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Bureau of Land Management

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Barrick Cortez Inc.
Fiber Optic Cable Project
ENVIRONMENTAL ASSESSMENT

File Number: NVN-092012

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BLM Mission Statement

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times.

Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife, wilderness, air and scenic, scientific, and cultural values.

Acronyms and Abbreviations

°F	Degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AAQS	Ambient Air Quality Standards
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
AML	appropriate management level
amsl	above mean sea level
APE	Area of Potential Effect
AUM	animal unit month
BCI	Barrick Cortez Inc.
BLM	Bureau of Land Management
BMP	Best Management Practice
CDP	Census Designated Place
CEQ	Council on Environmental Quality
CESA	cumulative effects study area
CFR	Code of Federal Regulations
CGM	Cortez Gold Mines
CO	carbon monoxide
CR	County Road
dBA	decibels on the A-weighted scale
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GHG	greenhouse gas
HA	hydrographic area
HC/CUEP	Horse Canyon/Cortez Unified Exploration Project
HFRA	Healthy Forest Restoration Act
HMA	herd management area
I-80	Interstate 80
LOS	level of service
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NDA	Nevada Department of Agriculture
NDEP	Nevada Division of Environmental Protection
NDETR	Nevada Department of Employment, Training, and Rehabilitation
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Department of Water Resources
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

NNHP	Nevada Natural Heritage Program
NO_X	oxides of nitrogen
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statues
OHV	off-highway vehicle
PA	Programmatic Agreement
PFYC	Potential Fossil Yield Classification
PLS	pure-live-seed
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns or less
PGH	preliminary general habitat
PPH	preliminary priority habitat
POD	Plan of Development
RAWS	Remote Automatic Weather Station
RFFA	reasonably foreseeable future actions
RMP	Resource Management Plan
ROW	right-of-way
SHPO	State Historic Preservation Officer
SO_2	sulfur dioxide
SR	State Route
SSURGO	Soil Survey Geographic
SWPPP	Stormwater Pollution Protection Plan
SWReGAP	Southwestern Regional GAP Analysis Project
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
vpd	vehicles per day
VRM	visual resource management
WRCC	Western Regional Climate Center
WSA	wilderness study area

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1.0 Introduction/Purpose and Need

1.1 Introduction

Barrick Cortez Inc. (BCI) proposes to construct, operate, and maintain an approximately 21.8-mile-long fiber optic cable project between BCI's Lodge at Pine Valley and the southeastern boundary of BCI's Cortez Gold Mines (CGM) Operations Area. The proposed project would be located approximately 34 miles due south of Beowawe in Eureka County, Nevada, entirely on BLM-managed land (**Figures 1-1** and **1-2**). BCI filed a Right-of-Way (ROW) Grant application and supporting Plan of Development (POD) with the Bureau of Land Management (BLM) Mount Lewis Field Office for the proposed project on April 15, 2013 (BCI 2013a).

1.2 Purpose and Need for Action

The BLM's purpose is to respond to BCI's Proposed Action as described in the POD and summarized in this environmental assessment (EA). The BLM's need for the action is established by the agency's responsibility under Title V of the Federal Land Policy and Management Act of 1976 (FLPMA) for issuance of ROW Grants (43 Code of Federal Regulations [CFR] 2800), to process ROW applications, and to take any action necessary to prevent unnecessary or undue degradation of the land.

1.3 Decision to be Made

The BLM's decision relative to this EA will consider the following: 1) approval of the POD to authorize the proposed activities without modifications or additional mitigation measures; 2) approval of the POD with additional mitigation measures that the BLM deems necessary; or 3) denial of the proposed POD and associated activities.

1.4 BLM Responsibilities and Relationship to BLM and Non-BLM Policies, Plans, and Programs and Land Use Plan Conformance

The BLM is responsible for the content of this EA, which was prepared in conformance with the BLM National Environmental Policy Act (NEPA) Handbook H-1790-1 (BLM 2008), Council on Environmental Quality (CEQ) regulations (40 CFR 1500), and agency guidance on the analysis of cumulative impacts.

In order to use public lands managed by the BLM, BCI must comply with the requirements of FLPMA. In addition, actions on federal lands under the jurisdiction of the BLM must conform to their Resource Management Plans (RMPs) unless a specific waiver from the stipulations contained in these plans is obtained from the authorizing office(s). The BLM lands that would be crossed by the proposed project are administered in accordance with the Shoshone-Eureka RMP (BLM 1986a). The proposed project is consistent with the RMP.

The Eureka County Master Plan (Eureka County 2010) provides general policy guidance. The plan does not address utilities of this type (Kniefel 2015).

1.5 Permits and Approvals

Prior to issuing a ROW Grant, the project must be evaluated under the requirements of NEPA. Should the BLM approve this project based on this EA, the BLM will issue a Decision Record/Finding of No Significant Impact (FONSI) containing any stipulations, environmental protection measures, or other resource constraints applicable to the project. In response to issues raised during the NEPA process, BCI will modify the project POD. The revised POD will be submitted to the BLM and other affected agencies prior to issuance of a Decision Record/FONSI.

In addition to acquiring a ROW Grant, the proposed project would require authorizing actions from other jurisdictional agencies. **Table 1-1** lists the required permits or approvals that are already in place or would be obtained from the responsible regulatory agencies.

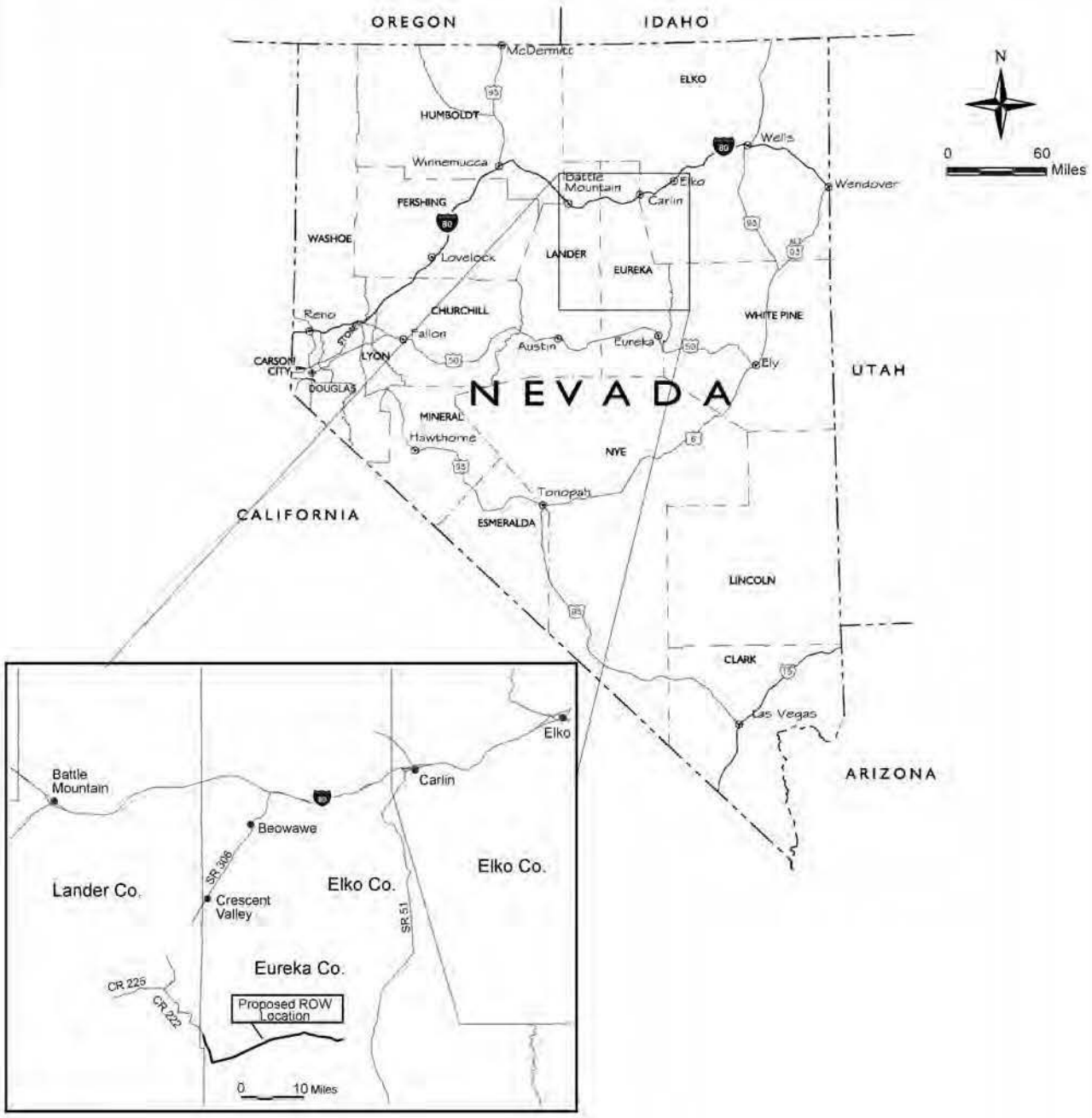
Table 1-1 Major Permits and Approvals

Permit/Approval	Granting Agency
Environmental Assessment Plan of Development Approval Right-of-Way Permit	U.S. Department of the Interior, BLM
Surface Disturbance Permit	Nevada Department of Conservation and Natural Resources, Nevada Division of Environmental Protection, Bureau of Air Pollution Control
Construction Stormwater Permit (NVR 100000) – including a Stormwater Pollution Prevention Plan (SWPPP) General Discharge Permit (storm water)	Nevada Department of Conservation and Natural Resources, Nevada Division of Environmental Protection, Bureau of Water Pollution Control

1.6 Issues

Internal scoping for the project by the BLM interdisciplinary team occurred at a meeting held on May 22, 2014, at the BLM Mount Lewis Field Office in Battle Mountain, Nevada. During this meeting, BLM personnel identified the elements associated with supplemental authorities and other resources and uses to be addressed in Chapter 3.0 of this EA. Issues associated with the following resources were identified:

- Geology, Mineral, and Paleontological Resources
- Water Resources
- Soil Resources
- Vegetation
- Wildlife and Fisheries Resources
- Range Resources
- Cultural Resources
- Native American Cultural Concerns
- Air Quality
- Land Use and Access
- Recreation and Wilderness
- Social and Economic Values
- Environmental Justice
- Visual Resources
- Noise
- Hazardous Materials and Solid Waste



Barrick Fiber Cable Optic EA

Figure 1-1

Project Vicinity

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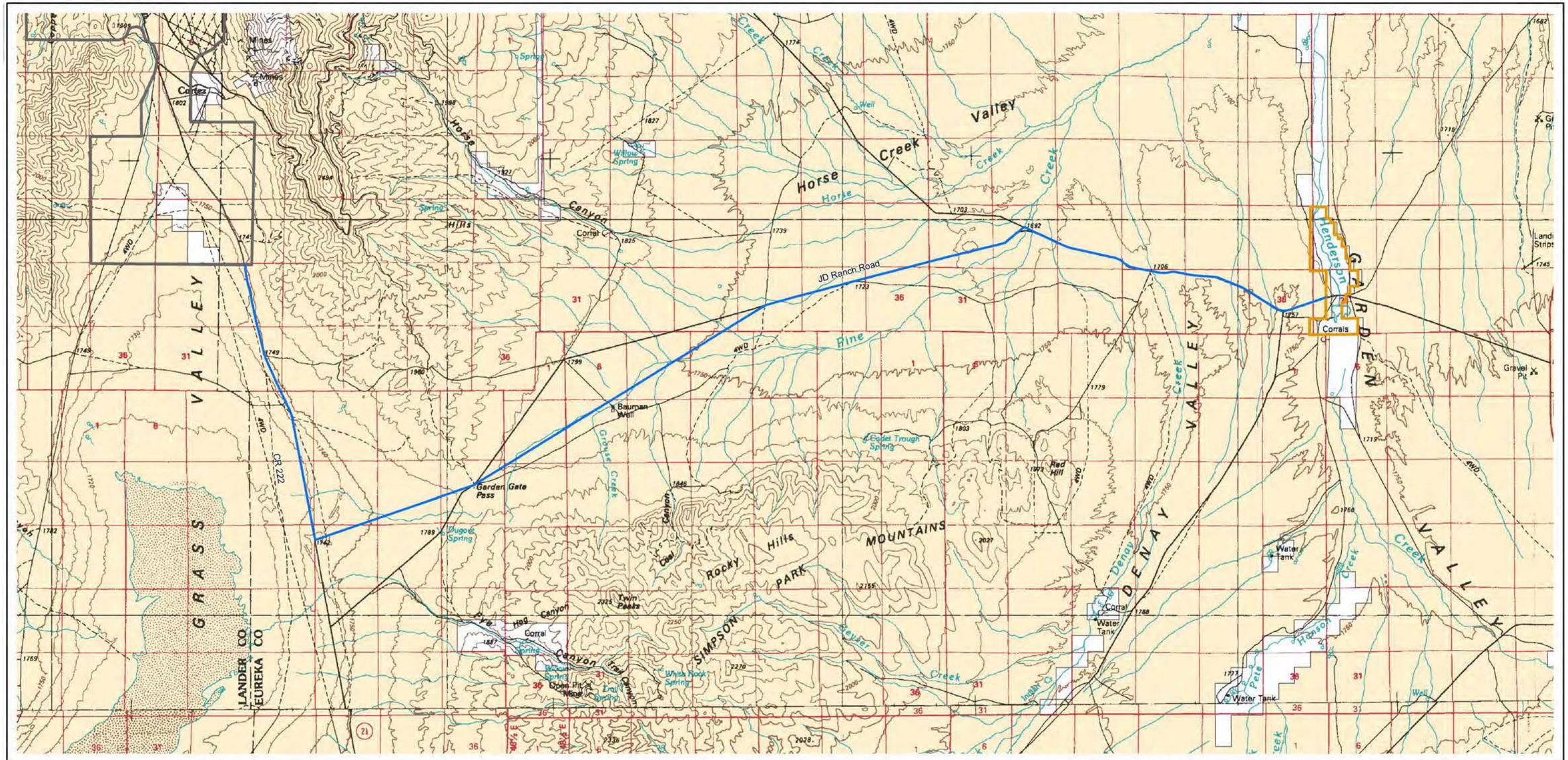

Legend

- Proposed Fiber Optic Cable ROW
- Cortez Gold Mines Operations Area Boundary
- Lodge at Pine Valley

Surface Ownership

- BLM
- Private

Source: BLM 2014.

10/17/2014

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Figure 1-2

Surface Ownership

0 0.5 1 2 Miles
0 0.5 1 2 Kilometers
1:100,000

N

June 2015

2.0 Alternatives Including the Proposed Action

2.1 Introduction

This chapter describes BCI's proposed fiber optic cable project (Proposed Action) (Section 2.2), the No Action Alternative (Section 2.3), and other potential alternatives that were considered but eliminated from detailed analysis (Section 2.4). The Proposed Action description is based on information provided by BCI in the POD (BCI 2013) and additional supplemental information (BCI 2014a-b,c,e, 2013 [sic]). A summary of the past and present actions and reasonably foreseeable future actions (RFFAs) considered in the cumulative impact assessment is included in Section 2.5.

2.2 Proposed Action

Under the Proposed Action, the proposed 21.8-mile-long fiber optic cable would be installed between BCI's Lodge at Pine Valley and the southeastern boundary of BCI's CGM Operations Area, where it would connect to a fiber optic cable segment and associated equipment on privately owned lands within the CGM Operations Area (**Figure 2-1**). Reclamation costs for the fiber optic cable and associated equipment in the CGM Operations Area are covered under Amendment 3 to the Plan of Operations (BCI 2014g) and, therefore, are not part of the Proposed Action.

The proposed fiber optic cable and approximately 19 vaults (for cable installation/access) would be installed parallel to and within the existing disturbance areas associated with county roads (County Road [CR] 222 and JD Ranch Road) (**Figure 2-2**). The proposed ROW would be located on BLM administered lands (**Figure 1-2**). An approximately 2-month construction period is anticipated, based on a 13-person construction crew working 10-hour days. The construction crew would commute daily from Elko, Nevada, to the work site. BCI proposes to initiate construction upon receipt of all required permits. The fiber optic cable would be in use for the duration of operations at the CGM Operations Area (approximately 5 years).

2.2.1 Construction

Construction activities associated with underground installation of the fiber optic cable and vaults would occur within the proposed 20-foot-wide permanent ROW. Equipment and materials (e.g., fiber optic cable, vaults, etc.) storage either would be in the ROW or in an existing disturbance area at the Lodge at Pine Valley. No temporary equipment staging areas or other temporary use areas would be required along the ROW. ROW access would be directly from the adjacent county roads. Construction-related activities would result in approximately 53 acres of re-disturbance. This disturbance would be located within existing disturbance areas adjacent to the running surface of the roads that would be paralleled (**Figure 2-2**).

Mobile equipment that would be used for fiber optic cable and vault installation would include dozers (D8, 750, and 450), as well as a backhoe, directional drill with 2-inch case sleeve, cable jetter, and cable reel trailer. All mobile equipment would be left on the site throughout construction and would remain within the ROW. Light duty trucks would be used for crew transport, and a semi-truck would be used for equipment mobilization and material delivery. Shovels, water, and fire extinguishers would be readily available in case of fire, and the construction crew trained in their use.

2.2.1.1 Fiber Optic Cable Installation

Prior to construction, the ROW centerline would be surveyed and marked with lath approximately every 200 feet, or at a spacing to maintain line of site. No ground clearing or grading would be required based on the proposed placement of the fiber optic cable within the existing disturbance area adjacent to the

running surface of county roads. No cattle guards, range fences, aboveground utilities, or pipelines would be crossed by the proposed fiber optic cable. During construction, all county regulations pertaining to construction in roadways would be adhered to for the safety of workers and the public.

To minimize potential erosion and sediment transport from the construction area, Best Management Practices (BMPs) (e.g., fabric and/or weed free straw bale filter fences) would be installed within or along the edge of the proposed ROW, as needed, prior to ground disturbing activities as described in BCI's proposed Soil Erosion Prevention and Control Plan (see A-1 in **Appendix A**).

Innerduct Installation

High-density polyethylene innerduct (1- to 1.25-inch-diameter) would be installed in the ROW in preparation for fiber optic cable installation. The majority of the innerduct would be installed using plowing techniques. Construction would be initiated by pre-ripping the ground with a D8 dozer. A 750 dozer with a plow blade and innerduct reel then would be used to complete the rip and plow-in and subsequently cover the innerduct (**Figure 2-3**). The innerduct would be plowed to a depth of 3 feet and the disturbance area regraded to approximate original contour.

Where the ROW would cross gravel roads or drainages with water present, the innerduct would be installed at a depth of 5 feet using a directional drill with a 2-inch sleeve casing. Directional drilling would be conducted within the proposed 20-foot-wide ROW; no additional work space would be required. During directional drilling, a bit with a computerized guidance system would be used to drill the hole between excavated entry and exit pits. The innerduct subsequently would be pulled through the drillhole. Clay-based (bentonite) drilling fluid would be used to remove cuttings from the borehole, stabilize the borehole, and act as a coolant and lubricant during drilling. The drilling fluid would be contained in drilling mud pits or tanks on either side of the crossing. Drilling mud and cuttings subsequently would be transported to an approved location for disposal. All pits associated with directional drilling would meet Occupational Safety and Health Administration requirements and would be backfilled and recontoured following completion of construction.

Vault Installation

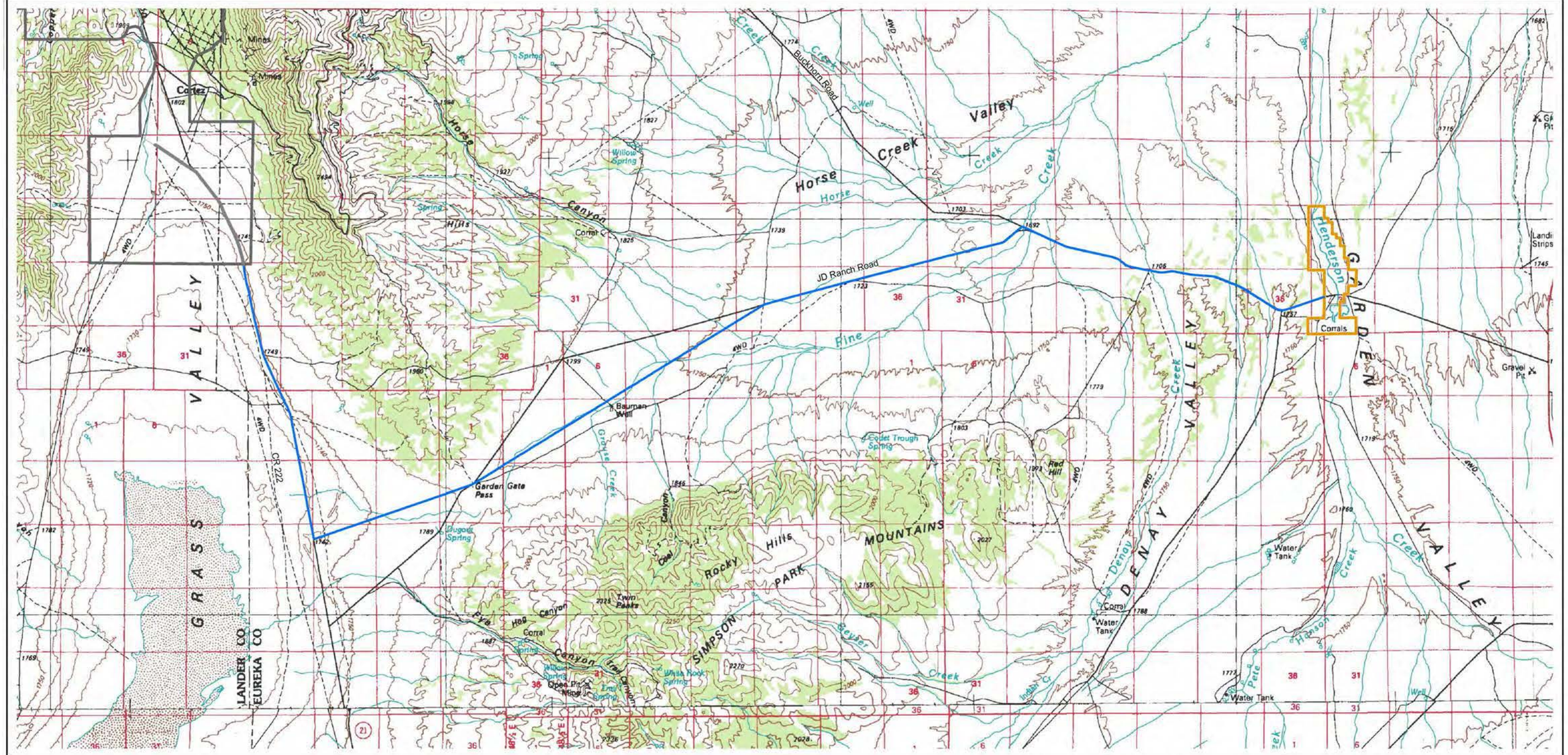
Ground- and traffic-rated vaults would be installed within the ROW at approximately 1.5-mile intervals to facilitate cable installation, splicing, and maintenance. The 30-inch-wide, 48-inch-long, 36-inch-deep vaults would be buried 2 feet below final grade. A backhoe would be used to excavate the installation sites for vault placement. Excavated soil temporarily would be placed in the ROW during vault installation, with topsoil/growth media segregated. Following installation of the vaults and fiber optic cable, the excavated soil would be used to backfill the vault sites, available topsoil/growth media replaced per BCI's proposed Soil Erosion Prevention and Control Plan (see A-1 in **Appendix A**), and the disturbance area regraded to approximate original contour.

