventory Unit
WSA	Wilderness Study Area

# 1. Introduction

On December 4, 2015, Silver Standard US Holdings Inc., (Silver Standard), a U.S. company held by SSR Mining of Vancouver, B.C, submitted a plan of operations for the Perdito Exploration Project (Project). The Project is located on un-patented lode mining claims on public lands administered by the U.S. Department of the Interior, Bureau of Land Management, Ridgecrest Field Office (BLM) in Inyo County, California. The proposed Project location is shown on Figure 1 and is located in section 32, township 16 south, range 39 east and sections 3, 4, 9, and 10, township 17 south, range 39 east, Mount Diablo Meridian, California. The site is accessed from Saline Valley Road, north of Highway 190. A BLM-managed dirt road is used to access the Project area from the Saline Valley Road.

The BLM has prepared this Environmental Assessment (EA) in conformance with the Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations [CFR] § 1500-1508) and the BLM NEPA Handbook H-1790-1. This EA describes the Silver Standard's Proposed Action Alternative, the Minimum Road Construction Alternative, the BLM Preferred Helicopter Access Alternative, and the No Action Alternative, and evaluates impacts to the affected environment associated with their implementation, respectively. This document further describes the applicant committed environmental protection measures specifically designed to eliminate or reduce potential environmental impacts and summarizes the conservation management actions (CMAs) relevant to the proposed activity and location.

## 1.1 Purpose and Need for Action

Silver Standard has applied to BLM for authorization to drill and sample a set of unpatented lode mining claims in Inyo County, California. The BLM has a need to respond to Silver Standard's proposal for exploration as directed by the Federal Land Policy and Management Act of 1976 (FLPMA) and by the Surface Management regulations (43 CFR § 3809). It is the BLM's purpose to comply with this need while ensuring compliance with applicable land use management plans, protection of resources, and compliance with federal and state laws related to environmental protection (43 CFR § 3809.420).

Under FLPMA, Congress mandated that public land management under the Department of the Interior be on the basis of multiple use and sustained yield unless otherwise specified by law (Title I, Section 102.(a)(7) [43 U.S.C. 1701]), and that public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use (Section 102 (a)(8)). FLPMA also states under Title I (Section 102 (a) (12)) that public lands are to be managed in a manner that recognizes the Nation's need for domestic sources of minerals, including implementation of the Mining and Mineral Policy Act of 1970 (84 Stat. 1876, 30 USC 21a). Title III, Section 302 (b)(f) of FLPMA states that the Department of the Interior is to respect the rights of ingress and egress associated with the Mining Law of 1872 except as provided in Title VI, while taking any action necessary to prevent unnecessary or undue degradation of public lands

[43 U.S.C.1732]. Under Title VI of FLPMA with respect to Designated Management Areas such as the California Desert Conservation Area (CDCA), FLPMA affirms that “nothing in this Act shall affect the applicability of the United States mining laws on public lands within the CDCA, except that all mining claims located on public lands within the CDCA, shall be subject to such reasonable regulations as the Secretary may prescribe to effectuate the purposes of this section.” (Section 601. (a)(f) [43 U.S.C. 1781]).

Surface Management regulations 43 CFR § 3809 implement the goals of FLPMA by establishing procedures and standards for operations on public land authorized by the mining laws. The stated objectives of these directives are to provide for mineral entry, exploration, location, operations and purchases pursuant to mining laws, “in a manner that will not unduly hinder such activities” but “will assure that such activities are conducted in a manner that will prevent unnecessary or undue degradation” and that will protect other non-mineral resources on federal lands. Objectives include setting reclamation standards for disturbed areas and requiring coordination with appropriate State agencies. The regulations establish when activities must have an authorized plan of operations as opposed to a notice, and whether BLM's authorization of such plans, and plan modifications, is subject to review under the NEPA.

## **1.2 Decision to be Made**

The BLM will decide whether to approve, approve with modification, or deny the proposal for mineral exploration as presented by Silver Standard.

## **1.3 Conformance with BLM Land Use Plans**

This proposal is in conformance with the California Desert Conservation Area Management Plan of 1980 as amended (CDCA Plan) (BLM, 1999), the Northern and Eastern Mojave Management Plan (NEMO) (BLM, 2002), and the Desert Renewable Energy Conservation Plan (DRECP), approved on September 14, 2016 (BLM, 2016a and 2016b). The NEMO and DRECP Plans are land use plan amendments (LUPAs) to the CDCA Plan. Each subsequent plan amendment supersedes previous plans and plan amendments where it has made changes. These and other plans are publicly available at the California BLM website for land use planning <https://www.blm.gov/programs/planning-and-nepa/plans-in-development/california>.

The DRECP eliminated Multiple Use Classifications within the California Desert Conservation Area (CDCA). The Project is now located on lands classified as being within the National Land System (NLCS) System and partially on lands located within an Area of Critical Environmental Concern (ACEC). Lands located within NLCS or ACEC units are treated as lands previously designated as Limited Use lands (NLCS-MIN-2, Table 24 DRECP LUPA and CDCA Multiple-Use Class Crosswalk, II.5.1, DRECP BLM Land Use Plan Amendment). New or expanded mineral operations are to be evaluated on a case-by-case basis, and authorizations are subject to DRECP LUPA requirements and the governing laws and regulations (CMA LUPA-MIN-6). Other applicable CMAs are discussed in Chapter 1.5.

## **1.4 Relationship to Statutes, Regulations or other Plans and Requirements**

The alternatives are consistent and comply with the following federal laws and regulations:



- The Mining Law of 1872 (30 USC 22) provides for the right to explore and purchase valuable mineral deposits on lands belonging to the United States, so far as is not inconsistent with the laws of the United States.
- The FLPMA of 1976 states that it is the policy of the United States to manage the public lands for multiple use and sustained yield while providing for resource protection in a manner that also recognizes the nation's need for domestic sources of minerals, provides rights of ingress and egress to locators under the Mining Law of 1872, and mandates the Secretary of the Interior to prevent unnecessary or undue degradation of public lands (Title I, Section 102 (a)(7) and (12), and Title III, Section 302 (b)(f), of FLPMA) [43 USC 1701(a)(12) and 43 USC 1732(b)].
- The Mining and Minerals Policy Act of 1970 (30 USC 21a) as amended declares it is the policy of the United States to foster and encourage the orderly and economic development of domestic mineral resources.
- The National Historic Preservation Act (16 USC 470) requires federal agencies to consider the effect of federal undertakings (including federal authorizations) on sites that may be eligible for inclusion in the National Register of Historic Places (NRHP).
- The Endangered Species Act (ESA) (16 USC 1536) requires federal agencies to ensure that federally-authorized actions are not likely to jeopardize the continued existence of any threatened or endangered species.
- Surface Management regulations (43 CFR § 3809) establish procedures and standards to prevent unnecessary or undue degradation of public lands by operations authorized by the mining laws.
- Federal regulation 43 CFR § 3809.11 specifies that an operator must submit a plan of operations for any operations causing surface disturbance greater than casual use or within a Limited Use Area or its equivalent. The authorization of a plan of operations is a federal decision subject to the NEPA.
- The project area is within an area segregated for two years from mineral location and entry (Federal Register Notice of December 28, 2016, 81 FR 95738). The Segregation includes 1.34 million acres of Public Lands within the CDCA. The claims affected by this Project are all located prior to the date of segregation and are confirmed to have physical exposure(s) of locatable minerals existing as of December 28, 2016. Given that the lands are segregated, not withdrawn, and contain exposure(s) of locatable minerals prior to the segregation date, BLM is not required to conduct a validity examination of the claims prior to issuing a decision on this plan of operations (reference federal regulations 43 CFR 3809.100 and Section 8.1 of BLM Surface Management Handbook H-3809-1).

## **1.5 Conservation Management Actions**

The following CMAs, listed by name with a short descriptor, are applicable to one or more of the Project alternatives due to the Project location and the types of activities proposed. Information regarding the implementation of the CMAs can be found in Appendix D of the DRECP LUPA (BLM, 2016a and 2016b). Where applicable, references to the CMAs have also been included under the Project alternative descriptions and environmental protection measure descriptions.

- LUPA-BIO-1 – these CMA requirements have been met through the completion of the baseline biological survey and surface water investigations;
- LUPA-BIO-2 – a biologist would be on-site during the road and/or pad construction periods, helicopter landing activity as needed, and during reclamation to ensure avoidance and minimization measures are appropriately implemented;
- LUPA-BIO-5 – worker education would be implemented to cover the topics specified by this CMA including, but limited to, biological resource identification and protections, avoidance, reporting, and protection measures;
- LUPA-BIO-6 – the described predator subsidy management standards would be implemented as part of the Project design including, but not limited to, controlling food subsidies, water subsidies, and breeding sites;
- LUPA-BIO-7 – site-specific habitat restoration measures would be covered by the proposed site reclamation activities, including the salvaging of cactus and yucca as needed. Disturbance would be considered short-term (i.e. less than two years);
- LUPA-BIO-8 – the described closure and decommissioning measures would be covered by the site reclamation activities;
- LUPA-BIO-10 – weed management practices would be implemented as part of the Project operations including but not limited to vehicle cleaning (for the Silver Standard's Proposed Action Alternative and Minimum Road Construction Alternative), use of weed-free materials, revegetation, and monitoring and control measures for early detection and eradication of weeds;
- LUPA-BIO-11 – nuisance animals and invasive species would be controlled, as needed, as described in this CMA;
- LUPA-BIO-12 – standard noise controls would be used on drilling equipment. Under the BLM Preferred Helicopter Access Alternative, the flying height would be set at a minimum of one-mile. The helicopter landing areas would be checked by a biological monitor per LUPA-BIO-2;
- LUPA-BIO-13 – the presence of a biological monitor would be used to establish avoidance areas as needed. Nighttime lighting would be short-term and limited to only necessary use areas. Project activities would be confined to the designated routes and drill pads;
- LUPA-BIO-14 – the general standard practices listed under this CMA would be implemented for the protection of wildlife. The amount of vegetation removal required for each alternative would differ as discussed in Chapter 4;
- LUPA-BIO-15 – road and drill pad construction would use state-of-the-art techniques to minimize disturbance;
- LUPA-BIO-16 – the baseline biological survey and presence of a biological monitor during construction would be part of this CMA implementation;
- LUPA-BIO-PLANT-1 – the baseline biological survey was conducted during the appropriate survey season (s);

- LUPA-BIO-PLANT-2 – a setback would be established for Focus and BLM Special Status Species occurrences as appropriate and where those setbacks do not conflict with 43 CFR § 3809 regulations (see discussion in Chapter 4.14);
- LUPA-BIO-SVF-1 – Joshua tree and Mojave fish hook cactus locations were identified during baseline surveys;
- LUPA-BIO-SVF-2 – yucca clones of the designated size would be avoided, if present, in coordination with the biological monitor;
- LUPA-BIO-VEG-1 – management of yucca and cactus would be in accordance with BLM policy;
- LUPA-BIO-VEG-5 – the salvage and transplant of yucca and cactus would be done in accordance with current regulations;
- LUPA-BIO-IFS-24 – Project activities would not occur within one mile of an active golden eagle nest. Coordination with the BLM would identify avoidance areas, if any, applicable to the BLM Preferred Helicopter Access Alternative;
- LUPA-BIO-IFS-25 – if an active or alternative golden eagle nest is located, the cumulative disturbance would be less than 20 percent of the surrounding foraging habitat;
- LUPA-BIO-COMP-1 – Compensation would be carried out for each alternative as described in Chapter 1.6;
- LUPA-AIR-1 – the air resource requirements listed under this CMA would be met;
- LUPA-AIR-2 – the alternatives would not result in the exceedance of local air quality standards or requirements as indicated in Appendix A;
- LUPA-AIR-4 – fugitive dust is addressed as part of this EA in Appendix A as a resource which is present and affected, but not to a degree necessitating additional analysis;
- LUPA-AIR-5 – a fugitive dust control plan would be submitted prior to Project implementation;
- LUPA-CUL-4 – the cultural baseline survey was used to inform the Project design and avoid impacts to cultural resources;
- LUPA-SW-6 – up-to-date industry practices would be used to prevent toxic substances from leaching into the soils;
- LUPA-SW-7 – an emergency response plan would be prepared for the control of spills prior to Project initiation;
- LUPA-SW-11 – side casting of soil would be avoided for cut and fill operations;
- LUPA-SW-31 – the construction and abandonment of all wells would conform to specifications contained in the California Department of Water Resources Bulletins #74-81 and #74-90 and their updates;
- LUPA-VRM-1 – visual resources would be managed in accordance with VRM Class II objectives. See the discussion in Chapter 4.16:

- LUPA-VRM-2 – contrast ratings have been completed as part of this EA. See Chapter 4.16;
- LUPA-WC-3 – the Project is within an area found to have wilderness characteristics. Compensation would be carried out as described in Chapter 1.6;
- LUPA-COMP-1 – compensation measures would be completed within the required timeframe. See discussion in Chapter 1.6;
- NLCS-DIST-1 – the NLC disturbance cap has been met for the Basin and Range NLC unit. See NLCS-DIST-2;
- NLCS-DIST-2 – because the disturbance cap has been met for the Basin and Range NLC unit, ground disturbance mitigation would be carried out, as discussed in Chapter 1.6;
- NLCS-MIN-2 – a plan of operations has been prepared for the Project;
- LUPA-MIN-6 – this Project is being evaluated on a case-by-case basis and is subject to LUPA requirements and the governing laws and regulations;
- ACEC-CUL-6 – a baseline cultural resource survey has been completed and environmental protection measures for the avoidance of cultural resources would be implemented. See Chapter 4.6;
- ACEC-DIST-1 – the Conglomerate Mesa ACEC disturbance cap has been met. See ACEC-DIST-2; and
- ACEC-DIST-2 – because the disturbance cap has been met for the Conglomerate Mesa ACEC, ground disturbance mitigation would be carried out as discussed in Chapter 1.6.

## 1.6 Compensation

For the portion of the proposed activity that is located on land within an area previously disturbed by an authorized/approved action that has been terminated the required disturbance mitigation ratio is 1.5:1, but if that authorized action area has been restored, the required disturbance mitigation ratio requirement is then doubled, that is, 3:1.

As stated in CMA LUPA-WC-3, mitigation is required for inventoried lands found to have wilderness characteristics, but not managed for those characteristics, if the wilderness characteristics are directly impacted. In the case of the proposed alternatives, compensation would be at a ratio of 2:1. Wilderness compensatory mitigation may be accomplished through acquisition and donation, or by restoration.

Per CMA NLCS-DIST-2 and CMA ACEC-DIST-2, development in the NLCS lands and ACEC lands is limited by a total ground disturbance cap. The ground disturbance cap for the NLCS Basin and Range subarea, within which the Project alternatives are located, has met the ground disturbance cap of 1.0 percent (%), with a total ground disturbance of 1.29% (Beck, 2017). The Conglomerate Mesa portion of the Cerro Gordo-Conglomerate Mesa ACEC overlaps the affected NLCS lands and has also met its 0.10% ground disturbance cap. This triggers the need for ground disturbance mitigation for projects which involve disturbance and which are not otherwise exempt. For the portion of the proposed activity that is located on land within an area previously disturbed by an authorized/approved action that has been terminated the required disturbance mitigation ratio is 1.5:1, but if that authorized action area has been restored, the required disturbance mitigation

ratio requirement is then doubled, that is, 3:1. In the case of this area, the old BHP Minerals (BHP) roads are considered reclaimed. For the portion of the chosen alternative located on undisturbed land, the required disturbance mitigation ratio is 3:1. Mitigation acres for these CMAs are listed in Table 1-1.

Since multiple CMAs with compensation requirements apply to this particular activity, these compensation requirements may be “nested”, that is, the most conservative mitigation action may satisfy multiple mitigation requirements. In this case, it will be 3:1 for all ground disturbance. Detailed disturbance acreage calculations are included as Appendix B.

**Table 1-1: Mitigation Acres**

<b>Alternative</b>	<b>Total Disturbance (acres)</b>	<b>Total Mitigation 3:1 (acres)</b>
Silver Standard’s Proposed Action Alternative	7.75	23.25
Minimum Road Construction Alternative	7.28	21.84
BLM Preferred Helicopter Access Alternative	0.20	0.60

Ground disturbance mitigation must occur within the management unit within which it occurs. For example, mitigation for ground disturbance within the Conglomerate Mesa portion of the Cerro Gordo-Conglomerate Mesa ACEC must occur within that ACEC boundary. Mitigation opportunities would be investigated and decided on in consultation with the BLM and other agencies or parties as required.

Ground disturbance mitigation is required to be completed within 12 months of disturbance. Silver Standard would remain in communication with the BLM regarding project progress and actual disturbance of the chosen alternative to ensure the correct acreage of ground disturbance mitigation is completed within the required time frame.

## **1.7 Scoping and Public Comment**

A BLM Interdisciplinary Team meeting was held on May 20, 2016 at the BLM Ridgecrest Field Office and a field visit was conducted on July 26, 2016. Substantive issues discussed and potential impacts resulting from the Silver Standard’s Proposed Action Alternative and alternatives are summarized in the Interdisciplinary Team checklist, included as Appendix A. Resources present with the potential for significant impact are analyzed in detail in this EA. Resources either not present or present, but not affected to a degree requiring detailed analysis, were not carried forward in this EA. The rationale for determination for each resource is included in Appendix A.

Resources determined to be present with the potential for significant impact which have been carried forward in this EA are:

- Areas of Critical Environmental Concern;
- Cultural Resources;
- Invasive Plants and Noxious Weeds;
- National Land Conservation System lands;

- Greenhouse Gas Emissions;
- Native American Religious Concerns;
- Recreation;
- Soils;
- Special Status Animal Species other than USFWS candidate or listed species;
- Special Status Plant Species other than USFWS candidate or listed species;
- Vegetation;
- Visual Resources;
- Wildlife; and
- Lands with Wilderness Characteristics.

This EA is published at:

[https://eplanning.blm.gov/epl-front-office/eplanning/nepa/nepa\\_register.do](https://eplanning.blm.gov/epl-front-office/eplanning/nepa/nepa_register.do).

## 2. Description of Alternatives

### 2.1 Site History

This area of the public lands was permitted and drilled by Compass Minerals in the late 1980's, when the lands involved were part of the Cerro Gordo Wilderness Study Area (WSA). The drill sites were few in number and used a network of primitive jeep trails to access the area. In 1994, the California Desert Protection Act designated a portion of the WSA as the Malpais Mesa Wilderness and released the rest of the WSA from protective legislative wilderness study status. These released lands reverted to their former Moderate Use land status under the CDCA Plan.

In 1997, the BLM approved a plan of operations (CACA-37380) for BHP to conduct more exploration on these lands (BLM, 1997). Seven miles of drilling access routes to 85 drill sites were built by BHP on the present mining claims at that time. The drilling project was completed, and the access routes were reclaimed and reseeded in 2000. Since then, BHP has transferred or discontinued their commercial interest in these claims.

On December 20, 2002, the BLM finalized the NEMO plan amendment to the CDCA Plan. Among other changes, this land use plan revised the classification status of Conglomerate Mesa from *Moderate Use* to *Limited Use* lands. The *Limited Use* class protects sensitive, natural, scenic, ecological, and cultural resource values. *Limited Use* lands are managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.

In 2007, Timberline Resources Corp. leased the right to explore and work these unpatented lode mining claims from their owner, Mr. Steven Van Ert of Chatsworth, California. Timberline Resources submitted a plan of operations in 2007, and a preliminary EA was prepared (BLM, 2007). The plan of operations was, however, withdrawn by the proponent prior to issuance of a Decision Record.

On December 4, 2015, Silver Standard submitted a plan of operations for an exploratory drilling project. The company is proposing to twin holes previously drilled by BHP to verify previous findings using updated exploration techniques. Silver Standard obtained control of the unpatented claims in Conglomerate Mesa through an Option Agreement in 2016.

The DRECP amendment to the CDCA Plan was finalized on September 14, 2016 (BLM, 2016a). The DRECP planning process was formally started in 2008 with a Memorandum of Understanding signed between BLM-California, United States Fish and Wildlife Service (USFWS)-Region 8, the California Department of Fish and Wildlife (then California Department of Fish and Game), and the California Energy Commission. It was initiated in response to the demand to develop and appropriately site large-scale renewable energy projects in the CDCA. The plan focused on (1) identifying specific development focus areas with high renewable energy potential and reasonable access to transmission corridors, where environmental impacts could be managed and mitigated; and (2) on identifying areas to be set aside for conservation and other purposes to offset impacts from renewable energy development.

The amendment modified the status of the lands in Conglomerate Mesa where the Project is located by eliminating Multiple Use Classes in the CDCA, by expanding the Cerro Gordo-Conglomerate Mesa ACEC, and by placing the general area within the California Desert NLCS. In addition, the



DRECP adopted a number of protective stipulations, CMA's, that were LUPA-wide, limited to particular resources or to specially designated areas, to be applied to land use proposals.

## **2.2 Silver Standard's Proposed Action Alternative**

### **2.3 General Description**

Silver Standard is proposing the following as described in the *Silver Standard US Holdings Inc. 3809 Plan of Operation for the Perdito Project, Inyo County, CA* (Silver Standard, 2015a) and the *Reclamation Plan for the Perdito Project, Inyo County, CA* (Silver Standard, 2015b). The proposed activities are illustrated on Figure 2A, and include:

- Overland travel or construction of exploration road on top of (within) previously disturbed and reclaimed areas used by BHP. The overland routes and constructed roads would have running widths of ten to twelve feet;
- Construction of seven drill pads with drilling fluid containment sumps, as needed, on top of previously disturbed and reclaimed drill pad sites. The containment sumps would measure less than five feet by five feet, by four feet deep; and
- Drilling of seven diamond core or reverse circulation (RC) exploration holes to a maximum depth of 1,000 feet below ground surface (bgs).

Sloped surface disturbances associated with the Silver Standard's Proposed Action Alternative are discussed in Chapter 4.2.

#### **2.3.1 Access**

The site is accessed from Saline Valley Road, north of Highway 190, as shown on Figure 1. Open designated vehicle routes (unmaintained jeep trails) would be used to access the Project across BLM land from the Saline Valley Road. No improvements to these vehicle routes are proposed.

#### **2.3.2 Exploration Routes/Roads**

The drill pads would be accessed from the terminus of the nearest open designated vehicle route by proposed exploration routes shown on Figure 2A. Use of these exploration routes would require use of a combination of overland travel and travel on constructed roads, with overland travel occurring on approximately 5,600 feet (1.06 miles) of the route and travel on constructed road occurring on some 14,350 feet (2.7 miles) of the route. An experienced road-building contractor would be utilized for up to one month of road construction. An excavator and blade, or other similar earth moving equipment, would be used as needed.

Overland travel would be employed where possible, generally on flat areas and areas with shallow slopes (washes and ridgelines) as shown on Figure 2A. Overland travel may require use of equipment to move large rocks. Some vegetation and rocks may be removed using hand tools. Otherwise, overland travel would involve the crushing of existing vegetation. It would not require scraping or blading.