Fiber Optic Cable Installation

Following installation of the innerduct and vaults, the fiber optic cable would be installed in the innerduct between each of the vaults using a cable jetter. The jetter would be used to inject compressed air into the innerduct while simultaneously pushing the cable to facilitate installation. A cable jetting lubricant would be used at a rate of approximately 1 quart per 5,000 feet to facilitate cable installation. The sections of fiber optic cable subsequently would be spliced together at the vault locations.

Cable Marking and Sign Posts

Cable marking ribbon inscribed with appropriate warning notations would be buried approximately 12 to 18 inches above the innerduct during plowing operations.



Legend

- Proposed Fiber Optic Cable ROW
- Fiber Optic Cable and Equipment in the CGM Operations Area
- Cortez Gold Mines Operations Area Boundary
- Lodge at Pine Valley

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Figure 2-1

Proposed Fiber Optic Cable ROW

0 0.5 1 2 Miles
0 0.5 1 2 Kilometers
1:100,000

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Figure 2-2

Proposed ROW in Relation to Existing Road Disturbance

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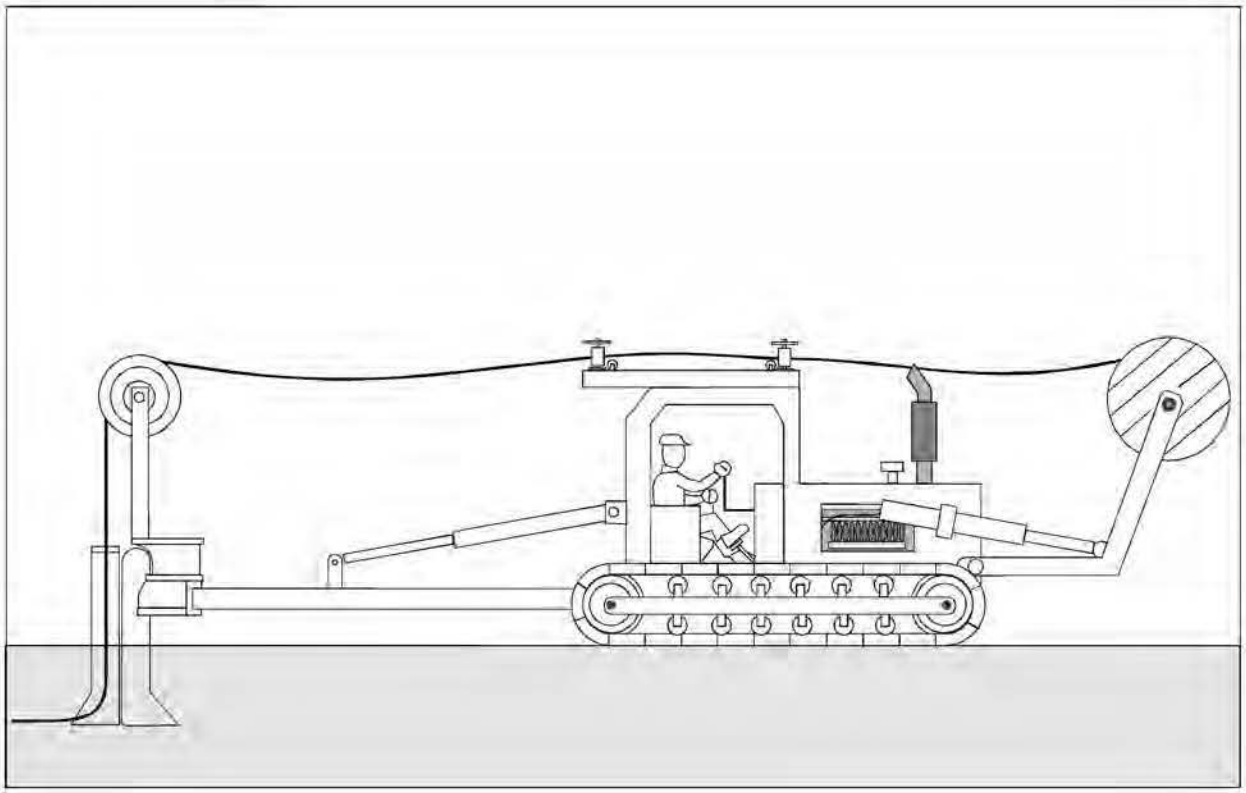

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Figure 2-3

Typical of Plowing Operations

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Following construction, orange topped marker poles would be placed along the ROW at an average spacing of approximately 0.25 mile, based on line of sight, and at road crossings and vault locations. The marker poles would extend approximately 5 feet above ground and would be inscribed with a warning and phone number.

2.2.1.2 Hazardous Materials and Waste Management

Hazardous materials used during construction would include: diesel fuel, gasoline, hydraulic fluid, lubricants (motor oil, grease, lubricant for cable jetting [i.e., Hydralube® AT-500], and antifreeze). These materials would be transported to the site in accordance with all state and federal regulations and handled in accordance with all applicable federal, state, and local laws and regulations. All fuel would be transported to the site and stored in certified, placarded fuel tanks located on the crew trucks. Oil, grease, and lubricants also would be transported and stored on the crew trucks. Hazardous fuel spill kits would be located on each crew truck and the crew trained in their use. Any materials not consumed during construction would be recycled, to the extent possible, or disposed of off site in an approved depository in accordance with all applicable federal and state regulations.

In the event of a fuel, oil, or other petroleum product leak, cleanup would be conducted immediately. In the event of a large spill, the containment, cleanup, disposal, reporting, and follow-up, as required, would be conducted in accordance with BCI's proposed Spill Contingency Plan for the project (see A-2 in **Appendix A**).

Non-hazardous waste materials (e.g., paper, plastic wrapping, pallets, etc.) would be collected and disposed of in an approved landfill. Empty innerduct and cable reels would be returned to the supplier for reuse.

Portable "blue room" facilities would be available to work crews to provide for sanitation needs. The sewage would be transported off site and disposed of in an approved facility.

2.2.2 Reclamation

Following final grading, the ROW would be seeded to establish a ground cover and minimize potential erosion as discussed in BCI's proposed Soil Erosion Prevention and Control Plan (see A-1 in **Appendix A**). Native, non-native, and combined native/non-native seed mixes are proposed for use as identified in **Tables 2-1**, **2-2**, and **2-3**, respectively, with mixes included for both sagebrush dominate and greasewood/shadscale dominate areas. Native plant species with the ability to quickly establish on disturbed lands and compete with undesirable weed species were selected based on ecological site descriptions. Non-native plant species were included in two of the seed mixes to further enhance reclamation success. The proposed seeding rates for both broadcast and drill seeding methods were based on soil characteristics and ecological site descriptions (JBR now Stantec 2014).

Table 2-1 Native Seed Mixes

Common Name	Scientific Name	Broadcast Seeding Rate (pounds PLS/acre)	Drill Seeding Rate (pounds PLS/acre)
Sagebrush Dominate Areas			
Western wheatgrass	*Pascopyrum smithii*	7.0	3.5
Thickspike wheatgrass	*Elymus lanceolatus*	7.0	3.5
Bottlebrush squirreltail	*Elymus elymoides*	3.0	1.5
Globemallow	*Sphaeralcea coccinea*	1.0	0.5
Blue flax	*Linum perenne*	1.0	0.5

Table 2-1 Native Seed Mixes

Common Name	Scientific Name	Broadcast Seeding Rate (pounds PLS/acre)	Drill Seeding Rate (pounds PLS/acre)
Wyoming sagebrush	*Artemisia tridentata wyomingensis*	0.5	--
Total Application Rate		**19.5**	**9.5**
Greasewood/Shadscale Dominate Areas			
Indian ricegrass	*Achnatherum hymenoides*	5.0	2.5
Bottlebrush squirreltail	*Elymus elymoides*	5.0	2.5
Sand dropseed	*Sporobolus cryptandrus*	3.0	1.5
Alkali sacaton	*Sporobolus airoides*	3.0	1.5
Globemallow	*Sphaeralcea coccinea*	1.0	0.5
Fourwing saltbrush	*Atriplex canescens*	2.0	1.0
Total Application Rate		**19.0**	**9.5**

Note: PLS/acre = pure-live-seed per acre.

Source: JBR now Stantec 2014.

Table 2-2 Non-native Seed Mixes

Common Name	Scientific Name	Broadcast Seeding Rate (pounds PLS/acre)	Drill Seeding Rate (pounds PLS/acre)
Sagebrush Dominate Areas			
Intermediate wheatgrass	*Thinopyrum intermedium*	7.0	3.5
Crested wheatgrass	*Agropyron cristatum*	6.0	3.0
Siberian wheatgrass	*Agropyron fragile*	5.0	2.5
Forage kochia	*Bassia prostrata*	1.0	--
Alfalfa	*Medicago sativa*	1.0	0.5
Total Application Rate		**20.0**	**9.5**
Greasewood/Shadscale Dominate Areas			
Siberian wheatgrass	*Agropyron fragile*	10.0	5.0
Russian wildrye	*Psathyrostachys juncea*	10.0	5.0
Forage kochia	*Bassia prostrata*	1.0	--
Total Application Rate		**21.0**	**10.0**

Source: JBR now Stantec 2014.

Table 2-3 Combined Native/Non-native Seed Mixes

Common Name	Scientific Name	Broadcast Seeding Rate (pounds PLS/acre)	Drill Seeding Rate (pounds PLS/acre)
Sagebrush Dominate Areas			
Intermediate wheatgrass	*Thinopyrum intermedium*	7.0	3.5
Crested wheatgrass	*Agropyron cristatum*	5.0	2.5
Thickspike wheatgrass	*Elymus lanceolatus*	4.0	2.0
Bottlebrush squirreltail	*Elymus elymoides*	4.0	2.0
Forage kochia	*Bassia prostrata*	1.0	--
Globemallow	*Sphaeralcea coccinea*	1.0	0.5
Total Application Rate		**22.0**	**10.5**
Greasewood/Shadscale Dominate Areas			
Russian wildrye	*Psathyrostachys juncea*	5.0	2.5
Siberian wheatgrass	*Agropyron fragile*	5.0	2.5
Indian ricegrass	*Achnatherum hymenoides*	5.0	2.5
Bottlebrush squirreltail	*Elymus elymoides*	5.0	2.5
Forage kochia	*Bassia prostrata*	1.0	--
Fourwing saltbrush	*Atriplex canescens*	2.0	1.0
Total Application Rate		**23.0**	**11.0**

Source: JBR now Stantec 2014.

Based on the location of the proposed ROW within existing disturbance areas adjacent to the running surface of existing roads, no noxious weed management activities other than reseeding are proposed.

Following the completion of operations at the CGM Operations Area, the fiber optic line would be left in place for future use or turned over to a local carrier.

2.2.3 Operations and Maintenance

BCI would maintain the ROW in accordance with the stipulations contained in the ROW Grant. The fiber optic cable and marker poles would be maintained in serviceable condition. All maintenance activities (e.g., trouble shooting, repair in the event of inadvertent damage to the cable), if needed, would be confined to the ROW.

2.2.4 Applicant-committed Environmental Protection Measures

During construction and operation of the proposed fiber optic cable project, BCI would implement applicant-committed environmental protection measures to minimize potential impacts to wildlife species and cultural resources to prevent undue or unnecessary degradation of the environment. These measures, as identified below, would be implemented as part of the proposed project's standard operating procedures.

Paleontological Resources

- If paleontological resources are discovered during the performance of any surface disturbing activities, the item(s) or condition(s) would be left intact and the BLM Authorized Officer notified immediately. If significant paleontological resources are found, appropriate measures (e.g., avoidance, recordation, data recovery) would be developed to mitigate potential adverse effects.

Vegetation

- Mobile equipment would be washed and inspected prior to entering the project area so that noxious weeds and invasive and non-native species would not be spread to new locations.
- BCI would coordinate with Eureka County relative to the county's weed management control program.

Wildlife Resources

- If project-related ground disturbance should occur during the avian breeding season, defined by BLM as March 1 through July 31, clearance surveys would be conducted by a qualified biologist following BLM (2014e) wildlife survey protocols. Project-related disturbance for a specific location would be conducted within 7 days of the survey, or another survey would be conducted. If active nests are located, or if other evidence of nesting (e.g., mating pairs, territorial defense, carrying nesting material, transporting food) is observed, an appropriate avoidance buffer would be established around the nests following consultation with the BLM approved biologist. No construction would occur within the avoidance buffer until the birds are no longer actively breeding or rearing young, or until the young have fledged. To reduce potential project-related impacts to breeding greater sage-grouse, project construction would occur outside of the breeding season (March 1 through May 15), if possible. If construction during the greater sage-grouse breeding season should be required, no associated ground disturbing activities or vehicle noise in excess of normal traffic (e.g., delivery or operation of mobile equipment) would occur between 4:00 a.m. and 10:00 a.m. within 4 miles of lek sites.

Cultural Resources

- Qualified cultural resource monitors would be on site throughout construction.
- If previously undocumented cultural resources are discovered during construction, construction would be halted in the area of the discovery, and the BLM Authorized Officer would be contacted immediately by phone, with written confirmation, in accordance with State Protocol Agreement Section VI.B. All operations within 100 meters (330 feet) of a discovery would be suspended and the resource protected until an evaluation of the discovery can be made by the BLM Authorized Officer. If the site is eligible to the National Register of Historic Places (NRHP), impacts would be mitigated through avoidance or an appropriate data recovery program pursuant to the 2005 Programmatic Agreement (PA) or most recent PA among the BLM, Nevada State Historic Preservation Officer (SHPO), and BCI.

Air Quality

- During Project construction, the disturbed soil would be wetted, chemically treated, or treated by other means satisfactory to the BLM Authorized Officer, in order to reduce fugitive dust. Additionally, prudent vehicle speeds would be maintained to minimize fugitive dust created by travel.

2.3 No Action Alternative

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

2.4 Alternatives Considered but Eliminated from Detailed Analysis

BCI initially considered another route for the fiber optic cable that differed from the Proposed Action. Under this alternative, the fiber optic cable would be installed using the most direct route between the Lodge at Pine Valley and an existing communications tower (Control #3) in the southeastern portion of the CGM Operations Area. This route would require the crossing of steep slopes and rocky areas at the southwestern end of the Cortez Mountains and would entail the crossing of previously undisturbed lands. Therefore, this alternative was eliminated from further analysis based economic and environmental considerations.

2.5 Past, Present, and Reasonably Foreseeable Future Actions

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past and present actions and RFFAs regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

Projects and actions considered in the cumulative effects analysis are defined for this EA as those past and present actions and RFFAs that could interact with the Proposed Action in a manner that would result in cumulative impacts. These projects and actions are identified in **Table 2-4**, and the mineral-related actions are shown in **Figure 2-4**.

The area of concern for cumulative effects varies by resource, with impacts for certain resources being restricted to the actual area of disturbance. Other resources, such as livestock and wildlife, may range over a wide area, and cumulative impacts could involve more than surface disturbance. The resource-specific cumulative effects study areas (CESAs) for this EA analysis are described in the specific resource sections of Chapter 3.0.

Table 2-4 Surface Disturbance Associated with Past and Present Actions and RFFAs

Action	Past and Present Approved Disturbance (acres)	RFFA Projected Disturbance (acres)	Total Approved/ Projected Disturbance (acres)
Overall CESA[1]			
Mining Projects[2]	1,662	0	1,662
Exploration Projects	475	299	774
Roads and Other ROWs	908	0	908
Other Actions[3]	23,164	0	23,164
Subtotal	26,209	299	26,508
Additional CESA for Specific Resources[1]			
Mining Projects[4]	16,811	581	17,392
Exploration Projects	687	100	787
Roads and Other ROWs	676	0	676
Other Actions[5]	5,381	4,417	9,694
Subtotal	23,555	5,098	28,549
Total	49,764	5,397	55,057

[1] The overall CESA encompasses the southwestern portion of Pine Valley (from Garden Valley westward) and the northern portion of Grass Valley, with the southern portion of Crescent Valley also include in some resource-specific CESAs.

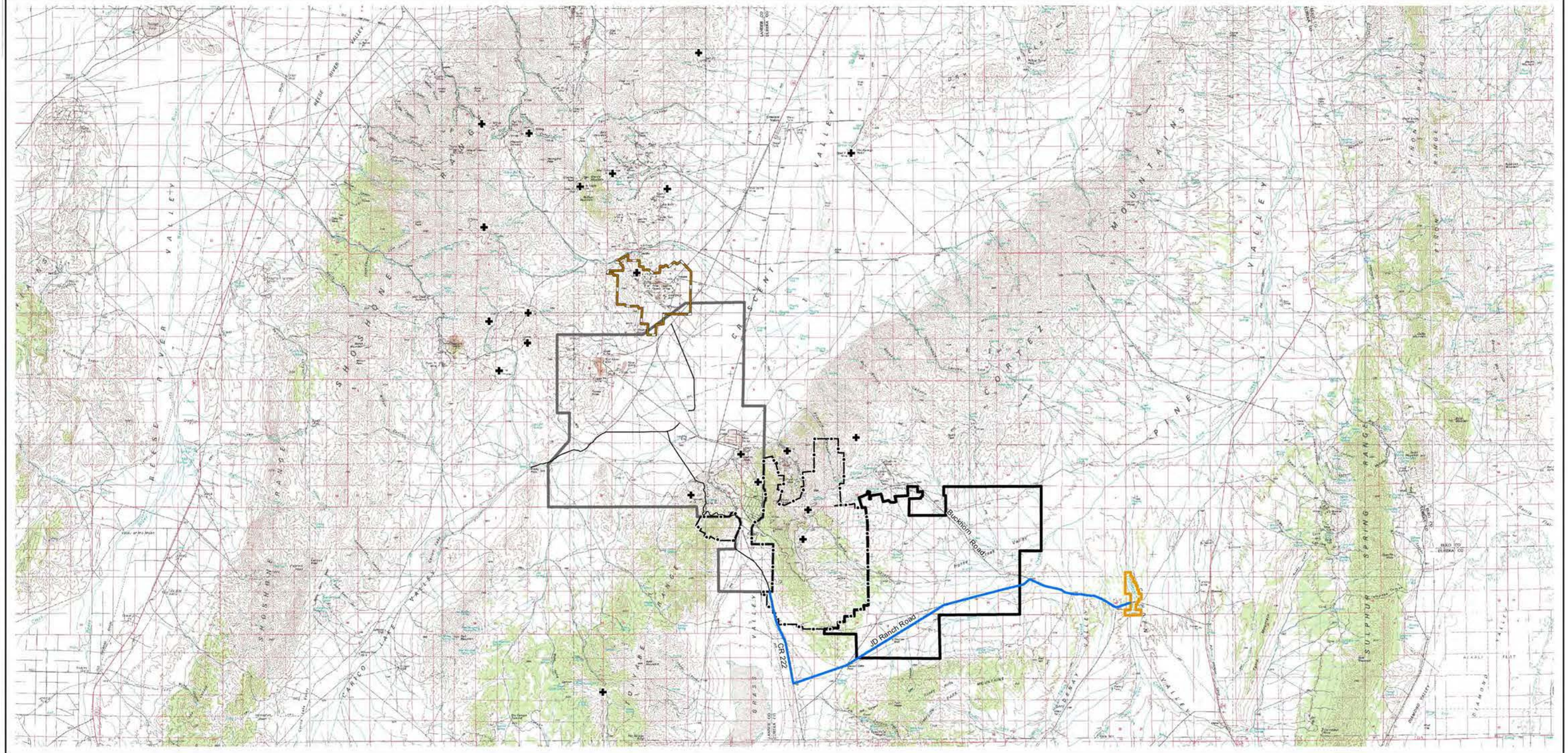
[2] Includes mining activities in the southern portion of the CGM Operations Area in Grass Valley and other mines in Grass and Pine valleys as shown in **Figure 2-4**.

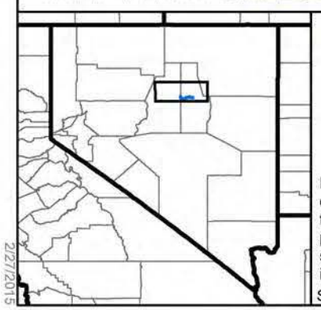
[3] Includes the Lodge at Pine Valley, wildfires, and other actions. Identified vegetation treatment areas (including treatment in some wildfire affected areas) also occur in this area; however, the acreage on which treatments have occurred is not quantifiable.

[4] Includes mining activities in the portion of the CGM Operations Area in Crescent Valley and other mines in southern Crescent Valley as shown in **Figure 2-4**.

[5] Includes wildfires and other actions.

Sources: BCI 2014d,e,f; BLM 2014b, 2008b.





Note: The overall CESA encompass the southwestern portion of Pine Valley (from Garden Valley westward) and the northern portion of Crescent Valley also included in some resource-specific CESAs. The resource-specific CESAs are described in the resource sections in Chapter 3.

Source: BCI 2014d,e; BLM 2008, 2014b.

2/27/2015

Legend

- Proposed Fiber Optic Cable ROW
- Cortez Gold Mines Operations Area Boundary
- West Pine Valley Exploration Boundary
- Horse Canyon/Cortez Unified Exploration Project (HC/CUEP) Boundary
- Lodge at Pine Valley
- Robertson Exploration Project
- Additional Mining Projects

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

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

Barrick
Fiber Optic Cable EA

Figure 2-4

Minerals -
Past and Present Actions and RFFAs

0 1.25 2.5 5 Miles
0 1.25 2.5 5 Kilometers
1:300,000

N

3.0 Affected Environment and Environmental Consequences

This chapter describes the environment that would be affected by development of the Proposed Action. This chapter also describes the anticipated direct and indirect impacts of the Proposed Action and the No Action Alternative, as well as the potential cumulative impacts. The analysis of potential impacts of the Proposed Action assumes the implementation of the applicant-committed environmental protection measures identified in Section 2.2.4. Monitoring and mitigation identified for individual resources in response to anticipated impacts are discussed at the end of each resource section, as applicable. For resources where project-specific impacts are identified, the Proposed Action may result in cumulative effects with other past and present actions and RFFAs in the area. The period of potential cumulative impact is defined as the 2-month construction/reclamation period plus the approximate 5-year operations/maintenance period.

The BLM's NEPA Handbook (BLM 2008a) and Nevada Instruction Memorandum 2009-030, Change 1, require that NEPA documents address specific elements of the environment that are subject to requirements specified in statute, regulation, or executive order (EO) (i.e., supplemental authorities). **Table 3-1** lists the supplemental authorities that must be addressed in all environmental analyses, as well as other resources deemed appropriate for evaluation by the BLM. Other resources of the human environment that have been considered for this EA are listed in **Table 3-2**. If the element or resource is present and potentially would be affected, the location in this chapter where the element or resource is addressed is identified in **Tables 3-1** and **3-2**. The elements and resources that do not occur in the project area are not discussed further in this EA; however, brief discussions may be provided. Present resources or uses are discussed and analyzed in Chapter 3.0, including justification for the resources present and determined not affected by the Proposed Action. The elimination of non-relevant elements complies with the CEQ policy in 40 CFR 1500.4.

Table 3-1 Supplemental Authorities to be Considered

Supplemental Authority	Not Present	Present/ Not Affected	Present/ May be Affected	EA Section Number or Rationale for Elimination
Air Quality			x	Section 3.9
Areas of Critical Environmental Concern (ACECs)	x			Would not be affected (No ACECs occur in the project vicinity.)
Cultural/Historical			x	Section 3.7
Environmental Justice		x		No minority or low-income groups would be disproportionately affected by health or environmental effects as a result of implementation of the Proposed Action. See Section 3.13.
Farmlands (prime or unique)	x			Would not be affected (No prime or unique farmlands occur in the proposed disturbance areas.)
Floodplains	x			Would not be affected (No Federal Emergency Management Agency-designated floodplains occur in the proposed disturbance areas.)

Table 3-1 Supplemental Authorities to be Considered

Supplemental Authority	Not Present	Present/ Not Affected	Present/ May be Affected	EA Section Number or Rationale for Elimination
Forests and Rangelands (Healthy Forest Restoration Act [HFRA] only)	x			Would not be affected (Project does not meet the requirements to qualify as a HFRA project.)
Human Health and Safety	x			EO 13045 would not apply as pesticides and herbicides would not be used.
Migratory Birds			x	Section 3.5
Native American Cultural Concerns			x	Section 3.8
Noxious Weeds/Invasive Non-native Species			x	Section 3.4
Riparian/Wetlands	x			Would not be affected (No riparian or wetland areas occur in the proposed disturbance areas.)
Threatened and Endangered Species	x			Federally threatened and endangered species have been determined not to be present within the project area. A brief discussion is presented in Sections 3.4 and 3.5.
Waste – Hazardous/Solid			x	Section 3.16
Water Quality			x	Section 3.2
Wild and Scenic Rivers	x			Would not be affected (No wild and scenic rivers occur in the project vicinity.)
Wilderness/Wilderness Study Areas/Lands with Wilderness Characteristics	x			Wilderness or wilderness study areas are not present within the project area or vicinity (the nearest wilderness study area is 10 miles away). The BLM conducted a lands with wilderness characteristics inventory of the project area in June 2015, and determined there are no lands with wilderness characteristics in the project area.

Table 3-2 Other Resources of the Human Environment

Other Resources	Not Present	Present/ Not Affected	Present/ May be Affected	EA Section Number or Rationale for Elimination
Rangeland Resources			x	Section 3.6
Land Use Authorizations		x		Section 3.10
Geology and Minerals			x	Section 3.1
Noise			x	Section 3.15
Paleontological Resources	x			Based on a detailed study of the paleontological resource potential, no scientifically significant fossil locations or potential have been identified within the geologic units crossed by the proposed project. However, Section 2.2.4 includes a protection measure for undiscovered paleontological resources. A brief discussion of paleontological resources is provided in Section 3.1.
Recreation		x		Section 3.11
Socioeconomic Values			x	Section 3.12
Soils			x	Section 3.3
Vegetation			x	Section 3.4
Visual Resources			x	Section 3.14
Wild Horses and Burros		x		The proposed project occurs within the Rocky Hills Herd Management Area (HMA). However, wild horses and burros would not be affected because historical inventories and use patterns indicate that wild horses and burros do not use the area within the vicinity of the proposed project. For further discussion see Section 3.17.
Wildlife			x	Section 3.5

3.1 Geology, Mineral, and Paleontological Resources

The project study area for potential direct and indirect impacts to geology, mineral, and paleontological resources encompasses the proposed fiber optic cable ROW (**Figure 2-1**). The CESA encompasses the project study area and includes surface disturbance associated with past and present actions and RFFAs within the northern portion of Grass Valley and the southwestern portion of Pine Valley.

3.1.1 Affected Environment

Geology and Minerals

The project study area is located within the Great Basin section of the Basin and Range physiographic province characterized by a series of generally north-trending mountain ranges separated by broad alluvial filled basins. The mountain ranges in the Basin and Range province are commonly bounded by steep range-front faults where vertical movement on these faults has uplifted the mountain blocks relative to the valleys. Faulting associated with development of the Basin and Range province began approximately 14 million years ago and continues to the present. Continual erosion off the uplifted mountain blocks has resulted in thick accumulations of unconsolidated to poorly consolidated sediments in the valley (or basin) areas.

The proposed fiber optic cable ROW would extend across portions of Grass Valley and Pine Valley as shown in **Figure 2-1**. Specifically, the project would traverse (from west to east) the northeast portion of Grass Valley, cross over the drainage divide between Grass and Pine valleys at Garden Gate Pass, and cross the southwest portion of Pine Valley. Grass Valley is a closed topographic basin approximately 40 miles long and 18 miles wide. The valley is bounded by the Toiyabe Range on the west and north, the Simpson Park Range on the east and south, and the Cortez Mountains on the northeast. Pine Valley is approximately 55 miles long and up to 30 miles wide and drains toward the north into the Humboldt River. Pine Valley is bound by the Cortez Range on the northeast, the Simpson Park Range on the southwest, the Roberts Mountains on the south, and the Sulphur Springs and Pinyon ranges on the east.

The geomorphology of Grass Valley and Pine Valley can be subdivided into three parts: mountain highlands, valley uplands, and valley lowlands. The mountain highlands are comprised of uplifted bedrock, whereas the valley uplands and valley lowlands are underlain by Tertiary to Recent age basin fill deposits (Eakin 1961; Everett and Rush 1966). The proposed fiber optic cable line primarily would traverse valley lowland areas in both Grass and Pine valleys, except for Garden Gate Pass where it would traverse a valley upland area. The entire ROW would be situated in areas underlain by alluvial fan and other basin fill deposits consisting of mixtures of unconsolidated sand, silt, gravel, and clay deposits.

While the project vicinity has experienced extensive ongoing mineral exploration and development activities over the past 144 years (primarily gold and barite), the only known or suspected mineral resource occurrence located along the proposed ROW is sand and gravel deposits that could be used as a commercial source of aggregate. Basin fill deposits have been mined intermittently in the area as a source of gravel for road construction.

The study area is located in a region that is characterized by active and potentially active faults and a relatively high level of historic seismicity. For this analysis, an active fault is defined as a fault that shows evidence of displacement during the Holocene period (last 10,000 years); a potentially active fault is a fault that shows evidence of surface displacement during the late Quaternary period (last 150,000 years). Surface displacement (or surface fault rupture) can occur along major fault traces during major seismic events (e.g., magnitude 6 or greater).

The Simpson Park Mountains fault zone is an active fault that occurs in Grass Valley in the vicinity of the proposed project (U.S. Geological Survey [USGS] 2015). This fault zone is a range front fault situated on the western flank of the Simpson Park Mountains. Geologic evidence indicates that movement has

occurred along the Simpson Park Mountains fault zone in the Holocene period (last 10,000 to 15,000 years) (USGS 2015).

The proposed project is located in a region that has experienced considerable seismic activity in historic time. Historic earthquakes located within a 100-mile radius of the project study area are summarized in the Cortez Hills Expansion Project Final EIS (BLM 2008b).

Paleontological Resources

The BLM uses the Potential Fossil Yield Classification (PFYC) system to identify and classify fossil resources on federal lands (BLM 2007). Paleontological resources are closely tied to the geologic units (i.e., formations, members, or beds) that contain them. The probability for finding paleontological resources can be broadly predicted from the geologic units present at or near the surface. The PFYC system ranks geologic units from 1 to 5 based on the potential to contain vertebrates or scientifically important fossils, a rank of 1 being the lowest potential and a rank of 5 being the highest potential.

As described above, the geologic materials on which the proposed project would be built consist of unconsolidated basin fill and alluvial deposits. According to the PFYC system, such materials have a rank of 2, indicating that it is not likely that such deposits would contain vertebrates or scientifically important fossils. Therefore, paleontological resources have been eliminated from further analysis.

3.1.2 Environmental Consequences

3.1.2.1 Proposed Action

The proposed fiber optic cable ROW would traverse areas with relatively gentle gradients underlain by basin fill sediments. The ROW would not cross any known or suspected landslides or potentially unstable slopes. Therefore, installation of the fiber optic cable is not expected to contribute to, or be impacted by, slope instability.

The fiber optic cable would cross three mapped traces of the Simpson Park Mountains fault zone located in Grass Valley near the intersection of CR 222 and the JD Ranch Road. Movement along the fault zone could damage the buried cable. However, considering the recurrence interval for movement along this fault zone (several thousand years or more), the likelihood of damage resulting from fault movement is low. If movement of the fault were to occur, damage to the cable would be restricted to the immediate area where the fault movement occurred. In the unlikely event of surface fault rupture, a localized segment (or segments) of the cable may need to be excavated and repaired resulting in a disruption of service.

Installation of the fiber optic cable would preclude excavation of potential sand and gravel deposits within the ROW. However, based on the potential sand and gravel resource in the region, the effect would be negligible. No other impacts to mineral resources are anticipated.

3.1.2.2 No Action

Under the No Action Alternative, the proposed fiber optic cable would not be installed, and the associated impacts to geology and mineral resources would not occur.

3.1.3 Cumulative Effects

The proposed project would not result in changes to the natural topography and geomorphology and, therefore, would not contribute to cumulative topographic and geomorphic impacts. The proposed project is expected to preclude future development of surface sand and gravel deposits that may locally occur in the alluvium or basin fill deposits located within the ROW; however, this relatively small exclusion would be expected to have a negligible effect on the total potential impacts on sand and gravel resources in the CESA.

3.1.4 Monitoring and Mitigation Measures

No additional monitoring or mitigation measures are recommended for geology and mineral resources.

3.1.5 Residual Adverse Effects

No residual adverse effects would be anticipated for geology, mineral, and paleontological resources.

3.2 Water Resources

The project study area for direct and indirect impacts to surface water resources encompasses the proposed ROW. The CESA encompasses the proposed ROW, a 2,000-foot-wide corridor centered on the ROW within Grass Valley, and an area extending 1.5 miles downstream of the eastern portion of the ROW between Pine Creek and Henderson Creek.

The project study area for potential direct and indirect impacts to groundwater resources encompasses the proposed fiber optic cable ROW. The CESA encompasses the project study area and includes past and present actions and RFFAs within the northern portion of Grass Valley and the southwestern portion of Pine Valley.

3.2.1 Affected Environment

Regional precipitation rates in the project vicinity are low and follow an increasing gradient from lower valley to higher mountain elevations. Based on recent data, annual precipitation is less than 8 inches in the Horse Canyon area near the proposed ROW alignment (BLM 2014c). The proposed project is located in two hydrographic areas (HAs) or basins as delineated by the Nevada Department of Water Resources (NDWR): Grass Valley (HA 138) and Pine Valley (HA 53).

Surface Water Resources

The western portion of the proposed ROW is located in Grass Valley (**Figure 2-1**), an enclosed basin with no external drainage; all water flowing to the valley floor collects and evaporates on the playa. Within Grass Valley, the proposed ROW crosses valley fills and alluvial fan washes near the playa on the valley floor. All of these channels are small ephemerals, only carrying water toward the playa during rare runoff events. Most runoff seeps into the unconsolidated valley alluvium. In general, the Grass Valley playa is approximately 0.7 mile from the proposed alignment, with deep, porous, sandy, and gravelly alluvium separating the playa from the proposed ROW.

The eastern portion of the proposed ROW (**Figure 2-1**) is located in Pine Valley in the Humboldt River Basin. Most channel crossings along the JD Ranch Road are small ephemerals and smaller channels distributing runoff on alluvial fans. Named streams crossed or paralleled by the proposed alignment include Grouse Creek, Pine Creek, and Denay Creek (**Figure 2-1**). These streams are ephemeral to intermittent in this headwater setting.

Pine Creek crosses the proposed ROW approximately 3.7 miles northeast of Garden Gate Pass and near the JD Ranch/Buckhorn Road intersection (**Figure 2-1**). Pine Creek discharges periodically are measured by the USGS at the Modarelli Mine Road approximately 22 miles downstream of the proposed ROW, well outside the project study area and CESA. Flow durations in Pine Creek and its tributaries most likely are ephemeral along most of the JD Ranch Road, to within approximately 0.5 mile of the intersection with the Buckhorn Road. Pine Creek and its tributaries may be intermittent at and near the intersection; contributions from the alluvium may create short-term intermittent flows in the vicinity. Pine Creek trends northward away from the ROW at the intersection.

Denay Creek (a tributary to Pine Creek) crosses the proposed ROW approximately 2 miles east of the JD Ranch/Buckhorn Road intersection (**Figure 2-1**). It is most likely ephemeral at this location, although the road embankment may restrict some drainage. Other ephemeral tributaries of Pine Creek cross the proposed ROW to the west of the proposed ROW terminus at the Lodge at Pine Valley. Beyond the eastern ROW terminus, perennial and intermittent reaches of Henderson Creek occur in wet meadows where five embankments create small impoundments (the JD Ponds) (**Figure 2-1**).

No USGS or NDEP surface water quality sampling locations are located along the streams in or near the proposed ROW (BLM 2014c; Nevada Division of Environmental Protection [NDEP] 2014). Isolated samples have been recorded by NDEP on Horse Creek and Willow Creek, well outside the project study

area. No NDEP–designated waterbodies occur near the proposed alignment in Grass Valley (NDEP 2012). As such, narrative standards applicable to all surface waters (Nevada Administrative Code 445A.121) apply to non-designated streams in Grass Valley, as well as to those in Pine Valley. Designated waterbodies along or near the proposed ROW in Pine Valley are identified in **Table 3-3** (NDEP 2012).

Table 3-3 Designated Waterbodies along or near the Proposed ROW

Waterbody	NDEP Identifier	Designated Beneficial Uses[1]	USEPA Report Category[2]
Pine Creek	NV04-HR-55_00	WLS, IRR, AQL, RWC, RNC, MDS, IND, PWL	3
Denay Creek	NV04-HR-28A_00	WLS, IRR, AQL, RWC, RNC, MDS, PWL	1
Henderson Creek	NV04-HR-181_00	WLS, IRR, AQL, RWC, RNC, MDS, IND, PWL	1
JD Ponds	NV04-HR-31-C_00	WLS, IRR, AQL, RWC, RNC, MDS, IND, PWL	3

[1] WLS: watering of livestock; IRR: irrigation; AQL: aquatic life; RWC: recreation involving contact with water; RNC: recreation not involving contact with water; MDS: municipal and domestic supply; IND; industrial supply; and PWL: propagation of wildlife.

[2] U.S. Environmental Protection Agency (USEPA) categories indicate the level to which the waterbody supports its designated beneficial uses. 1: fully supporting; 3: insufficient information.

Source: NDEP 2012.

An additional designated waterbody several miles north of the proposed ROW is Willow Creek, from its origin to Pine Creek (NDEP identifier NV04-HR-83_00) (NDEP 2012). Willow Creek is periodically measured by the USGS approximately 6 miles north of the proposed ROW; it is ephemeral. Although listed as impaired, this segment is well outside of the study area.

Extensive wetlands and water of the U.S. inventories were conducted in the Pine Valley hydrologic basin portion of the proposed ROW (HDR 2104). The Grass Valley portion of the project is isolated and non-jurisdictional. HDR concluded that the evaluated features in Pine Valley are intrastate isolated waters that would not be regulated by USACE. This determination is preliminary until USACE makes a final determination on the features' jurisdictional status.

Groundwater Resources

The Pine Valley hydrographic area is administered as a designated groundwater basin. A designated basin is one where permitted groundwater rights approach or exceed the estimated average annual recharge, such that the groundwater resources are being depleted or require additional administration (NDWR 2015). Grass Valley is not administered as a designated groundwater basin.

The physiographic and geologic setting for the northern Grass Valley and southwestern Pine Valley are described in Section 3.1, Geology, Minerals, and Paleontological Resources. Both valleys can be characterized as consisting of broad valley areas underlain by thick sequences of unconsolidated to poorly consolidated basin fill sediments. Bedrock occurs in the mountain ranges that border the valleys and beneath the basin fill sediments. The thickness of the basin fill in these valleys is not well known; however, other basins in the region have valley fill deposits that typically range from 1,000 to 5,000 feet.

The principal source of groundwater in the Grass Valley and Pine Valley HAs are the aquifers that occur within the basin fill sediments (Berger 2000; Eakin 1961; Everett and Rush 1966). Basin fill consist of unconsolidated to poorly consolidated, well- to poorly-sorted beds of gravel, sand, silt, and clay. In general, finer-grained (less permeable) sediments occur near the center of the basin; and coarser (more permeable) sediments occur along the margins of the valleys. Older basin fill sediments buried beneath the younger basin fill sediments tend to be more compacted and partially cemented, and therefore, less

permeable than the younger basin fill sediments. The basin fill sediments also contain sediments deposited in Pleistocene lakes during the late stages of the ice age (Reheis 1999). These lake deposited sediments consists of sand, gravel and boulders deposited near the margin of the lake with clay, silt and sand in deeper parts of the lake. These Pleistocene lake deposits also contain evaporite beds (formed during the final drying stage of the lakes) consisting of minerals such as gypsum, anhydrite and halite (rock salt) that may affect local groundwater quality.

Recharge to the basin fill aquifers is primarily derived from precipitation in the mountain ranges bordering the valleys. The small fraction of precipitation that is not lost to evaporation infiltrates soil and fractures within the bedrock where it may flow to springs or through fracture networks that discharge into basin fill sediments along the valley margin. Runoff along streams exiting the mountain blocks also serve to recharge the basin fill aquifers through a process known as mountain front recharge where the stream flow infiltrates coarse sediments deposited at the foot of the mountains. Overall, the groundwater flow direction tends to mimic the topography with flow from higher elevation areas to lower elevation areas.

The proposed ROW would extend across portions of Grass Valley and Pine Valley as shown in **Figure 2-1**. The entire ROW is located over areas underlain by basin fill sediments. The depth to groundwater in the basin fill is likely on the order of 100 feet or less in the lower elevation areas crossed by the ROW.

3.2.2 Environmental Consequences

3.2.2.1 Proposed Action

Surface Water Resources

Under the Proposed Action, there would be no impacts to surface water quantity. Potential impacts to surface water quality could result from project-related erosion or a potential fuel or lubricant spill or leak during construction at ephemeral channel crossings.

Where plowing techniques would be used to cross drainages, construction-related erosion could result in potential sedimentation and elevated turbidity and salinity. Elevated sediment transport and salinity concentrations are characteristic of background surface flow conditions in the project study area due to the local alluvial geologic setting, the occurrence of intense seasonal storms, and the common presence of salt flats or saline/alkaline soils along the proposed ROW. Based on limited flow durations and rates in the channels that would be crossed by the proposed project, potential impacts to surface water quality as a result of project-related erosion would be minor, local, and temporary. Due to the existing salinity and sediment transport conditions in the project vicinity, it is assumed these potential impacts would be reduced to negligible levels with implementation of BCI's proposed Soil Erosion Prevention and Control Plan (see A-1 in **Appendix A**), Stormwater Pollution Protection Plan (SWPPP), and reclamation.

The extent and severity of surface water quality impacts as a result of a potential fuel or lubricant spill or leak would depend on the presence of water in the channels at the time of crossing and the promptness of controls and counter-measures. Since streams in the project study area have limited flow durations and rates, impacts from a potential leak or spill would be minor, local, and temporary. As discussed in Section 2.2.1.2, Hazardous Materials and Waste Management, hazardous fuel spill kits would be located on each crew truck and the crew trained in their use. Based on these commitments and implementation of BCI's proposed Spill Contingency Plan (see A-2 in **Appendix A**), it is assumed that potential impacts in the event of a spill or leak would be reduced to negligible levels.

Groundwater Resources

Based on the proposed construction techniques and shallow installation of the proposed fiber optic cable (i.e., 3 to 5 feet), it is not anticipated that the project would intersect the groundwater table or result in any measurable changes to the quantity or quality of groundwater resources along or adjacent to the ROW. Implementation of BCI's Spill Contingency Plan (see A-2 in **Appendix A**) would minimize the potential

for groundwater contamination in the event of an isolated petroleum spill. Therefore, the Proposed Action is not expected to affect groundwater quantity or quality. Because there are no anticipated impacts to groundwater resources, no additional monitoring or mitigation is recommended and no residual adverse impacts would occur.

3.2.2.2 No Action

Under the No Action Alternative, the proposed fiber optic cable would not be installed and associated impacts to surface water and groundwater resources would not occur.

3.2.3 Cumulative Effects

With implementation of the BMPs identified in **Appendix A** and discussed in Section 2.2, surface water impacts associated with the Proposed Action are anticipated to be negligible and, therefore, would not be anticipated to substantially contribute to cumulative surface water impacts.

3.2.4 Monitoring and Mitigation Measures

No additional monitoring or mitigation measures are recommended for surface water.

3.2.5 Residual Adverse Effects

No residual adverse effects would be anticipated for surface water.

3.3 Soil Resources

The project study area for direct and indirect impacts to soils encompasses the proposed ROW. The CESA encompasses the area within a 3-mile-wide buffer centered on the ROW.

3.3.1 Affected Environment

Baseline information used to characterize soils was derived from Soil Survey Geographic (SSURGO) database review and analyses. SSURGO is the most detailed level of soil mapping done by the Natural Resources Conservation Service (NRCS). The data was derived from NRCS Order III soil surveys for Eureka County, Nevada (NRCS 2015).

Table 3-4 summarizes important physical and chemical characteristics of soil map units that occur within the study area; soils in the project vicinity are shown in **Figure 3-1**. Descriptions of the soil physical and chemical characteristics follow the table. Due to the proposed alignment of the fiber optic cable ROW within an existing disturbance area, some modifications to surface soils in the ROW may already have occurred.