Exploration road construction would be required on steeper slopes to provide a safe running surface of the appropriate grade and angle to support drilling equipment. Road construction may range from simple blading to cut and fill operations resulting in cut banks and fill slopes. The



resulting sloped disturbance area is dependent on the underlying slope rather than the type of equipment used. Lengths of exploration road requiring construction are shown on Figure 2A, and sloped disturbance calculations are included in Appendix B. Side-casting of material would be minimized in accordance with CMA-LUPA-SW-11.

### 2.3.3 Exploration

A total of seven diamond core or RC drill holes would be drilled at the locations shown on Figure 2. The drill pads would be located within the previously disturbed and reclaimed BHP exploration routes and would measure approximately 12 feet by 60 feet. A drill pad schematic is included as Figure 3. The holes would be drilled to a maximum of 1,000 feet bgs, and drilling fluid sumps measuring approximately five feet by five feet, by four feet deep would be excavated within the drill pad footprint.

Drill hole survey equipment would be used to survey the extent and deviation of the drill hole after completion. Chip or core samples obtained from the drilling program would be sent offsite for geochemical assay analysis.

Mobile equipment proposed for use under the Silver Standard's Proposed Action Alternative are listed in Table 2-1.

**Table 2-1: Silver Standard's Proposed Action Alternative Mobile Equipment**

<b>Equipment Type<sup>1</sup></b>	<b>Number</b>
Schramm T450 track-mounted drill	1
Compressor, 900 cubic feet per minute 351 psi	1
Track-mounted pipe carrier	1
2,000-gallon water truck	1
Backhoe	1
D6 or equivalent dozer with 10-foot or less blade	1
Light-duty trucks	2
Parts trailer	1

<sup>1</sup>Equipment listed may be substituted by equivalent alternative, based upon availability

One of the drill pads would be used for the temporary storage of equipment and materials. Water would be stored in a 3,000- to 5,000-gallon water tank on one of the drill pads. Water would be obtained from an existing and permitted source by Silver Standard and transported to the drill site by truck. During drilling, 500 to 1,000 gallons of water would be used each day. Recirculation of water would be done when possible.

Fuel would be stored in a truck-mounted tank and/or 55-gallon drums at each drill pad during drilling. The drums would be set within a non-spill containment pad, either located on a truck or in a plastic-lined earthen berm area. A portable generator would be used to supply electricity to each active drill site, and a portable outhouse would be transported between each drill pad and cleaned regularly.

### 2.3.4 Project Schedule

The exploration project, including road construction and reclamation, is anticipated to take approximately eight months including four months of active drilling. Road construction would

commence upon completion of permit requirements and the posting of the requisite financial assurance.

### 2.3.5 Employment

Road construction and drilling would be conducted during two 12-hour shifts. The anticipated employment numbers are summarized in Table 2-2. Employees would likely commute daily (requiring two round trips per day, one for each shift) from either Lone Pine or Ridgecrest.

**Table 2-2: Anticipated Employment**

<b>Employee Type</b>	<b>Work Type</b>	<b>Number</b>
Contractor	Road Construction	2
Contractor	Drilling	9
Silver Standard	Drilling and Road Construction	2

### 2.3.6 Reclamation

Per 43 CFR § 3809.420, Silver Standard would, at the earliest feasible time, reclaim the area disturbed. Pre-disturbance weed removal from the proposed route would be required before route use/road construction could begin, to be followed by post-Project weed monitoring and retreatment of newly disturbed and reclaimed areas for a period of up to three years. These measures would comply with LUPA-BIO-10 stipulations with respect to the Halogeton and Russian thistle already found on-site.

Reclamation would be completed in compliance with CMAs LUPA-BIO-7 and LUPA-BIO-8 by using site-specific habitat restoration actions, including, but not limited to: appropriate re-contouring; revegetation using an appropriate seed mix and timing; reclamation contingency measures; the replanting of yucca and cactus; and the establishment of success criteria and monitoring.

Following completion of drilling, the sumps would be allowed to dry and then be backfilled. Only one exploration hole would be open at any given time. Drill holes would be abandoned in accordance with the appropriate state regulations for mineral exploration drilling and in accordance with CAM LUPA-SW-31.

Upon completion of drilling, and when no further access to each drill site is required, exploration roads and drill sites would be re-contoured to their original slope and seeded with an approved reclamation seed mix. There is very little to no top-soil in the proposed disturbance area. Where available growth media exists (which may consist of unconsolidated material and/or topsoil), it would be stored on the uphill side of the disturbed area and re-distributed over the site after re-contouring has been completed.

Seeding would commence during the first appropriate planting season. The seed mixture and application rate proposed for broadcast seeding would be guided by BLM requirements. A hand-held seed broadcaster would be used.

Refuse and debris generated by the exploration and reclamation activities would be hauled off site for appropriate disposal and/or recycling.

Natural barriers to the access road at the base of the canyon would be replaced after reclamation. Barriers would be at least as durable as what currently exists and would consist of large boulders

and fallen trees pulled into the route to protect the area from non-authorized motor vehicle entry and use.

## **2.4 Minimum Road Construction Alternative**

### **2.4.1 General Description**

Activities proposed under the Minimum Road Construction Alternative would be the same as under the Silver Standard's Proposed Action Alternative with the exception of some of the access routes/roads. The drill sites would be treated in the same manner and, the project schedule, equipment list, employment numbers, and reclamation would be the same as for the Silver Standard's Proposed Action Alternative.

The Minimum Road Construction Alternative route would require both overland travel and road construction as shown on Figure 2B. It follows the Silver Standard's Proposed Action Alternative route until just north of Drill Hole 7 where a small deviation allows for overland travel rather than a constructed road section. From Drill Hole 7, the Minimum Road Construction Alternative route drops down to a low, broad ridgeline, and begins following ridgelines and washes, along faint jeep trails (long abandoned exploration routes). A short ramp would be constructed to Drill Hole 6 and Drill Hole 4, with a longer constructed road section proposed to reach Drill Hole 5. The remaining route from Drill Hole 5 north toward Drill Hole 1 would be identical to the Silver Standard's Proposed Action Alternative route.

The Minimum Road Construction Alternative route is longer than the route used in the Silver Standard's Proposed Action Alternative. However, it differs from the Silver Standard's Proposed Action Alternative route not only in location and length, but also with respect to the amount of overland travel used and the intensity of road construction required.

Overland travel would occur on approximately 10,800 feet (two miles) of the Minimum Road Construction Alternative route versus the 5,600 feet of overland travel proposed under the Silver Standard's Proposed Action Alternative. Travel on constructed roads would occur on approximately 10,300 feet (1.95 miles). Road construction under the Minimum Road Construction Alternative would occur along natural travel routes (ridgelines and washes) following the topography rather than cutting directly across it. As shown in Chapter 4.2, most of the road construction under the Minimum Road Construction Alternative would occur on less than 30-degree slopes while road construction under the Silver Standard's Proposed Action Alternative would occur on 20 degree to 40 degree slopes (see Appendix B). This would minimize the need for long segments of continuous cut-and-fill, consistent with performance standards listed in surface (mining) management regulations 43 CFR § 3809.420(b) (1).

## **2.5 BLM Preferred Helicopter Access Alternative**

### **2.5.1 General Description**

Under the BLM Preferred Helicopter Access Alternative, the drill sites would be accessed using a helicopter. No exploration road construction or overland travel would occur under this alternative. Surface disturbances associated with the BLM Preferred Helicopter Access Alternative are discussed in Chapter 4.2.

## 2.5.2 Exploration

Exploration would be carried out using heli-portable drill rigs which would be transported to the drill sites by an A-Star B2 or similar helicopter along with other support equipment, including a portable generator, outhouse, and a heli-portable excavator. The helicopter would make up to three trips per day from the Lone Pine Airport to the site during the exploration program.

The helicopter access drill pads would measure approximately 16 to 20 feet in width and 40 to 50 feet in length. The drill pad area would be levelled, and the sump dug using a heli-portable excavator. A drill pad schematic is included as Figure 4. As under the Silver Standard's Proposed Action Alternative, the holes would be drilled to a maximum of 1,000 feet bgs, and sumps measuring approximately three by eight feet wide by three feet deep would be excavated within the drill pad footprint. Fuel would be stored within appropriate secondary containment. Chip or core samples obtained from the drilling program would be transported out via helicopter and sent for geochemical assay analysis.

Water would be trucked to an enclosed 4,000-gallon tank at the end of the existing access road. Water would be pumped from the tank through a one-inch diameter rubber hose, using two diesel-powered triplex pumps, to a 300- to 500-gallon stock tank located at each drill site. The stock tank would be fitting with a wildlife egress route in accordance with CMA LUPA-BIO-9. The proposed hose, tank, and pump locations are shown on Figure 2C. The water hose sections would be hand-transported and laid on top of the existing terrain. No disturbance from the water hoses is anticipated. Once drilling is complete at each drill pad, the hose sections will be rerouted to the next drill pad. Hoses and tanks would be removed at the completion of drilling.

The proposed equipment list for the BLM Preferred Helicopter Access Alternative is included in Table 2-3.

**Table 2-3: Silver Standard's Proposed Action Alternative Mobile Equipment**

Equipment Type <sup>1</sup>	Number
LF 70 or 90 surface Coring Fly Drill	1
Portable gas generator	1
Hydraulic sump pump	1
Diesel triplex pump	2
300-to 500-gallon stock tank	1
4,000-gallon water tank	1
2,000-gallon water truck	1
Helicopter-portable excavator	1

<sup>1</sup>Equipment listed may be substituted by equivalent alternative, based upon availability

## 2.5.3 Project Schedule

The exploration project under the BLM Preferred Helicopter Access Alternative is anticipated to take approximately seven months with four months of active drilling. Helicopter drill pad construction would commence upon completion of permit requirements and the posting of the requisite financial assurance.

## 2.5.4 Employment

Under the BLM Preferred Helicopter Access Alternative, drilling would take place during two 12-hour shifts, 24-hours per day. The anticipated employment numbers are summarized in Table 2-4. Employees would likely stay in Lone Pine and be transported to each active drill pad via helicopter during shift change.

**Table 2-4: Anticipated Employment**

Employee Type	Work Type	Number
Contractor	Helicopter and Support	2
Contractor	Drilling	9
Silver Standard	Drilling and Road Construction	2

## 2.5.5 Reclamation

As described under the Silver Standard's Proposed Action Alternative, Silver Standard would, at the earliest feasible time, reclaim the area disturbed, except to the extent necessary to preserve evidence of mineralization, by taking reasonable measures to prevent or control on-site and off-site damage of the federal lands.

Drill hole closure and reclamation would be carried out generally as described for the Silver Standard's Proposed Action Alternative, except that drill roads would not be constructed and thus would not require grading and reclamation. Reclamation of each drill pad would commence following the completion of drilling at each site. The sumps would be allowed to dry and then be backfilled.

Initial weed removal would occur as part of the preparation for use of each drill site. Post-Project weed monitoring and retreatment would occur at these sites for a period of up to three years. Seeding would commence during the appropriate planting season. The seed mixture and application rate proposed for broadcast seeding would be guided by BLM requirements. A hand-held seed broadcaster would be used.

Refuse and debris generated by the exploration and reclamation activities would be hauled off site for appropriate disposal and/or recycling.

## 2.6 No Action Alternative

In accordance with BLM NEPA Handbook H-1790-1, this EA evaluates a No Action Alternative which is a reasonable alternative to the Silver Standard's Proposed Action Alternative. The objective of the No Action Alternative is to describe the environmental consequences that would result if the Silver Standard's Proposed Action Alternative were not implemented. The No Action alternative forms the baseline from which the impacts of all other alternatives can be measured. Under the No Action Alternative, the Silver Standard's Proposed Action Alternative, Minimum Road Construction Alternative, or the BLM Preferred Helicopter Access Alternative would not be approved by the BLM, and no exploration activities would be carried out.

## **2.7 Environmental Protection Measures**

Applicant committed environmental protection measures and best management practices (BMPs) have been developed and would be followed as a means of minimizing or avoiding environmental impacts. They are discussed below by subject.

## **2.8 Operating Practices and Monitoring**

Silver Standard would oversee the entire project from construction to reclamation. Daily inspections by Silver Standard of drilling activities and drill pads sites would ensure activities remain within the permitted work area and are not creating undue degradation to the environment. Hand-held global positioning system (GPS) units would be used to confirm the correct location of drill roads and pads to ensure disturbance remains within the permitted locations. Flagging or stakes would be used as needed to assist with visual delineations where boundaries are unclear, such as in previously undisturbed areas. Care and maintenance measures would be taken to ensure road stability, such as re-blading when necessary.

### **2.8.1 Wildlife and Vegetation**

A qualified biological monitor would be present during road and drill pad construction and helicopter landing area establishments to advise slight route changes or timing changes to minimize the overall impacts to biological resources, including but not limited to, the direct disturbance of animals, eggs, or young or potential impacts to special status plant species or their supporting surroundings in accordance with CMA LUPA-BIO-2. Avoidance areas would be established by the biological monitor in accordance with CMAs LUPA-BIO-13, LUPA-BIO-16, LUPA-BIO-SVF-2, and LUPA-BIO-IFS-25. Cactus, yucca, and other succulents would be avoided or transplanted as necessary in accordance with CMAs LUPA-BIO-VEG-1 and LUPA-BIO-VEG-5.

Silver Standard would reduce predator subsidies, such as perching sites and water sources, in accordance with CMA LUPA-BIO-6. Compensatory mitigation contributions for ravens are not applicable for this short-term project. Nuisance animals would be controlled, as necessary, in accordance with LUPA-BIO-11.

Non-native and invasive weeds would be controlled through pre-disturbance weed removal, the cleaning of vehicles, use of weed-free materials, revegetation during reclamation, and post-reclamation weed monitoring and retreatment in accordance with LUPA-BIO-10.

Standard noise controls would be used on the exploration equipment in accordance with LUPA-BIO-12. Under the BLM Preferred Helicopter Access Alternative, the flying height would be set at a minimum of one-mile above land features. The helicopter landing areas would be checked by a biological monitor in accordance with LUPA-BIO-2.

Other wildlife protection measures would include, but would not be limited to, the containment of trash, non-harassment of wildlife, prohibition of domestic pets on-site, checking materials and equipment for wildlife presence prior to movement, and minimization of disturbance areas to only what is necessary and permitted for the Project in accordance with CMA LUPA-BIO-14 and LUPA-BIO-15.



### **2.8.2 Worker Education**

Silver Standard employees and contractors would be educated about the topics stipulated in CMA LUP-BIO-5 which include, but are not limited to biological resource identification, protections, avoidance, reporting, and protection measures.

### **2.8.3 Public Safety**

Signs would be posted at the beginning of the proposed drill road under the Silver Standard's Proposed Action Alternative and Minimum Road Construction Alternative, or at the water tank site location under the BLM Preferred Helicopter Access Alternative, indicating that this is an active project and that no unauthorized personnel are allowed to enter the active exploration area.

### **2.8.4 Water**

Water would be recirculated from the sumps for drilling whenever possible to reduce water use. Drilling mud and cuttings would be contained in the sumps. Water would be sourced from a permitted/authorized source. Water remaining in tanks or trucks would be drained onto the land surface in such a way as to prevent rilling and erosion at the cessation of drilling.

An emergency spill response plan would be prepared in accordance with CMA LUPA-SW-7 and materials and spills would be handled in accordance with CMA LUPA-SW-6

### **2.8.5 Cultural Resources**

A Class III baseline cultural survey was completed for the Project in accordance with CMA LUPA-CUL-4. Results are addressed in Chapter 3.4. If, by chance, heritage resources are discovered that were not found in the cultural surveys, Silver Standard would abide by 43 CFR § 3809.420, which states:

- Operators shall not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains or any historical or archaeological site, structure, building or object on federal lands; and
- Operators shall immediately bring to the attention of the authorized officer any cultural and/or paleontological resources that might be altered or destroyed on federal lands by his/her operation, and shall leave such discovery intact until told to proceed by the authorized officer.

### **2.8.6 Air Quality**

A Fugitive Dust Control Plan would be prepared for the Project in accordance with LUPA-AIR-5. A draft dust control plan is included as Appendix F.

## **2.9 Alternatives Considered but Eliminated from Further Analysis**

The purpose and need for this action is to obtain physical samples of possible mineralization at depth. Alternatives which may be limited to surface samples or indirect geophysical investigations were not considered because they do not meet the purpose and need for obtaining the necessary information. No other alternatives have been considered for this project.

### 3. Affected Environment

Resources determined to be present with the potential for impacts which have been carried forward in this EA, as presented in Chapter 1.7 and Appendix A, include:

- Areas of Critical Environmental Concern;
- Cultural Resources;
- Invasive Plants and Noxious Weeds;
- National Land Conservation System lands;
- Greenhouse Gas Emissions;
- Native American Religious Concerns;
- Recreation;
- Soils;
- Special Status Animal Species other than USFWS candidate or listed species;
- Special Status Plant Species other than USFWS candidate or listed species;
- Vegetation;
- Visual Resources;
- Wildlife; and
- Lands with Wilderness Characteristics.

#### 3.1 General Setting

The Project is located in the southern portion of the north-south trending Inyo Mountains near the western edge of the Great Basin. The Inyo Mountains lie east of the Sierra Nevada Range, which dominate the central part of California, and act as the western physiographic boundary of the Great Basin.

While only a few hundred miles from the Pacific Ocean, the Sierra Nevada Range acts as a barrier to moisture-bearing clouds that may arise and be blown east from the Pacific Ocean. As a result, the area is generally dry. The Project area elevation ranges from roughly 6,400 to 7,400 feet above mean sea level. It has a climate of hot summers and cold winters with annual precipitation of approximately six inches (BLM, 1997).

#### 3.2 Areas of Critical Environmental Concern

The Cerro Gordo-Conglomerate Mesa ACEC is located on the northern end of the Project. The Cerro Gordo-Conglomerate Mesa ACEC boundary, as expanded and approved under the DRECP (BLM, 2016a and 2016b), overlaps a portion of the Silver Standard's Proposed Action Alternative and Minimum Road Construction Alternative exploration road, as well as Drill Hole 1 and Drill Hole 2, as shown on Figure 5.

The Cerro Gordo mining district was critical in the development of Los Angeles. The Cerro Gordo-Conglomerate Mesa ACEC provides an opportunity to research the role Cerro Gordo played in the Owens Valley resource wars, answer questions about the ethnicity of charcoal makers, and allow for the examination of the prehistoric and historic lifeways of the Native American people who used this area. The Cerro Gordo-Conglomerate Mesa ACEC also includes unique plant assemblages, since it lies at the eastern edge of the Mojave Desert and the western edge of the Great Basin. The area supports creosote scrub and silver cholla, Joshua tree and pinyon-juniper



woodlands, as well as sagebrush ecosystems. The area is also known to contain many unique and sensitive plant species, and provides habitat for some special status species, such as the Townsend's western big-eared bat, big horned sheep, and mule deer.

The management goal of the Cerro Gordo-Conglomerate Mesa ACEC is to provide protection to cultural resources, rare plant and animal species, and wildlife habitat. Management actions by resource have been described in the DRECP (BLM, 2016a). Cultural resources have been inventoried for the Project in accordance with CMA ACEC-CUL-6 discussed in Chapter 3.3.

### 3.3 Cultural Resources

A Class III intensive cultural resources inventory encompassing approximately 200 acres of the Area of Potential Effect (APE) for the Silver Standard's Proposed Action Alternative and Minimum Road Construction Alternative was conducted by ASM Affiliates, Inc. in 2016. Subsequent field investigations were conducted during October 2016 for the M Minimum Road Construction Alternative route. The APE consists of a proposed primary 3.4-mile track-route alignment, a proposed 0.8-mile alternative route segment, and seven drill pad areas, with a 50-meter buffer on either. One prehistoric archaeological site and two isolated artifacts (one historic and one prehistoric) were located within the APE by the field search. The site, labeled as PM-PC-1, is a sparse lithic scatter, and has not yet been evaluated for its possible eligibility for the National Register of Historic Places (NRHP)., although one site, PM-PC-1, could be formally evaluated for such eligibility.

### 3.4 Invasive Plants and Noxious Weeds

A biological survey, including invasive plants and noxious weeds, was carried out in 2016 and 2017 by Cedar Creek Associates, Inc. (Cedar Creek) in accordance with CMA LUPA-BIO-1. Reports were prepared and submitted to the BLM for review in November 2016 (Cedar Creek, 2016 and 2017). Weed species located during the survey are listed in Table 3-1, along with the inventory category rating which is based on criteria as defined by the California Invasive Plant Council (CIPC, 2016). The inventory categorizes plants as High, Moderate, or Limited, reflecting the level of each species' negative ecological impact. Even Limited species are invasive and are of concern. Although the impact of each plant varies regionally, its rating represents cumulative impacts statewide. Regional impacts may be more or less severe than statewide impacts.

Survey locations are shown on Figure 6 along with observed invasive plant and noxious weed locations.

**Table 3-1: Weed Species Observed During the Biological Survey**

Common Name	Scientific Name	Rating <sup>1</sup>
Russian thistle	<i>Salsola tragus</i>	Limited
Halogeton	<i>Halogetan glomeratus</i>	Moderate

<sup>1</sup>CIPC, 2006

Halogeton is listed as a "Red Alert" species and as a "noxious" weed in the Ridgecrest BLM Field Office's Integrated Pest Management Plan (DOI-BLM-CA-2011-0034), because it can spread easily and it is toxic to livestock. The CIPC rating definitions for Limited and Moderate are given below (CIPC, 2016):

- Limited: These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.
- Moderate: These species have substantial and apparent – but generally not severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

### 3.5 Greenhouse Gas Emissions

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

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

Gases exhibiting greenhouse properties come from both natural and human sources. Water vapor, carbon dioxide (CO<sub>2</sub>), methane, and nitrous oxides (NO<sub>x</sub>) are examples of greenhouse gases that have both natural and man-made sources, while other greenhouse gases, such as chlorofluorocarbons, are exclusively man-made. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused carbon dioxide equivalent concentrations to increase, and have the potential to contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change recently concluded that “human influence has been detected in warming of the atmosphere and the ocean, in changes in the global water cycle, in reductions in snow and ice, in global mean sea level rise, and in changes in some climate extremes it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century” (IPCC, 2013).

Different GHGs can have different effects on the earth's warming. Two key ways in which these gases differ from each other are their ability to absorb energy (their radiative efficiency), and how long they stay in the atmosphere (also known as their lifetime). The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of one ton of a gas will absorb over a given period of time, relative to the emissions of one ton of CO<sub>2</sub>. The larger the GWP, the more that a given gas warms the earth compared to CO<sub>2</sub> over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure of how much a given mass of GHG is estimated to contribute to global warming and is devised to enable comparison of the warming effects of different gases. It is a relative scale that compares the gas in question to that of the same mass of CO<sub>2</sub>. CO<sub>2</sub> equivalence (CO<sub>2</sub>e) is a measure used to compare the emissions from

various GHGs based on their GWP, when measured over a specified timescale (generally 100 years). The CO<sub>2e</sub> for a gas is obtained by multiplying the mass (in tons) by the GWP of the gas.