Table 3-4 Characteristics of Soils within the Study Area

Map Unit	Acres	Soil Characteristics					
		Wind Erodible	Water Erodible	Prime Farmland	LRP[1]	Compaction Prone	Droughty
1011: Bubus very fine sandy loam, slightly saline-alkali, 2 to 8 percent slopes	0.7	X	X	X	X	--	X
1022: Nevador-Ricert-Tulase association	2.8	X	X	--	--	--	X
1060: Allker gravelly sandy loam, 2 to 8 percent slopes	6.0	--	--	X	--	--	X
1201: Tulase silt loam, 2 to 8 percent slopes	6.1	--	X	X	--	--	--
1202: Tulase silt loam, 0 to 2 percent slopes	6.7	--	X	--	--	--	--
1203: Tulase-Bubus-McConnel association	8.9	--	X	--	--	--	--
1232: Perwick-Tulase association	1.4	--	--	--	--	--	--
1233: Perwick-Puett-Tulase association, eroded	3.4	--	--	--	--	--	--
1411: Pineval-Tulase-Perwick association	7.3	--	--	--	--	--	--
161: Ocala silt loam, occasionally flooded	1.7	--	X	--	X	--	--
222: Hodedo-Coils association	0.6	--	--	--	--	X	--
293: Ricert-Nevador association	1.3	X	--	--	--	--	--
861: Zineb gravelly loam, 2 to 8 percent slopes	5.8	--	--	--	--	--	--

[1] LRP = limited reclamation potential.

Source: NRCS 2015.

Wind erosion is the physical wearing of the earth's surface by wind. Wind erosion removes and redistributes soil. Small blowout areas may be associated with adjacent areas of deposition at the base of plants or behind obstacles, such as rocks, shrubs, fence rows, and roadbanks (Soil Quality Institute 2001). Wind erosion hazard is represented by a wind erosion group number for each soil, and is based on physical characteristics including soil texture (percent sand, silt, and clay), structure, and coarse

fragment content. Wind erodible soils were characterized as having a wind erodibility group value of 1, 2, or 3.

Water erosion is the detachment and movement of soil by water. Natural erosion rates depend on inherent soil properties, slope, soil cover, and climate. Erosion prone soils were characterized as having a soil erodibility factor greater than 0.34.

Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. As indicated in **Table 3-4**, some of the soils in the study area have the capability to be prime farmland; however, they have not been developed for agriculture uses. As such, no prime farmland occurs within the study area, and therefore, it has been eliminated from further analysis.

Soils with limited reclamation potential have chemical characteristics such as high salts, sodium, or pH that may limit plant growth. Saline soils affect plant uptake of water, and sodic soils often have drainage limitations. In addition, the success of stabilization and restoration efforts in these areas may be limited unless additional treatments and practices are employed to offset the adverse physical and chemical characteristics of the soils.

Soil compaction occurs when soil particles are pressed together and the pore spaces between them are reduced and bulk density is increased. This results in a decrease in infiltration and an increase in runoff and erosion. Moist, fine textured (clayey) soils are most susceptible to compaction. Soils with greater than 28 percent clay were interpreted as compaction prone.

Droughty soils have physical characteristics that may limit plant growth due to low water holding capacity. Stabilization and reclamation of droughty soils may be limited unless additional treatments and practices are employed. Droughty soils in the study area were determined by identifying soils with a surface texture of sandy loam or coarser and a drainage class of moderately well to excessively drained.

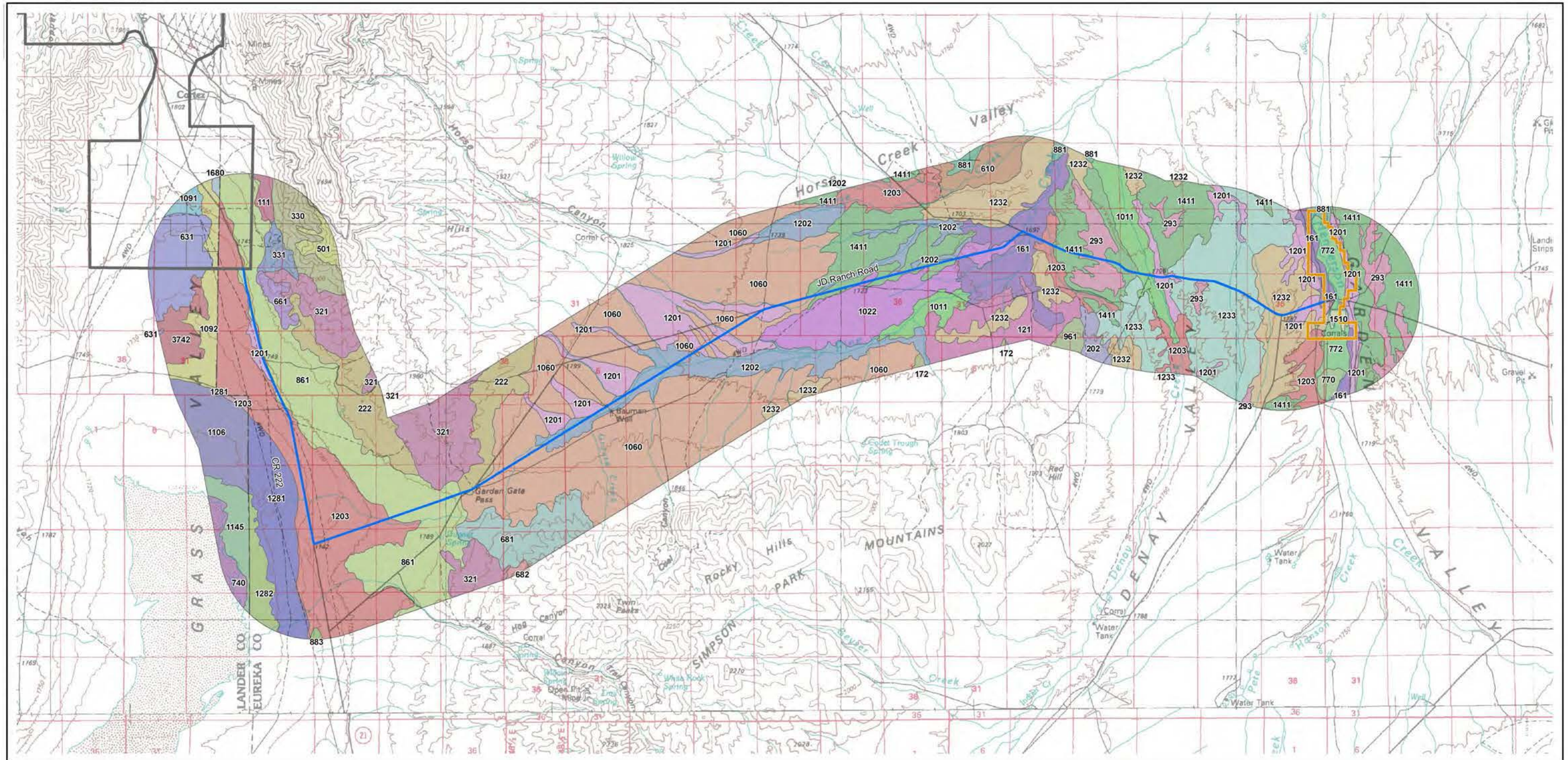
3.3.2 Environmental Consequences

3.3.2.1 Proposed Action

Under the Proposed Action, project construction would result in approximately 53 acres of disturbance to soils within the proposed ROW. Based on the proposed alignment of the ROW entirely within previous disturbance areas and the proposed construction techniques, it is anticipated that project construction would result in the re-disturbance of surface soils and new disturbance of subsurface soils. **Table 3-4** provides the acreage of disturbance by soil map unit under the Proposed Action.

Potential impacts to soils as a result of the proposed project would include mixing of previously unaltered subsurface soils, compaction, and a short-term increase in erosion. Profile mixing could occur during innerduct and vault installation. Soil mixing typically results in a decrease in soil fertility and a disruption of soil structure. Impacts related to soil mixing are anticipated to be minimal due to the proposed alignment within existing disturbance areas and the proposed construction techniques.

Compaction and rutting could result from heavy equipment traffic along the ROW, specifically if soils are moist or wet. Compaction leads to a loss of soil structure; decreased infiltration, permeability, and soil aeration; as well as increased runoff and erosion. Increased erosion can lead to a decrease in soil fertility and an increase in sedimentation. Based on the proposed installation of the fiber optic cable within the existing road-related disturbance area, it is likely that compaction and a reduction in soil fertility have



Legend

- Proposed Fiber Optic Cable ROW
- Cortez Gold Mines Operations Area Boundary
- Lodge at Pine Valley

Note: See **Table 3-3** for names and associated characteristics of soil map units crossed by the proposed ROW.
Source: JBR now Stantec 2014.

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Figure 3-1

Soils

0 0.5 1 2 Miles
0 0.5 1 2 Kilometers
1:100,000

N

June 2015

already occurred in the proposed ROW. While a short-term increase in erosion could occur as soils are disturbed during project construction, the potential would be minimized with implementation of erosion control measures as outlined in BCI's Soil Erosion Prevention and Control Plan (see A-1 in **Appendix A**) and SWPPP. Anticipated long-term beneficial impacts as a result of the proposed reclamation would include a reduction in soil erosion and an increase in soil productivity due to an addition of soil organic matter from vegetation.

Soil contamination within and/or adjacent to the proposed ROW could result in the event of a potential spill or leak of fuels or lubricants during project construction, or if pre-existing contaminated areas should be encountered during construction. Impacts as a result of a spill or leak typically would be minor because of the low frequency and volumes of these occurrences. However, if a large spill should occur, it could result in the removal and disposal of large amounts of soil. Saturated soils may have the potential to diffuse contaminants. As discussed in Section 3.16, Hazardous Materials and Solid Waste, the risk of a large spill would be minimal since oils and lubricants would be transported and stored on the crew trucks rather than stored on site. In the event of a potential spill, implementation of BCI's Spill Contingency Plan (see A-2 in **Appendix A**) would minimize potential impacts.

As discussed in Section 3.16, Hazardous Material and Solid Waste, the unforeseen discovery of ground contaminated with fuels or other hazardous substances during project construction is considered unlikely based on the lack of identified uncontrolled hazardous waste or petroleum spill sites along the proposed ROW. Therefore, related impacts to soils during project construction are not anticipated.

3.3.2.2 No Action Alternative

Under the No Action Alternative, the fiber optic cable would not be installed, and the associated impact to soils would not occur. Natural and anthropogenic effects to soils would continue at present levels.

3.3.3 Cumulative

Of the past and present actions and RFFAs identified in **Table 2-4**, cumulative impacts to soils primarily would be related to erosional effects in areas affected by wildfires (approximately 9,600 acres) and disturbance-related effects associated with existing roads (approximately 824 acres) and mineral exploration activities. Surface disturbance associated with mineral exploration activities within the soils CESA is unquantifiable as the location of exploration activities within the overall exploration plan boundaries (**Figure 2-4**) is unknown. The incremental contribution to cumulative impacts to soils as a result of the Proposed Action would include the re-disturbance of surface soils and new disturbance of subsurface soils on approximately 53 acres of land, until successful reclamation is achieved. However, with implementation of the BMPs as discussed in Section 2.2, combined with the relatively small amount of surface disturbance, the Proposed Action would not be anticipated to substantially contribute to cumulative impacts to soils.

3.3.4 Monitoring and Mitigation Measures

No additional monitoring or mitigation is recommended for soils.

3.3.5 Residual Adverse Effects

Following the completion of construction and successful reclamation of the disturbance area, no residual adverse impacts to soils would be anticipated.

3.4 Vegetation

The project study area for vegetation resources encompasses the proposed ROW. The CESA encompass the project study area and includes surface disturbance associated with past and present actions and RFFAs within the northern portion of Grass Valley and the southwestern portion of Pine Valley.

3.4.1 Affected Environment

3.4.1.1 General Vegetation

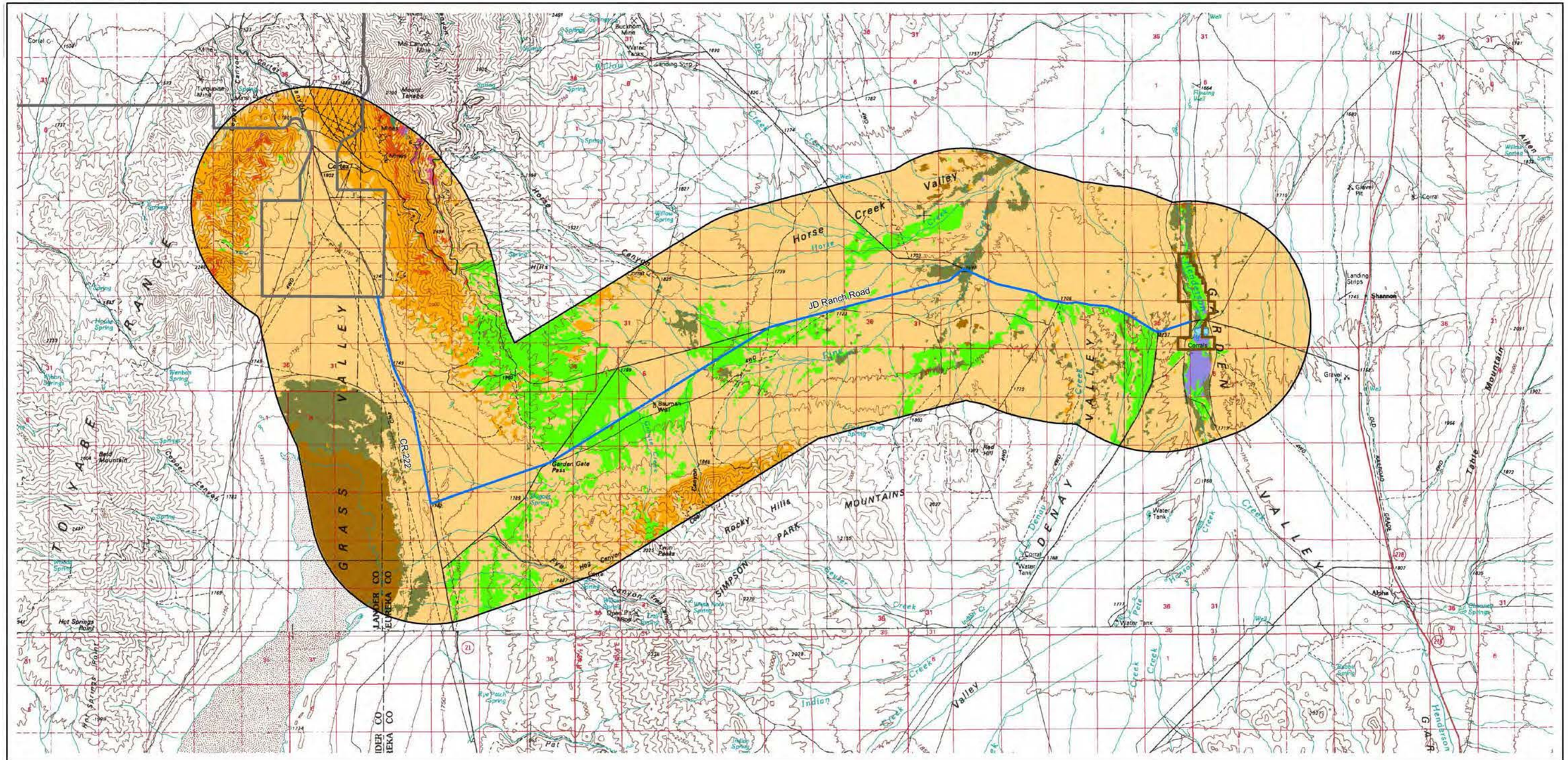
The study area is located within the Central Basin and Range USEPA Level 3 ecoregion. This ecoregion is characterized by fault block ranges and intervening drier basins (Bryce et al. 2003). Distribution of vegetation types in the study area are strongly influenced by variations in landscape position, soil type, moisture, elevation, and aspect.

Dominant ecological sites in the project vicinity are identified and described in the baseline report for the proposed project (JBR now Stantec 2014). An ecological site consists of a specific combination of soils and vegetation that have occurred over the long term as a result of factors including landscape position, elevation, aspect, precipitation levels, and geologic substrate. Of the 24 dominate ecological sites discussed in the baseline report, 7 occur within the project study area (R024XY002NV, R024XY005NV, F024XY049NV, R025XY019NV, R025XY025NV, F025XY059NV, and R028BY004NV).

Vegetation in the project vicinity is shown in **Figure 3-2**. Based on Southwestern Regional GAP Analysis Project (SWReGAP) (2015) vegetation classifications, three vegetation types (sagebrush shrubland, grassland, and desert shrubland) occur adjacent, or in close proximity, to the project study area. Descriptions of these three vegetation types are presented below. The project study area encompasses existing disturbance areas immediately adjacent to existing roads and, therefore, is assumed to support weedy species.

The sagebrush shrubland vegetation cover type includes the following SWReGAP vegetation classifications: Inter-Mountain Basins Big Sagebrush Shrubland, Great Basin Xeric Mixed Sagebrush Shrubland, Inter-Mountain Basins Montane Sagebrush Steppe, and Inter-mountain Basins Big Sagebrush Steppe. Inter-Mountain Basins Big Sagebrush Shrubland is the primary vegetation class within this cover type (90 percent) and is typically found in broad basins between mountain ranges, on plains and foothills, and on flat to rolling hills with well-drained clay soils. Soils are typically deep, well-drained, and non-saline. Dominate species include basin big sagebrush (*Artemisia tridentata* ssp. *Tridentat*a) and/or Wyoming big sagebrush (A. *tridentata* ssp. *Wyomingensis*), or silver sagebrush (*A. cana*). Rubber rabbitbrush (*Ericameria nauseosa*) or yellow rabbitbrush (*Chrysothamnus viscidiflorus*) may codominate disturbed stands. Herbaceous species primarily consist of grass species such as Indian ricegrass (*Achnatherum hymenoides*), blue grama grass (*Bouteloua gracilis*), and Idaho fescue (*Festuca idahoensis*) (SWReGAP 2015).

The desert shrubland vegetation type consists primarily of SWReGAP class Inter-Mountain Basins Greasewood Flat (95 percent), but also includes Inter-Mountain Basins Mixed Salt Desert Scrub, and Inter-Mountain Basins Semi-Desert Shrub Steppe. This vegetation type typically occupies sites with saline soils that flood intermittently but remain dry for most growing seasons. Desert shrubland usually occurs as a mosaic of multiple communities, with open to moderately dense shrublands dominated or codominated by greasewood, fourwing saltbush (*Atriplex canescens*), and shadscale saltbush (*Atriplex confertifolia*), with winterfat (*Krascheninnikovia lanata*) present to codominant. The herbaceous layer, if present, is usually dominated by grass species such as alkali sacaton (*Sporobolus airoides*) and saltgrass (*Distichlis spicat*a), as well as common spikerush (*Eleocharis palustris*) (SWReGAP 2015).



Source: SWReGAP 2015.

Legend

- Proposed Fiber Optic Cable ROW
- Cortez Gold Mines Operations Area Boundary
- Lodge at Pine Valley
- Cliff and Canyon
- Desert Shrubland
- Forest
- Grassland
- Mahogany Woodland and Shrubland
- Piñon-juniper woodland
- Playa
- Sagebrush Shurbland
- Wetland
- Woody Riparian

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Figure 3-2

Vegetation

0 0.5 1 2 Miles
0 0.5 1 2 Kilometers
1:133,000

N

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The grassland vegetation type comprises the SWReGAP vegetation classifications Inter-Mountain Basins Semi-Desert Grassland, Invasive Annual Grassland, Invasive Perennial Grassland, and Invasive Annual and Perennial Forbland. This vegetation type is dominated or codominated by Indian ricegrass, three awn *(Aristida* spp.), blue grama grass, needle and thread grass *(Hesperostipa comate*), muhly (*Muhlenbergia* sp.), or Jame's galleta grass (*Pleuraphis jamesii*) and may include scattered shrubs and dwarfshrubs of species such as sagebrush, saltbush, or winterfat (SWReGAP 2015).

3.4.1.2 Special Status Plant Species

Special status plant species include species that are federally listed as threatened or endangered under the Endangered Species Act (ESA), species that are proposed or are candidates for listing under the ESA, and species that are designated as sensitive by the BLM. These species are afforded an additional level of protection by law, regulation, or policy by federal or state agencies.

No federally listed plant species, federal candidate species, or species proposed for federal listing have been identified as having potential to occur in the study area (Nevada Natural Heritage Program [NNHP] 2014; U.S. Fish and Wildlife Service [USFWS] 2014). A recent review of the USFWS Nevada Fish and Wildlife Office's Protected Species by County (USFWS 2015) confirmed that no such species are known or expected to occur in the study area.

A total of 27 special status plant species are included in the BLM Battle Mountain District Sensitive Species List. Of these, seven species were identified as potentially occurring within the vicinity of the proposed project based on analyses and surveys conducted for nearby projects with overlapping assessment areas including the Cortez Hills Expansion Project (BLM 2014d, 2008), HC/CUEP (BLM 2014c), and the West Pine Valley Exploration Project (BLM 2004). Occurrence potential within and adjacent to the project study area was evaluated for each species based on habitat requirements and/or known distribution (see **Table B-1** in **Appendix B**). Based on the evaluation, five special status plant species were eliminated from detailed analysis based on their habitat requirements and/or known distributions; two species Beatley buckwheat (*Eriogonum beatleyae*) and Eastwood's milkweed (*Asclepias eastwoodiana*) were identified as potentially occurring in or adjacent to the project study area. Based on information from the NNHP (2014), no currently known occurrences of BLM sensitive species occur in or near the project study area.

3.4.1.3 Noxious Weeds and Invasive and Non-native Species

Following disturbance to the soil, plant communities can be susceptible to infestations of noxious weeds and invasive or non-native plant species. These species are most prevalent in areas of prior surface disturbance, such as roadsides. Under EO 13112 of February 3, 1999 – Invasive Species, federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive species in the U.S. or elsewhere unless it has been determined that the benefits of such actions outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize the risk of harm will be taken in conjunction with the actions.

In addition to federally mandated invasive species control, Nevada Department of Agriculture (NDA) maintains a list of regulated and prohibited noxious weed species, some of which may occur in the vicinity of the project study area. In general, a noxious weed is any species of plant which is, or is likely to be, detrimental or destructive and difficult to control or eradicate (Nevada Revised Statutes [NRS] 555.005). According to the NDA's Plant Industry Division, noxious weeds are classified as Category A, B, or C under the Nevada Weed Abatement Statutes, Nevada Revised Statutes (NRS) 555.010. Each list has specific control requirements, with the most stringent requirements for those species found in Category A.

Table B-2 in **Appendix B** presents a list of State of Nevada designated noxious weeds that have been documented in the vicinity of the project study area, based on their occurrence records from nearby projects (BLM 2014c,d, 2008b, 2004). Noxious weeds that have been observed in the vicinity of the

project study area include hoary cress (*Cardaria draba*), musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), poison hemlock (*Conium maculatum*), common St. Johnswort (*Hypericum perforatum*), Scotch thistle (*Onopordum acanthium*), and salt cedar (*Tamarix* spp).

Additional noxious weeds that have the potential to occur in the vicinity of the project study area include spotted knapweed (*Centaurea maculosa*), diffuse knapweed (*Centaurea diffusa*), yellow starthistle (*Centaurea solstitialis*), and leafy spurge (*Euphorbia esula*) (BLM 2008b). In addition, halogeton (*Halogeton glomeratus*), cheatgrass (*Bromus tectorum*), and bull thistle (*Cirsium vulgare*) have a high potential to occur within the study area and often are considered undesirable by rangeland managers (BLM 2008b). Although not formally designated as a noxious weed by the State of Nevada, cheatgrass is one of the most problematic undesirable, invasive, non-native annual grass species in northern Nevada. It is extremely difficult and/or expensive to control through conventional means.

3.4.2 Environmental Consequences

3.4.2.1 Proposed Action

General Vegetation

Under the Proposed Action, project construction would result in approximately 53 acres of disturbance within existing disturbance areas adjacent to existing roads. As a result, it is assumed that direct impacts to vegetation would be limited. With implementation of BCI's proposed reclamation procedures and seed mixes as described in Section 2.2.2, Reclamation, it is anticipated there would be beneficial impacts to vegetation following the completion of successful reclamation.

Potential indirect impacts would include erosion- and dust-related effects to native vegetation adjacent to the proposed ROW. Implementation of BCI's proposed reclamation procedures and Soil Erosion Prevention and Control Plan (see A-1 in **Appendix A**) would minimize erosion-related effects to adjacent vegetation. Based on the proposed alignment of the project ROW within existing disturbance areas, the proposed construction techniques, and the transient nature of the construction activities (on average moving approximately 1 mile every 3 days), it is unlikely that project-related fugitive dust emissions would result in impacts to vegetation.

Special Status Plant Species

Based on known distribution, no impacts to federally listed or federal candidate plant species or species proposed for federal listing would be anticipated.

Two BLM sensitive plant species (Beatley buckwheat and Eastwood's milkweed) were identified as having the potential to occur in the project vicinity. However, the proposed ROW would be located in existing disturbance areas underlain by alluvial fan and other basin fill deposits consisting of mixtures of unconsolidated sand, silt, gravel, and clay deposits as discussed in Section 3.1, Geology, Mineral, and Paleontological Resources. Therefore, no impacts to individual plants or potentially suitable habitat would be anticipated.

Noxious Weeds and Invasive and Non-native Species

Under the Proposed Action, project-related disturbance would occur entirely within existing disturbance areas adjacent to existing roads, and all mobile equipment would remain within the proposed ROW as discussed in Section 2.2.1, Construction. Also, mobile equipment would be washed and inspected prior to entering the project area so that noxious weeds and invasive and non-native species would not be spread to new locations as discussed in Section 2.2.4, Applicant-committed Environmental Protection Measures. As a result, no impacts associated with noxious weeds or invasive or non-native species would be anticipated beyond those that currently exist. With implementation of BCI's proposed reclamation procedures and seed mixes as described in Section 2.2.2, Reclamation, it is anticipated that noxious weed occurrence within the proposed ROW would be reduced in the long-term following the

completion of successful reclamation. Also, BCI has committed to coordinate with Eureka County to facilitate weed management activities through the county's weed management control program.

3.4.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed and associated impacts to general vegetation, special status plant species, and potential vegetation effects associated with noxious weeds and invasive and non-native plant species would not occur.

3.4.3 Cumulative Effects

Of the past and present actions and RFFAs identified in **Table 2-4**, cumulative impacts to vegetation primarily would be related to changes in vegetation communities in areas affected by wildfires and surface disturbing activities (mining projects and mineral exploration projects) and the permanent loss of vegetation associated with roads. As indicated in the table, past and present actions and RFFAs have resulted, or would result, in direct disturbance of approximately 26,508 acres of vegetation in the overall CESA. The Proposed Action incrementally would increase surface disturbance by 53 acres (approximately 0.2 percent) in areas with limited vegetation. The resulting contribution to cumulative vegetation impacts would cease following successful reclamation.

Under the Proposed Action, no impacts associated with noxious weeds or invasive or non-native species would be anticipated beyond those that currently exist. Therefore, based on the above analysis, and with implementation of the proposed reclamation and environmental protection measures (see Sections 2.2.2 and 2.2.4, respectively), an incremental addition to cumulative impacts from noxious weeds and native and non-native species as a result of the Proposed Action is not expected to occur.

3.4.4 Monitoring and Mitigation

No additional monitoring or mitigation is recommended for vegetation.

3.4.5 Residual Adverse Effects

Following the completion of construction and reclamation, it is anticipated that the occurrence of noxious weeds and invasive and non-native species in the project-related disturbance area would be reduced over the long term.

3.5 Wildlife and Aquatic Biological Resources

The project study area for direct and indirect impacts to wildlife resources encompasses a 5-mile-wide buffer centered on the proposed project ROW. The CESA encompasses the study area and includes surface disturbance associated with past and present actions and RFFAs within the northern portion of Grass Valley and the southwestern portion of Pine Valley.

The study area for direct and indirect impacts to aquatic biological resources encompasses the proposed project ROW. The CESA for biological resources is the same as that identified for surface water resources and encompasses the proposed ROW, a 2,000-foot-wide corridor centered on the ROW within Grass Valley, and an area extending 1.5 miles downstream of the eastern portion of the ROW between Pine Creek and Henderson Creek.

3.5.1 Affected Environment

3.5.1.1 Terrestrial Wildlife

Habitat

The project study area for wildlife resources consists of ten vegetation cover types (**Figure 3-2**). Five of these comprise approximately 99 percent of the available habitat within the study area. These primary vegetation types include sagebrush shrubland (71.8 percent), grassland (10.8 percent), desert shrubland (4.5 percent), piñon-juniper woodland (8.9 percent), and playa (3.8 percent). However, these habitat types are not present in the proposed ROW due to pre-existing disturbance associated with the existing adjacent roads. As a result, the proposed ROW is considered to have relatively low habitat value for most species in comparison to surrounding habitats.

Big Game Species

Mountain lion (*Felis concolor*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antilocarpa americana*) are known to occur within the study area. Areas considered to be important ranges for big game species include habitats that provide adequate forage and thermal cover for over-winter survival and reproduction. No known occupied bighorn sheep habitat or elk distributions exist in the project vicinity (NDOW 2014a). No important big game reproduction ranges overlap with the study area.

Mule Deer

Mule deer crucial winter, winter, year-long, and summer ranges occur within the study area (**Figure 3-3**). These seasonal ranges are largely confined to the benches, foothills, and mountains of the nearby surrounding mountainous area in the Toiyabe and Cortez mountain ranges. In total, approximately 45,106 acres of NDOW-designated mule deer range occur in the study area. This includes approximately 34,957 acres of mule deer crucial winter range. Winter foraging habitat is generally considered the limiting habitat factor for mule deer productivity. Mule deer also depend on crucial value habitat for survival because there are no alternative ranges or habitats available.

Pronghorn

Pronghorn are more prevalent in valley habitats, and much of the study area is designed by NDOW as pronghorn winter range (**Figure 3-4**). Year-long range for pronghorn is present throughout much of the remainder of the study area. In total, approximately 36,940 acres of winter pronghorn range and 34,161 acres of year-long range occur within the study area. Pronghorn is the primary big game species likely to occur in the study area. NDOW's 2013-2014 Big Game Status Book (NDOW 2014c) states that for Hunt Units 141, 143, 151-156, which surround the study area, pronghorn population growth has been high over the last several years, likely due to the prevalence of annual and perennial grasses and forbs following the large-scale wildfires in 1999. However, it is anticipated that the total amount and timing of precipitation ultimately will regulate this population's growth and distribution and, if drought conditions persist across the management area, the population will start to decline (NDOW 2014c).

JD Ranch Road

CR 222

T26N, R47E

T26N, R48E

T26N, R49E

T26N, R50E

T26N, R51E

T25N, R47E

T25N, R48E

T25N, R48 1/2E

T25N, R49E

T25N, R50E

T25N, R51E

T24N, R48 1/2E

T24N, R49E

T24N, R50E

T24N, R51E

2/27/2015

Legend

- Proposed Fiber Optic Cable ROW
- Cortez Gold Mines Operations Area Boundary
- Lodge at Pine Valley
- Crucial Winter Range
- Winter Range
- Summer Range
- Year-round Range

Source: NDOW 2014b.

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Battle Mountain, Nevada 89820

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Barrick
Fiber Optic Cable EA

Figure 3-3

Designated Mule Deer Range

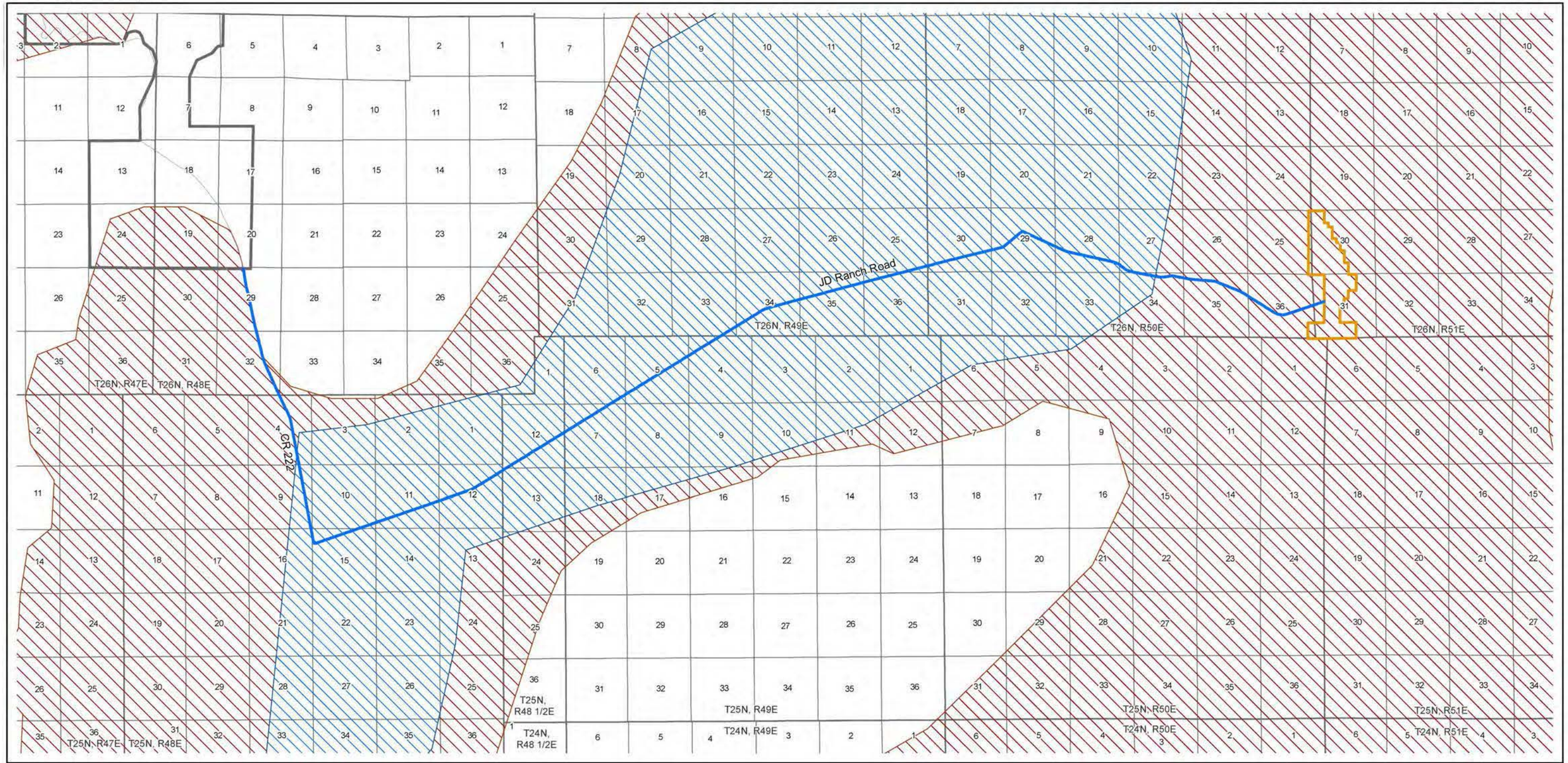
0 0.5 1 2 Miles

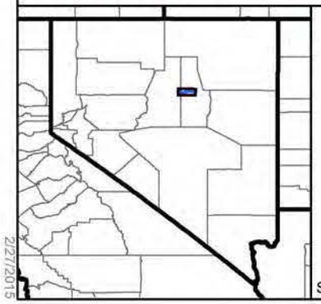
0 0.5 1 2 Kilometers

1:100,000

N

June 2015





2/27/2015

Legend

- Proposed Fiber Optic Cable ROW
- Cortez Gold Mines Operations Area Boundary
- Lodge at Pine Valley
- Winter Range
- Year-round Range

Source: NDOW 2014b.

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Barrick
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Figure 3-4

Designated Pronghorn Range

0 0.5 1 2 Miles
0 0.5 1 2 Kilometers
1:100,000

N

Mountain lion

Mountain lion are primarily found in mountains and foothills, but any habitat with sufficient food, cover, and room to avoid humans is suitable. Mountain lion tend to occur in close association with mule deer, their primary prey species, and their occurrence in the study area generally would overlap with that of mule deer.

Small Game Species

Upland game birds known to occur within the study area include greater sage-grouse (*Centrocercus urophasianus*), chukar (*Alectoris chukar*), and mourning dove (*Zenaida macroura*). The greater sage-grouse, a federal candidate species and a BLM sensitive species, is discussed further in Section 3.5.1.3, Special Status Species. Chukars prefer areas with rocky slopes in sagebrush-grassland communities where water is available (NatureServe 2014), and they thrive in overgrazed rangelands (Christensen 1996). Mourning doves use a variety of habitats; however, in northern Nevada, mourning doves have been associated with mixed sagebrush-juniper habitat connected with water and disturbed sites (Giezentanner 1973). Based on the general lack of open water in the study area, chukars and mourning doves are not likely to be prevalent in the study area.

Other small game species with potential to occur in the vicinity of the study area include pygmy rabbit (*Brachylagus idahoensis*), cottontail rabbits (*Sylvilagus* spp.) and white-tailed jackrabbits (*Lepus townsendii*), as well as furbearers including kit fox (*Vulpes macrotis*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), weasels (*Mustela* spp.), and striped skunk (*Mephitis mephitis*). The pygmy rabbit, a BLM sensitive species, is discussed further in Section 3.5.1.3, Special Status Species.

Nongame Species

A variety of nongame species including small mammals, songbirds, raptors, and reptiles potentially could occur in the study area. Based on information from NDOW (2014a), the following raptor species have the potential to occur within the study area: American kestrel (*Falco sparverius*), bald eagle (*Haliaeetus leucocephalus*), barn owl (*Tyto alba*), burrowing owl (*Athene cunicularia*), Cooper's hawk (*Accipiter cooperii*), ferruginous hawk (*Buteo regalis*), flammulated owl (*Otus flammeolus*), golden eagle (*Aquila chrysaetos*), great horned owl (*Bubo virginianus*), long-eared owl (*Asio otus*), merlin (*Falco columbarius*), northern goshawk (*Accipiter gentilis*), northern harrier (*Circus cyaneus*), northern saw-whet owl (*Aegolius acadicus*), osprey (*Pandion haliaetus*), peregrine falcon (*Falco peregrinus*), red-tailed hawk (*Buteo jamaicensis*), rough-legged hawk (*Buteo lagopus*), sharpshinned hawk (*Accipiter striatus*), short-eared owl (*Asio flammeus*), Swainson's hawk (*Buteo swainsoni*), turkey vulture (*Cathartes aura*), and western screech owl (*Megascops kennicottii*). Of these species, American kestrel, Cooper's hawk, ferruginous hawk, golden eagle, merlin, and northern harrier have been observed in the proposed project vicinity (NDOW 2014a).

Based on baseline information in JBR now Stantec (2014), there are seven known raptor nests in the project study area.These include two golden eagle nests that were unoccupied in 2014, one ferruginous hawk nest that was unoccupied in 2014, three ferruginous hawk nests of unknown status, and one nest for which the species and status are unknown. An occupied raven nest also was identified in 2014. None of the known nest sites occur within 0.5 mile of the proposed ROW.

A number of bat species potentially occur in the study area as foraging individuals. Most of these bat species are considered sensitive by the BLM and are discussed further in Section 3.5.1.3, Special Status Species. Other nongame species likely to occur in the study area include common reptiles such as the Great Basin fence lizard (*Sceloporus occidentalis longipes*), Great Basin collared lizard (*Crotophytus bicinctores*), gopher snake (*Pituophis melanoleucus*), and long-nosed snake (*Rhinocheilus lecontei*).

Migratory Birds

The Migratory Bird Treaty Act and EO 13186 provide for the protection of migratory birds. Pursuant to EO 13186, a Memorandum of Understanding was drafted among the BLM, U.S. Forest Service, and USFWS to promote conservation and protection of migratory birds. The BLM Nevada State Office prepared Migratory Bird BMPs for the Sagebrush Biome in order to assist BLM field offices in considering the effects of land management activities on migratory birds.

Species that are likely to occur in the study area include generalist species and species associated with sagebrush, grassland, greasewood, and piñon-juniper woodlands. Migratory bird species known or likely to occur within the study area include black-throated sparrow (*Amphispiza bilineata*), horned lark (*Eremphila alpestris*), pinyon jay (*Gymnorhinus cyanocephalus*), sagebrush sparrow (*Artemisiospiza nevadensis*), sage thrasher (*Oreoscoptes montanus*), Brewer's sparrow (*Spizella breweri*), and raptor species (discussed above under Nongame Species).

3.5.1.2 Aquatic Biological Resources

Aquatic habitat in the study area includes small ephemeral streams and smaller channels and three ephemeral to intermittent streams (Grouse, Pine, and Denay creeks) that would be crossed by the proposed ROW (see **Figure 2-1** and Section 3.2, Water Resources). Both types of streams provide temporary habitat for aquatic species. Beyond the eastern ROW terminus, the CESA extends to perennial and intermittent reaches of Henderson Creek (**Figure 2-1**). The perennial segment contains a mixture of habitat types, including a relatively large pond and a series of smaller ponds and approximately 2 miles of stream habitat. No perennial flow is evident below the furthest downstream pond, where the channel broadens into a wide alluvial area.

Aquatic species (i.e., macroinvertibrates) occurrence in the intermittent and ephemeral streams is limited to periods when water is present. The composition and abundance of the macroinvertebrate community depend on the physical characteristics of the waterbody such as flow, substrate, presence of riparian vegetation, depth, elevation, gradient, and other factors. Macroinvertebrate groups that typically inhabit intermittent streams include Ephemeroptera (caddisflies), Hemiptera (true bugs), Coleoptera (beetles), Trichoptera (caddisflies), tipulid Diptera (craneflies), and chironomid Diptera (midges) (Williams 1996). The perennial section of Henderson Creek likely supports macroinvertebrate species throughout the year, with species being represented by the macroinvertebrate groups mentioned above, as well as a mixture of worms, crustaceans, snails, and other immature and adult insect groups.

Outside of the project study area but within the CESA, fish and amphibian species also may be present in the perennial portion of Henderson Creek, although no recent surveys have been conducted. Based on surveys conducted in the 1950s, fish species or groups of species reported in Henderson Creek included speckled dace, shiners, suckers, and chub (Petersen 2015). Based on native species that occur in the general region, the species likely consisted of redside shiner, tui chub, and Tahoe and/or mountain sucker. Historic records also noted the occurrence of largemouth bass and northern pike in an impoundment on Henderson Creek (Petersen 2015).

3.5.1.3 Special Status Species

Special status species include species that are protected under the ESA, including species federally listed as threatened or endangered, species that are proposed or candidates for federal listing, and species that are designated as sensitive by the BLM. These species are afforded an additional level of protection by law, regulation, or policy by state or federal agencies.

Wildlife Species

No federally listed wildlife species or species proposed for listing have been identified as potentially occurring in the study area (NNHP 2014; USFWS 2014). One federal candidate species (greater sage-grouse) has been identified as potentially occurring in the study area (NNHP 2014; USFWS 2014). A

total of 37 BLM sensitive wildlife species also were identified as potentially occurring within the study area, based on the BLM Battle Mountain District Sensitive Species List and the Statewide BLM Sensitive Species List (JBR now Stantec 2014). These species, their associated habitats, and their potential for occurrence within the study area are summarized in **Table B-3** in **Appendix B**. Occurrence potential within the study area and project area was evaluated for each species based on their habitat requirements and/or known distribution. Based on this evaluation, 20 BLM sensitive species with low or no potential for occurrence in the study area have been eliminated from detailed analyses based on their habitat requirements and/or known distributions. Habitat within the study area generally is considered unsuitable or out of the known range for species identified as having a low potential for occurrence. The remaining 17 special status wildlife species with moderate or high potential to occur in the study area are discussed below.

Mammals

Bat Species

Eight BLM sensitive bat species were identified as having moderate to high potential to occur within the study area based on known range, the availability of potentially suitable habitat, and for some species, documented occurrence within the project vicinity (BLM 2014c,d, 2008, 2004). These species include the pallid bat, Townsend's big-eared bat, big brown bat, spotted bat, California myotis, western small-footed myotis, little brown myotis, and western pipistrelle. Four of these species (big brown bat, California myotis, Townsend's big-eared bat, western small-footed myotis) previously were documented in the project vicinity based on acoustic monitoring results for the HC/CUEP area (BLM 2014d) (**Figure 2-4**). The potential for suitable roost sites is limited in the project study area; therefore, occurrence potential primarily would be limited to foraging or migrating bats.

Pygmy Rabbit

The pygmy rabbit (BLM sensitive species) is endemic to the Great Basin where its range is centered on Nevada. Its distribution within this range is patchy (Keinath and McGee 2004). The species is found on big sagebrush plains and alluvial fans, particularly in clumps of sagebrush that are tall and dense relative to the surrounding sagebrush (Green and Flinders 1980; Larrucea and Brussard 2008). Pygmy rabbits require deep, friable soils (such as loam) for excavating burrows. Pygmy rabbit populations are at risk from loss and fragmentation of sagebrush habitat, particularly since they are not able to cross large barriers (e.g., playas, mountains) when dispersing (Keinath and McGee 2004).

Pygmy rabbit (individuals and active burrow systems) previously were documented at five locations in the southwest portion of the HC/CUEP area in northern Grass Valley (BLM 2014c). Occupied sites were located in or near dense stands of tall shrubs where soils were deep and friable and slopes were gentle. Some burrow systems contained multiple burrow entrances (10 or more burrows in a 50-foot radius). Based on these survey results and the presence in the vicinity of the proposed ROW of dominate ecological sites R024XY002NV, R024XY005NV, and R025XY019NV that occur on up to 10-inch-deep loamy soils (JBR and Stantec 2014), the potential for pygmy rabbit to occur in the project study area is high.