California is a substantial contributor to global GHG emissions as it is the second largest contributor in the United States and the 16<sup>th</sup> largest in the world. Sources of greenhouse gas emissions in the vicinity of the Project area are primarily vehicles and mobile equipment, construction and operation for mineral and energy development, and livestock grazing. Urban areas to the west of the Project area contain larger industrial sources. To the extent that these activities increase, GHG emissions are also likely to increase.

The Final Mandatory Reporting of Greenhouse Gases Rule issued by the Environmental Protection Agency (EPA), as signed on September 22, 2009, requires suppliers of fossil fuels or industrial GHG, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to the EPA (40 CFR 98).

### **3.6 Native American Religious Concerns**

Pursuant to federal regulations and BLM policy, the BLM invited the five tribes affiliated with the Owens Valley region to consult on the proposed exploration drilling project on a government-to-government basis beginning in September 2008. These tribes are the Bishop Paiute, Big Pine Paiute, Ft. Independence Paiute, Lone Pine Paiute and Shoshone, and Timbisha Shoshone tribes. These consultations have continued regarding this particular exploration drilling project. These consultations, and discussions with tribal organizations and individuals, have revealed that the five tribes object to this exploration drilling project as it will destroy an unmodified landscape. Efforts by the BLM to consult and address these tribal concerns are on-going, and will continue throughout the environmental review, permitting, and implementation process.

### **3.7 National Land Conservation System**

The Project area is located within NLCS lands allocated by the DRECP. Within the CDCA, NLCS units are made up of BLM-administered lands with nationally significant ecological, cultural, and scientific values. These lands are managed to conserve, protect, and restore these values. Additional criteria used by the DRECP to select lands for inclusion in the NLCS include landscape intactness, scenic quality, and landscape linkages. In general, the DRECP emphasizes habitat connectivity and cultural-botanical locations.

The Project alternatives fall within the Basin and Range Ecoregion Subarea. This ecoregion subarea extends from the Nevada State Line west to the Sierra Nevada Mountain Range and encompasses approximately 377,000 acres. The NLCS lands within this subarea includes ecological values such as vegetation alliances and intact habitat linkages amongst a number of designated BLM wilderness areas, the Inyo National Forest, undeveloped military lands, and Death Valley National Park. Linkages for wildlife migration are critical to the conservation of certain species (including such BLM sensitive species as Bighorn sheep), especially with respect to climate change.

This subarea also includes diverse cultural values and includes some of the richest cultural areas in the California desert, including landscapes and sites associated with the earliest prehistoric Native American occupation, and some of the oldest historic mining areas in California. Known cultural properties include several resources listed on the NRHP and several additional resources

that are considered eligible for listing. These include native occupation and use sites, the silver town site of Cerro Gordo with its smelter and mines, and the associated charcoal production sites of Conglomerate Mesa. There is a high potential for finding hundreds more cultural sites that have not yet been recorded in the area. Archeological, cultural, and historic research being conducted here promises to contribute to our understanding of human adaptation and survival, landscape use and mobility by both prehistoric and historic people, and conflict and resolution among these diverse cultural groups.

Other nationally significant values within this subarea include unique plant assemblages on the cusp of the eastern edge of the Mohave Desert and the western edge of the Great Basin. The overarching management goal of this subarea is to provide protection to cultural resources, rare plants and animal species, wildlife linkages, and habitat.

### **3.8 Recreation**

The Project is located on the eastern side of a remote area of the Inyo Mountains, accessible only by travel on foot or horseback or by unmaintained dirt roads and jeep trails along its boundaries. The Project area is located approximately one-half mile north of the Malpais Wilderness Area, four miles south of the Cerro Gordo WSA, and seven miles south of the Inyo Mountains Wilderness Area, as shown on Figure 7. Death Valley National Park is located approximately four miles to the east, on the other side of Santa Rosa Flat.

The southern tip of the Inyo Mountains supports a wide-range of recreational activities, including, but not limited to: dispersed vehicle camping; motor vehicle touring (four-wheel drive or dual-sport bikes); horseback riding; hunting; backpacking; hiking; climbing; historical investigations; and photography.

The base of the Project area (the start of the proposed exploration route) takes off from the terminus of the nearest open designated vehicle route. It is accessible via the designated route by high clearance vehicles and is used as a parking area and campsite by general recreationists, hikers, and hunters. Recreational use of the area beyond the terminus is restricted to foot and horseback travel only, and requires cross-country navigation, route finding, and travel, as there are no formal or use trails.

Most visitors to the area are interested in an isolated wilderness-type experience. They enjoy camping in very remote, dispersed locations while driving around the area, or hunting and hiking into its interior. Additional access points to Conglomerate Mesa include the constellation of primitive campsites located immediately north of the Project area off of another group of short open designated vehicle routes, and a longer, very rough jeep trail (also an open, designated route) climbing up from the floor of Owens Valley to a small adit part way up the west side of the mesa. This jeep trail is within the footprint of what was once part of the historic Keeler to Death Valley (KDV) stock trail. Hikers and backpackers familiar with the area will occasionally follow the trail beyond the adit all the way up and over the top of the mesa and down its east side to the campsites north of the Project area mentioned previously.

### **3.9 Soils**

The Project area is generally covered in loose, unconsolidated material. Outcrops of Permian geomarine sedimentary rocks, dominated by limestones with some sandstone, are apparent near

ridgelines (USGS, 2016). Slopes are generally covered in colluvium from this sedimentary parent material. Alluvial material is present in drainage bottoms and soil development is present around vegetated areas, primarily around trees and larger shrubs near drainage bottoms. True soils, being a mixture of mineral material and organic material, are shallow, where present.

### 3.10 Special Status Animal Species other than USFWS Candidate or Listed Species

A biological survey was carried out in 2016 and 2017 by Cedar Creek in accordance with CMA LUPA-BIO-1. Reports were prepared and submitted to the BLM for review (Cedar Creek, 2016 and 2017). Cedar Creek surveyed the routes and drill pad locations as shown on Figure 6.

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, guidance, or policy. Per the 6840 Manual, BLM special status species are: (1) species listed or proposed for listing under the ESA and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as BLM sensitive by the State Director(s).

Migratory birds, eagles, and raptors fall within the special status species category. A list of special status animals having the potential to occur in the vicinity of the Project area were compiled as part of the Cedar Creek baseline biological evaluation (Cedar Creek, 2016). Special status animal species are listed in Table 3-2. A description of these species is given in Appendix C.

**Table 3-2: Animal Species of Concern with the Potential to Reside in the Area**

Common Name	Scientific Name
Golden eagle	<i>Aquila chrysaetos</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Prairie falcon	<i>Falco mexicanus</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Pallid bat	<i>Antrozous pallidus</i>
Spotted bat	<i>Euderma maculatum</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>
Western mastiff bat	<i>Eumops perotis</i>
Nelson's bighorn sheep	<i>Ovis canadensis nelsoni</i>
Panamint alligator lizard	<i>Elgaria panamintina</i>
Black swift	<i>Chaetura pelagica</i>
American robin	<i>Turdus migratorius</i>
Cassin's vireo	<i>Vireo cassinii</i>
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>
Sparrows, unidentified type	-

While the special status animal species listed in Table 3-2 have been identified as having the potential to reside in the area, only the following were directly observed:

- Red-tailed hawk;
- Loggerhead shrike;
- American robin;

- Cassin's vireo;
- Broad-tailed hummingbird; and
- Sparrows, unidentified.

The Red-tailed hawk of indeterminate sex or age was observed flying a straight-line course over the area. One large nest was observed during the biological survey. It appears to be inactive and, although the species was undetermined, its size indicated it could have been built by possibly a Red-tailed hawk, a Golden eagle, or a raven. The nest location is provided in Appendix C (Cedar Creek, 2016).

### 3.11 Special Status Plant Species other than USFWS

The special status plant species listed in Table 3-3 include State rare and BLM sensitive species. These were found to have a remote potential to occur in the area, or had been previously identified (Bagley, 2015, Cedar Creek, 2016, and Cedar Creek, 2017). Observance during the 2016 and 2017 field surveys, which were carried out in accordance with CMA LUP-BIO-PLANT-1 is also indicated in Table 3-3, confirming the presence of the seven special status plant species originally documented in 2014. Survey areas and observation locations are shown on Figure 6. A description of the species observed in the area is given in Appendix C.

**Table 3-3: Plant Species of Concern with the Potential to Grow in the Area**

Common Name	Scientific Name	Observed During 2014 Survey	Observed During 2016 Survey	Observed During 2017 Survey
Crested onion	<i>Allium atrorubens</i> var. <i>cristatum</i>	Yes	Yes	Yes
Inflated Cima milkvetch	<i>Astragalus cimae</i> var. <i>sufflatus</i>	No	No	No
Shockley's rock cress	<i>Boechera shockleyi</i>	Yes	Yes	No
New York mountain cryptantha	<i>Cryptantha tumulosa</i>	No	No	Yes
Ripley's springparsley	<i>Cymopterus ripleyi</i> var. <i>saniculoides</i>	No	No	No
Dwarf goldenbush	<i>Ericameria nana</i>	No	No	No
Hairy erioneuron	<i>Erioneuron pilosum</i>	Yes	Yes	No
Limestone monkeyflower	<i>Erythranthe calicicola</i>	No	No	No
Shockley's prickleleaf	<i>Hecastocleis shockleyi</i>	Yes	Yes	Yes
Inyo blazingstar	<i>Mentzelia inyoensis</i>	No	No	No
Cespitose evening-primrose	<i>Oenothera caespitosa</i> ssp. <i>crinita</i>	Yes	Yes	Yes
Watson's oxytheca	<i>Oxytheca watsonii</i>	No	No	No
Inyo rockdaisy <sup>1</sup>	<i>Perityle inyoensis</i>	Yes	Yes	Yes
Mexican cliffrose	<i>Purshia Mexicana</i> var. <i>dubia</i>	No	Yes	No <sup>2</sup>
Mojave fish hook cactus	<i>Sclerocactus polyancistrus</i>	Yes	Yes	Yes

<sup>1</sup>BLM Special Status Species

<sup>2</sup>Numerous specimens of this species were observed near the end of the access road but not within the survey buffer area

Per the 6840 Manual, BLM special status species are: (1) species listed or proposed for listing under the ESA and (2) species requiring special management consideration to promote their



conservation and reduce the likelihood and need for future listing under the ESA, which are designated as BLM sensitive by the State Director(s).

### 3.12 Vegetation

In addition to recording special status animal and plant species, the more dominant plant species were observed during Cedar Creek's biological survey (Cedar Creek, 2016 and 2017) which was carried out in accordance with CMA LUPA-BIO-PLANT-1 and LUPA-BIO-SVF-2. These are listed in Table 3-4.

**Table 3-4: Other Vegetation Species Observed**

Common Name	Scientific Name
Single-leaf piñon pine	<i>Pinus monophylla</i>
California Juniper	<i>Juniperus californica</i>
Joshua tree	<i>Yucca brevifolia</i>
Black sagebrush	<i>Artemisia arbuscula nova</i>
Shadscale	<i>Atriplex confertifolia</i>
Spiny hopsage	<i>Grayia spinosa</i>
Spiny menodora	<i>Menodora spinescens</i>
Little-leaf horsebrush	<i>Tetradymia glabrata</i>
Green rabbitbrush	<i>Chrysothamnus viscidiflorus</i>
Nevada jointfir	<i>Ephedra nevadensis</i>
Budsage	<i>Artemisia spinescens</i>
Pygmy cedar	<i>Peucephyllum schottii</i>
Winterfat	<i>Krasheninnikovia lanata</i>
California buckwheat	<i>Eriogonum californicum</i>
Galleta	<i>Hilaria jamesii</i>
Sandberg bluegrass	<i>Poa secunda</i>
Red brome grass	<i>Bromus rubens</i>
Desert princesplume	<i>Stanleya pinnata</i>
Desert trumpet	<i>Eriogonum inflatum</i>
Desert globemallow	<i>Sphaeralcea ambigua</i>
Green molly	<i>Kochia americana</i>
Hawksbeard	<i>Crepis sp.</i>
Indian paintbrush	<i>Castilleja chromosa</i>
Broomrape	<i>Orbanche sp.</i>
Beavertail prickly pear	<i>Opuntia basilaris</i>
Popcorn flower	<i>Cryptantha sp. (not tumulosa)</i>
Phacelia	<i>Phacelia sp.</i>

Cedar Creek noted that the effort to return the BHP road and drill pad areas to their approximate original contour was well performed and that revegetation of the previously disturbed footprint is progressing in a reasonable manner given the desert conditions. This process may take many decades before it is visually and fully mitigated. However, the species selection for revegetation does not match the surrounding dominant vegetation types. Four-winged saltbush, great-basin wild rye, and crested wheatgrass were among the revegetation seed mix, but are not present in the surrounding landscape. Plant species observed within the revegetated areas are listed in Table 3-5. There has been a modest reinvasion by native site-specific taxa (e.g., Joshua trees, galleta, etc.);

however, there has been no notable reinvasion of the reclaimed BHP routes by the area's sensitive plant species.

**Table 3-5: Vegetation within Previously Revegetated Areas**

Common Name	Scientific Name
Crested wheatgrass	<i>Agropyron cristatum</i>
Needlegrass	<i>Stipa sp.</i>
Indian ricegrass	<i>Oryzopsis hymenoides</i>
Great-basin wildrye	<i>Elymus cinereus</i>
4-winged saltbush	<i>Atriplex canescens</i>

### 3.13 Visual Resources

The Project is located within the Inyo Mountains, a north-south oriented range characterized by large, complex series of landforms with creased and incised slopes. A visual resource inventory (VRI) of the area was completed in 2012. The Conglomerate Mesa Scenic Quality Rating Unit (SQRU), within which the Project is located, received a Scenic Quality Evaluation rating of "A". The Project is located within the Cerro Gordo and the Conglomerate Mesa Sensitivity Level Unit Areas which were both assigned a Sensitivity Level rating of "High" due to their cultural and historic values and settings and the panoramic views into the Owen's Valley (for the Cerro Gordo area). The Project is located in two areas inventoried as "Foreground-Middleground" and "Seldom Scene" (BLM, 2012).

Based on VRI results, BLM-administered lands are placed into one of four VRI Classes. The Scenic Quality Evaluation rating of "A" coupled with a Sensitivity Level rating of "High" placed Conglomerate Mesa within a VRI Class II area. The area was subsequently assigned to a Class II Visual Resource Management (VRM) class during the DRECP land use planning process. As a consequence, the Project is located in a VRM Class II area. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities and uses can be seen, but should not attract the attention of the casual observer. Any changes made must repeat the basic elements of form, line, color, and texture in the predominant natural features of the characteristic landscape.

The Project area landforms range from relatively flat valley bottoms to gentle hills at lower elevations. These grade into steeper slopes and low mountains with angular sub-elements at the higher elevations and near outcrops. Silhouette lines are created by the mountains against the skyline and by the lower hills against background hills. Silhouettes are mostly smooth to undulating with convergence in the drainages, where visible. Some angular silhouettes are visible in higher elevations and the reclaimed BHP exploration roads create horizontal to sub-horizontal linear features. Colors range from light yellowish brown to white on landforms to a variety of light yellows, olive greens, greys, and occasional bright green vegetation. Landform textures range from fine to course, generally trending with the smoother lower slopes contrasted against rock outcrops. Vegetation textures vary depending on the vegetation type. Low-growing vegetation transitions to vertical Joshua trees and a few rounded pinyon/juniper stands. The vegetation understory lines follow the landforms, interrupted by larger, vertical vegetation stands. Vegetation thins near steep slopes. No structures are present within the Project area.

The southern extension of the Inyo Mountains supports a wide-range of recreational activities, including, but not limited to: dispersed vehicle camping; motor vehicle touring (four-wheel drive



or dual-sport bikes); horseback riding; hunting; backpacking; hiking; climbing; historical investigations; and photography.

The base of the Project area (the start of the proposed exploration route) takes off from the terminus of the nearest open designated vehicle route. The terminus is accessible via the designated route to high clearance vehicles and is used as a parking area and campsite by general recreationists, hikers, and hunters. Recreational use of the area beyond the terminus is restricted to foot and horseback travel only, and requires cross-country navigation, route finding, and travel, as there are no formal or use trails. Most visitors come to the area for this type of isolated “wilderness” experience. Many will set off cross-country on foot, traveling up washes and along ridgelines, following the natural contours of the land.

### 3.14 Wildlife

A biological survey was carried out in 2016 and 2017 by Cedar Creek in accordance with CMA LUPA-BIO-1. Reports were prepared and submitted to the BLM for review (Cedar Creek, 2016 and 2017). Cedar Creek surveyed the Silver Standard’s Proposed Action Alternative route and drill pad locations. The Minimum Road Construction Alternative route was not surveyed, but it was determined that the survey results for wildlife reflect the condition of the area in general.

Wildlife species found to be present during the 2016 survey are listed in Table 3-6. Special status wildlife species are discussed in Section 3.10 and listed in Table 3-2.

**Table 3-6: Wildlife Species Observed**

Common Name	Scientific Name	Type of Observation
Woodrat (likely Desert woodrat)	<i>Neotoma lepida</i>	old middens observed
Coyote	<i>Canis latrans</i>	Scat and shallow excavations
Kangaroo rat	<i>Dipodomys sp.</i>	Characteristic burrow colony
Desert cottontail	<i>Sylvilagus audubonii</i>	Old pellets
Black-tailed jackrabbit	<i>Lepus californicus</i>	Old pellets
Mule deer	<i>Odocoileus hemionus</i>	Tracks and pellets
White-tailed antelope ground squirrel	<i>Ammospermophilus leucurus</i>	Direct observation
Common raven	<i>Corvus corax</i>	Direct observation
Scrub jay	<i>Aphelocoma sp.</i>	Direct observation
Desert spiny lizard	<i>Sceloporus magister</i>	Direct observation
Sagebrush lizard	<i>Sceloporus graciosus</i>	Direct observation

### 3.15 Lands with Wilderness Characteristics

BLM is required under Section 201 of the FLPMA to maintain an updated inventory of public lands and their resources and values. This inventory requirement includes maintaining an updated inventory of lands with wilderness characteristics. The Project alternatives are located within the CDCA Wilderness Inventory Unit (WIU) #124-1, an eligible sub-unit of WIU 124 as shown on Figure 7. A 2015 inventory indicated that WIU 124-1, which encompasses an area of approximately 22,500 acres, meets the wilderness criteria for natural condition, outstanding opportunities for solitude, outstanding opportunities for primitive and unconfined recreation, and supplemental values (BLM, 2015a and 2015b). The inventory information is a finding, not a land use allocation. As such, it must be taken into consideration in project level and land use planning decisions. A finding of lands with wilderness characteristics does not change or prevent change in

management and use of public lands. BLM will however consider the protection of wilderness character on public lands as part of its multiple-use mandate.

### **3.15.1 Natural Condition**

Less than 10 miles of jeep trails and verified ground transportation linear features (GTLF) intrude into this 22,500-acre area. The three most popular jeep trails, with multiple campsites, keep to within a half-mile of the eastern boundary of the unit. Two more infrequently used trails, along this same boundary, extend for less than a mile-and-a-half to solitary campsites. Along the western boundary of the unit, one seldom used, very rough jeep trail extends into the area for about a mile-and-a-half from Highway 136 to the Krueger Mine, a heavily-disturbed (excluded) area. The longest of the jeep trails, the KDV trail, extending three miles into the unit, is in very poor condition, is very lightly used, and is unable to accommodate more than one to two vehicles at a time at its terminus. The start of this trail is also obscured by a gravel pit which blocks its visible access from the highway. Other GTLF features located within the unit can be characterized as little to never used or rehabbing routes (BLM, 2015a).

The 1997 BHP exploration routes were successfully decommissioned, re-contoured, reseeded, and blocked from further use more than 15 years ago. The most heavily disturbed cut-and-fill areas have settled into a natural angle of repose and are visually distinctive from their surroundings primarily because their surfaces are so much lighter where soil and rocks were overturned. Vegetation is sparse on these loose, rocky slopes, both within the previously disturbed area and outside of it. While one of the species selected for restoration, a tall saltbush, is not typically found in the area and does stick out, it is not present everywhere, and it is surrounded by species that are natural to the area.

### **3.15.2 Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation**

The varied landforms and diverse vegetation provide many areas where screening is available for isolation and solitude. The sheer size, breadth, extent, and remoteness of the area also helps enormously in this regard, as does the relatively low visitor use levels, which plummet with distance from the available route network (BLM, 2015a).

In many places, the terrain is not so formidable that it cannot be explored rather easily on foot, and in some places, perhaps too on horseback. There are many outstanding areas where unrestricted movement in all directions is possible. The KDV trail offers an opportunity to climb up the west side of Conglomerate Mesa, where the terrain is quite steep and difficult, to cross over the top of the mesa, and to descend the east side. Backpackers have used this route to backpack from Keeler to Bullfrog. The eastern extension of this trail is in frequent use by hikers and hunters camping in dispersed areas immediately north of the Project area (BLM, 2015a).

### **3.15.3 Supplemental Values**

Plant and Animal Species: The area has a unique assemblage of plant and animal communities since it lies at the eastern edge of the Mojave Desert and the western edge of the Great Basin. Plant and animal species of concern for the Perdito Project area are discussed in chapters 3.10 and 3.11. Details about plant and animal species for WIU 124-1 can be found under the WIU CDCA documentation (BLM, 2015a).

Cultural Resources: A portion of this unit is located within the unique Cerro Gordo-Conglomerate Mesa ACEC as discussed in Chapter 3.2.

## 4. Environmental Impact Analysis

### 4.1 Introduction

This section analyzes the potential impacts associated with the Silver Standard's Proposed Action Alternative, the Minimum Road Construction Alternative, the BLM Preferred Helicopter Access Alternative, and the No Action Alternative against those potentially impacted resources described in Chapter 3.

### 4.2 Disturbance Acreage Descriptions

The sloped disturbance areas resulting from the Silver Standard's Proposed Action Alternative and alternatives are summarized in Table 4-1 and discussed in greater detail in the following sections.

**Table 4-1: Summary of Disturbance Areas**

<b>Alternative</b>	<b>Sloped Disturbance Area<sup>1, 2</sup></b>
Silver Standard's Proposed Action Alternative	7.75
Minimum Road Construction Alternative	7.28
BLM Preferred Helicopter Access Alternative	0.20
No Action Alternative	0.0

<sup>1</sup>Disturbance calculation details are included in Appendix B.

<sup>2</sup>Exploration pad disturbance areas have been calculated as separate from the exploration roads. Some overlap may exist.

Overland travel, which would not involve blading or scraping, has been calculated as having a disturbance with a width of 11 feet on a 0% slope.

Disturbance resulting from constructed roads includes the road width as well as the cut slope (area above) and the fill slope (area below) to provide an accurate depiction of disturbance on a hillside. The sloped disturbance area is dependent on the underlying ground slope. Constructed road lengths have been grouped into ten-degree categories as summarized in the tables 4-1, 4-2, and 4-3 for each alternative and as shown in Appendix B. Drill pad sloped disturbance areas have been calculated using the centermost slope measurement.

A category has been added for each alternative to account for bermed growth media (which may consist of unconsolidated material and/or topsoil) alongside constructed road sections, although very little is anticipated to be encountered.

**Table 4-2: Silver Standard's Proposed Action Alternative Sloped Disturbance Area**

<b>Category</b>	<b>Length (feet)</b>	<b>Width (feet)</b>	<b>Acreage<sup>1,2</sup></b>
Overland Travel	5,604	11	1.42
Constructed Exploration Road on 0% to 10% slopes	1,315	11	0.38
Constructed Exploration Road on 10% to 20% slopes	2,195	11	0.74
Constructed Exploration Road on 20% to 30% slopes	4,415	11	1.80
Constructed Exploration Road on 30% to 40% slopes	4,007	11	2.09
Constructed Exploration Road on 40% to 50% slopes	1,104	11	0.81
Bermed Growth Media <sup>3</sup>	13,036	1	0.30
Drill Hole 1 Pad on 18% slope	60	12	0.02
Drill Hole 2 Pad on 5% slope	60	12	0.02
Drill Hole 3 Pad on 11% slope	60	12	0.02
Drill Hole 4 Pad on 27% slope	60	12	0.03
Drill Hole 5 Pad on 21% slope	60	12	0.02
Drill Hole 6 Pad on 23% slope	60	12	0.02
Drill Hole 7 Pad on 20% slope	60	12	0.02
<b>Total</b>	<b>-</b>	<b>-</b>	<b>7.75</b>

<sup>1</sup>Disturbance calculation details are included in Appendix B.

<sup>2</sup>Exploration pad disturbance areas have been calculated as separate from the exploration roads. Some overlap may exist.

<sup>3</sup>Growth media would be placed on the uphill side of graded road features. Little growth media is anticipated to be encountered. A one-foot width has been assumed.

**Table 4-3: Minimum Road Construction Alternative Sloped Disturbance Area**

<b>Category</b>	<b>Length (feet)</b>	<b>Width (feet)</b>	<b>Acreage<sup>1,2</sup></b>
Overland Travel	10,814	11	2.73
Constructed Exploration Road on 0% to 10% slopes	2,097	11	0.60
Constructed Exploration Road on 10% to 20% slopes	3,317	11	1.11
Constructed Exploration Road on 20% to 30% slopes	3,110	11	1.27
Constructed Exploration Road on 30% to 40% slopes	1,423	11	0.74
Constructed Exploration Road on 40% to 50% slopes	370	11	0.27
Bermed Growth Media <sup>3</sup>	10,317	1	0.24
Drill Hole 1 Pad on 18% slope	60	12	0.02
Drill Hole 2 Pad on 5% slope	60	12	0.02
Drill Hole 3 Pad on 11% slope	60	12	0.02
Drill Hole 4 Pad on 27% slope	60	12	0.03
Drill Hole 5 Pad on 21% slope	60	12	0.02
Drill Hole 6 Pad on 23% slope	60	12	0.02
Drill Hole 7 Pad on 20% slope	60	12	0.02
<b>Total</b>	<b>-</b>	<b>-</b>	<b>7.28</b>

<sup>1</sup>Disturbance calculation details are included in Appendix B.

<sup>2</sup>Exploration pad disturbance areas have been calculated as separate from the exploration roads. Some overlap may exist.

<sup>3</sup>Growth media would be placed on the uphill side of graded road features. Little growth media is anticipated to be encountered. A one-foot width has been assumed.

**Table 4-4: BLM Preferred Helicopter Access Alternative Disturbance Area**

Category	Length (feet)	Width (feet)	Acreage <sup>1</sup>
Drill Hole 1 Pad on 18% slope	50	16	0.03
Drill Hole 2 Pad on 5% slope	50	16	0.02
Drill Hole 3 Pad on 11% slope	50	16	0.03
Drill Hole 4 Pad on 27% slope	50	16	0.03
Drill Hole 5 Pad on 21% slope	50	16	0.03
Drill Hole 6 Pad on 23% slope	50	16	0.03
Drill Hole 7 Pad on 20% slope	50	16	0.03
<b>Total</b>		-	<b>0.20</b>

<sup>1</sup>Disturbance calculation details are included in Appendix B.

Overland travel would result in a different kind of disturbance as the constructed road sections. Overland travel, as described in Chapter 2, would involve some heavy equipment use for the movement of large rocks and pieces of vegetation. Hand tools may be used for the additional removal of large vegetation. Otherwise, the vegetation present would be crushed rather than removed. No blading or scraping would take place. Road construction and drill pad construction disturbance, on the other hand, would involve vegetation removal and ground disturbance, either through blading or cut and fill operations. The alternative disturbance areas have been broken out as overland travel versus constructed road disturbance and are compared in Table 4-5.

**Table 4-5: Alternative Disturbance Comparison**

Alternative	Total Disturbance	Disturbance Resulting from Overland Travel (acres)	Disturbance Resulting from Road Construction and Bermed Growth Media (acres)
Silver Standard's Proposed Action Alternative	7.75	1.50	6.20
Minimum Road Construction Alternative	7.28	2.62	4.66
BLM Preferred Helicopter Access Alternative	0.20	0	0.20

### 4.3 Cumulative Effects Study Area

Four cumulative effect study areas (CESAs) have been created for analysis of the Project's overall cumulative impacts in the region. They are described below, and are shown on Figure 9. Sources of information used to determine Past and Present Actions and Reasonably Foreseeable Future Actions include the following:

- BLM Land & Mineral Legacy Rehost 2000 System - LR2000;
- Google Earth imagery, including Wikiloc-Trails of the World gallery;
- Death Valley National Park Maps; and
- USGS maps.

### **4.3.1 Wildlife CESA**

This CESA is used for the analysis of cumulative impacts to wildlife, including special status animal species. It is the same as the Lee Flat Herd Area boundary and covers approximately 137,873 acres. Land status within the CESA is listed below:

- BLM-administered - 88,516 acres;
- Death Valley National Park-managed - 47,882 acres;
- California State-managed - 1,147 acres; and
- Privately owned - 328 acres.

### **4.3.2 Cultural, Soil, Recreation, Visual, and Vegetation CESA**

This CESA will be used for the analysis of cultural, soils, vegetation, and visual resources. It was chosen based on the inclusion of natural features and management boundaries, including the hydrographic basin within which the Project is located (HUC 12 180902040101), the original Cerro Gordo ACEC, the Cerro Gordo-Conglomerate Mesa ACEC, and the Malpais Mesa Wilderness Area. This CESA covers 80,352 acres. Land status within the CESA is listed below:

- BLM-administered - 79,440 acres;
- Death Valley National Park - managed - 89 acres;
- Privately owned – 822 acres; and
- Local Government - 0.2 acres.

### **4.3.3 ACEC CESA**

This CESA encompasses the original Cerro-Gordo ACEC and the expanded Cerro Gordo-Conglomerate Mesa ACEC as shown on Figure 7, covering a total of approximately 12,181 acres. Only a portion of the Project is located within the Cerro Gordo-Conglomerate Mesa ACEC boundary. Cumulative impacts resulting from disturbance must be analyzed for this boundary in response to CMA-designated disturbance caps. Land status within the CESA is listed below:

- BLM-administered – 12,101 acres; and
- Privately owned – 80 acres.

### **4.3.4 National Land Conservation System CESA**

This CESA is used for the analysis of cumulative impacts to lands within the NLCS and includes the areas within the NLCS Basin and Range Subarea as shown on Figure 9. The NLC Basin and Range Subarea encompasses 50,986 acres of BLM-administered land.

### **4.3.5 Lands with Wilderness Characteristics CESA**

This CESA is used to assess cumulative impacts to lands with wilderness characteristics and encompasses WIU #124 which covers 47,783 acres of BLM-administered land.

## **4.4 Past, Present, and Reasonably Foreseeable Future Actions**

Past, present, and reasonably foreseeable future actions (RFFAs) must be considered as part of the cumulative effects analysis.



#### **4.4.1 Past and Present Actions Relative to All CESAs**

Where CESA boundaries overlap, descriptions of past and present actions as well as RFFAs have been combined in the following sections.

The CESAs chosen for this project include generally intact and relatively undisturbed natural landscapes. They have, however, been affected by the follow categories of past and present actions.

The CESAs include, or are bordered by linear features, including, but not limited to:

- Linear non-energy facilities, such as telephone lines and related rights-of-way (ROWs);
- Linear energy facilities, such as power lines and related ROWs; Transportation features and related ROWs, including Highway 136, Highway 190, Saline Valley Road, and other dirt roads;
- Non-motorized recreational use trails; and
- Authorized (approved open-designated vehicle routes) and unauthorized off-highway vehicle (OHV) use.

Other features related to transportation include turnouts and gravel pits located along highways 136 and 190. These linear features and other transportation related features may affect resources through the creation of disturbance areas and the presence of humans and equipment.

The Lee Flat Herd Area is a management area for wild burros. The Wildlife CESA shares all boundaries with the Lee Flat Herd Area, while the other CESAs include only a portion thereof. Burros were introduced into the area in the 1800s, when mining was most active. The proposed management population has been set at 30 burros by the California Desert Plan (BLM, 2002). The CESAs also include the Hunter Mountain-Lee Flat Herd Management Area, a 23,252-acre management area for cattle. This area is categorized as being in the “maintain category” and has five active animal unit months (BLM, 2017). Grazing impacts range resources, competing with native big-game and affecting the regional vegetation regime.

Exploration and mineral development has occurred within each of the CESAs, creating surface disturbance, not all of which has been reclaimed. Some of the areas have become districts of historical interest and importance. Historical exploration and mining has occurred extensively in this area, primarily related to the Cerro Gordo mining district. This district was mined in the late 1800s for lead-silver-zinc deposits and includes the Union Mine, Santa Maria Mine, and the San Felipe Mine among others. Historical remnants are centered on the site of Cerro Gordo, including the Union Mine waste rock dump, remains of a smelter furnace, and underground openings. Historical features are also found around the town of Keeler, including remnants of a tramway leading to the Cerro Gordo site. The tramway was removed in the 1960s (Minedat, 2017). Many of these activities were located on patented mining claims.

General recreation occurs within all of the CESAs. Past and present recreation activities include four-wheel drive and dual-sport motorcycle recreation, hiking, backpacking, photography, climbing, and historical investigations. Most of these activities occur on BLM-administered lands, while some may occur on private and state-managed lands. Unauthorized OHV use may also occur within the CESAs, primarily near established roadways and open designated vehicle routes or along closed/rehabilitated linear disturbance features.

Other land designations within the area which may affect potential actions include the Malpais Mesa Wilderness Area (BLM-administered) and Death Valley National Park.



#### **4.4.2 Past and Present Actions Specific to the Wildlife CESA**

Within the Wildlife CESA, 47,882 acres are managed by the National Park Service as part of the Death Valley National Park. This acreage is located within Lee Flat, an area visited primarily for its attributes of solitude, vast view sheds, and the natural desert environment. There are no major Death Valley National Park tourist destinations located within this area. Past and Present Action disturbances within this area include both approaches to the Saline Valley Road (the Talc City Hills/Santa Rosa Flat Road and the Lee Flat Road), the Bonham Mine Road, the San Lucas Canyon Road, and the Cerro Gordo Road. In addition, there are the few unmaintained, BLM-administered jeep trails that comprise the open designated route network in the area. These include the connecting route (SE9) between the Santa Rosa Flat fork of the Saline Valley Road and the Bonham Mine and Lee Flat Roads. (The Lee Flat Road is almost entirely on adjacent Death Valley National Park lands.) Past and Present activities include four-wheel drive and dual-sport motorcycle recreation, hiking, backpacking, photography, climbing, and historical investigations. Past activities also include mining and prospecting within what is now the Malpais Mesa Wilderness and Death Valley National Park.

Visual imagery of the southern portion of the Wildlife CESA indicates considerable land disturbance around the Talc City Hills Area. This area is part of the Talc City District, a talc and soap stone mining area which includes the following inactive mine sites: Silver Dollar, White Swan, Viking Talc, Sierra, and Acme Talc (Minedat, 2017).

#### **4.4.3 Past and Present Actions Specific to the ACEC CESA**

The past and present actions occurring within the ACEC CESA are described in Chapter 3.2. A disturbance cap of 0.10% has been set for the Conglomerate Mesa portion of the Cerro Gordo-Conglomerate Mesa ACEC as part of a management triggering objective under the DRECP. Existing disturbance areas have been mapped by the California State BLM office and are equal to 0.22% (Beck, 2017).

#### **4.4.4 Past and Present Actions Specific to the relevant NLCS CESA Subarea**

With the exception of past mining activities clustered around patented claims at Cerro Gordo and the Bonham Talc Mine to the north, and in the Talc City Hills to the south, the Basin and Range NLCS ecoregion extends across a very large contiguous natural area, linking multiple wilderness areas, and Death Valley National Park. The subarea of the Basin and Range ecoregional used for the NLCS CESA is shown on Figure 9. Additional past and present actions to those listed in Chapter 3.7 that are occurring within this CESA include grazing areas, culturally significant sites, recreational areas, and habitat management.

A disturbance cap of 1.0% has been set for the Basin and Range NLCS ecoregion where this CESA is located as part of a management triggering objective under the DRECP. Existing disturbance areas have been mapped by the California State BLM office and are equal to 1.29% (Beck, 2017).

The affected CESA overlaps with the Hunter Mountain Allotment, with the general management objective to maintain valid and existing grazing rights within each area:

Various cultural sites are present within this CESA. Most of these sites are being or will be managed for low-impact public visitation while promoting site stabilization and rehabilitation

where needed. Management actions may include trail work, interpretive signage, vehicle barriers, and designated day use and camping areas. Areas of cultural significance include the following:

- Prehistoric and historic sites around Owens Lake and within the Centennial Flat area;
- Prehistoric and historic sites in the southern foothills of the Inyo Mountains; and
- Historic mining sites around Cerro Gordo.

Wildlife management occurs throughout the Basin and Range NLCS ecoregion including habitat protection and habitat restoration with a focus on special status species. Besides general habitat management, the following activities are also occurring within the affected CESA:

- Management for historical bighorn sheep use in the area;
- Invasive plant species removal;
- Burro management and removal; and
- Management and preservation of animal movement corridors between the Argus Wilderness, Inyo Mountains Wilderness, and the Death Valley National Park.

In addition to the recreational uses described in Chapter 3.8, the CESA generally supports a wide-array of dispersed motorized and non-motorized recreational opportunities.

#### **4.4.5 Reasonably Foreseeable Future Actions**

For all CESAs, reasonably foreseeable future actions would include ongoing and new mineral exploration (though limited due to the ACEC, NLCS, and WSA areas and designations), geophysical research, recreation, transportation, ROW development, wildlife use and management, and livestock grazing.

### **4.5 Areas of Critical Environmental Concern**

Two drill pads, which would be accessed under all alternatives, and a portion of the exploration road as proposed under the Silver Standard's Proposed Action Alternative and the Minimum Road Construction Alternative would be located within the Conglomerate Mesa portion of the Cerro Gordo-Conglomerate Mesa ACEC as shown on Figure 5. The pads and roads would all be located on previously disturbed and rehabilitated areas. The Cerro Gordo-Conglomerate Mesa ACEC has been assigned certain objectives, allowable uses, and management actions categorized by resource. These management actions are discussed under each applicable resource in the following analysis sections while disturbance acreages for each alternative are discussed in this Chapter 4.2.

Mineral exploration and development is allocated as restrictive with the ACEC. Existing mining proposal and future proposals are to be analyzed on a case-by-case basis, and cumulatively to assess whether they can be accommodated within the ACEC and its management goals.

Ground disturbance caps are set for each ACEC as stipulated in CMAs ACEC-DIST-1 and ACEC-DIST-2 with a disturbance cap of 0.10% set for the Conglomerate Mesa portion of the ACEC. Existing disturbance within the Conglomerate Mesa portion of the ACEC has been mapped at 0.22 percent which triggers the need for ground disturbance mitigation if additional disturbance areas are to be created.

## **4.5.1 Silver Standard's Proposed Action Alternative**

### **4.5.1.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative would result in the disturbance of a total of 7.75 acres. Of this, 1.67 acres would occur within the Conglomerate Mesa portion of the Cerro Gordo-Conglomerate Mesa ACEC. Because the ground disturbance cap of 0.10% has been met for the area, ground disturbance mitigation would need to be carried out in accordance with CMA ACEC-DIST-2. Ground disturbance mitigation acreages are listed and discussed as compensation in Chapter 1.6.

### **4.5.1.2 Cumulative Effects**

Disturbance areas resulting from the Silver Standard's Proposed Action Alternative would be added to the already above-cap disturbance areas within the Conglomerate Mesa portion of the Cerro Gordo-Conglomerate Mesa ACEC. As long as the disturbance area is above the 0.10% cap, other proposed projects would also trigger ground disturbance mitigation requirements, unless exempt, until such a time as the disturbance area falls below the 0.10% cap as calculated by the BLM.

### **4.5.1.3 Mitigation**

Mitigation measures have been incorporated into the Project design.

## **4.5.2 Minimum Road Construction Alternative**

### **4.5.2.1 Direct and Indirect Effects**

The Minimum Road Construction Alternative would result in the disturbance of a total of 7.28 acres. Of this, 1.67 acres would occur within the Conglomerate Mesa portion of the Cerro Gordo-Conglomerate Mesa ACEC, the same as discussed for the Silver Standard's Proposed Action Alternative. Because the ground disturbance cap of 0.10% has been met for the area, ground disturbance mitigation would need to be carried out in accordance with CMA ACEC-DIST-2. Ground disturbance mitigation acreages are listed and discussed as compensation in Chapter 1.6.

### **4.5.2.2 Cumulative Effects**

Cumulative effects resulting from the Minimum Road Construction Alternative would be the same as for the Silver Standard's Proposed Action Alternative.

### **4.5.2.3 Mitigation**

Mitigation measures have been incorporated into the Project design.

## **4.5.3 BLM Preferred Helicopter Access Alternative**

### **4.5.3.1 Direct and Indirect Effects**

The BLM Preferred Helicopter Access Alternative would result in the disturbance of a total of 0.2 acres. Of this, 0.06 acres would occur within the Conglomerate Mesa portion of the Cerro Gordo-Conglomerate Mesa ACEC. Because the ground disturbance cap of 0.10% has been met for the

area, ground disturbance mitigation would need to be carried out in accordance with CMA ACEC-DIST-2. Ground disturbance mitigation acreages are listed and discussed in Chapter 1.6.

#### **4.5.3.2 Cumulative Effects**

Disturbance areas resulting from the BLM Preferred Helicopter Access Alternative would be added to the already above-cap disturbance areas within the Conglomerate Mesa portion of the Cerro Gordo-Conglomerate Mesa ACEC. As long as the disturbance area is above the 0.10% cap, other proposed projects would also trigger ground disturbance mitigation requirements, unless exempt, until such a time as the disturbance area falls below the 0.10% cap as calculated by the BLM.

#### **4.5.3.3 Mitigation**

Mitigation measures have been incorporated into the Project design.

### **4.5.4 No Action Alternative**

#### **4.5.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No surface disturbance would occur and there would be no impacts to ACECs.

#### **4.5.4.2 Cumulative Effects**

No cumulative impacts to ACECs would occur under the No Action Alternative.

## **4.6 Cultural Resources**

### **4.6.1 Silver Standard's Proposed Action Alternative**

#### **4.6.1.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative would require the disturbance of approximately 7.75 acres of land for exploration road and pad construction. The area has been surveyed for cultural resources and one prehistoric archaeological site and two isolated artifacts were located. The prehistoric archaeological site, referred to as PM-PC-1, has been bisected by the now reclaimed BHP exploration road. Any surfacing grading or clearing of the reclaimed BHP route by the Silver Standard's Proposed Action Alternative could affect the site. The two isolated artifacts would not be effected by the Silver Standard's Proposed Action Alternative. There are no known indirect effects which may result from the implementation of the Silver Standard's Proposed Action Alternative to any of the identified cultural resources.

#### **4.6.1.2 Cumulative Effects**

Most of the Cultural, Soil, Recreation, Visual, and Vegetation CESA is located on federally-managed lands which mandate that permitted uses be analyzed for potential impacts to cultural resources, with mitigation implemented, as necessary. Based on this requirement, the small size of the disturbance, and with consideration for the Project mitigation measures (described below), the Silver Standard's Proposed Action Alternative would not have any measurable cumulative impacts to cultural resources.

The Cerro Gordo-Conglomerate Mesa ACEC cultural resource objective to “protect and preserve cultural resources for scientific and interpretive values” (BLM, 2016a) would be also met.

#### **4.6.1.3 Mitigation**

Silver Standard would adhere to the environmental protection measures stipulated in Chapter 2.7. In addition, it is recommended that the remaining portions of archaeological site PM-PC-1 be avoided and preserved in place. A cultural resource monitor would be present on-site during any adjacent earth works to assure the existing site, or other undiscovered sites, are identified and avoided. If the site cannot be avoided, then a protective soil layer would need to be placed on the road track through the site’s boundary to prevent disturbance to the site’s sub-surface.

### **4.6.2 Minimum Road Construction Alternative**

#### **4.6.2.1 Direct and Indirect Effects**

The Minimum Road Construction Alternative would require the disturbance of approximately 7.28 acres of land for road and pad construction. The proposed APE has been surveyed for cultural resources. One prehistoric archaeological site and two isolated artifacts were located adjacent to the previously disturbed and reclaimed BHP route, which would be used by the Minimum Road Construction Alternative route. The site, PM-PC-1, has been bisected by the now reclaimed road. Any surfacing grading or clearing of the reclaimed BHP route by the Silver Standard’s Proposed Action Alternative could affect the site. There are no known indirect effects which may result from the implementation of the Silver Standard’s Proposed Action Alternative to any of the identified cultural resources.

#### **4.6.2.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard’s Proposed Action Alternative.

#### **4.6.2.3 Mitigation**

Mitigation would be the same as for the Silver Standard’s Proposed Action Alternative.

### **4.6.3 BLM Preferred Helicopter Access Alternative**

#### **4.6.3.1 Direct and Indirect Effects**

The Helicopter Access Alternative would disturb approximately 0.2 acres of land located primarily within the previously disturbed and reclaimed BHP exploration areas. No cultural resources were identified during field surveys within the proposed pad areas. This alternative would also require the placement of pumps and the laying of temporary rubber hoses on the ground surface to pump water to each active pad. The hoses and pumps would be laid out manually by workers on foot and are not anticipated to impact cultural resources.

#### **4.6.3.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard’s Proposed Action Alternative.

#### **4.6.3.3 Mitigation**

Mitigation would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.6.4 No Action Alternative**

##### **4.6.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No surface disturbance would occur and there would be no impacts to cultural resources.

##### **4.6.4.2 Cumulative Effects**

No cumulative impacts to cultural resources would occur under the No Action Alternative.