Dark Kangaroo Mouse

The dark kangaroo mouse (BLM sensitive species) is found in the western U.S. from west-central Utah through central and northwestern Nevada into northeastern California and southeastern Oregon (NatureServe 2014). Habitat consists of shadscale scrub, sagebrush scrub, and alkali sink plant communities in loose sand and gravel substrates. The species does not appear to require free water. Although no occurrence data are available, potentially suitable habitat exits where dominate ecological site R028BY004NV occurs in the vicinity of the proposed ROW.

Birds

Passerine Bird Species

Three BLM sensitive passerine bird species (Brewer's sparrow, sage thrasher, and loggerhead shrike) were identified as having a high potential to occur within the study area based on known range and the availability of potentially suitable habitat. The Brewer's sparrow and sage thrasher are migrant species that may breed within big sagebrush habitat in the project study area. While both species construct nests in the sagebrush, sage thrasher also are known to construct nests on the ground (Reynolds et al. 1999; Rotenberry et al. 1999). Loggerhead shrike may occur year-round in the study area. However, based on limited nesting habitat (isolated trees or large shrubs) for the species in the project study area, loggerhead shrike occurrence primarily would be limited to foraging individuals.

Raptors

Three BLM sensitive raptor species (golden eagle, burrowing owl, and ferruginous hawk) were identified as having a high potential to occur within the study area based on known range, the availability of potentially suitable habitat, and documented occurrence within the project vicinity (BLM 2014c,d, 2008, 2004). Documented sightings and known nest sites in the study area for the golden eagle and ferruginous hawk are discussed above under Nongame Species. Suitable nesting and foraging habitat exists in the study area for both of these species.

The burrowing owl is known to breed throughout Nevada. The majority of the breeding population is known to migrate from northern Nevada during the winter months. However, observations of this owl have been recorded throughout Nevada during all months of the year (Herron et al. 1985). Breeding by burrowing owls is strongly dependent on the presence of burrows constructed by prairie dogs, ground squirrels, or badgers. Potentially suitable breeding habitat for this species would be limited to the areas of short vegetation (i.e., grassland, disturbed areas, or shrub-steppe habitats) where an abundance of small mammal burrows (i.e., ground squirrels, badgers) exist.

No currently known burrowing owl nests occur within the project study area; however, potentially suitable nesting habitat may exist. Therefore, the potential for this species to occur within the study area is considered high.

Greater Sage-grouse

The greater sage-grouse (federal candidate and BLM sensitive species) is known to occur in the project study area. Big sagebrush is a key component of greater sage-grouse habitat providing forage as well as nesting, security, and thermal cover on a year-round basis. Plant communities that provide succulent herbaceous vegetation, have relatively high insect concentrations, and occur in the general vicinity of nesting areas are important foraging areas for chicks and are used as brood-rearing habitat during the summer months. During the winter, greater sage-grouse are found exclusively in sagebrush communities where sagebrush is tall enough to extend above the snow, generally south- or west-facing slopes and wind-blown ridges where snow depths tend to be lower.

Leks, or strutting grounds, are the sites of greater sage-grouse reproductive activities and tend to be located in flat, open, sparsely vegetation sites in or adjacent to sagebrush-dominated vegetation types. Most greater sage-grouse nests are located within a few miles of a lek. Males typically gather on leks from March until June for several hours in the early morning when conditions are quiet and still. During this time, greater sage-grouse may be particularly vulnerable to disturbance from noise (Blickley et al. 2012).

Designated preliminary priority habitat (PPH) and preliminary general habitat (PGH) for the greater sage-grouse occur in the project study area (**Figure 3-5**). Based on NDOW (2014) data, there are 11 greater sage-grouse leks in the vicinity of the proposed project, of which 7 leks are within the project study area. All seven of these leks are within 1.75 miles of the proposed ROW, with three of the sites within 0.1 mile. Based on reported activity status, three of the leks are active, two are inactive, one is reported as historic, and activity for one is unknown (JBR now Stantec 2014; NDOW 2014a).

Aquatic Biological Resources

One federally threatened species (Lahontan cutthroat trout) and one federal candidate (Columbia spotted frog) have been identified as potentially occurring in the study area (USFWS 2014). However, based on a lack of suitable aquatic habitat and/or known occurrences within the aquatic resources study area, these species do not occur in the study area.

Based on the BLM Battle Mountain District's sensitive species list, additional fish and invertebrate species were considered for potential occurrence within the study area. The fish species included Railroad Valley springfish (*Crenichthys nevadae*), Hot Creek Valley tui chub (*Gila bicolor* ssp. 5), Railroad Valley tui chub (*G. bicolor* ssp. 7), Fish Lake Valley tui chub (*G. bicolor* ssp. 4), and Monitor Valley speckled dace (*Rhinicthys osculus* ssp. 5). Invertebrate species for consideration consisted of six springnail species: southern Duckwater pyrg (*Pyrgulopsis anatine*), large-gland Carico pyrg (*P. basiglans*), carcinate Duckwater pyrg (*P. carcinata*), Dixie Valley pyrg (*P. dixensis*), Oasis Valley pyrg (*P. micrococcus*), and Wongs pyrg (*P. wongi*). These species are mainly associated with spring or spring-outflow habitat areas. None of these BLM sensitive species occur with the study area based on the lack of suitable aquatic habitat.

3.5.2 Environmental Consequences

3.5.2.1 Proposed Action

Terrestrial Wildlife

Direct impacts to wildlife populations may include habitat loss or alteration, habitat fragmentation, temporary animal displacement, and direct mortalities from crushing. Indirect impacts could include increased noise and human presence, and the potential for increased vehicle-related mortalities. The degree of the impacts on terrestrial wildlife species and their upland habitats would depend on factors such as the sensitivity of the species, habitat requirements, and seasonal use patterns.

Under the Proposed Action, project construction would result in approximately 53 acres of disturbance within existing disturbance areas adjacent to existing roads which is assumed to currently support weedy species. As a result, there would be no direct impacts to native habitats or increase in habitat fragmentation as a result of the proposed project; therefore, overall habitat impacts for wildlife species would be considered negligible. The project-related disturbance area subsequently would be reclaimed with as described in Section 2.2.2, Reclamation.

During project construction, some wildlife species (e.g., big game species) temporarily may avoid the area as a result of increased human presence and noise. However, based on the short-term, transitory nature of the proposed construction activities, the impact would be temporary.

If project construction was to occur during the bird breeding season (approximately March 1 through July 31, depending on species), direct impacts to breeding birds could include the direct loss of eggs or young (if present in the proposed disturbance area) or indirect effects (e.g., abandonment) from increased human noise and presence within close proximity to an active nest site. These losses, if they should occur, would be in violation of the Migratory Bird Treaty Act. To minimize impacts to nesting birds (including raptor species), clearance surveys would be conducted by a qualified biologist following BLM (2014e) wildlife survey protocols if project-related ground disturbance should occur during the avian breeding season, defined by BLM as March 1 through July 31. If active nests are located, or if other

evidence of nesting (e.g., mating pairs, territorial defense, carrying nesting material, transporting food) is observed, an appropriate avoidance buffer would be established around the nests following consultation with the BLM approved biologist. No construction would occur within the avoidance buffer until the birds are no longer actively breeding or rearing young, or until the young have fledged.

Small game species and non-game species are somewhat less mobile and, if occupied burrows are present in the proposed disturbance area during construction, there would be the potential for direct loss of adults and young. Increased vehicle activity during construction also may result in direct mortality of these species due to vehicle collisions; however, based on the small number of project-related vehicles, it is assumed collision potential would be minor.

Aquatic Biological Resources

Under the Proposed Action, potential impacts to macroinvertebrates could occur if water is present in the intermittent and ephemeral stream habitats in Grouse, Pine, and Denay creeks and the other unnamed ephemeral streams that would be crossed during construction. There would be no impacts to fisheries from the proposed project.

As a result of the intermittent and temporary flow conditions in the streams that would be crossed and the nature of the proposed construction techniques, potential project-related sediment effects on stream habitats and macroinvertebrates would be localized and low in magnitude. The potential for these effects would be minimized with implementation of sediment control measures as described in BCI's Soil Erosion and Prevention Control Plan (see A-1 in **Appendix A**) and the SWPPP. Construction vehicles and equipment use in the ROW would pose a risk to aquatic habitat and macroinvertebrates if a fuel spill occurred near the stream channels. Implementation of BCI's Spill Contingency Plan (see A-2 in **Appendix A**) would minimize the potential impacts.

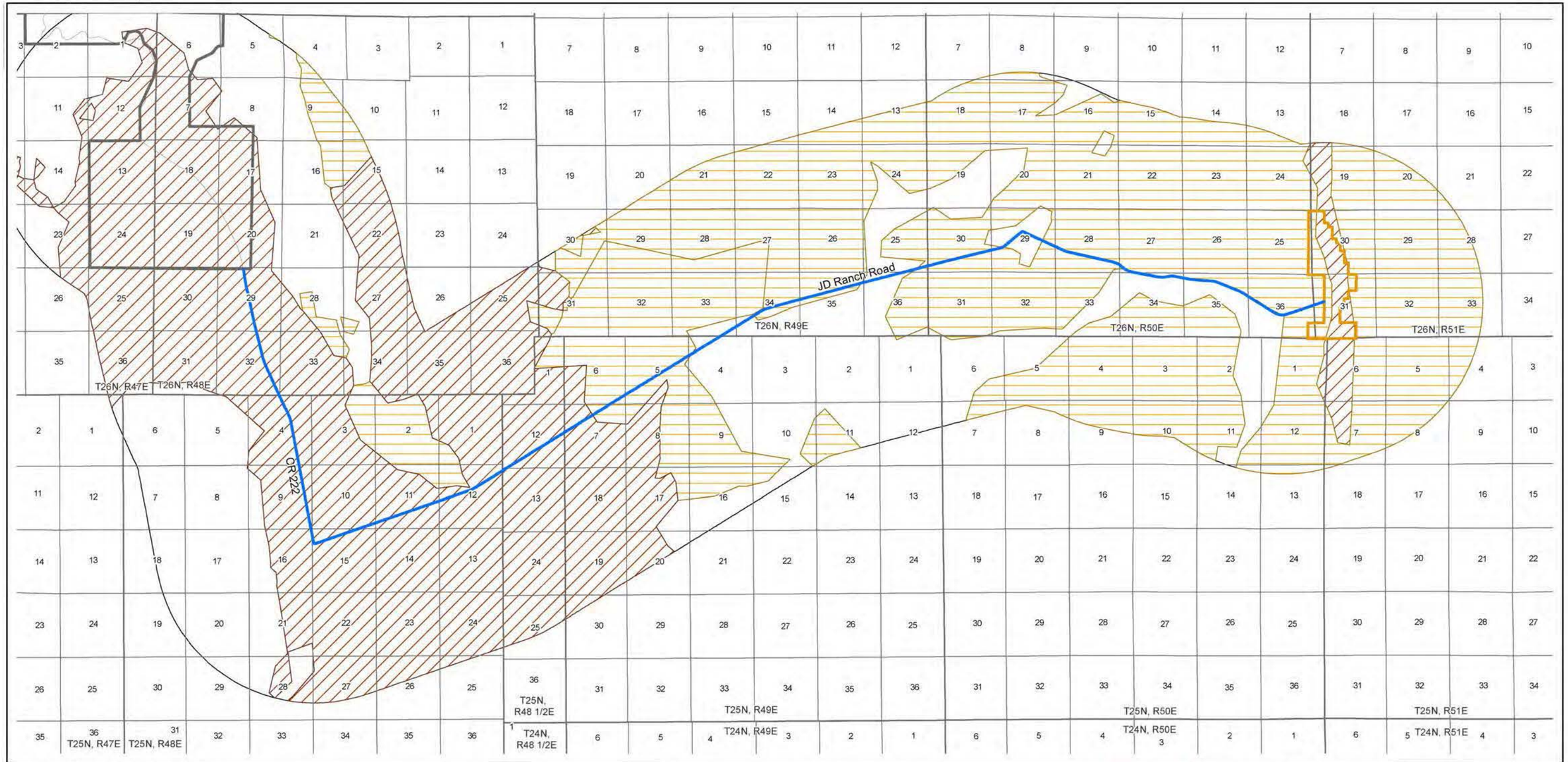
Special Status Species

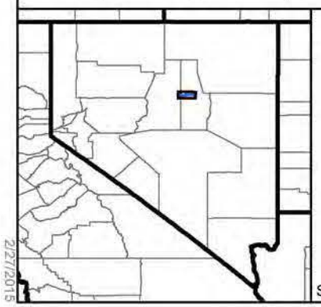
Wildlife Species

Potential impacts to special status wildlife species generally would parallel those described above for general wildlife species. As such, no loss of potentially suitable native habitats for special status species or increase in habitat fragmentation would occur as a result of the proposed project.

Several BLM sensitive mammal species (i.e., bats, pygmy rabbit, and dark kangaroo mouse) potentially would be affected by project construction and reclamation activities. Potential impacts to bat species would be limited to foraging individuals. However, based on the limited availability of water in the vicinity (with the exception of Henderson Creek which is located approximately 0.25 mile from the eastern terminus of the proposed ROW), it is unlikely that bats currently spend much time foraging over the proposed ROW. Therefore, it is anticipated that the project would have no impact on bat species. Due to the pre-disturbed condition of the proposed project ROW and likely compaction of soils from earlier grading operations, it is anticipated that potential impacts to pygmy rabbit and dark kangaroo mouse primarily would be related to vehicle-related mortalities to individuals.

Potential project-related impacts to BLM sensitive bird species with moderate to high potential to occur in the project study area would be identical to those described above for other avian species. Potential impacts to burrowing owl, if present, would be similar to those described above for the pygmy rabbit and dark kangaroo mouse. To minimize impacts to nesting birds (including raptor species), clearance surveys would be conducted by a qualified biologist following BLM (2014e) wildlife survey protocols if project-related ground disturbance should occur during the avian breeding season, defined by BLM as March 1 through July 31. If active nests are located, or if other evidence of nesting (e.g., mating pairs, territorial defense, carrying nesting material, transporting food) is observed, an appropriate avoidance





Legend

- Proposed Fiber Optic Cable ROW
- Cortez Gold Mines Operations Area Boundary
- Lodge at Pine Valley
- Preliminary Priority Habitat (PPH)
- Preliminary General Habitat (PGH)

Source: BLM and U.S. Forest Service 2012; NDOW 2012.

2/27/2015

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50 Bastian Road
Battle Mountain, Nevada 89820

Barrick
Fiber Optic Cable EA

Figure 3-5

Greater Sage-grouse Habitat

0 0.5 1 2 Miles
0 0.5 1 2 Kilometers
1:100,000

N

buffer would be established around the nests following consultation with the BLM approved biologist. No construction would occur within the avoidance buffer until the birds are no longer actively breeding or rearing young, or until the young have fledged.

Potential impacts to greater sage-grouse (federal candidate species and BLM sensitive species) as a result of the Proposed Action also would be identical to those described above for other avian species. Although greater sage-grouse could nest in upland habitats in the project study area, it is anticipated that brooding activity would be low due to the limited availability of surface water and riparian vegetation in the area. To minimize impacts to breeding greater sage-grouse, BCI has committed to conducting project construction outside of the breeding season (March 1 through May 15), if possible. If construction during the greater sage-grouse breeding season should be required, no associated ground disturbing activities or vehicle noise in excess of normal traffic (e.g., delivery or operation of mobile equipment) would occur between 4:00 a.m. and 10:00 a.m. within 4 miles of lek sites.

Aquatic Biological Resources

No known or potential habitat for the federally listed Lahontan cutthroat trout, federal candidate Columbia spotted frog, or BLM sensitive fish and springsnail species has been identified in the project study area. As a result, there would be no project-related impacts on special status aquatic species.

3.5.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and related impacts to wildlife and aquatic biological resources (including special status species) would not occur.

3.5.3 Cumulative Effects

Of the past and present actions and RFFAs identified in **Table 2-4**, cumulative impacts to wildlife resources are primarily related to changes in vegetation communities in areas affected by wildfires and surface disturbing activities (mining projects, exploration projects, and roads and other ROWs) and habitat fragmentation. As indicated in the table, past and present actions and RFFAs have resulted, or would result, in direct disturbance of approximately 26,508 acres of wildlife habitat in the overall CESA. The Proposed Action incrementally would increase habitat disturbance by 53 acres (approximately 0.2 percent), until successful reclamation has been achieved. The Proposed Action's incremental contribution to wildlife impacts as a result of human presence and noise and vehicle-related mortalities would be short-term and temporary.

Potential impacts to aquatic biological resources as a result of the Proposed Action would be limited to potential effects on macroinvertibrates. However, the potential for these effects are anticipated to be minimal and, therefore, would not be anticipated to substantially contribute to cumulative impacts.

3.5.4 Monitoring and Mitigation Measures

No monitoring or mitigation measures are recommended for wildlife or aquatic biological resources.

3.5.5 Residual Adverse Effects

No residual adverse effects have been identified for wildlife or aquatic biological resources.

3.6 Rangeland Resources

The project study area for direct and indirect impacts to rangeland resources includes a 1-mile-wide buffer centered on the proposed project ROW. The CESA is the same as the project study area.

3.6.1 Affected Environment

The study area crosses the northern portions of the Grass Valley and JD allotments (**Figure 3-6**). Livestock grazing occurs on the two allotments which are administered by the BLM under the Taylor Grazing Act of 1934, FLPMA of 1976, and Public Rangelands Improvement Act of 1978. The BLM revised their grazing regulations in 1995 in order to ensure that livestock grazing practices are conducted in a manner that sustains or improves the ecological health of public rangelands. The revised regulations led to the development of the *Northeastern Great Basin Area Standards and Guidelines* which established standards of rangeland health and livestock grazing. The intention of the Standards and Guidelines is to create a balance of sustainable development and multiple use, while progressing toward desired rangeland conditions.

Rangeland systems common to the study area typically consist of shrublands with a bunchgrass understory. Overall, the study area is experiencing infestations of cheatgrass and halogeton. Additional information relative to vegetation, including noxious weeds and invasive and non-native species, is presented in Section 3.4, Vegetation.

Table 3-5 characterizes the two grazing allotments in the study area, including active Animal Unit Months (AUMs) and average AUMs per acre. An AUM is the amount of forage needed to feed one cow/calf pair, one horse, or five sheep for 1 month. Average daily consumption is approximately 26 pounds of dry matter forage daily or 800 pounds monthly (Alberta Agriculture and Food 2007).

Table 3-5 Allotments within the Study Area

Allotment Name - Number	Total Allotment Acreage	Active AUMs	Average Acres per AUM	Livestock Type	Number of Pastures	Season of Use
Grass Valley - 10006	296,304	17,701	17	Cattle and Horse	24	1/1-1/31; 3/1-11/30
JD - 10041	97,740	8,200	12	Cattle	10	1/1-1/31; 5/1-12/31

Source: GeoCommunicator 2015.

3.6.2 Environmental Consequences

The assessment of impacts to livestock and grazing operations consists of analyzing surface disturbance within grazing allotments, reductions to forage vegetation, and project-related hazards that could threaten livestock.

3.6.2.1 Proposed Action

Under the Proposed Action, project construction would result in approximately 53 acres of surface disturbance within the proposed ROW, which would be located entirely within existing disturbance areas immediately adjacent to existing roads (CR 222 and JD Ranch Road). Vegetation along roadsides tends to be less healthy and palatable due to the deposition of dust and is frequently infested with noxious and invasive weeds.

South Buckhorn Allotment

Pine Creek Allotment

Carico Lake Allotment

Grass Valley Allotment

JD Allotment

Roberts Mountain Allotment

JD Ranch Road

CR 222

T26N, R47E

T26N, R48E

T26N, R49E

T26N, R50E

T26N, R51E

T25N, R47E

T25N, R48E

T25N, R48 1/2E

T25N, R49E

T24N, R48 1/2E

T24N, R49E

T25N, R50E

T24N, R50E

T25N, R51E

T24N, R51E

Legend

- Proposed Fiber Optic Cable ROW
- Cortez Gold Mines Operations Area Boundary
- Lodge at Pine Valley
- Cattle Guard
- Water Development
- Fence
- Grazing Allotment Boundaries

Source: BLM 2014c.

2/4/2015

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

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

Barrick
Fiber Optic Cable EA

Figure 3-6

Grazing Allotments and Range Improvements

0 0.5 1 2 Miles

0 0.5 1 2 Kilometers

1:100,000

N

Of the proposed 53 acres of disturbance, 28 acres would occur within the Grass Valley Allotment, and 25 acres would occur within the JD Allotment. Typically this would equate to a reduction of approximately two AUMs to each allotment (less than 1 percent of the total available AUMs per allotment). The project ROW would pass through areas that have received vegetation treatments (chaining, seeding, and thinning); however, because the project-related disturbance would be located within existing disturbance areas immediately adjacent to existing roads, it is unlikely that high quality forage vegetation would be displaced by construction within the proposed ROW. Additionally, any loss of AUMs would be temporary and would be replaced with successful reclamation.

If livestock are exposed to fugitive dust emissions for prolonged periods they may experience a type of bronchial pneumonia known as bovine respiratory disease, with calves being the most susceptible (BLM 2010a). In addition, deposition of fugitive dust on vegetation may affect the health of the plants, making them less palatable to livestock. Based on the proposed alignment of the project ROW within existing disturbance areas, the proposed construction techniques, and the transient nature of the construction activities (on average moving approximately 1 mile every 3 days), it is unlikely that project-related fugitive dust emissions would result in impacts to livestock grazing operations.

Based on the proposed ROW alignment within disturbance areas adjacent to existing roads, no impacts to rangeland improvements as a result of project construction or maintenance activities are anticipated.

3.6.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and associated impacts to rangeland resources would not occur.

3.6.3 Cumulative Effects

Of the past and present actions and RFFAs identified in **Table 2-4**, cumulative impacts to rangeland resources primarily are related disturbance-related effects associated with existing roads (approximately 480 acres) and mineral exploration activities. Surface disturbance associated with mineral exploration activities within the rangeland CESA is unquantifiable as the location of exploration activities within the overall exploration plan boundaries (**Figure 2-4**) is unknown. Some of the actions include vegetation treatment projects, which have or would result in beneficial impacts to rangeland resources following initial surface disturbance or following wildfires. The contribution to cumulative rangeland resource impacts as a result of the Proposed Action would be negligible.

3.6.4 Monitoring and Mitigation Measures

No monitoring or mitigation measures are recommended for rangeland resources.

3.6.5 Residual Adverse Effects

Following the completion of successful reclamation, no residual adverse effects to rangeland resources would be anticipated.