### **4.7 Greenhouse Gas Emissions**

The Silver Standard's Proposed Action Alternative or alternatives would not meet the requirements for greenhouse gas reporting (<https://www.epa.gov/ghgreporting>), with the highest amount of CO<sub>2e</sub> emissions estimated to be approximately 404 metric tons and the reporting threshold being 25,000 metric tons. However, GHG emissions, measured as CO<sub>2e</sub>, would occur under each alternative as described below and as calculated in Appendix D. Emissions related to carbon sequestration losses (soil disturbance and vegetation loss) have not been calculated for this Project. Such contributions would be minimal given the small area, the sparse desert vegetation, and reclamation. The limited amount of pollutants resulting from the drilling exploration would not impede the BLM and the State of California from meeting the air quality objectives or reductions in GHG emissions.

The GHG emissions for each alternative have been calculated using published GHG emissions per hour data for various types of equipment. Where the data for the exact equipment type was not available, the closest equivalent type was used. Operational hours for the Project were estimated based on the size of the Project, linear feet to be drilled, and travel distances. Calculations are included in Appendix D.

#### **4.7.1 Silver Standard's Proposed Action Alternative**

##### **4.7.1.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative is estimated to contribute approximately 404 metric tons of CO<sub>2e</sub> to the atmosphere over the life of the Project (see calculations in Appendix D). This contribution would further the effects of anthropomorphic climate change through the emission of GHGs into the atmosphere. The particular interactions of these Project-related emissions cannot be determined and must be viewed as part of the larger effects of climate change.

##### **4.7.1.2 Cumulative Effects**

Cumulative contributions of GHG emissions have not been given a boundary since climate change is a global phenomenon occurring at such a large scale that cumulative effects cannot be quantified beyond the metric tonnage over the life of the Project.

#### **4.7.1.3 Mitigation**

Mitigation measures have been incorporated into the Project design.

### **4.7.2 Minimum Road Construction Alternative**

#### **4.7.2.1 Direct and Indirect Effects**

The direct and indirect effects of the Minimum Road Construction Alternative would be the same as for the Silver Standard's Proposed Action Alternative. See Appendix D for GHG emission calculations.

#### **4.7.2.2 Cumulative Effects**

Cumulative effects would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.7.2.3 Mitigation**

Mitigation measures have been incorporated into the Project design.

### **4.7.3 BLM Preferred Helicopter Access Alternative**

#### **4.7.3.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative is estimated to contribute approximately 394 metric tons of CO<sub>2e</sub> to the atmosphere over the life of the project (see calculations in Appendix D). As under the Silver Standard's Proposed Action Alternative, these contributions would further the effects of anthropomorphic climate change through the emission of GHGs into the atmosphere. The particular interactions of these Project-related emissions cannot be determined and must be viewed as part of the larger effects of climate change.

#### **4.7.3.2 Cumulative Effects**

Cumulative contributions of GHG emissions have not been given a boundary since climate change is a global phenomenon occurring at such a large scale that cumulative effects cannot be quantified beyond the metric tonnage.

#### **4.7.3.3 Mitigation**

Mitigation measures have been incorporated into the Project design.

### **4.7.4 No Action Alternative**

#### **4.7.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No additional Project-related GHG emissions would be released.

#### **4.7.4.2 Cumulative Effects**

No cumulative impacts to GHGs would occur under the No Action Alternative.



## **4.8 Invasive Plants and Noxious Weeds**

### **4.8.1 Silver Standard's Proposed Action Alternative**

#### **4.8.1.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative would result in a temporary direct impact to a small acreage of public land. This disturbance (7.75 acres) would occur primarily on previously disturbed and reclaimed lands. Biological surveys indicate that invasive plants and noxious weed species have colonized the area, primarily along the previously disturbed and reclaimed former BHP mineral exploration roads and drill pad areas. Invasive plants and noxious weed species observed are listed in Table 3-1 with their locations shown on Figure 6.

Weeds flourish in open, freshly disturbed areas where they do not have to compete with well-established native plant communities for light and resources. Currently, the weed infestations along the previously disturbed and reclaimed areas proposed for new disturbance are quite small and discrete, and at this time, quite manageable. However, BLM does not want these infestations to intensify and spread. Silver Standard would be required to hand-pull, bag, and remove invasive plants and noxious weeds located along proposed exploration routes/roads and drill pads before route/road use and construction begins. This would not stop all seed dispersal, germination, and weed spread, because seed banks would persist in soils and would still be viable. However, it would stop new seed production and the introduction and spread of weeds to new locations by vehicles and equipment, particularly if weed removals were timed appropriately. It does not help to wash tires off before entering an area, if vehicles and equipment will become re-contaminated passing through and working within an area.

Post-Project revegetation of these areas with an appropriate seed mix to match the surrounding environment will help in colonizing disturbed areas with desirable species prior to re-colonization by invasive plants and noxious weed species. It would re-establish plant cover more quickly and may provide native species with a competitive advantage. However, it would not stop weeds from germinating from newly-disturbed soil banks left on-site or from migrating into the area from adjacent areas. Weed populations still would need to be monitored and weed species selectively culled/removed (hand-pulled) post-Project on an annual basis for a period of up to at least three years. Halogeton and Russian thistle (the two weed species found on-site) have been successfully controlled (if not eradicated) in this way, using a combination of persistent hand-pulling after germination and before seed set, coupled with interventions to speed recovery of robust, weed-resistant native plant communities.

Another potential impact is the importation of other invasive plants and noxious weed species from other areas on road construction and drilling equipment. This could result in additional invasive plants and noxious weed species colonizing the area.

The Project is subject to the reclamation requirements of 43 CFR § 3809. Silver Standard has presented a reclamation plan and would adhere to the environmental protection measures described in Chapter 1.5 (CMA LUPA-BIO-10) which would include the washing of equipment moving to and from the site, revegetation, and pre- and post-disturbance weed monitoring and control. Revegetation would aid in minimizing the post-reclamation colonization of invasive plant and noxious weed species. Impacts would last until plant cover and native populations have recovered sufficiently to keep weed populations in check.

Considering the small disturbance area, the presence of only two invasive plant and noxious weed species in a few, discrete locations at this time, and the implementation of environmental protection measures, the spread of invasive plants and noxious weeds is considered to be a low risk, and would be adequately addressed, in any case, in post-Project reclamation requirements.

#### **4.8.1.2 Cumulative Effects**

Given the small size of the Project within the larger, mostly undisturbed nature of the Cultural, Soil, Recreation, Visual, and Vegetation CESA, the Silver Standard's Proposed Action Alternative would not have measurable cumulative impacts to invasive plants and noxious weeds.

#### **4.8.1.3 Mitigation**

Mitigation measures have been incorporated into the Project design.

### **4.8.2 Minimum Road Construction Alternative**

#### **4.8.2.1 Direct and Indirect Effects**

The Minimum Road Construction Alternative would result in a temporary direct impact to a small acreage of public lands. This disturbance (7.28 acres) would occur partially on previously used and reclaimed lands and partially on native, previously undisturbed ground.

Silver Standard would be required to hand-pull, bag, and remove invasive plants and noxious weeds located along proposed exploration routes/roads and drill pads before route/road use and construction begins. This would not stop seed dispersal, germination, and weed spread. But it would stop new seed production and the introduction and spread of weeds to new locations by vehicles and equipment. Post-Project revegetation of disturbed areas with an appropriate seed mix to match the surrounding environment would help in colonizing disturbed areas with desirable species prior to re-colonization by invasive plants and noxious weed species. It may provide native species with a competitive advantage. However, weed colonization of newly disturbed and re-disturbed areas still would be likely to occur from existing seed banks and invasive plants and noxious weed species located adjacent to but outside of the road and pad construction areas.

Under this alternative, previously undisturbed ground would be disturbed, primarily by the overland passage of vehicles but also by some generally less intensive construction. This would make new areas within the Project area more susceptible to weed infestation and spread.

As under the Silver Standard's Proposed Action Alternative, invasive plants and noxious weed seeds could be imported from other areas on road construction and drilling equipment into previously disturbed areas and into areas of freshly disturbed native vegetation. This could result in the introduction and spread of new weed species into the area.

As under the Silver Standard's Proposed Action Alternative, the Project is subject to the reclamation requirements of 43 CFR § 3809. Silver Standard would adhere to the environmental protection measures described in Chapter 2.7 which include pre-disturbance weed removal, the washing of equipment moving to and from the site, revegetation, and post-disturbance weed monitoring and re-treatment. Revegetation would aid in minimizing the post-reclamation colonization of invasive plant and noxious weed species, as would selective culling (removal by hand-pulling) of weed species for years to come. Impacts would last until plant cover and native populations have recovered sufficiently to keep weed populations in check.

Considering the small disturbance area, the presence of only two invasive plant and noxious weed species at this time in a few, discrete locations, and the implementation of environmental protection measures, impacts with respect to the spread of invasive plants and noxious weed species are expected to be minimal. These impacts would be adequately addressed, in any case, in post-Project reclamation requirements.

#### **4.8.2.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.8.2.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Silver Standard's Proposed Action Alternative

### **4.8.3 BLM Preferred Helicopter Access Alternative**

#### **4.8.3.1 Direct and Indirect Effects**

A majority of the 0.20 acres of disturbance proposed under the BLM Preferred Helicopter Access Alternative would occur on sites (former drill pads) which have been previously disturbed, regraded to match the surrounding contours, and revegetated. During pad construction, invasive plants and noxious weed species located near the pads would be hand-pulled, bagged, and removed, before any disturbance or construction occurred. Colonization of re-disturbed areas by weed species could still occur, because of existing seed banks and the migration of weed species from adjacent areas. Revegetation of these areas with an appropriate seed mix to match the surrounding environment would help. Desirable native species could become established before invasive plants and noxious weed species started germinating and growing. However, these efforts would need to be followed up with at least three years of monitoring and selective culling/removal/hand-pulling of weedy species to ensure that native species maintained their competitive advantage.

The likelihood of spreading or importing weed species via helicopter-transported equipment is negligible compared to what it would be by transporting equipment by wheeled vehicles. Wheeled vehicles would be in continuous contact with the ground over much longer distances.

More significantly, the BLM Preferred Helicopter Access Alternative would require very little new ground and soil disturbance. New disturbances would be confined to the construction (leveling and clearing) of the drill pads and heli-spots, and to the construction of very short, isolated segments of access road to connect heli-spots to drill sites. Ground that remains undisturbed is less susceptible to weed introduction and spread.

The laying-out of water hoses could contribute to the spread of invasive plants and noxious weed seeds within the area. However, because ground disturbance would not occur as part of this activity, it is unlikely that seeds would be able to successfully establish themselves and would spread along routes populated by robust native vegetation.

As under the Silver Standard's Proposed Action Alternative, the Project is subject to the reclamation requirements of 43 CFR § 3809. Revegetation would aid in minimizing the post-reclamation colonization of invasive plants and noxious weed species, as would monitoring and selective removal/culling of weed species on an annual basis for up to three years. Impacts would

last until plant cover and native populations have recovered sufficiently to keep weed populations in check. Silver Standard would adhere to the environmental protection measures described in Chapter 2.7 which include pre-disturbance weed removal, the washing of equipment moving to and from the site, revegetation, and post-disturbance weed monitoring and re-treatment.

Considering the small amount of ground and soil disturbance required, the isolation of each of the discrete, disturbed areas from each other, the implementation of environmental protection measures, and the presence of only two invasive plant and noxious weed species at this time in a few, discrete locations, impacts to invasive plant and noxious weed species from the BLM Preferred Helicopter Access Alternative would be negligible.

#### **4.8.3.2 Cumulative Effects**

Cumulative impacts would be considerably less than that posited for the Silver Standard's Proposed Action Alternative or Minimum Road Construction Alternatives given the vastly reduced disturbance associated with this alternative.

#### **4.8.3.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Silver Standard's Proposed Action Alternative

### **4.8.4 No Action Alternative**

#### **4.8.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No surface disturbance would occur and there would be no impacts to invasive plants and noxious weeds.

#### **4.8.4.2 Cumulative Effects**

No cumulative impacts to invasive plants and noxious weeds would occur.

## **4.9 Native American Tribal Cultural Resources**

### **4.9.1 Silver Standard's Proposed Action Alternative**

#### **4.9.1.1 Direct and Indirect Effects**

Consultation and discussions by the BLM over the past ten years with the Tribes and individuals affiliated with the Owens Valley region has revealed that these Tribes object to this exploration drilling project because it will affect an unmodified landscape.

#### **4.9.1.2 Cumulative Effects**

Consultation and discussions by the BLM over the past ten years with the Tribes and individuals affiliated with the Owens Valley region has revealed that this exploration drilling project is considered by the Tribal communities as having cumulative effects because it will affect an unmodified landscape, thus reducing by one the quantity of such landscapes in the Owens Valley region.

#### **4.9.1.3 Mitigation**

Consultation would be conducted by the BLM with the Tribes and individuals affiliated with the Owens Valley region to resolve and reach a consensus on appropriate mitigation measures as part of the permitting of this Project by the BLM.

### **4.9.2 Minimum Road Construction Alternative**

#### **4.9.2.1 Direct and Indirect Effects**

The direct and indirect effects of the Minimum Road Construction Alternative would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.9.2.2 Cumulative Effects**

Potential cumulative effects would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.9.2.3 Mitigation**

Mitigation would be the same as for the Silver Standard's Proposed Action Alternative.

### **4.9.3 BLM Preferred Helicopter Access Alternative**

#### **4.9.3.1 Direct and Indirect Effects**

The direct and indirect effects of the BLM Preferred Helicopter Access Alternative would be the same as for the Silver Standard's Proposed Action Alternative, although concern over the Project may be reduced given the smaller disturbance area and types of disturbance.

#### **4.9.3.2 Cumulative Effects**

Potential cumulative effects would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.9.3.3 Mitigation**

Mitigation would be the same as for the Silver Standard's Proposed Action Alternative.

### **4.9.4 No Action Alternative**

#### **4.9.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur and there would be no impacts or effects to Native American Tribal Cultural Resources.

#### **4.9.4.2 Cumulative Effects**

No cumulative impacts to Native American Tribal Cultural Resources would occur.

## **4.10 National Land Conservation System Lands**

Ground disturbance caps are set for each NLC subarea as stipulated in CMAs NLCS-DIST-1 and NLCS-DIST-2 with a disturbance cap of 1.0% set for the Basin and Range NLCS subarea. Existing disturbance within this subarea has been mapped at 1.29% which triggers the need for ground disturbance mitigation if additional disturbance areas are to be created.

### **4.10.1 Silver Standard's Proposed Action Alternative**

#### **4.10.1.1 Direct and Indirect Effects**

The Project is located within a large, contiguous natural area that is a central component of the NLCS. This area encompasses the bridge and adjacent mesa that link the Malpais Mesa Wilderness to the Inyo Mountains proper and to high elevation extensions into Death Valley National Park. The Project is located within the bridge portion of the area, approximately one-half mile north of the Malpais Mesa Wilderness boundary and extending approximately 1.3 miles north along the principal ridgeline connecting the two mesas. This ridgeline is narrow, averaging less than 100 feet across and is flanked on both sides by steep, precipitous terrain.

The Silver Standard's Proposed Action Alternative would disturb approximately 7.75 acres within the bridge area, nearly all of it related to road construction and overland travel.

This disturbance would occur primarily on previously disturbed and reclaimed areas used by BHP. This would impact landscape intactness while the Project was underway and would continue to do so until the area recovered to something approaching current conditions. It would also impact habitat connectivity, at least while the Project was underway. The presence of crews and use of heavy machinery and equipment could cause wildlife to avoid the area. Presumably these effects would be temporary and wildlife would resume using the area once crews, machinery, and equipment had left. Impacts to wildlife are discussed in chapters 4.13 and 4.17.

Scenic quality would be impacted during the Project and noticeably impacted for some time after the Project's conclusion. Some visual impacts caused by new disturbances would be expected to persist, no matter how perfected the seed mix or other post-Project reclamation activities. Most impacts would result from large earth-moving activities related to cut-and-fill road construction across steep slopes. However, removal of vegetation associated with other forms of road and drill pad construction, i.e., leveling or blading, would also contribute. More minor impacts would result from crushing of vegetation on overland vehicle use routes, and on parking, turnaround, and storage areas. These impacts are discussed in more detail in Chapter 4.16.

It is unclear how many times a slope can be re-disturbed, particularly given the steep gradients and thin soils in some areas, and still be expected to recover, to regain enough soil structure and slope stability to support re-vegetation in the area, within the same relatively short time frame. However, given the small size of the Project and its temporary nature, these impacts are expected to be localized and to be relatively minimal with respect to the NLCS subunit as a whole. Because cultural and biological resources have been surveyed for and would be mitigated or avoided as described in chapters 4.6 and 4.13, 4.14, 4.15, and 4.17, impacts to these resources as contributing elements to the NLCS designation would be negligible.

In accordance with CMA NLCS-DIST-2, if the ground disturbance condition is at or above its designated cap, the cap functions as an objective, triggering the specific ground disturbance



mitigation requirement. The mitigation ratio requirement within the Project area is 3:1 (see Chapter 1.6).

#### **4.10.1.2 Cumulative Effects**

The cumulative effects of the Silver Standard's Proposed Action Alternative would result in a slight increase to the overall disturbance area within the Basin and Range NLC subarea. Since this area has already reached its 1.0% disturbance cap, any project occurring in this area, unless exempt, would be required to complete ground disturbance mitigation until such a time as the disturbance area falls below the designated cap as calculated by the BLM.

#### **4.10.1.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Relevant mitigation measures are also described in Chapter 4.14 and 4.17.

### **4.10.2 Minimum Road Construction Alternative**

#### **4.10.2.1 Direct and Indirect Effects**

Impacts related to the Minimum Road Construction Alternative would be nearly identical to those described for the Proposed Alternative with respect to numbers of acres disturbed within the bridge area (7.28 acres as opposed to 7.75 acres) and with respect to habitat connectivity, and cultural and biological resources. While the presence and activities of crews, vehicles, and heavy equipment along access routes (overland or constructed) and at the drill sites could inhibit use of the area by wildlife, these impacts are expected to be temporary and would cease upon completion of the Project. Because cultural and biological resources have been surveyed for and would be mitigated or avoided on these overland and constructed routes as well, impacts to these resources as contributing elements to the NLCS designation would be negligible.

This alternative differs from the Proposed Alternative principally with respect to impacts related to landscape intactness and scenic quality. Impacts to these resources would be less severe and less persistent, i.e., more easily reclaimable, under the Minimum Road Construction Alternative than under the Silver Standard's Proposed Action Alternative. Total acres of new ground disturbance would be only marginally less (7.28 acres as opposed to 7.75 acres). But, the type and intensity of ground disturbance involved would be much less invasive, disruptive, and visible. Half of the impacts (as opposed to one third under the Proposed Alternative) would be related to overland travel routes where vegetation would be crushed and large boulders and debris would be pulled out of the way, but surfaces would remain otherwise intact. Mature vegetation would remain rooted in place. Surfaces would be compressed, but they would not be scraped or bladed or otherwise improved. Soils would not be overturned or displaced. Visual impacts (discoloration) from the use of more overland routes would be less and would be less likely to persist for years.

Half of the impacts (as opposed to nearly two-thirds under the Silver Standard's Proposed Action Alternative) would be related to constructed road sections. However, these road sections and the impacts associated with them would tend to be short and intermittent, rather than long and continuous. Construction on these road segments would be less intense, generally occurring on slopes of less than 30 degrees (requiring less cut-and-fill), than on the steeper slopes ranging from 20 to 40 degrees, as described under the Silver Standard's Proposed Action Alternative. Road construction would follow the grain of the land (washes and ridgelines) more often than cutting



directly across the grain on steep side slopes from saddle to saddle. Complete reconstruction of two long segments of BHP continuous cut-and-fill road across the faces of two prominent and well-reclaimed mountainsides would be avoided. Instead, shorter ramps would be built up from the wash bottom or across lower slopes to intersect drill sites and necessary constructed road segments located within the reclaimed BHP areas.

Reclamation would be far easier to undertake and complete, and would be far more likely to succeed sooner under this alternative than under the Silver Standard's Proposed Action Alternative. Construction of the two long, continuous stretches of cut-and-fill BHP road would be avoided. This would require less ground disturbance and would result in less visible disturbance overall. Large amounts of previously disturbed and reclaimed earth would not have to be displaced and replaced. There would be less need for extensive backfill and re-contouring of slopes. Instead, this type of work would be limited to a few, relatively short, discrete sections of intermittent road or ramps to drill sites where some cut-and-fill construction was unavoidable. Bladed and/or otherwise improved sections of roadbed would be kept to a bare minimum and would appear only intermittently. At the conclusion of the Project, only these constructed or otherwise improved short sections of road would need to be extensively reworked, backfilled and/or re-contoured, re-covered with soil and rock, and re-seeded.

Longer, continuous sections of relatively stable and fertile overland route with crushed vegetation would be left largely alone. Some initial sections would need to be re-strewn with large boulders and debris to block further vehicle access and use. Otherwise, the overland routes would be expected to spring back rather quickly on their own without additional intervention. Native seed banks would persist (remain intact) at these sites. Native plants would be more immediately present and available to infiltrate in from the undisturbed margins of these routes.

The mitigation ratio requirement within the Project area is 3:1 under this alternative as it is under all alternatives (see Chapter 1.6).

#### **4.10.2.2 Cumulative Effects**

Cumulative effects would be the same as for the Silver Standard's Proposed Action Alternative except for the slightly lower disturbance acreage.

#### **4.10.2.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Relevant mitigation measures are also described in Chapter 4.14 and 4.17.

### **4.10.3 BLM Preferred Helicopter Access Alternative**

#### **4.10.3.1 Direct and Indirect Effects**

The BLM Preferred Helicopter Access Alternative would disturb approximately 0.2 acres, mostly related to helicopter and drill pad construction. These new disturbances would occur primarily on previously disturbed and reclaimed areas used by BHP. This would impact landscape intactness and habitat connectivity, but considering the small number of drill sites (seven) and size of the disturbances associated with each drill site, coupled with the isolated and widely dispersed locations of the drill sites, and the temporary nature of the Project, these impacts would be minimal. Most impacts would be limited to the presence of crews, equipment and machinery on-site and to

helicopter noise related to helicopter use within the area. Impacts would be confined to the one or more sites (and the one or more flight paths) being worked at a time. These impacts would not be pervasive, extending out to all sites at one and the same time. Impacts would cease upon the completion of the work at each site and upon completion of the Project as a whole.

Additional impacts would occur from laying hose overland from the water tank at the end of the nearest open, designated route and from the two pumps dropped into place at high points along the hose lines to move water from the tank up to the drill sites. However, these impacts would be very minimal, involving some rotor wash and crushing of vegetation rather than excavation and burial of line, construction of footing, or removal of vegetation. Not all hose lines depicted in Figure 2C would be laid down at once. Rather, hoses would be laid down and taken up (and pumps dropped off and operated) as needed. Hoses and pumps would be in place and in operation to accommodate only the drill site or cluster of drill sites being worked on at the time. They would be removed and re-located to work on the next site/sites.

Scenic quality would be impacted at each drill site through vegetation removal and ground disturbance related to helipad, drill pad, and road construction. However, these impacts would be very small and localized. They would occur in only a few (seven) isolated and widely dispersed locations. The Helicopter Alternative would not impact scenery or visual resources within the bridge area to anywhere near the extent of either one of the other two alternatives. Visual impacts are discussed in more detail in Chapter 4.16.

Because cultural and biological resources have been surveyed for and would be mitigated or avoided as described in Chapters 4.6, 4.13, 4.14, 4.15, and 4.17, impacts to these resources as contributing elements to the NLCS designation would be negligible.

As for the Silver Standard's Proposed Action Alternative and the Minimum Road Construction Alternative, ground disturbance mitigation calculations are described in Chapter 1.6. The mitigation ratio requirement within the Project area is 3:1.

#### **4.10.3.2 Cumulative Effects**

Cumulative effects would be negligible.

#### **4.10.3.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Relevant mitigation measures are also described in Chapter 4.14 and 4.17.

### **4.10.4 No Action Alternative**

#### **4.10.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No surface disturbance would occur and there would be no impacts to NLCS lands.

#### **4.10.4.2 Cumulative Effects**

No cumulative impacts to NLCS lands would occur under the No Action Alternative.

## **4.11 Recreation**

### **4.11.1 Silver Standard's Proposed Action Alternative**

#### **4.11.1.1 Direct and Indirect Effects**

The Project area is relatively remote and unknown. It is accessed from the terminus of an obscure jeep trail (a BLM open, designated route) in a wash bottom, more than 1.75 miles from the primary north-south connecting route (SE9) through the area. This jeep trail is often not signed and is not associated with a specific designation. Visitors tend to be local (target shooters and hunters) or longtime desert explorers in jeeps or on foot. These visitors are familiar with the area and rely on it for an out-of-the way dispersed camping spot and/or for an opportunity to do some hunting and/or cross-country hiking and exploring.

The informal camping and parking area located at the terminus of the jeep trail and start of the proposed exploration route, as shown on Figure 7, would probably be avoided by most recreationists during the active phases of the Project due to changes made to the Project area and the presence and activities of additional vehicles, equipment, and Project personnel. Obvious changes to the area, most notably new developments associated with road construction and drill sites, may infuriate some longtime users. This would be particularly true for those in pursuit of game and/or accustomed to finding solitude and a more natural and pristine “wilderness-type” experience in the area. Visual impacts are discussed in more detail in Chapter 4.16.

Other visitors, particularly newcomers to the area, may not be deterred at all by the changes or presence of extra vehicles, equipment, or personnel. These visitors may be attracted to the area where they might not have been before, particularly if the jeep trail leading to the area appears more heavily-used and distinct.

The start of the proposed new exploration road will be posted “closed” to non-Project related vehicles at the parking and camping area, the terminus of the nearest open, designated route. However, this may not be enough to stop some people, particularly newcomers to the area, from driving past the posting on the exploration roads and routes and into the Project area when the route is open to Project vehicles. This could exacerbate and extend impacts from vehicle use within the Project area. This would also exacerbate and extend impacts to non-motorized recreational opportunities and experiences and complicate efforts to fully rehabilitate the area and return it to its pre-Project condition.

Direct impacts to recreation would last until all Project work, including construction, exploration, and reclamation is completed (approximately eight months). Indirect impacts would last until the area returned to some semblance of what it was before, i.e., to its pre-Project undeveloped and natural condition.

Reclamation efforts will need to pay particular attention to effectively blocking unauthorized vehicle entry and use and to restoring the Project area well enough so that new disturbances and developments associated with the Project are obliterated and rendered substantially unnoticeable within a reasonably short time period. This would adequately mitigate short-term impacts. It would also mitigate long term risks and impacts associated with opening up the area to vehicles at all, posed by unauthorized vehicle entry and use.

With consideration for the low level of recreational use of the area, the confinement of impacts to a localized area (the Project area), the presence of adjacent lands to the north and west which can continue to provide solitude and more natural and satisfying non-motorized recreational opportunities and experiences, the temporary nature of the Project, and the full implementation of mitigation measures, impacts to recreation are considered minor.

#### **4.11.1.2 Cumulative Effects**

Past, present, and reasonably foreseeable actions within the Cultural, Soil, Recreation, Visual, and Vegetation CESA would continue to be limited due to the Cerro Gordo-Conglomerate Mesa ACEC and the NLCS land use classification of the area. The incremental effects to recreation resulting from the Project would be limited by the small-scale and temporary nature of the drilling Project and by the Project's reclamation plans. The Silver Standard's Proposed Action Alternative would not have measurable cumulative impacts to recreation.

#### **4.11.1.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Relevant mitigation measures are also described in Chapter 4.16.

### **4.11.2 Minimum Road Construction Alternative**

#### **4.11.2.1 Direct and Indirect Effects**

Impacts to recreation resulting from the Minimum Road Construction Alternative would be generally the same as for the Silver Standard's Proposed Action Alternative, except for that the Minimum Road Construction Alternative would employ longer sections of overland travel (see Table 4-5) which would be quicker to return to their pre-Project state as compared to the constructed road sections since natural contours would be followed rather than modified, soil would not be displaced, and vegetation would only be crushed rather than bladed and removed.

With consideration for the low level of recreational use of the area, the confinement (localization) of impacts, the presence of adjacent lands which can provide solitude and high quality non-motorized recreational opportunities and experiences, the temporary nature of the Project, and the implementation of mitigation measures, impacts to recreation are considered mitigatable.

#### **4.11.2.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.11.2.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Relevant mitigation measures are also described in Chapter 4.16.

### **4.11.3 BLM Preferred Helicopter Access Alternative**

#### **4.11.3.1 Direct and Indirect Effects**

The impacts to recreation resulting from the BLM Preferred Helicopter Access Alternative would be comparatively light and temporary. The informal camping area located at the base of the road

as shown on Figure 7 may be avoided during the active phases of the Project due to the presence of the water truck, tank, and personnel. This may not, however, dissuade all recreationists. It is unlikely to dissuade those who simply want to park rather than camp, so they can explore the area further on foot. The physical makeup of the site would not change. There would be no new road construction to bypass the first obstacle to vehicles. And there would be no new road construction or vehicle use in the wash beyond the obstacle or within the area generally.

In short, the helicopter alternative would make no large changes on the ground to the existing landscape. No roads would be constructed and vehicles would not be driving into the interior. Things on the ground would appear much the same as they always have except in seven discrete and widely-dispersed locations where drilling operations were actively underway. Visible impacts from drilling disturbances would be minimal, limited to each drill site. Additional facilities would include hose lines and two portable pump locations. These disturbances would be barely detectable at most distances. Similarly, the presence of crews on the ground and the operation of machinery at each drill site would not be noticeable until one came within immediate range, within sight and sound distance of the drill site. In most places, these distances would be quite short. Given the complex topography and the limited availability of natural travel routes, as well as the rather long distances between drill sites, it is unlikely that more than one or possibly two of these discrete drilling operations would be readily detectable at a time. Under this alternative, the Project is unlikely to interfere much with customary recreational use of the area.

The helicopter would make a maximum of three trips per day to the active drilling site. The helicopter noise and presence may affect the recreational use of some areas, primarily along the route from Lone Pine (the helicopter base) to the Project area. These effects would be more pervasive and would extend over a much larger area, i.e., potentially over the entire mesa, rather than just the Project area or targeted drill site(s). One could expect to hear and see a helicopter on its approach and on its departure from highpoints at distances of more than five to ten miles away. Conversely, a person in a canyon bottom might not become aware of a helicopter until it is almost directly overhead. In any case, these sporadic interruptions of short duration could occur up to six times a day while the Project is underway.

Of particular concern would be how helicopter presence may affect users of the KDV trail located on the eastern slope of the Inyo Range, as shown on Figure 7. Depending on wind and weather conditions, the helicopter route would be near to, or even directly over, this trail. Because most people who visit the area are seeking a more solitary and remote desert experience, the presence of a helicopter engaged in multiple trips per day may annoy and dissuade some people from using this trail.

The described impacts to recreation, principally related to helicopter noise and presence, would last until all regrading and reclamation work is completed, people and equipment have been removed from the area, and helicopter flights have ceased (approximately seven months).

With consideration for the low level of recreational impacts involved, as well as the low level of recreational use of the area, the presence of adjacent lands which can continue to provide comparable non-motorized recreational opportunities, the temporary nature of the Project, and the plans for mitigation, impacts to recreation from this alternative are considered to be negligible.

#### **4.11.3.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.11.3.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Relevant mitigation measures are also described in Chapter 4.16.

#### **4.11.4 No Action Alternative**

##### **4.11.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No impacts to recreation would occur.

##### **4.11.4.2 Cumulative Effects**

No cumulative impacts to recreation would occur.

### **4.12 Soils**

#### **4.12.1 Silver Standard's Proposed Action Alternative**

##### **4.12.1.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative would result in a temporary direct impact to a small acreage of public lands on shallow, rocky soils/loose unconsolidated material. This disturbance (7.75 acres) would occur primarily on reclaimed surfaces affecting soils which have been previously disturbed and regraded to match the surrounding contours. Impacts to disturbed soils/unconsolidated materials may result in the form of compaction as well as increased wind and water erosion in bladed areas. Impacts would last until regrading is completed and revegetation success achieved.

The project is subject to the performance standards of 43 CFR 3809.420. Silver Standard has presented a reclamation plan and would adhere to the environmental protection measures described in Chapter 2.7. These aim in part to reduce disturbance and prevent erosion.

Considering the small size of the disturbance area and the rocky nature of the material, impacts to soils/unconsolidated materials resulting from the Silver Standard's Proposed Action Alternative would be negligible.

The Cerro Gordo-Conglomerate Mesa ACEC soil resource objective to "minimize soil disturbance and prevent accelerated erosion caused by human activities" (BLM, 2016a) would be met.

##### **4.12.1.2 Cumulative Effects**

Given the small size of the Project within the larger, mostly undisturbed nature of the Cultural, Soil, Recreation, Visual, and Vegetation CESA, the Silver Standard's Proposed Action Alternative would not have measurable cumulative impacts to soils.

##### **4.12.1.3 Mitigation**

Mitigation measures have been incorporated into the Project design.



## **4.12.2 Minimum Road Construction Alternative**

### **4.12.2.1 Direct and Indirect Effects**

The Minimum Road Construction Alternative would result in a temporary direct impact to a small acreage of public lands on shallow, rocky soils/loose unconsolidated material. Approximately 3.2 miles of road construction affecting soils/unconsolidated materials would occur within areas which have been previously disturbed and regraded to match the surrounding contours. The remaining length of road and/or overland travel would occur on soils/unconsolidated materials which have not been previously disturbed.

Impacts to disturbed soils/unconsolidated materials may result in the form of compaction as well as increased wind and water erosion. Impacts would last until regrading is completed and revegetation success achieved.

The Project is subject to the performance standards of 43 CFR 3809.420. Silver Standard has presented a reclamation plan and would adhere to the environmental protection measures described in Chapter 2.7. These aim in part to reduce disturbance and prevent erosion.

Considering the small size of the disturbance area and the rocky nature of the material, impacts to soils/unconsolidated materials resulting from the Minimum Road Construction Alternative would be negligible.

The Cerro Gordo-Conglomerate Mesa ACEC soil resource objective to “minimize soil disturbance and prevent accelerated erosion caused by human activities” (BLM, 2016a) would be met.

### **4.12.2.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard’s Proposed Action Alternative.

### **4.12.2.3 Mitigation**

Mitigation measures have been incorporated into the Project design.

## **4.12.3 BLM Preferred Helicopter Access Alternative**

### **4.12.3.1 Direct and Indirect Effects**

The BLM Preferred Helicopter Access Alternative would result in a temporary direct impact to a small acreage of public lands on shallow, rocky soils/loose unconsolidated material. A majority of the 0.20 acres of disturbance would occur on drill pad areas which have been previously disturbed. Impacts to disturbed soils/unconsolidated materials may result in the form of compaction as well as increased wind and water erosion. Impacts would last until regrading is completed and revegetation success achieved.

Considering the small size of the disturbance area and the rocky nature of the material, impacts to soils/unconsolidated materials resulting from the BLM Preferred Helicopter Access Alternative would be negligible.

The Cerro Gordo-Conglomerate Mesa ACEC soil resource objective to “minimize soil disturbance and prevent accelerated erosion caused by human activities” (BLM, 2016a) would be met through reclamation and environmental protection measures.



#### **4.12.3.2 Cumulative Effects**

Cumulative impacts would be negligible under this alternative.

#### **4.12.3.3 Mitigation**

Mitigation measures have been incorporated into the Project design.

#### **4.12.4 No Action Alternative**

##### **4.12.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No impacts to soils would occur.

##### **4.12.4.2 Cumulative Effects**

No cumulative impacts to soils would occur.

### **4.13 Special Status Animal Species other than USFWS Candidate or Listed Species**

#### **4.13.1 Silver Standard's Proposed Action Alternative**

##### **4.13.1.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative would result in a temporary direct impact to 7.75 acres of public lands. This disturbance could temporarily affect the special status animal species listed in Table 3-2 either directly or indirectly.

Indirect impacts would include a loss of habitat and/or forage. The majority of the construction would occur along the reclaimed BHP route, thus affecting vegetation types not matching the surrounding areas.

Direct impacts would result from animal disturbance. Animals may move into adjacent nearby habitats during road construction, drilling, and reclamation to avoid humans and equipment. This would temporarily increase wildlife pressures on adjacent areas. However, given the narrow and linear nature of the proposed disturbance area, impacts resulting from animal movement and impacts to adjacent habitats would be slight. The direct disturbance of smaller special status animal species could occur during earthworks.

Direct impacts to special status animal species would last until completion of the Project, including the period of active reclamation (approximately eight months). Indirect impacts (impacts to habitat) would continue until revegetation success is achieved. Since Silver Standard would use an appropriate seed mix to match the surrounding environment, the post-reclamation and revegetation plant community along the previously used and reclaimed BHP routes would be more likely to provide habitat and forage to special status animal species than what is there now.

Considering the small size of the disturbance area, implementation of environmental protection measures, and the presence of undisturbed adjacent habitats, both negative and positive impacts to

special status animal species resulting from the Silver Standard's Proposed Action Alternative would be negligible.

The Cerro Gordo-Conglomerate Mesa ACEC biological resource objective to "protect and preserve special status species and their habitat" (BLM, 2016a) would be met through reclamation and environmental protection measures.

#### **4.13.1.2 Cumulative Effects**

Given the size of the Project within the larger, mostly undisturbed nature of the Cultural, Soil, Recreation, Visual, and Vegetation CESA, the Silver Standard's Proposed Action Alternative would not have measurable cumulative impacts to special status animal species.

#### **4.13.1.3 Mitigation**

Impacts to special status animal species and their habitats would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes or timing changes to minimize the overall impacts to biological resources.

### **4.13.2 Minimum Road Construction Alternative**

#### **4.13.2.1 Direct and Indirect Effects**

The Minimum Road Construction Alternative would result in impacts to a small acreage of public lands. This disturbance (7.28 acres) could affect the special status animal species listed in Table 3-2 either directly or indirectly.

Indirect impacts would include a loss of habitat and/or forage. Approximately 3.2 miles of road construction would occur along the reclaimed BHP route, thus affecting vegetation types not matching the surrounding areas. The remaining area of road and/or overland travel would occur in areas of native vegetation which may serve as special status species habitat or forage.

Direct impacts would result from animal disturbance. Animals may move into adjacent nearby habitats during road construction, drilling, and reclamation to avoid humans and equipment. This would temporarily increase wildlife pressures on adjacent areas. However, given the narrow and linear nature of the proposed disturbance area, impacts resulting from animal movement and impacts to adjacent habitats would be slight. The direct disturbance of smaller special status animal species could occur during earthworks.

Direct impacts to special status animal species would last until completion of the Project, including the period of active reclamation (approximately eight months). Indirect impacts (impacts to habitat) would continue until revegetation success is achieved. Since Silver Standard would use an appropriate seed mix to match the surrounding environment, the post-reclamation and revegetation plant community along the previously reclaimed BHP route (that would be re-disturbed under this alternative) would be more likely to provide habitat and forage to special status animal species than what is there now.

Considering the small size of the disturbance area, implementation of environmental protection measures, and the presence of undisturbed adjacent habitats, both negative and positive impacts to

special status animal species resulting from the Minimum Road Construction Alternative would be negligible.

The Cerro Gordo-Conglomerate Mesa ACEC biological resource objective to “protect and preserve special status species and their habitat” (BLM, 2016a) would be met through reclamation and environmental protection measures.

#### **4.13.2.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard’s Proposed Action Alternative.

#### **4.13.2.3 Mitigation**

Impacts to special status animal species and their habitats would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes or timing changes to minimize the overall impacts to biological resources.

### **4.13.3 BLM Preferred Helicopter Access Alternative**

#### **4.13.3.1 Direct and Indirect Effects**

The BLM Preferred Helicopter Access Alternative would result in impacts to a small acreage of public lands. A majority of the 0.20 acres of disturbance would occur on drill pad areas which have been previously disturbed and revegetated with a seed mix which does not match the surrounding environment. Additional disturbance of habitat may result from foot-travel required for the placement of the water hoses and pumps.

Indirect impacts to special status animal species may result from a temporary loss of habitat. However, since the vegetation community which would be disturbed to greatest is the revegetation community, there would likely be very slight impacts to special status species habitat and forage.

Direct impacts would result from animal disturbance. The presence of humans and equipment may also disturb animals and their use of the area, including the western slope of the Inyo Range where the helicopter would be flying over-head up to three times per day. Animals may move into adjacent nearby habitats during pad construction, drilling, and reclamation to avoid humans and equipment. This would temporarily increase wildlife pressures on adjacent areas. However, given the small size of the proposed disturbance area, impacts resulting from animal movement and impacts to adjacent habitats would be slight. The direct disturbance of smaller special status animal species could occur during earthworks.

Direct impacts to special status animal species would last until completion of the project, including the period of active reclamation (approximately seven months). Indirect impacts (impacts to habitat) would continue until revegetation success is achieved. Since Silver Standard would use an appropriate seed mix to match the surrounding environment, the post-reclamation and revegetation plant community on the drill pads would be more likely to provide habitat and forage to special status animal species than what is there now.

Considering the small size of the disturbance area, implementation of environmental protection measures, and the presence of undisturbed adjacent habitats, both negative and positive impacts to

special status animal species resulting from the BLM Preferred Helicopter Access Alternative would be negligible.

The Cerro Gordo-Conglomerate Mesa ACEC biological resource objective to “protect and preserve special status species and their habitat” (BLM, 2016a) would be met through reclamation and environmental protection measures.

#### **4.13.3.2 Cumulative Effects**

Cumulative impacts would be Silver Standard’s Proposed Action Alternative negligible under this alternative compared to the other two alternatives.

#### **4.13.3.3 Mitigation**

Impacts to special status animal species and their habitats would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes or timing changes to minimize the overall impacts to biological resources.

### **4.13.4 No Action Alternative**

#### **4.13.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No impacts to special status animal species would occur.

#### **4.13.4.2 Cumulative Effects**

No cumulative impacts to special status animal species would occur.

## **4.14 Special Status Plant Species other than USFWS Candidate or Listed Species**

### **4.14.1 Inyo Rock Daisy (*Perityle inyoensis*): Common to All Alternatives**

#### **Special Status Species Requirements**

The previously reclaimed access route and minimum construction route alternatives currently have existing vegetation in their path. Some of this vegetation is comprised of individual Inyo rock daisy plants, which is a BLM sensitive species. The California BLM Special Status Species Plant Management Manual (6840.06) provides policy for the management of special status plant species on BLM lands in California. This manual directs California BLM field offices to avoid BLM sensitive plants as much as practical, but does allow some individual sensitive plants to be impacted with the approval of the state director. The two proposed route construction alternatives include a combination of overland travel (driving over the existing vegetation) and some road construction requiring blading or scraping. Approval of either of the two access route alternatives would impact individual Inyo rock daisy plants but individuals would be avoided to the maximum extent practicable. The species population would not be isolated, nor would impacts prevent population functions of seed dispersal or pollination. The BLM Preferred Helicopter Access

Alternative would not directly impact individual plants. While individual daisies may be affected by some alternatives, none of the alternatives moves the species towards the need for ESA protection, and none of the alternatives isolates the population. Therefore, in consideration of the access entitlement provided by the mining laws, the action is consistent with the BLM 6840 manual.

### **Mining Law Regulations**

Regulatory performance standards that apply to operators are classified as general (43 CFR 3809.420(a)) and specific (43 CFR 3809.420(b)) and, as applied, prevent unnecessary or undue degradation while conducting operations on public lands (43 CFR 3809.415(a)). Conformance with BLM's land use plans is a general performance standard. Title 43 CFR 3809.420(a) (3) states:

*Land-use plans. Consistent with the mining laws, your operations and post-mining land use must comply with the applicable BLM land-use plans and activity plans, and with coastal zone management plans under 16 U.S.C. 1451, as appropriate.*

The current land-use plan contains conservation and management actions that provide standards for protection of resources. Specifically, the land-use plan contains a conservation and management action that requires an avoidance setback of 0.25 miles for BLM special status plant species occurrences, such as the Inyo rock daisy (CMA LUPA-BIO-PLANT-2: Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences). Setbacks would be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant species (see Appendix Q, Baseline Biology Report, in the DRECP LUPA or the most recent data and modeling). Some individual Inyo rock daisy plants are located within the 0.25-mile setback area of all alternatives as shown on Figure 6.

The DRECP LUPA likewise requires compliance with the BLM Special Status Species Manual and policy, which as noted above, requires that actions authorized by the BLM further the conservation of BLM sensitive species.

In addition to general performance standards, specific regulatory performance standards protect a variety of resources including fisheries, wildlife, and plant habitat (43 CFR 3809.420(b) (7)):

*Fisheries, wildlife and plant habitat. The operator shall take such action as may be needed to prevent adverse impacts to threatened or endangered species, and their habitat which may be affected by operations.*

Based upon the current environmental assessment under review, the proposed alternatives would not cause unnecessary or undue degradation (43 CFR 3809.5).

BLM policy directs BLM to further the conservation of BLM sensitive species, such as the Inyo rock daisy, when authorizing actions on public land. Specifically, the California BLM supplemental manual directs California field offices to avoid BLM sensitive plants as much as practical, but allows some individual sensitive plants to be impacted with the approval of the state director. In this case, approval of the use of the previously reclaimed access route is a minimal impact to the environment (by not disturbing previously undisturbed ground). The access route will crush some individual plants that have reestablished and will disturb some of the soil layer, but it will not result in the removal or elimination of the seed bank for the species as a whole or change the contour of the land where overland travel will be utilized. In addition, approval of the access route would avoid impacts to the species as a whole to the maximum extent practicable, the plant population would not be isolated, nor would impacts prevent population functions of seed

dispersal or pollination. While individual daisy plants may be affected by some alternatives, none of the alternatives moves the species towards the need for ESA protection. Therefore, all of the alternatives are consistent with the BLM 6840 manual.