3.7 Cultural Resources

3.7.1 Regulatory Framework

Federal law and regulation provide the framework by which historic properties are identified, evaluated for their significance, and protected. NEPA mandates that "federal or federally-assisted projects (federal undertakings) must take into account effects on historic and cultural resources" (40 CFR 1500-1508). The National Historic Preservation Act, 1966 and as amended (NHPA), requires that federal agencies consider an undertaking's effects on historic properties, which are defined as prehistoric or historic sites, districts, buildings, structures, or objects that are included in or eligible for inclusion in the NRHP. A property does not need to be formally listed on the NRHP to warrant consideration; consideration is granted if the property meets the National Register criteria (see Section 3.7.2). NHPA's implementing regulations (36 CFR 800) define the procedures by which historic properties are identified, documented, and evaluated for the NRHP, and how the effects to historic properties posed by federal undertakings are mitigated.

While regulations for implementing Section 106 of NHPA are outlined in 36 CFR 800, program alternatives can be adopted to better fit agency procedures (36 CFR 800.14). A common program alternative is a PA negotiated between the federal agency and the Advisory Council on Historic Preservation (ACHP). A project-specific PA for the Cortez Hills Expansion Project was signed in October 2005 by the Elko and Battle Mountain District Offices of BLM, Nevada SHPO, and CGM (now BCI) (BLM, SHPO, and CGM 2005). This document applies to the current Proposed Action and outlines how resources are identified and evaluated for the NRHP, how adverse effects to resources are identified and minimized or mitigated, and how inadvertent discoveries are addressed. The 2005 PA automatically will terminate in October 2015 unless BLM, SHPO, and BCI agree to extend it.

3.7.2 Eligibility Criteria for the National Register of Historic Places

The NRHP is maintained by the National Park Service (NPS), which has established the criteria necessary for a property to be listed or eligible for listing on the NRHP. Properties must be at least 50 years old, they must adhere to at least one of the four criteria of significance, and they must retain integrity. "The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- That are associated with events that have made a significant contribution to the broad patterns of our history (Criterion A); or
- That are associated with the lives of significant persons in our past (Criterion B); or
- That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); or
- That have yielded or may be likely to yield, information important in history or prehistory (Criterion D)" (NPS 1997).

3.7.3 Study Area

The project study area for cultural resources is the Area of Potential Effect (APE), which is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties" (36 CFR 800.16[d]). The APE for direct and indirect impacts includes the proposed fiber optic cable ROW, as described in Section 2.2, Proposed Action, and shown in **Figure 2-1**. The CESA for cultural resources is defined as the southwestern portion of Pine Valley, the northern portion of Grass Valley, and the southern portion of Crescent Valley.

3.7.4 Affected Environment

Portions of the proposed project ROW have been inventoried for cultural resources within the last 10 years; no historic properties (those eligible for the NRHP, or those recommended eligible and pending SHPO's concurrence) are known within the ROW alignment.

3.7.5 Environmental Consequences

36 CFR 800.5(a)(1) details the process by which adverse effects to historic properties are assessed. "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." Examples of adverse effects to historic properties include, but are not limited to:

- Physical destruction or damage to all or part of the property;
- Alteration of a property that is not consistent with the Secretary of Interior's Standards for the Treatment of Historic Properties;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Neglect that causes deterioration; and
- Transfer, lease, or sale of a property out of federal ownership or control.

A finding of "no adverse effect" may be determined when the effects of the undertaking do not meet the criteria set forth in 36 CFR 800.5(a)(1).

3.7.5.1 Proposed Action

Although the Proposed Action would not result in new surface disturbance based on the proposed ROW alignment within an existing disturbance area, installation of the fiber optic cable and vaults potentially would result in new disturbance to subsurface sediments to a depth of 3 to 5 feet. Therefore, direct adverse effects could occur if historic properties are encountered during project construction. To help minimize adverse effects, a qualified archaeological monitor would be present on site during all ground disturbing constriction activities to ensure identification of previously undiscovered subsurface cultural resources as discussed in Section 2.2.4, Applicant-Committed Environmental Protection Measures. Also as discussed in Section 2.2.4, and as provided for in the 2005 PA, construction activities would be halted in the area of an unanticipated discovery, and the BLM Authorized Officer would be contacted immediately. All operations within 100 meters (330 feet) of a discovery would be suspended and the resource protected until an evaluation of the discovery can be made by the BLM Authorized Officer. If the site is eligible for the NRHP, impacts would be mitigated through avoidance or an appropriate treatment plan pursuant to the 2005 PA or most recent PA developed among the BLM, Nevada State Historic Preservation Officer (SHPO), and BCI. Construction would not resume in the area of the discovery until the BLM Authorized Officer has issued a notice to proceed.

3.7.5.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and the associated potential impacts would not occur. Therefore, there would be no direct adverse effects to historic properties beyond those that may currently exist.

3.7.6 Cumulative Effects

Under the Proposed Action, potential adverse effects to historic properties would be addressed in accordance with the procedures for treatment of historic properties as outlined in the 2005 PA. Therefore, it is not anticipated that the Proposed Action would substantially contribute to cumulative adverse effects to historic properties.

Based on the proposed fiber optic cable installation within an existing disturbance area immediately adjacent to existing roads (see **Figure 2-2**), the Proposed Action would not result in appreciable changes to the viewshed of the landscape in the CESA. Therefore, the Proposed Action would not contribute to adverse effects to any historic property outside of the direct/indirect APE that qualifies for the National Register through integrity of feeling, setting, and association.

3.7.7 Monitoring and Mitigation Measurements

No additional monitoring or mitigation measures are recommended for cultural resources beyond the use of qualified cultural resource monitors during construction as identified in Section 2.2.4.

3.7.8 Residual Adverse Effects

No known historic properties are located in the direct/indirect APE, and adverse effects to unknown historic properties that may be discovered during construction activities would be handled in accordance with the 2005 PA. Consequently, no residual adverse effects to historic properties would be anticipated.

3.8 Native American Cultural Concerns

The proposed ROW comprises the project study area for direct and indirect impacts to Native American cultural concerns. The CESA encompasses the southwestern portion of Pine Valley, the northern portion of Grass Valley, and the southern portion of Crescent Valley.

3.8.1 Affected Environment

3.8.1.1 Regulatory Framework

Effects of federal undertakings on properties of religious, traditional, or cultural significance to contemporary Native American groups are given consideration under the provisions of EO 13007, the American Indian Religious Freedom Act, and the NHPA. The NHPA allows that "properties of traditional, religious, and cultural importance to an Indian tribe or Native Hawaiian organization may be determined eligible for inclusion on the NRHP." Section 106 of NHPA requires that federal agencies take into account the effects to historic properties (including those with religious, traditional, or cultural significance) posed by federal undertakings. In addition, under the Native American Graves Protection and Repatriation Act (NAGPRA), culturally affiliated Indian tribes and the BLM jointly may develop procedures to be undertaken when Native American human remains are discovered on federal lands.

Standard regulations for implementing Section 106 of NHPA are outlined in 36 CFR 800; however, alternative regulations may be adopted to better fit agency priorities (36 CFR 800.14). One common program alternative is a PA, as discussed in Section 3.7, Cultural Resources.

3.8.1.2 Government-to-government Consultation

The ACHP regulations for implementing Section 106 of the NHPA require federal agencies to consult with Native American tribes to make a reasonable and good faith effort to identify historic properties of religious or cultural significance that may be affected by a federal undertaking. In accordance with this requirement, the BLM Mount Lewis Field Office initiated government-to-government consultation for the Proposed Action on December 20, 2013, by sending letters with an accompanying map of the Proposed Action ROW to the following tribes and bands:

- Battle Mountain Band
- Duckwater Shoshone Tribe
- Te-Moak Tribe of the Western Shoshone
- South Fork Band

The letters were sent to inform the tribes and bands of the proposed undertaking and to solicit their participation in identifying traditional/cultural sites, activities, or resources in proximity to the proposed project. The letters also requested their participation in the development of mitigation measures, should such resources be identified. No concerns were identified in the one response letter received.

3.8.2 Environmental Consequences

3.8.2.1 Proposed Action

No known cultural resources or places of religious, traditional, or cultural importance have been identified in the project study area. Although the Proposed Action would not result in new surface disturbance based on the proposed ROW alignment within an existing disturbance area, installation of the fiber optic cable and vaults would result in new disturbance to subsurface sediments to a depth of 3 to 5 feet. Therefore, direct impacts to currently unknown resources of traditional, cultural, or religious importance could occur if encountered during project construction. To help minimize adverse effects to unanticipated discoveries, a qualified archaeological monitor would be present on site during all ground disturbing construction activities to ensure identification of previously undiscovered subsurface cultural resources

as discussed in Section 2.2.4, Applicant-Committed Environmental Protection Measures. Also, per the 2005 PA and applicant-committed environmental protection measures (Section 2.2.4), construction activities would be halted in the area of an unanticipated discovery, and the BLM Authorized Officer would be contacted to evaluate the find. If the resource is eligible for the NRHP, impacts would be mitigated through avoidance or an appropriate treatment plan. Construction would not resume in the area of the discovery until the BLM Authorized Officer has issued a notice to proceed.

Per the 2005 PA, if construction or other project personnel discover what may be human remains, funerary objects, or items of cultural patrimony, construction would cease within 300 feet of the discovery, and the BLM Authorized Officer would be notified of the find. Any discovered Native American human remains, funerary objects, or items of cultural patrimony would be handled in accordance with NAGPRA and the procedures detailed in the 2005 PA. Non-Native American human remains would be handled in accordance with Nevada law and the PA. Construction would not resume in the area of the discovery until the BLM Authorized Officer has issued a notice to proceed.

3.8.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and the associated potential impacts would not occur. Therefore, there would be no impacts to Native American cultural concerns beyond those that may currently exist.

3.8.3 Cumulative Effects

No known cultural resources or places of religious, traditional, or cultural importance to Native American tribes or bands would be adversely affected as a result of the Proposed Action. Potential impacts to unanticipated discoveries, including human remains, would be handled in accordance with the 2005 PA. Therefore, the Proposed Action would not be expected to contribute to cumulative effects to Native American cultural concerns. At this time, no impacts related to Native American Cultural Concerns have been identified and are not anticipated from the Proposed Action. Tribal relations and coordination does not terminate with the land use decision itself, but rather continues to engage Tribes regarding treatments, mitigation, reclamation, and disposition of artifacts.

Based on the proposed installation of the fiber optic cable within an existing disturbance area immediately adjacent to existing roads (see **Figure 2-2**), the Proposed Action would not result in appreciable changes to the viewshed of the landscape in the CESA and, therefore, would not contribute to adverse effects to known or unknown resources of traditional, religious, or cultural importance outside of the direct/indirect study area.

3.8.4 Monitoring and Other Mitigation Requirements

No additional monitoring or mitigation measures are recommended for Native American cultural concerns.

3.8.5 Residual Adverse Effects

No properties of traditional, religious, or cultural importance to the tribes or bands are known to occur within the study area. Unknown sites of tribal importance that may be discovered during construction activities would be handled in accordance with the 2005 PA and applicant-committed protection measures (Section 2.2.4). Therefore, no residual adverse effects to Native American cultural concerns would be anticipated.

3.9 Air Resources

The project study area for air resources encompasses the northern portion of Grass Valley and the southwestern portion of Pine Valley. The CESA is the same as the project study area.

3.9.1 Affected Environment

3.9.1.1 Climate and Meteorology

The proposed ROW runs from just south of the Cortez Mountains eastward across a valley just north of the Simpson Park Mountains at an elevation of approximate 5,700 feet above mean sea level (amsl). According to the Western Regional Climate Center (WRCC), the average maximum temperature at the Beowawe University of Nevada Ranch (located approximately 40 miles south of the proposed project at an elevation of 6,100 feet amsl) is approximately 88 degrees Fahrenheit (°F) in July, and the average minimum temperature is approximately 13°F in January. The average annual precipitation is approximately 10 inches and tends to peak in May (WRCC 2014a).

A wind rose from the Coils Creek Remote Automatic Weather Station (RAWS) is presented in **Figure 3-7**. This station is located approximtely15 miles south of the proposed project at an elevation of 6,800 feet amsl. While wind characteristics in the vicinity of topographic features are often dependent on the location of the measurement site relative to high terrain features, the Coils Creek RAWS is likely the measurement site most representative of wind conditions in the study area.

3.9.1.2 Air Quality

Air quality is defined by the concentration of various pollutants and their interactions in the atmosphere. The relative importance of pollutant concentrations can be determined by comparison with appropriate national and/or state Ambient Air Quality Standards (AAQS). Air pollutant concentrations within the standards generally are not considered to be detrimental to public health and welfare.

National and state AAQS are presented in **Table 3-6**. An area is designated by the USEPA as being in attainment for a pollutant if ambient concentrations of that pollutant are below the National Ambient Air Quality Standards (NAAQS). An area is not in attainment if violations of NAAQS for that pollutant occur. Areas where insufficient data are available to make an attainment status designation are listed as unclassifiable and are treated as being in attainment for regulatory purposes.

The NDEP, Bureau of Air Pollution Control does not currently monitor ambient air quality in the vicinity of the study area; the area is therefore considered unclassified for all pollutants having an air quality standard (40 CFR 81.329). However, the existing air quality of the study area is typical of the largely undeveloped regions of the western U.S. For the purposes of statewide regulatory planning, this area has been designated as in attainment for all pollutants that have an AAQS. Current sources of air pollutants in the region include several precious metals mines that are sources for particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) and particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$).

Greenhouse Gas Emissions and Climate Change

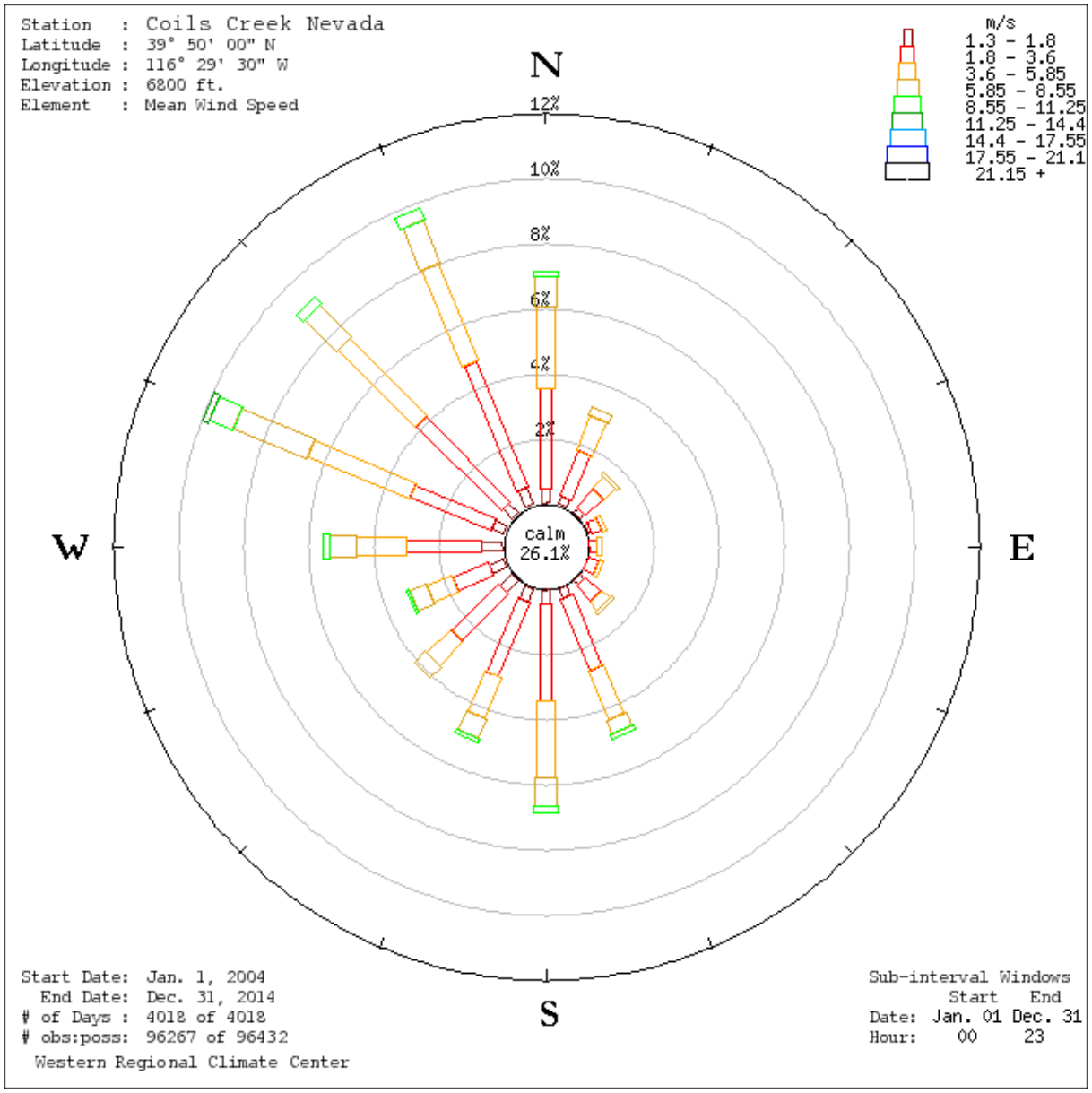
Climate represents the long-term statistical characterization of daily, seasonal, and annual weather conditions such as temperature, relative humidity, precipitation, cloud cover, solar radiation, and wind speed and direction. Climate is the composite of generally prevailing weather conditions of a particular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

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

understand ecological conditions and trends; natural and human influences; and opportunities for resource conservation, restoration, and development. The REAs provide regional information that can inform local management efforts.

Greenhouse Gases

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



Source: WRCC 2014b.

Figure 3-7 Wind Rose for Coils Creek RAWS

Table 3-6 National and State of Nevada Ambient Air Quality Standards

Pollutant	Averaging Time	Nevada Standards	National Standards	
		Concentration ($\mu g/m^3$)	Primary ($\mu g/m^3$)	Secondary ($\mu g/m^3$)
Nitrogen dioxide	1-hour	188	188	None
	Annual average	100	100	100
Sulfur dioxide (SO_2)	1-hour	196	196	None
	3-hour	1,300	None	1,300
	24-hour	365	365	None
	Annual average	80	80	None
Carbon monoxide (CO)	1-hour	40,000	40,000	40,000
CO less than 5,000 feet amsl	8-hour	10,000	10,000	10,000
CO at or greater than 5,000 feet amsl	8-hour	6,670		
PM_{10}	24-hour	150	150	150
	Annual average	50	NA	NA
$PM_{2.5}$	24-hour	35	35	35
	Annual average	15	12	15
Ozone	1-hour	235	NA	NA
	8-hour	157	157	157
Lead	Rolling 3-month average	0.15	0.15	0.15
	Quarterly arithmetic mean	1.5	1.5	1.5
Hydrogen sulfide	1-hour	112	--	--

Note: $\mu g/m^3$ = micrograms per cubic meter.

Source: NDEP 2015a.

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

Sources of GHG emissions in the study area include wildfires and prescribed burns; vehicles (including off-highway vehicles [OHVs]); construction and operation equipment for mineral, energy, and communications development; and grazing livestock, wild horses, and burros. To the extent that these activities increase, GHG emissions also are likely to increase and contribute to forecast climate change scenarios, which include warmer, more arid conditions across Nevada.

It is difficult to assess the impact on climate due to a particular action with confidence, as downscaled modeling associated with localized climate-changing pollutant emissions and climate change is still in a formative phase. The lack of scientific tools designed to predict climate change on a regional or local scale limits the ability to quantify potential future impacts; therefore, an established methodology does not yet exist to accurately predict the effect of local and regional activities on global climate change.

Climate Change Trends

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

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

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

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

Potential effects of these forecasts on the landscape could include increased fuel loads in higher elevations, increased frequency and duration of droughts, expansion of invasive species in higher elevations, increased wind erosion, and changes in wildfire regimes (Comer et al. 2013). However, the potential effects of the proposed project on climate change are beyond the scope of this EA and are not further analyzed in this EA.

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

Under the Proposed Action, project construction would result in approximately 53 acres of disturbance entirely within existing disturbance areas adjacent to existing roads. During construction, fugitive dust emissions would be generated by the movement of equipment along the ROW and the movement of materials and workers on the adjacent unpaved roads. These emissions would be short-term and would cease following the completion of construction (approximately 2 months). Although the fiber optic cable would be installed within existing disturbance areas, it is anticipated there would be some increase in windblown dust as a result of project-related disturbance. To minimize this impact during construction, disturbed soil would be wetted, chemically treated, or treated by other means satisfactory to the BLM Authorized Officer, and prudent vehicle speeds would be maintained as discussed in Section 2.2.4, Applicant-committed Environmental Protection Measures. In addition, this impact would be minimized with implementation of the proposed reclamation procedures and would cease once successful reclamation is achieved.

Other emission sources would include exhaust emissions (i.e., oxides of nitrogen [NO_X], SO_2, CO, PM_{10}, and $PM_{2.5}$) generated by construction-related equipment and crew trucks, some of which are GHGs. The number of combustion sources emitting NO_X, SO_2, CO, PM_{10}, and $PM_{2.5}$ would be very small, and the emissions would be short-term and would cease following the completion of construction (approximately 2 months).

Based on the information above, no exceedance of the applicable AAQS would be anticipated as a result of the proposed project.

3.9.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and the associated impacts to air quality would not occur.

3.9.3 Cumulative Effects

Based on the analysis above, and with implementation of the environmental protection measures (Section 2.2.4), the Proposed Action's contribution to cumulative air quality impacts would be minimal and would not be anticipated to cause the air quality in the region to degrade below the applicable AAQS. The proposed project's contribution to cumulative air quality impacts would cease following the completion of construction (approximately 2 months) and successful reclamation.

3.9.4 Monitoring and Mitigation Measures

No monitoring or mitigation measures are recommended for air quality.

3.9.5 Residual Adverse Effects

Following the completion of construction and successful reclamation, there would be no residual adverse effects to air quality as a result of the proposed project.

3.10 Land Use and Access

The project study area for direct and indirect impacts for land use encompasses the proposed ROW. The CESA for land use encompasses the northern portion of Grass Valley and the southwestern portion of Pine Valley.

The project study area for access includes the proposed ROW and the adjacent county roads (CR 222 and JD Ranch Road). The CESA for access includes the project study area and the primary access roads connecting to CR 222 and the JD Ranch Road.

3.10.1 Affected Environment

3.10.1.1 Land Use

The proposed project would be located entirely on BLM-managed land (**Figure 1-2**) administered under the Shoshone-Eureka RMP (BLM 1984). The BLM Battle Mountain District is preparing a new RMP for the area; however, the document is not final at this time. The Record of Decision for the Shoshone-Eureka RMP designates corridors for major utility lines, none of which are near the proposed fiber optic cable ROW (BLM 1986a). The project study area also is covered by the Eureka County Master Plan (Eureka County 2010), but the plan does not address utilities of this type (Kniefel 2015).

Mining-related activities and ranching constitute the dominant land uses in the study area. Livestock grazing is an established use in the vicinity of the project study area, with the proposed ROW crossing parts of the Grass Valley and JD grazing allotments (see Section 3.6, Range Resources). There are no prime or unique farmlands in the project study area (see Section 3.3, Soils).