Moreover, based upon the current environmental assessment under review, the proposed alternatives would not cause unnecessary or undue degradation under mining law regulation (43 CFR 3809.5).

General and specific performance standards are meant to prevent unnecessary or undue degradation while conducting operations on public lands (43 CFR 3809.415(a)). Conformance with the BLM's land use plan is a general performance standard which, as applied here, requires the application of an avoidance set-back to the extent necessary to protect ecological processes necessary to support the species. While some individual Inyo rock daisy plants will be impacted within the required set-back, the ecological processes necessary to support the species as a whole (that is, population seed dispersal, pollination, etc.) will continue to function. The land use plan likewise requires compliance with the BLM Special Status Species Manual and policy, which as noted above, requires that actions authorized by the BLM further the conservation of BLM sensitive species. Selection of an access route that follows a previously disturbed path conserves the species inasmuch as other members of the species, and other locations of the species, remain undisturbed. As such, the preferred alternative complies with the land-use plan, and therefore, the general performance standard of the mining regulations.

In addition to general performance standards, specific performance standards protect a variety of resources including fisheries, wildlife, and plant habitat. Because the Inyo rock daisy is listed as BLM sensitive species, and is not listed as threatened or endangered under the Endangered Species Act, this specific performance standard does not apply.

Since the general performance standard is met, and the specific performance standard is not applicable, the preferred alternative meets the requirements of the mining law regulations with regard to unnecessary or undue degradation. Denial of access to these claims would otherwise be in violation of the access requirement established by the mining laws.

#### **4.14.2 Silver Standard's Proposed Action Alternative**

##### **4.14.2.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative would result in a temporary direct impact impacts to 7.75 acres of public lands. This disturbance could affect the presence of special status plant species listed in Table 3-3. Nearly all the disturbance would occur along the reclaimed BHP route which has been revegetated with plant species not matching the surrounding areas. Cactus, yucca, and other succulents would be avoided or transplanted as necessary in accordance with CMAAs LUPA-BIO-VEG-1 and LUPA-BIO-VEG-5. Therefore, direct impacts to special status plant species would be limited to the sides of the proposed route where the plants primarily occur, with the exception of the Inyo rock daisy, discussed below.

Approximately two to four specimens of the Inyo rock daisy may be crushed during overland travel near the bottom of the Silver Standard's Proposed Action Alternative route as shown on Figure 6. The specifics of this plant are not well known, so it uncertain whether they will re-sprout. Additional discussion of the Inyo rock daisy is presented in Chapter 4.14.1. Particular measures to be taken for the protection of these specimens is discussed under mitigation.



#### **4.14.2.2 Cumulative Effects**

Given the size of the Project within the larger, mostly undisturbed nature of the Cultural, Soil, Recreation, Visual, and Vegetation CESA, together with the mitigation measures described below, and the environmental protection measures described in Chapter 2.7, the Silver Standard's Proposed Action Alternative would not have measurable cumulative impacts to special status plant species.

#### **4.14.2.3 Mitigation**

Impacts to special status plant species and their habitats would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes or timing changes to minimize the overall impacts to biological resources including the disturbance of special status plant species.

The Inyo rock daisy is listed as a BLM Special Status species CMA LUPA-BIO-PLANT-2 states that an avoidance setback of 0.25 miles be instated for BLM Special Status species, placed strategically to protect the ecological processes necessary to support the species. Individual Inyo rock daisy plants are located within the 0.25-mile setback area of all alternatives as shown on Figure 6. However, implementation of this CMA would conflict with the 43 CFR § 3809 regulations which list compliance with federal and state laws for the prevention of unnecessary and undue degradation. The CMAs are part of the DRECP and are not considered law which would require compliance under CFR § 3809.415. However, impacts to the Inyo rock daisy would be avoided to the extent practicable. Specimens of the Inyo rock daisy which can be avoided would be marked or caged for avoidance by the biological monitor. The avoidance areas would remain caged and/or marked for the duration of the Project.

Considering the small size of the disturbance area, impacts to special status plant species resulting from the Silver Standard's Proposed Action Alternative would be negligible. The Cerro Gordo-Conglomerate Mesa ACEC biological resource objective to protect rare plant species (BLM, 2016a) would be met through environmental protection measures and mitigation. Additional discussion of the Inyo rock daisy is presented in Chapter 4.14.1.

### **4.14.3 Minimum Road Construction Alternative**

#### **4.14.3.1 Direct and Indirect Effects**

The Minimum Road Construction Alternative would result in a temporary direct impact to 7.28 acres of public lands. Some of this disturbance could affect the special status plant species listed in Table 3-3.

Cactus, yucca, and other succulents would be avoided or transplanted as necessary in accordance with CMAs LUPA-BIO-VEG-1 and LUPA-BIO-VEG-5. Impacts to special status plant species may occur along the edges of the approximately 3.2 miles of road construction which would occur on the reclaimed BHP routes, with the exception of the Inyo rock daisy, discussed below. There is a chance that individual plants may be crushed or bladed along portions of the route located on undisturbed land.

Approximately two to four specimens of the Inyo rock daisy may be crushed during overland travel near the bottom of the Minimum Road Construction Alternative route as shown on Figure 6. The



specifics of this plant are not well known, so it is uncertain whether they will re-sprout. Additional discussion of the Inyo rock daisy is presented in Chapter 4.14.1. Particular measures to be taken for the protection of these specimens is discussed under mitigation.

#### **4.14.3.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.14.3.3 Mitigation**

Mitigation would be the same as for the Silver Standard's Proposed Action Alternative. Considering the size of the disturbance area, impacts to special status plant species resulting from the Minimum Road Construction Alternative would be negligible. The Cerro Gordo-Conglomerate Mesa ACEC biological resource objective to protect rare plant species (BLM, 2016a) would be met through environmental protection measures and mitigation including the presence of an on-site biological monitor. Additional discussion of the Inyo rock daisy is presented in Chapter 4.14.1.

### **4.14.4 BLM Preferred Helicopter Access Alternative**

#### **4.14.4.1 Direct and Indirect Effects**

The BLM Preferred Helicopter Access Alternative would result in a temporary direct impact to a small acreage of public lands. A majority of the 0.20 acres of disturbance would occur on drill pad areas which have been previously disturbed and revegetated with a seed mix which does not match the surrounding environment.

Nearly all the disturbance would occur on the reclaimed BHP routes which have been revegetated with plant species not matching the surrounding areas. Therefore, removal or disturbance of special status plant species would not likely occur. There is a chance that some individual plants may be impacted by downslope debris. Additional discussion of the Inyo rock daisy is presented in Chapter 4.14.1.

Impacts to special status plant species, if any, would occur during the earth moving phases of pad construction and regrading. Revegetation would not affect the presence or absence of special status plant species along the reclaimed BHP routes.

#### **4.14.4.2 Cumulative Effects**

Cumulative impacts to the habitat would be negligible under this alternative compared to the other two alternatives.

#### **4.14.4.3 Mitigation**

Mitigation would be the same as for the Silver Standard's Proposed Action Alternative. Considering the small size of the disturbance area and the lack of special status plant species within the reclaimed BHP routes, impacts to special status plant species resulting from the BLM Preferred Helicopter Access Alternative would be negligible. The Cerro Gordo-Conglomerate Mesa ACEC biological resource objective to protect rare plant species (BLM, 2016a) would be met through environmental protection measures and mitigation. Additional discussion of the Inyo rock daisy is presented in Chapter 4.14.1.

#### **4.14.5 No Action Alternative**

##### **4.14.5.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No impacts to special status plant species would occur.

##### **4.14.5.2 Cumulative Effects**

No cumulative impacts to special status plant species would occur.

### **4.15 Vegetation**

#### **4.15.1 Silver Standard's Proposed Action Alternative**

##### **4.15.1.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative would result in a temporary direct impact to 7.75 acres of public lands. This disturbance would occur primarily on the reclaimed BHP routes affecting soils which have been previously disturbed, regraded to match the surrounding contours, and revegetated. However, the seed mix used during reclamation and revegetation activities resulted in a plant community which does not match the surrounding dominant vegetation types. The resulting reclamation vegetation community is listed in Table 3-5.

The Project is subject to the reclamation requirements of 43 CFR § 3809. Silver Standard has presented a reclamation plan and would adhere to the environmental protection measures described in Chapter 2.7. Revegetation would aid in re-establishing a vegetation community more congruent with the existing dominant types listed in Table 3-4 than what exists along the reclaimed BHP routes today. Impacts to vegetation would last until the area has been reclaimed and successfully revegetated.

Considering the small disturbance area, the presence of surrounding undisturbed areas, and the proposed reclamation and environmental protection measures, impacts to vegetation resulting from the Silver Standard's Proposed Action Alternative would be negligible.

##### **4.15.1.2 Cumulative Effects**

Given the size of the Project within the larger, mostly undisturbed nature of the Cultural, Soil, Recreation, Visual, and Vegetation CESA the Silver Standard's Proposed Action Alternative would not have measurable cumulative impacts to vegetation.

##### **4.15.1.3 Mitigation**

Impacts to vegetation would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes to minimize the overall impacts to biological resources.

## **4.15.2 Minimum Road Construction Alternative**

### **4.15.2.1 Direct and Indirect Effects**

The Minimum Road Construction Alternative would result in a temporary direct impact to 7.28 acres of public lands. This disturbance) would occur partially on the reclaimed BHP routes which have been previously disturbed, regraded to match the surrounding contours, and revegetated, and partially on native ground.

The seed mix used during reclamation and revegetation activities along the BHP routes resulted in a plant community which does not match the surrounding dominant vegetation types. The resulting reclamation vegetation community is listed in Table 3-5. Under the Minimum Road Construction Alternative, disturbance would occur along the reclaimed BHP routes for approximately 3.2 miles. The remaining length of road or overland travel would be located on native land, resulting in the potential disturbance of native vegetation listed in Table 3-4.

The Project is subject to the reclamation requirements of 43 CFR § 3809. Silver Standard has presented a reclamation plan and would adhere to the environmental protection measures described in Chapter 2.6. Revegetation along the re-disturbed BHP routes would aid in re-establishing a vegetation community more congruent with the existing dominant types than what exists along the reclaimed BHP routes today. Impacts to vegetation would last until the area has been reclaimed and successfully revegetated.

Considering the small disturbance area, the presence of surrounding undisturbed areas, and the proposed reclamation and environmental measures, impacts to vegetation resulting from the Minimum Road Construction Alternative would be negligible.

### **4.15.2.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard's Proposed Action Alternative.

### **4.15.2.3 Mitigation**

Impacts to vegetation would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes to minimize the overall impacts to biological resources.

## **4.15.3 BLM Preferred Helicopter Access Alternative**

### **4.15.3.1 Direct and Indirect Effects**

The BLM Preferred Helicopter Access Alternative would result in a temporary direct impact to a small acreage of public lands (0.20 acres) located primarily on the reclaimed BHP drill pads. This would result in the disturbance or removal of the plant species which do not match the surrounding environment, as listed in Table 3-4.

The laying of water hoses and placement of the water pumps may result in the crushing of native vegetation from foot travel. Impacts to vegetation from this activity would be minimal given the rocky nature of the site.

The Project is subject to the reclamation requirements of 43 CFR § 3809. Silver Standard has presented a reclamation plan and would adhere to the environmental protection measures described in Chapter 2.7. Revegetation along the reclaimed BHP drill pads would aid in re-establishing a vegetation community more congruent with the existing dominant types than what currently exists along the reclaimed BHP pads today. Impacts to vegetation would last until the area has been reclaimed and successfully revegetated.

Considering the small disturbance area, the presence of surrounding undisturbed areas, and the proposed reclamation and environmental protection measures, impacts to vegetation resulting from the BLM Preferred Helicopter Access Alternative would be negligible.

#### **4.15.3.2 Cumulative Effects**

Cumulative impacts would be negligible under this alternative compared to the other two alternatives.

#### **4.15.3.3 Mitigation**

Impacts to vegetation would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes to minimize the overall impacts to biological resources.

### **4.15.4 No Action Alternative**

#### **4.15.4.1 Direct and Indirect Effects**

Under the No Action Alternative, the proposed Project activities would not occur. No vegetation disturbance would occur. However, the reclaimed BHP routes would remain seeded with the species listed in Table 3-5, which are not congruous with the surrounding vegetation types. These areas would not be re-reclaimed with a more appropriate seed mix.

#### **4.15.4.2 Cumulative Effects**

No cumulative impacts to vegetation would occur.

## **4.16 Visual Resources**

BLM's visual resource management program includes a standardized system to analyze potential visual impacts of proposed projects and activities on lands administered by the BLM (BLM Manual 8431). Visual contrast rating worksheets are completed to determine if a project conforms to the resource management plan. To evaluate the environmental consequences of the alternatives for this Project, three key observation points (KOPs) were established as part of completing the contrast rating analysis. They were chosen to represent the viewsheds of campers and hikers (1) parked at the terminus of the nearest open designated vehicle route, the takeoff point for the proposed exploration routes; (2) visitors on foot and on horseback within the immediate Project area; and (3) hikers, hunters, and backpackers along the unmapped extension of the KDV trail up on the saddle above the dispersed camping sites north of the Project area. Photographs of each KOP, with existing environment descriptions and visual contrast ratings, are provided in Appendix E.

**KOP 1** is located at the base of the access road and near an undesignated camp site. The former BHP exploration road is just detectable from this location, because it has been successfully reclaimed (see Appendix E). The slope was re-contoured and is in a natural repose. It has been studded with boulders and covered with loose rock to mimic the talus slopes around it. The vegetation contrasts are not as evident here as they are in other places along the reclaimed route. Most of the vegetation at this site appears to be native species which have seeded in from the margins. The color-contrasts (lighter where the soil was previously disturbed/overtaken) are not as apparent here as they are in other places, perhaps because of the slope's proximity to an active (light-colored) wash bottom.

Under the Silver Standard's Proposed Action Alternative and Minimum Road Construction Alternatives, a short section of constructed, cut-and-fill road would be visible in the foreground from this KOP. The road would loop up and around a rock obstruction in the bottom of the drainage before dropping down and disappearing into the wash bottom as overland travel (as opposed to a constructed road). The cut-and-fill may be more minimal than what was done previously, but some cut-and-fill would be required to negotiate the steep hillside and make the sharp turn back down to the wash bottom. However, this piece of road construction would be for a short and more easily reclaimable distance (less than 200 feet).

Under the BLM Preferred Helicopter Access Alternative, a water tank would be placed within and near the terminus of the existing open designated route behind this KOP (behind the viewer) for the duration of drilling. The view up the drainage/wash bottom from the campsite and terminus of the open designated route would remain unchanged from what it is currently.

**KOP 2** is located about halfway up a prominent ridgeline proposed as an overland travel route under the Minimum Road Construction Alternative. The KOP is located on a high point immediately above (west of) a low saddle where some long-abandoned exploration routes (faint two-track jeep trails) intersect. These two-tracks run the length of the spine and down the north side of the ridgeline to the drainage bottom (see Appendix E). They are just discernible, marked by compacted soils, previously crushed and stunted vegetation, and occasional spots where rocks were pulled off to the side. The two-track along the spine of the ridge is used to access drill site #4 under the Minimum Road Construction Alternative. The two-track dropping off the north side of the saddle down to the drainage bottom is the start of the Minimum Road Construction Alternative route to drill site #5.

KOP 2 was selected because it is located along a natural travel route for cross-country hikers. Additionally, it is located at a good vantage point to see both the start and continuation of the proposed Minimum Construction overland ridge route to drill site #4 and at least part of the proposed segment of new road construction required to reach drill site #5. It also provides an excellent vantage point to view the reclaimed mountain slopes where most of the long, continuous cut-and-fill segments of the road that was previously built and reclaimed by BHP are proposed for new (re-)construction under the Silver Standard Proposed Action Alternative.

Looking east from this KOP, the viewer would see the top of a drill rig at drill hole site #6 under all alternatives. The base of that drill site would not be visible.

Looking north from this KOP, light broad bands of reclaimed land are clearly visible (see Appendix E). These bands span the viewshed from left to right. The bands are principally visible because of the distinctly lighter color of the previously disturbed, overturned soils with respect to the surrounding area. There are no visible road cuts on these slopes since they were successfully re-

contoured and now match the surrounding hillsides. The angle of repose is contiguous with the slope of the mountain sides. The bands are more sparsely vegetated than the surrounding slopes,

Under the Proposed Alternative, looking north from KOP 2 with drill site #5 located center-left within the frame, one would see two long segments of re-constructed cut-and-fill road traveling crosswise across the mountain slopes within the light bands of previous disturbance as depicted in Figure 6.

Looking north from this KOP with drill site #5 located center-left within the frame, one would see part of the Minimum Road Construction Alternative route (a constructed road segment) entering into the frame in the right quadrant below the knoll KOP #2 sits on. A portion of the two-track which drops off the saddle below the knoll to the drainage bottom, the start of the Minimum Road Construction Alternative route, is visible in the bottom right hand corner of the frame. The constructed road segment under the Minimum Road Construction Alternative would be mid-ground and would start from the saddle below and out of sight of KOP #2.

Looking West from KOP #2, the viewer can see a broad lighter band of more sparsely vegetated reclaimed slope entering from the right and extending across the top of the ridgeline to a low saddle in the middle of the frame (see Appendix E). Under the Silver Standard's Proposed Action Alternative, this band would be accentuated with a sharply delineated road cut with fill dropped over the side of the roadbed. Under the Minimum Action Alternative, the overland travel route up the spine of the ridge to the next drill site (drill site #4) would be a much more well-delineated two-track marked by crushed vegetation in the fore-and-mid-ground, and by a more constructed (bladed and cut-and-fill) branching Y-road on the immediate approach to the drill site in the background. The drill rig (and associated drill pad, water tank, equipment and vehicles) would be visible on the far right-side of the frame within the broad, light band of previous disturbance at the terminus of the various access roads leading either directly up or over to it.

Under the Helicopter Alternative, one would see a drill rig and associated machinery on a relatively small oblong helicopter pad off to the right in the distance. The pad would be leveled off and would appear lighter in color than the broad band of disturbed soil in which it is located.

**KOP 3** is located on Conglomerate Mesa on a prominent saddle along a popular foot trail (the historic KDV trail) (see Appendix E). This is a point where the Project would be visible to hikers, albeit at a distance. The terminus of the reclaimed BHP exploration road is still visible from this location. This portion of the reclaimed road and associated drill pads would need to be reconstructed under all alternatives.

#### **4.16.1 Silver Standard's Proposed Action Alternative**

##### **4.16.1.1 Direct and Indirect Effects**

Visual contrast ratings for the Silver Standard's Proposed Action Alternative indicate that changes to the elements of form, line, color, and texture would be weak to none with the following exceptions. The contrast rating worksheets are included as Appendix E.

- **KOP 1** – From KOP 1 the casual observer would be someone who has driven to the end of the open designated vehicle route and is looking uphill beyond the road-block boulders. An undesignated campsite is located just downhill from this KOP. As shown on Figure 2A, the beginning of the visible road would be overland travel along the reclaimed BHP



exploration road. Overland travel would involve the crushing of vegetation. Road construction, involving vegetation removal and earthworks, would be visible on the section of road going up the slope. Because the reclaimed BHP exploration road is still visible, the land feature would experience stronger changes to the elements of form and line while the land and vegetation features would experience moderate changes to color and texture. The vegetation feature would also experience moderate changes to form and line.

- KOP 2 looking North – From KOP 2 looking north the casual observer (a hiker or person on horseback following the inner ridgeline topography up the canyon) would be viewing a portion of the road from below (to the northwest) and a portion of the road from above (to the northeast). Road construction along the existing reclaimed BHP routes would involve vegetation removal, blading, and earth works. Road construction sections are illustrated on Figure 2A. The reconstructed road would begin to attract the attention of the observer but is also similar to the existing reclaimed BHP road. The angle of view of the road makes only the fill-slope material visible to the northwest. The reconstructed road bed and cut and fill slopes would be visible to the northeast. The land and vegetation features would experience moderate changes to form, line, and color while the vegetation feature would experience moderate changes to form, line and color. Structures are visible at a distance but would only be visible during active drilling at the site.
- KOP 2 looking West – The Silver Standard's Proposed Action Alternative road visible from KOP 2 looking west would be visible from below but would not dominate the characteristic landscape. Changes to the landform and line would enhance the linear characteristic of the existing reclaimed BHP road through the removal of reclamation vegetation and blading. The land feature would experience moderate changes to color resulting from vegetation removal and soil disturbance. The presence of structures would result in moderate changes to form, line, and color although these would occur only during active drilling on this particular drill pad.

Indirect impacts could result from dust created during earthworks and by vehicles travelling along the exploration roads. As described in Chapter 2.7, dust would be managed using water trucks and Silver Standard would adhere to a fugitive dust control plan (Appendix F).

While some of the contrasts would be stronger to moderate, as indicated on the contrast rating worksheets and discussed above, these changes would be short-term and would occur in an area which receives minimal use. Viewers at KOP 1 would most likely be people either accessing the canyon to hike or ride horses or campers utilizing the camping area below. Viewers at KOP 2 would most likely be people accessing the canyon to hike or for horseback riding. Their viewing time would be brief, lasting for the duration of time needed to travel up or through the canyon (less than one hour) although they could pause at any location in the vicinity for lunch or other breaks. Overall contrasts for the individual viewers could be moderate to even strong during their viewing time. Within the context of the greater landscape, and with consideration for the numbers of visitors, their viewing time, and the environmental protection measures described in Chapter 2.7, the visual contrasts would be low and would meet the visual resource management objectives.

Long-term impacts would be negligible after reclamation and revegetation success. The long-term contrasts resulting from changes to vegetation may be less than the existing vegetation since the reclaimed area vegetation type does not match the surrounding environment and would be replaced with a more appropriate mix, congruous with the existing vegetation, as described in Chapter 4.15.



The Scenic Quality Rating could change due to a reduction in the scenic quality factor score for cultural modification. However, the changes would be short-term, lasting until reclamation completion and vegetation re-establishment. Also, because the Project is located mostly in an area designated as “Seldom Seen” and as “Foreground-Middleground”, with most of the Silver Standard’s Proposed Action Alternative routes visible only by the occasional pedestrian recreationists or persons on horseback, the Silver Standard’s Proposed Action Alternative would unlikely change the Scenic Quality Evaluation rating of the Conglomerate Mesa SQRU.

#### **4.16.1.2 Cumulative Effects**

Past, present, and reasonably foreseeable actions within the Cultural, Soil, Recreation, Visual, and Vegetation CESA would continue to be limited due to the inclusion of the Malpais Wilderness area, inclusion of the recently expanded Cerro Gordo-Conglomerate Mesa ACEC, and the *NLCS* land use classification of most of the remaining area. The incremental effects to visual resources resulting from the Project would be limited in nature, both spatially and temporally. The Silver Standard’s Proposed Action Alternative would not have measurable cumulative impacts to visual resources.

#### **4.16.1.3 Mitigation**

Mitigation measures have been incorporated into the Project design. In addition, Permeon, or a suitable alternative desert varnish product, would be applied during reclamation to areas where road construction has occurred and soil has been disturbed. The Permeon would be applied in accordance with the manufacturer’s instructions during the reclamation process once regrading and earthworks have been completed on a given section. The Permeon would serve to visually restore disturbed rock and soil colors to the approximate pre-disturbance color, reducing the post-reclamation color contrast.

### **4.16.2 Minimum Road Construction Alternative**

#### **4.16.2.1 Direct and Indirect Effects**

Visual contrast ratings for the Minimum Road Construction Alternative would be weak to none for the features of land, vegetation, and structures with the following exceptions. The contrast rating worksheets are included as Appendix E.

- KOP 1 – Because the placement of the overland travel and road construction sections for the Minimum Road Construction Alternative and the Silver Standard’s Proposed Action Alternative would be identical, the contrast rating would also be the same. From KOP 1 the casual observer would be someone who has driven to the end of the open designated vehicle route and is looking uphill beyond the road-block boulders. An undesignated campsite is located just downhill from this KOP. As shown on Figure 2B, the beginning of the visible road would be overland travel along the reclaimed BHP exploration road. Overland travel would involve the crushing of vegetation. Road construction, involving vegetation removal and earthworks, would be visible on the section of road going up the slope. Because the reclaimed BHP exploration road is still visible, the land feature would experience stronger changes to the elements of form and line while the land and vegetation features would experience moderate changes to color and texture. The vegetation feature would also experience moderate changes to form and line. KOP 2 looking North – From

KOP 2, looking north, the casual observer (hiker following the topography up the canyon) would see the Minimum Road Construction Alternative overland route in the mid ground leading uphill toward a constructed road section and the nearest proposed drill pad see Figure 2B for road construction segments). Overland travel would involve the crushing of vegetation while road construction would involve vegetation removal, blading, and earthworks. This route would not match the horizontal to sub-horizontal reclaimed BHP road forms and lines but would be similar. The land feature would experience strong changes to form, line, and color and moderate changes to the vegetation feature's elements of line and color resulting primarily from vegetation removal and soil exposure.

- KOP 2 looking West – The Minimum Road Construction Alternative would be visible to the casual observer as overland travel underfoot, turning into road construction closer to the drill pad. The overland travel road bed would be visible in the foreground with the constructed road section forking near the drill pad. The newly constructed road and overland travel would occur in a location where a road was not present before, and at such an angle that does not repeat existing forms of the reclaimed BHP exploration road. Due to the vegetation crushing involved in overland travel and the vegetation removal, blading, and earthworks required for road construction, the land feature would experience stronger changes to form, line, and color and the vegetation feature would also experience stronger changes to form and line while changes to color and texture would be moderate. The structure feature would experience moderate changes to form, line, and color. The structures would only be visible for a short time, when drilling is taking place on this particular drill pad.

Indirect impacts could result from dust created during earthworks or by vehicles travelling along the exploration roads. As described in Chapter 2.7, dust would be managed using water trucks and Silver Standard would adhere to a fugitive dust control plan (Appendix F).

As indicated by the visual contrast rating worksheets the Minimum Road Construction Alternative would not meet the visual resource management Class II objectives for the short term. This is resulting from the changes which would occur at KOP 2 looking west. Viewers of KOP 2 would most likely be persons accessing the canyon for pedestrian recreation in an area which receives minimal use. Their viewing time would be brief, lasting for the duration of time needed to hike up or through the canyon (less than one hour) although they could pause at any location in the vicinity for lunch or other breaks. The road construction visible from these points would begin to dominate the attention of the viewer to the degree that it's context within the greater landscape would not diminish the effect. The newly constructed facilities would not match the existing lines and forms created by the natural landscape and the reclaimed BHP exploration roads and pads. In addition, the viewing angle of these features and their continuous nature through the landscape makes the flat running surface visible for a longer distance, which is more contrasting than a side-view. These impacts would be short-term, lasting until reclamation has been completed and revegetation success established. Long-term impacts would be negligible after reclamation and revegetation success. Overall contrasts for the individual viewers could be moderate to even strong during their viewing time. Within the context of the greater landscape, and with consideration for the numbers of visitors, their viewing time, and the environmental protection measures described in Chapter 2.7, the visual contrasts would be diminished.

The Scenic Quality Rating could change due to a reduction in the scenic quality factor score for cultural modification, as under the Silver Standard's Proposed Action Alternative. However, these

changes would be short-term, lasting until reclamation completion and vegetation re-establishment. Also, because the Project is located mostly in an area designated as “Seldom Seen” and as “Foreground-Middleground”, with most of the routes visible only by pedestrian recreationists, the Minimum Road Construction Alternative would be unlikely to change the Scenic Quality Evaluation rating of the Conglomerate Mesa SQRU.

#### **4.16.2.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard’s Proposed Action Alternative.

#### **4.16.2.3 Mitigation**

Mitigation would be the same as for the Silver Standard’s Proposed Action Alternative.

### **4.16.3 BLM Preferred Helicopter Access Alternative**

#### **4.16.3.1 Direct and Indirect Effects**

Visual contrast ratings for the BLM Preferred Helicopter Access Alternative indicate that changes to the elements of form, line, color, and texture would be weak to none from all KOPs. It would meet the visual resource management Class II objectives for the short-term, with a slight reduction in contrast for the long-term resulting from the pads being reclaimed and seeded with a more appropriate seed mix which matches the surrounding existing vegetation. The contrast rating worksheets are included as Appendix E.

The Scenic Quality Rating could change due to a reduction in the scenic quality factor score for cultural modification. However, these changes would be small and short-term, lasting until reclamation completion and vegetation re-establishment. The BLM Preferred Helicopter Access Alternative would be unlikely to change the Scenic Quality Evaluation rating of the Conglomerate Mesa SQRU.

#### **4.16.3.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard’s Proposed Action Alternative.

#### **4.16.3.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Additional mitigation would be the same as for the Silver Standard’s Proposed Action Alternative, but the Permeon would only be applied to soil disturbance areas associated with drill pads.

### **4.16.4 No Action Alternative**

#### **4.16.4.1 Direct and Indirect Effects**

The No Action Alternative would not result in changes to visual resources from the existing environment. However, under the No Action Alternative, the existing reclaimed vegetation community would not be replaced with the proposed, more congruous seed mix. Existing contrasts in vegetation colors and textures between the two vegetation communities would persist into the long term.

#### **4.16.4.2 Cumulative Effects**

No cumulative impacts to visual resources would occur.

### **4.17 Wildlife**

#### **4.17.1 Silver Standard's Proposed Action Alternative**

##### **4.17.1.1 Direct and Indirect Effects**

The Silver Standard's Proposed Action Alternative would result in a temporary direct impact to 7.75 acres of public lands. This disturbance could temporarily affect the wildlife species listed in Table 3-6 either directly or indirectly.

Indirect impacts would include a loss of habitat and/or forage. Nearly all the disturbance would occur on the reclaimed BHP routes which have been revegetated with plant species not matching the surrounding areas.

Direct impacts could result from animal disturbance. Animals may move into adjacent nearby habitats during road construction, drilling, and reclamation to avoid humans and equipment. This would temporarily increase wildlife pressures on adjacent areas. However, given the narrow and linear nature of the proposed disturbance area, impacts resulting from animal movement and impacts to adjacent habitats would be slight. The direct disturbance of smaller wildlife species could occur during earthworks.

Direct impacts to wildlife species would last until completion of the project including reclamation (approximately eight months). Indirect impacts (impacts to habitat) would continue until revegetation success is achieved. Since Silver Standard would use an appropriate seed mix to match the surrounding environment, the post-reclamation and revegetation plant community along the previously reclaimed BHP routes would be more likely to provide habitat and forage to local wildlife species than what is there now.

Considering the small size of the disturbance area, the presence of undisturbed adjacent habitats, environmental protection measures, and mitigation, both negative and positive impacts to local wildlife species resulting from the Silver Standard's Proposed Action Alternative would be negligible.

##### **4.17.1.2 Cumulative Effects**

Given the size of the Project within the larger, mostly undisturbed nature of the Wildlife CESA, together with the mitigation measures described below, the Silver Standard's Proposed Action Alternative would not have measurable cumulative impacts to wildlife.

##### **4.17.1.3 Mitigation**

Impacts to animal species and their habitats would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes or timing changes to minimize the overall impacts to biological resources.

No additional mitigation is proposed.

## **4.17.2 Minimum Road Construction Alternative**

### **4.17.2.1 Direct and Indirect Effects**

The Minimum Road Construction Alternative would result in a temporary direct impact to 7.28 acres of public lands. This disturbance could temporarily affect the wildlife animal species listed in Table 3-6 either directly or indirectly.

Indirect impacts would include a loss of habitat and/or forage. Approximately 3.2 miles of road construction would occur on the reclaimed BHP routes, thus affecting vegetation types not matching the surrounding areas. The remaining length of road and/or overland travel would occur in areas of native vegetation which may serve as wildlife species habitat or forage.

Direct impacts could result from animal disturbance. Animals may move into adjacent nearby habitats during road construction, drilling, and reclamation to avoid humans and equipment. This would temporarily increase wildlife pressures on adjacent areas. However, given the narrow and linear nature of the proposed disturbance area, impacts resulting from animal movement and impacts to adjacent habitats would be slight. The direct disturbance of smaller wildlife species could occur during earthworks.

Direct impacts to wildlife species would last until completion of the project including reclamation (approximately eight months). Indirect impacts (impacts to habitat) would continue until revegetation success is achieved. Since Silver Standard would use an appropriate seed mix to match the surrounding environment, the post-reclamation and revegetation plant community along the previously reclaimed BHP routes (that are re-disturbed under this alternative) would be more likely to provide habitat and forage to local wildlife species than what is there now.

Considering the size of the disturbance area and the presence of undisturbed adjacent habitats, both negative and positive impacts to wildlife species resulting from the Minimum Road Construction Alternative would be negligible.

### **4.17.2.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard's Proposed Action Alternative.

### **4.17.2.3 Mitigation**

Impacts to animal species and their habitats would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes or timing changes to minimize the overall impacts to biological resources.

## **4.17.3 BLM Preferred Helicopter Access Alternative**

### **4.17.3.1 Direct and Indirect Effects**

The BLM Preferred Helicopter Access Alternative would result in a temporary direct impact to a small acreage of public lands. A majority of the 0.20 acres of disturbance would occur on drill pad areas which have been previously disturbed and revegetated with a seed mix which does not match the surrounding environment.

Indirect impacts to wildlife species may result from a loss of habitat including the crushing of vegetation which may result from placement of water hoses and pumps within native vegetation areas. However, since the vegetation community which would be disturbed to greatest is the revegetation community, there would likely be very slight impacts to wildlife species habitat and forage. The presence of humans and equipment may also disturb animals and their use of the area, including the western slope of the Inyo Range where the helicopter would be flying over-head up to three times per day.

Direct impacts could result from animal disturbance. Animals may move into adjacent nearby habitats during pad construction, drilling, hose placement, and reclamation to avoid humans and equipment. This would temporarily increase wildlife pressures on adjacent areas. However, given the small size of the proposed disturbance area, impacts resulting from animal movement and impacts to adjacent habitats would be slight. The direct disturbance of smaller wildlife species could occur during earthworks.

Direct impacts to wildlife species would last until completion of the project including reclamation (approximately seven months). Indirect impacts (impacts to habitat) would continue until revegetation success is achieved. Since Silver Standard would use an appropriate seed mix to match the surrounding environment, the post-reclamation and revegetation plant community on the previously used and reclaimed BHP routes would be more likely to provide habitat and forage to wildlife species than what is there now.

Considering the small size of the disturbance area, the presence of undisturbed adjacent habitats, environmental protection measures, and mitigation, impacts to local wildlife species resulting from the BLM Preferred Helicopter Access Alternative would be negligible.

#### **4.17.3.2 Cumulative Effects**

Cumulative impacts would negligible under this alternative compared to the other two alternatives.

#### **4.17.3.3 Mitigation**

Impacts to animal species and their habitats would be minimized through adherence to the environmental protection measures described in Chapter 2.6. In addition, a qualified biological monitor would be present during overland travel and road and drill pad construction to advise slight route changes or timing changes to minimize the overall impacts to biological resources.

#### **4.17.4 No Action Alternative**

##### **4.17.4.1 Direct and Indirect Effects**

No disturbance would occur under the No Action Alternative so neither direct nor indirect impacts to wildlife would occur. However, the drill pads areas would not be re-reclaimed with a seed mixture matching the surrounding environment. There would be no positive impacts to wildlife resulting from the establishment of a native vegetation community at the existing drill pads.

##### **4.17.4.2 Cumulative Effects**

No cumulative impacts to wildlife would occur.



## **4.18 Lands with Wilderness Characteristics**

### **4.18.1 Silver Standard's Proposed Action Alternative**

#### **4.18.1.1 Direct and Indirect Effects**

Impacts resulting from the Silver Standard's Proposed Action Alternative would include:

- Establishment of a temporary vehicle use route for exploration purposes in a road less area that has been determined to have wilderness characteristics;
- Reliance on road construction along some segments of that route as well as use of overland travel routes; and
- Presence of people and use of motor vehicles and motorized equipment along the route and at 7 drill sites by Project personnel for a period of 8 months over the course of a single year.

Short-term impacts to wilderness character within the immediate Project area would be severe. Naturalness would be compromised within a small but important part of the eligible WIU, the bridge between two mesas, one protected by wilderness, the other encompassing an equally large, contiguous natural area to the north. The proposed route would follow the footprint of a previous disturbance, a former exploration road, which has been reclaimed and has been in recovery for more than 15 years. It would create a new and visible manmade disturbance within a naturalizing area of diminishing disturbance. Impacts to visual resources are addressed in Chapter 4.16.

Impacts to naturalness, to solitude, and to opportunities for high quality primitive and unconfined recreation, would occur during construction of the new road/route and while the drilling project was underway and the route/road was in full use. Visual impacts would be less severe on the overland sections of route, up washes and along ridgelines, which would require little to no construction. Detectable changes would be mostly underfoot and would not impede views of the surrounding landscape. Visual impacts would be most evident where distant views and panoramas from saddles and ridgetops would become dominated by new roads cross-cutting the mountainsides.

The presence and use of people, vehicles, and motorized equipment along the new road/route and at each of the seven drill sites would be disturbing for many hikers and hunters, accustomed to a more wilderness-type experience. Solitude would be undermined anywhere within immediate range, i.e., sight and sound distance, of drilling activities. The quality of the primitive and unconfined recreational opportunities currently available within this part of the eligible unit would be degraded. People would be left less on their own, less out of reach of manmade improvements or developments, or of mechanization or other aspects of modern civilization.

Most impacts would cease upon completion of the Project and upon completion of reclamation. The road/route would not remain and would not be open to public use. People, vehicles, machinery, and equipment would be removed. The road/route would be decommissioned, physically blocked by natural barriers (large boulders and woody debris, fallen limbs and trees), and closed to further vehicle use. Berms would be pulled over bladed portions of the route, and surfaces would be roughed up and re-texturized with rock and woody debris. More heavily-constructed sections of road, including the two long, continuous cut-and-fill sections across two mountainsides, would be back-filled and re-contoured to match the surrounding slopes. Disturbed areas would be re-seeded



with an appropriate native seed mix. To the extent that the new reclamation work was at least as good as what had done before, the Project would not have any long term or persistent negative impacts or consequences to the wilderness character of the area. To the extent, the reclamation was not done as well, or that re-disturbed areas were not as receptive to recovery a second time around, the Project could have some long term and persistent negative impacts and consequences.

The Project may have a more positive long-term net impact on wilderness character, even as re-disturbed areas took additional time to recover, if the seed mix were improved and disturbed soil surfaces were re-colored to match their surroundings as suggested in Chapter 4.17 (Visual Resources). The most persistent visual impacts of the previous exploration project, the broad bands of light-colored, overturned soil could be made to finally blend in. Other residual visual impacts would persist and would affect naturalness. However, these impacts would fade over time and would eventually disappear, particularly with a better seed mix, effective vehicle barriers, and vehicle non-use.

With consideration for the short-term nature of the most severe impacts, the relatively small size of the Project area affected, particularly with respect to the size of the eligible unit (WIU #124-1) as a whole, and the plan for full and possibly improved reclamation, impacts to lands with wilderness characteristics would be moderate and largely if not entirely, mitigatable.

#### **4.18.1.2 Cumulative Effects**

Past, present, and reasonably foreseeable actions within WIU #124-1 and other eligible subunits and units within the Lands with Wilderness Characteristics CESA would continue to be limited, principally by ACECs and the NLCS land use classification of the area. The incremental effects to lands with wilderness characteristics resulting from the Project would be limited in scope, both spatially and temporally.

#### **4.18.1.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Relevant mitigation measures are also described in Chapter 4.16.

### **4.18.2 Minimum Road Construction Alternative**

#### **4.18.2.1 Direct and Indirect Effects**

Under the Minimum Road Construction Alternative, a slightly lower disturbance area for the roads/routes would be established for exploration purposes within a roadless area that has been determined to have wilderness characteristics. There would be less road construction and more reliance on overland travel routes than under the Silver Standard's Proposed Action Alternative. Continuous roads would be constructed over shorter distances within previously disturbed and reclaimed areas. Additional areas of overland travel up washes and along ridgelines with more minimal, intermittent construction would be approved for use. Short-term impacts would include construction of a shorter continuous cut-and-fill road and approval of overland vehicle routes with minimal construction within WIU #124-1. Impacts would include impacts to naturalness from road construction and vehicle use. Other impacts would include the presence of people and the use of vehicles, machinery, and heavy equipment along the constructed road and overland routes. These impacts would diminish opportunities for solitude and the quality of primitive and unconfined non-motorized recreational opportunities currently available within the immediate area. Impacts would

last as long as the Project was underway and the road and overland routes were open for use, and until reclamation was completed. Most impacts would go away once the vehicle route/road was effectively closed and decommissioned, re-contoured, re-colored, and successfully reseeded. Some residual visual impacts would persist and would affect naturalness while the area recovered. But these impacts would fade over time and would eventually disappear, particularly within areas not previously disturbed and along overland travel routes, with successful restoration and vehicle non-use.

With consideration for the short-term nature of these impacts and the relatively small size of the Project, less road construction and re-disturbance of previously reclaimed areas, and improved plans for successful reclamation, impacts to lands with wilderness characteristics would be more moderate and mitigatable under this alternative than under the Silver Standard's Proposed Action Alternative.

#### **4.18.2.2 Cumulative Effects**

Cumulative impacts would be the same as for the Silver Standard's Proposed Action Alternative.

#### **4.18.2.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Relevant mitigation measures are also described in Chapter 4.16.

### **4.18.3 BLM Preferred Helicopter Access Alternative**

#### **4.18.3.1 Direct and Indirect Effects**

Under the BLM Preferred Helicopter Access Alternative, no new vehicle routes would be established for exploration purposes within the eligible roadless wilderness inventory unit. Roads would be constructed on previously disturbed and reclaimed areas and no overland vehicle routes with more minimal construction would be approved. Disturbances would be confined to within the drill pads comprising a total of 0.2 acres. Activities under this alternative would also include laying of hose overland from a water tank parked at the terminus of the nearest open designated vehicle route to two pumps and on to the drill sites. Short-term impacts would include disturbances, the presence of people and equipment, as well as the operation of machinery at these locations. Naturalness would be diminished at these project sites. However, these disturbances would occur at only seven discrete and widely dispersed locations, and not all at the same time. These impacts would endure until the affected areas were successfully re-contoured, re-texturized, recolored, and reseeded.

Opportunities for solitude would be reduced within the Project area, mostly on the immediate approach to or within immediate sight and sound distance of each work site. Additional impacts to solitude would include the flight paths to and from each Project site and Lone Pine Airport. The area of impact would extend over the western slope of the Inyo Range (and much of the rest of WIU #124-1) over which the helicopter would be travelling daily, with a maximum of three round trips per day over sporadic, short intervals. These impacts would persist within this broader area as long as the drilling Project was underway, and until reclamation was complete.

With consideration for the relatively light, limited, and short-term nature of these impacts and the relatively small size of the Project, impacts to Lands with Wilderness Characteristics would be negligible.

#### **4.18.3.2 Cumulative Effects**

Cumulative impacts would be negligible.

#### **4.18.3.3 Mitigation**

Mitigation measures have been incorporated into the Project design. Relevant mitigation measures are also described in Chapter 4.16.

### **4.18.4 No Action Alternative**

#### **4.18.4.1 Direct and Indirect Effects**

No disturbances or changes to the area would occur under the No Action Alternative. The WIU's current natural condition and opportunities for solitude and/or opportunities for primitive and unconfined recreation would remain unimpacted.

#### **4.18.4.2 Cumulative Effects**

No cumulative impacts to lands with wilderness characteristics would occur.

## **5. Persons, Groups, and Agencies Consulted**

Persons consulted in the preparation of this EA are listed in the following sections. Persons involved in determining the inclusion or exclusion of each resource are listed in Appendix A.

### **5.1 BLM Personnel**

Craig Beck – ORP/Recreation and Wilderness Branch Chief

Martha Dickes – Outdoor Recreation Planner/Wilderness Specialist

Lynnette Elser – NEPA Specialist

Tim Fisher – Visual Resource Specialist

Julie McGrew – Realty Specialist

Miriam Morrill – Air and Soil Specialist

Alexander Neibergs – Fuels and Fire Management

Randall Porter – Geologist and Project Lead

Donald Storm – Cultural Specialist

Carl Symons – Ridgecrest BLM Field Manager

Caroline Woods – Wildlife Biologist

### **5.2 Third Party Preparers, SRK Consultant (U.S.), Inc.**

Carrie Schultz – Senior Environmental Scientist

Brett Bingham – GIS specialist

Mark Willow – Principal Environmental Scientist/Biologist

Val Sawyer – Principal Environmental Scientist

Kevin Roukey – Waters of the U.S. Regulatory Specialist

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## 7. Figures



## Figure 1: Location

## **Figure 2 A: Proposed Action Alternative**

## **Figure 2 B: Minimum Road Construction Alternative**

## **Figure 2 C: Helicopter Access Alternative**

## **Figure 3: Drill Rig Drill Pad Schematic**

## **Figure 4: BLM Preferred Helicopter Access Alternative Drill Pad Schematic**

## **Figure 5: Areas of Critical Environmental Concern**



## **Figure 6: Weeds and Special Status Plant Species**

## **Figure 7: Recreation and Lands with Wilderness Characteristics**

## Figure 8: Visual Resources

## **Figure 9: Cumulative Effects Study Area**

## 8. Appendices

## **Appendix A: Interdisciplinary Team Checklist**

## **Appendix B: Disturbance Calculations**



## **Appendix C1: Special Status Species Descriptions**

## **Appendix C2: Biological Survey Routes**

## **Appendix D: Greenhouse Gas Calculations**

## **Appendix E: Visual Resource Information**

## **Appendix F: Draft Dust Control Plan**