Existing ROWs and other land use authorizations in the study area are summarized in Table 3.11-1 and shown in Figure 3.11-1 of the Cortez Hills Expansion Project Final EIS (BLM 2008b). The authorizations have not changed in the interim, and the information presented in the 2008 EIS is incorporated here by reference. The only item relevant to the proposed project is number N-48321, an 80-foot-wide ROW for the Sierra Pacific Power Company 60-kilovolt transmission line that parallels CR 222.

3.10.1.2 Access

The project study area is served by a sparse network of roadways typical of rural Nevada. The project is proposed to be constructed immediately parallel to CR 222 and the JD Ranch Road, both gravel surface county roads. These local roads connect to Interstate 80 (I-80), the primary east-west traffic artery across northern Nevada, via State Route (SR) 306 through Crescent Valley and Beowawe on the west and via SR 278 through Carlin on the east. SR 306 is a paved, two-lane highway designated by Nevada Department of Transportation (NDOT) as a “major collector” north of Crescent Valley and a “minor collector” south of Crescent Valley (NDOT 2014a,b). Traffic volumes on SR 306 in 2013 averaged 1,800 vehicles per day (vpd) just south of I-80 and 600 vpd south of Crescent Valley (NDOT 2014c). These volumes were 50.6 percent and 1.7 percent, respectively, above the 10-year averages for the two road sections, but at or below the peak year levels. Existing traffic conditions on SR 306 are at level of service (LOS) A, indicating free flowing traffic conditions with few restrictions (Transportation Research Board 2000). Peak hour traffic volumes are estimated at less than 10 percent of hourly roadway capacity. SR 278 also is a paved, two-lane highway designated a “major collector” by NDOT (NDOT 2014a). Traffic volumes averaged 500 vpd in 2013 at a location just south of Palisade, Nevada. Existing traffic conditions on SR 278 are at LOS A.

I-80 is a high quality, interstate class, 4-lane divided freeway. Traffic volumes in 2013 averaged 7,000 vpd west of the Beowawe interchange (exit 261) and 7,500 vpd east of the Palisade interchange (exit 271) (NDOT 2014d,c). The Beowawe volume was approximately 1.1 percent above the 10-year average for the location, and the Palisade volume was approximately 2.5 percent above the 10-year

average for that location. Both numbers were well below the capacity for I-80, which is rated LOS A throughout the study area.

The county roads are well maintained, gravel-surface roads. The proposed fiber optic cable alignment immediately adjacent to the CR 222 and the JD Ranch Road was coordinated between Eureka County and BCI; no conflicts with public use of the roads have been identified (Damele 2015). The only available traffic estimate for the county roads is 20 vpd on CR 222 near the Eureka/Lander county line (NDOT 2014d) The estimate for this road has been fairly consistent over the past 10 years. Both county roads are designated “minor collectors” (NDOT 2014a).

3.10.2 Environmental Consequences

3.10.2.1 Proposed Action

Land Use

Proposed project-related construction activities would result in approximately 53 acres of disturbance. This disturbance would be located within existing disturbance areas adjacent to the running surface of the roads that would be paralleled (**Figure 2-2**). Based on the proposed alignment, the proposed project would not conflict with any existing ROWs or other land use authorizations.

The Proposed Action would be consistent with applicable land use plans for the area.

Because there are no identified impacts for land use, no monitoring or mitigation is recommended and no residual adverse impacts would occur.

Access

During the 2-month project construction period, there would be a small increase in traffic to and from the ROW, primarily related to the transport of the 13 construction workers to the site each day. Although adding a small amount of additional traffic during construction would increase the risk of accidents on the route, the increased risk likely would be minimal. Also, no measureable effect on public access would be anticipated. In addition, the minor project-related increase in traffic would not be sufficient to degrade the LOS on any of the state or interstate highways providing access to the project study area.

There may be minor delays as materials and equipment are moved within the proposed ROW or along CR 222 and JD Ranch Road; however, the type of construction proposed indicates that any possible delays would be minimal, lasting no more than a few minutes.

Following the completion of construction and reclamation, there would be no identifiable effect on traffic or access in the study area.

3.10.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed and the associated impacts would not occur. As a result, there would be no related change in the use of lands or access and traffic conditions.

3.10.3 Cumulative Effects

Based on the proposed construction techniques and duration of the project, the contribution to cumulative impacts to access (i.e., delays and accident risk) under the Proposed Action would be minimal and short-term in duration.

3.10.4 Monitoring and Mitigation Measures

No monitoring or mitigation measures are recommended for access.

3.10.5 Residual Adverse Effects

There would be no residual adverse effects to access as a result of the Proposed Action.

3.11 Recreation

The project study area for direct and indirect impacts for recreation includes the proposed ROW. The CESA encompasses the northern portion of Grass Valley and the southwestern portion of Pine Valley, inclusive of the proposed ROW.

Recreation effects for the broader area were analyzed previously in the Cortez Hills Expansion Project Final EIS (BLM 2008b) and incorporated here by reference. The elements of the Proposed Action that could result in new or extended recreation impacts primarily include construction activities and reclamation of the disturbance area.

3.11.1 Affected Environment

There are no developed recreation facilities in the study area. The nearest developed BLM facility is more than 30 miles away.

Dispersed recreation activities are the main recreation uses of the study area. Public lands in the study area are managed by the BLM and generally are open for dispersed public recreation use, except for mining areas that are fenced off for protection of the public and to prevent interference with mining activities. Uses in and near the study area are likely limited to photography and sightseeing; hiking and camping; firewood collecting; rockhounding; OHV use**;** wildlife viewing and hunting for chukar, sage grouse, and mule deer.

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

Installation of the proposed fiber optic cable would temporarily disturb 53 acres of land during the 2-month construction period, continuing to a lesser degree until reclamation is completed. The project-related disturbance would occur in the existing disturbance area immediately adjacent to county roads it would parallel and would not affect the availability of public lands for dispersed recreation. In the context of the large amount of public land available for such recreation in the study area and the region, the temporary construction disturbance would not be expected to affect public recreation opportunities. Because there are no identified impacts for land use, no monitoring or mitigation is recommended, no residual adverse impacts would occur, and this resource is not carried forward for further analysis.

3.11.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed and the associated impacts would not occur. Existing dispersed recreation activities on the public lands throughout the project vicinity would continue.

3.12 Social and Economic Values

The project study area and CESA for social and economic values include portions of Elko, Eureka, and Lander counties, Nevada.

3.12.1 Affected Environment

3.12.1.1 Population

Elko County is the largest of the three counties in the study area. **Table 3-7** presents population levels and growth rates for counties and major communities in the study area from 1980 through 2013.

Table 3-7 Population Characteristics

Area	Year					Average Annual Percentage Change			
	1980	1990	2000	2010	2013	1980-1990	1990-2000	2000-2010	2010-2013
Elko City	8,771	14,736	16,708	18,297	20,074	5.3	1.3	0.9	3.1
Spring Creek CDP[1]	2,002	5,866	10,548	12,361	13,607	11.3	6	1.6	3.3
Carlin	1,233	2,220	2,161	2,368	2,411	6.1	-0.3	0.9	0.6
Elko County	**17,269**	**33,530**	**45,291**	**48,818**	**52,384**	**6.9**	**3.1**	**0.8**	**2.4**
Eureka County	**1,198**	**1,550**	**1,651**	**1,987**	**2,076**	**2.6**	**0.6**	**1.9**	**1.5**
Battle Mountain CDP[1]	2,749	3,542	2,871	3,635	3,241	2.6	-2.1	2.4	-3.8
Lander County	**4,076**	**6,266**	**5,794**	**5,775**	**6,032**	**4.4**	**-0.8**	**0**	**1.5**
Nevada	**800,493**	**1,201,833**	**1,998,257**	**2,700,551**	**2,790,136**	**4.1**	**5.2**	**3.1**	**1.1**

[1] CDP – Census Designated Place.

Source: U.S. Census Bureau 2014a,b, 2010, 2000, 1981.

Ethnically and racially, the counties in the study area are notably less diverse than the state as a whole, with substantially fewer black and Asian residents and somewhat lower percentages of people of Hispanic origin. Eureka County, in particular, is nearly 93 percent non-Hispanic white. The counties do have higher percentages of Native Americans than the state does, with 5.0 percent for Elko County, 2.3 percent for Eureka County, and 2.0 percent for Lander County compared to 0.9 percent for the entire state. These statistics and additional information relative to minority or low income populations is presented in Section 3.13, Environmental Justice.

3.12.1.2 Employment

Employment in the study area demonstrates a distinct difference between Elko County and Eureka and Lander counties. Elko County's economy is much more diverse, befitting its role as a trade center for northeast Nevada. Elko County has substantial numbers of workers in services, trade, and government

employment. When workers are tabulated by county of residence (rather than county of workplace), Elko County has 13 percent working in the natural resources and mining sector, Lander County has 56 percent working in the sector, and Eureka County has fully 90 percent of its employment coming from natural resources and mining (Nevada Department of Employment, Training, and Rehabilitation [NDETR] 2014a).

The average annual unemployment rates for 2013 for Elko, Eureka, and Lander counties were 5.9, 6.4, and 5.2 percent, respectively, compared with 9.8 percent for Nevada as a whole (NDETR 2014b). Total unemployment in the study area averaged 2,124 for the year (5.9 percent), substantially above historical lows, but much lower than the statewide average (**Table 3-8**).

Table 3-8 2013 Labor Force, Employment, and Unemployment

Location	Labor Force	Employment	Unemployment	Unemployment Rate (percent)
Elko County	30,269	28,469	1,800	5.9
Eureka County	1,086	1,017	69	6.4
Lander County	4,891	4,636	255	5.2
Total	**36,246**	**34,122**	**2,124**	**5.9**
Nevada	1,372,996	1,237,860	135,136	9.8

Source: NDETR 2014a.b.

3.12.1.3 Other Social and Economic Considerations

Based on the proposed 13 person work force for a 2-month period, it is unlikely that the proposed project would result in measurable changes to housing demand, public facilities and services, emergency and health care services, public education, or public finance. Therefore, these social and economic considerations have been eliminated from further consideration in this EA analysis.

3.12.2 Environmental Consequences

Social and economic effects for the three-county area previously were analyzed in the Cortez Hills Expansion Project Final EIS (BLM 2008b) and subsequently on a more targeted basis in the BCI 2011 Plan of Operations Amendment EA (BLM 2014d). Both documents are incorporated here by reference. The elements of the Proposed Action that could result in new or extended social or economic effects primarily include the purchase of materials and supplies and employment of 13 workers for a 2-month period.

3.12.2.1 Proposed Action

Construction and reclamation of the proposed project would entail use of a contractor employing 13 workers experienced in the use of the appropriate equipment for plowing the conduit into place, installing the cable, and reclaiming disturbance area. Employment of contract personnel for these activities would be very short-term in nature, lasting an estimated 2 months, and likely would utilize existing contractors from within the three-county study area, primarily from Elko County. Consequently, it is likely that these workers currently are residents of the study area and would not affect the study area population.

Payment of wages and benefits to the workers and purchase of materials and supplies would result in expenditures that would be spent in the local area. The expenditures would be a benefit to the local economy, which would be a very small percentage of the total local economic activity in the study area

during the 2-month construction period. There would be a commensurately small benefit to local public revenues from taxes paid in association with project construction. There also would be a small ongoing benefit to local public revenues from ad valorem property taxes on the fiber optic cable for the duration of its useful life.

3.12.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and the associated social and economic effects would not occur.

3.12.3 Cumulative Effects

The social and economic effects of past and present actions are reflected in the affected environment description in Section 3.12.1. Anticipated schedules for increases or decreases in employment for the RFFAs (see **Table 2-4**) are not known. However, the anticipated use of existing local workers (a total of 13) for the 2-month construction period under the Proposed Action would result in a modest positive contribution to cumulative economic effects, with no measurable additional demand for housing, public facilities, or services and minimal effect on cumulative employment effects.

3.12.4 Monitoring and Mitigation Measures

No monitoring or mitigation measures are recommended for social and economic values.

3.12.5 Residual Adverse Effects

There would be no residual adverse effects for social and economic values as a result of the Proposed Action. There would be a small ongoing benefit to local public revenues for the useful life of the proposed fiber optic cable.

3.13 Environmental Justice

The project study area and CESA for environmental justice include portions of Elko, Eureka, and Lander counties, Nevada.

3.13.1 Affected Environment

EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was issued February 11, 1994 (59 Federal Register 7629). EO 12898 "is intended to promote nondiscrimination in Federal programs substantially affecting human health and the environment, and to provide minority communities and low-income communities access to public information on, and an opportunity for participation in, matters relating to human health and the environment." It requires each federal agency to achieve environmental justice as part of its mission by identifying and addressing, as appropriate, potential disproportionately high and adverse human health or environmental effects, including social and economic effects, of its programs, policies, and activities on minority and low-income populations.

Pursuant to EO 12898, the CEQ prepared "Environmental Justice: Guidance Under the Environmental Policy Act" (1997) to assist federal agencies with their NEPA procedures "… so that environmental justice concerns are effectively identified and addressed." The analysis in this EA was conducted with the assistance of the CEQ guidance document.

EO 12898 states that population groups defined as minorities include: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic/Latino origin; or Hispanic/Latino. CEQ guidelines for evaluating potential adverse environmental justice effects indicate minority populations should be identified when either: 1) a minority population exceeds 50 percent of the population of the affected area, or 2) a minority population represents a "meaningfully greater increment" of the affected area population than the population of some appropriate larger geographic unit, as a whole.

Low-income populations are those communities or sets of individuals whose median income is below the current poverty level of the general population. According to the guidance, low-income populations in an affected area should be identified using the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, federal agencies may consider as a community either a group of individuals living in geographic proximity to one another or a set of individuals (such as migrant workers or Native Americans) where either type of group experiences common conditions of environmental exposure or effect.

3.13.1.1 Minority Population

All three of the study area counties have notably higher percentages of white, non-Hispanic residents than the state as a whole. Eureka County, in particular, is nearly 93 percent white, non-Hispanic, compared with 53 percent for Nevada (**Table 3-9**). All three counties have fewer than 1 percent blacks and 1.1 percent or fewer Asians compared with nearly 8 percent for each group state-wide. All three counties also have lower percentages of Hispanics than the state. All three counties have higher percentages of American Indian, Eskimo, or Aleut populations; Lander County is the closest with slightly more than double the statewide percentage.

With reference to the CEQ guidance, no racial or ethnic group exceeds 50 percent of the population of any of the study area counties. However, the population percentages of American Indians in all three study area counties would be considered "meaningfully greater" than for the state as a whole, ranging from 2.2 times greater for Lander County to 5.6 times greater for Elko County. Therefore, for the purpose of identifying environmental justice concerns, a minority population, as defined by the guidance, exists in the project study area.

Table 3-9 2013 Race and Ethnicity by County

Race/Ethnicity	Percent of Total Population			
	Elko County	Eureka County	Lander County	State of Nevada
White Not of Hispanic Origin	68.5	92.9	68.9	53.4
Black Not of Hispanic Origin	0.9	0.6	0.1	7.9
American Indian, Eskimo or Aleut	5.0	2.3	2.0	0.9
Asian or Pacific Islander Non-Hispanic	1.1	0.3	0.5	7.9
Other and Two or More Races	1.2	0.0	2.7	3.1
Hispanic Origin of Any Race	23.3	3.9	25.8	26.9

Source: U.S. Census Bureau 2014b.

3.13.1.2 Low-Income Population

Poverty status is determined by comparing annual household income to poverty thresholds, which vary by family size, number of children, and age of the householder, although not geographically. Poverty thresholds are updated annually, based on changes in the Consumer Price Index. Weighted average poverty thresholds for 2013 ranged from $11,173 for a single individual 65 years and over to $48,065 for a household of nine or more people. Census estimates indicated 15.8 percent of the people in Nevada were in household with incomes below the poverty level in 2013 (U.S. Census Bureau 2014c).

With mining as the dominant industry in much of the study area, mining wages and salaries typically are higher than average for the economy as a whole. As shown in **Table 3-10**, the result of this differential is substantially higher median household incomes in the study area counties than statewide. Nevertheless, there are households in all counties with incomes well below the median. The poverty threshold noted in **Table 3-10** is the weighted average for a three-person household, approximately the average size for the study area. Official model-based census estimates for 2013 indicate the percentages of both total population and of persons under age 18 in poverty were well below the comparable statewide averages. Consequently, county populations in the study area are not considered to be low-income for the purposes of EO 12898 according to CEQ guidance.

Table 3-10 2013 Household Income and Poverty Levels

State/County	Median Household Income	Poverty Threshold 3-Person Household	Population in Poverty (percent)	
			Total	Under Age 18
Elko County	$71,354	$18,552	9.1	12.2
Eureka County	$66,592	$18,552	8.1	9.8
Lander County	$69,658	$18,552	9.8	13.2
Nevada	$51,250	$18,552	15.8	22.7

Source: U.S. Census Bureau 2014c.

3.13.2 Environmental Consequences

3.13.2.1 Proposed Action

The potential effects of the Proposed Action would not be expected to disproportionately affect any particular population. The area in the immediate vicinity of the proposed project is very sparsely populated and does not have an unusually high minority population. Environmental effects that would

occur at a greater distance, such as visual or air quality impacts, would be minor and would affect the population equally, without regard to race or ethnicity. Because there are no identified environmental justice impacts, no monitoring or mitigation is recommended, no residual adverse impacts would occur, and this resource is not carried forward for further analysis.

3.13.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and related effects would not occur. Therefore, there would be no environmental or socioeconomic effects that would be expected to disproportionately affect a particular population beyond those that may currently exist.

3.14 Visual Resources

The project study area for direct and indirect impacts includes the viewshed of the proposed 21.8-mile-long ROW as seen from the adjacent county roads (CR 222 and JD Ranch Road). The CESA for visual resources encompasses viewsheds in the northern portion of Grass Valley and the southwestern portion of Pine Valley to a distance of not more than 5 miles from the proposed ROW.

3.14.1 Affected Environment

The BLM is responsible for identifying and protecting scenic values on public lands under several provisions of FLPMA and NEPA. The BLM Visual Resource Management (VRM) system was developed to facilitate the effective discharge of that responsibility in a systematic, interdisciplinary manner. The VRM system includes an inventory process, based on a matrix of scenic quality, viewer sensitivity to visual change, and viewing distances, which leads to classification of public lands and assignment of visual management objectives. Four VRM classes have been established, which serve two purposes: 1) as an inventory tool portraying relative value of existing visual resources and 2) as a management tool portraying visual management objectives for the respective classified lands. The proposed physical landscape effects of the proposed fiber optic cable would be located entirely in VRM Class IV areas. VRM Class IV is the least restrictive of the four management classes. The management objective of VRM Class IV is,"… to provide for management activities, which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic (design) elements" (BLM 1986b).

The VRM system also includes a "contrast rating" procedure for evaluating the potential visual effects of a proposed project or management activity. The VRM system was used to evaluate the visual impact of the proposed project.

Under the VRM system, the affected environment for visual resources is characterized using an inventory and evaluation process that addresses scenic quality, viewer sensitivity, and distance between viewers and a proposed modification to the landscape. Landscape characteristics contributing to the inventory process for the project study area are described below, followed by VRM class designations for the visual area of influence.

The project study area is located in the Basin and Range physiographic province as defined by Fenneman (1931). The province is characterized by alternating valleys and low, north-south trending mountain ridges common to central Nevada. Topography along the proposed ROW is flat to moderately sloping in both Grass Valley and Pine Valley.

Vegetation in the vicinity of the proposed ROW is sparse, primarily low sagebrush and grasses. With the exception of the county roads, the valleys flanking the proposed ROW primarily are covered with native vegetation. Vegetation colors include medium greens in evidence for periods in the spring, with beige, tans, and muted gold during the drier and colder months.

Native soils are light beige to pale whitish gray with rock outcrops on flanking hillsides adding generally muted browns, oranges, and some mauve to purple hues.

Color differences, though generally not sharply contrasting, can be easily distinguished at distances of a mile or more, especially with early morning or late afternoon sun at the viewer's back. Colors blend together and become very subtle or undistinguishable at greater distances and under other light conditions, such as high mid-day sun or the light haze often seen in this part of Nevada.

The county roads are the most prominent man-made features in the landscape in the study area. The roads are strongly linear in character with predominantly gray surfaces, appearing somewhat darker than flanking soils.

The only structures in the study area are a cluster of ranch buildings at the JD Ranch, approximately 2,000 feet south of the ROW, and Barrick's Lodge at Pine Valley, the eastern terminus of the proposed fiber optic cable. The buildings are geometric in form and mostly light gray to beige in color.

3.14.2 Environmental Consequences

3.14.2.1 Proposed Action

Under the Proposed Action, visual modifications would include surface disturbance within the existing disturbance area adjacent to existing roads and small areas of temporary soil piles from excavation for the vault installations, all of which would occur during construction. The primary visual effect would be a linear feature parallel to the existing county roads that essentially would be eliminated upon successful completion of reclamation. Signage required for the long-term protection of the cable and vaults would remain for the life of the fiber optic cable, but would be a very minor set of features in the landscape. The temporary construction activities and long-term signage would be visible to motorists on CR 222 and JD Ranch Road; however, they would be very minor visual features against the large-scale existing backdrop of the local landscape. The casual observer may perceive the visual change from the proposed fiber optic cable installation and signage; however, with successful reclamation these impacts would diminish over a relatively short time period, and they would not be visually dominant. All of the proposed visual changes would be within VRM Class IV areas, which permit major modifications. Since the proposed visual modifications would be negligible, they would meet the standards of the VRM class guidelines.

3.14.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and the associated impacts to visual resources would not occur.

3.14.3 Cumulative Effects

With implementation of BMPs outlined in Section 2.2, visual effects associated with the Proposed Action would be negligible and, therefore, would not substantially contribute to cumulative visual impacts.

3.14.4 Monitoring and Mitigation Measures

No monitoring or mitigation measures are recommended for visual resources.

3.14.5 Residual Adverse Effects

Following successful reclamation of the ROW, the only visual element of the proposed project would be the signage that would be retained for the protection of the cable and vaults which would be left in place for future use. Therefore, residual visual effects from the project would be negligible.

3.15 Noise

The project study area for noise effects encompasses an area within an approximately 2-mile-wide corridor centered on the proposed fiber optic cable ROW. The CESA is the same as the project study area.

3.15.1 Affected Environment

The project study area is located in a relatively remote area where there is minimal existing development. The only occupied ranch in the vicinity is the JD Ranch, which lies approximately 2,000 feet south of the eastern terminus of the proposed project. With the exception of Barrick's Lodge at Pine Valley at the eastern end of the project study area, no other ranches or other potential noise sensitive land uses have been identified in the study area.

Natural sounds, including wind, insects, and birds, are the principal contributors to ambient noise in the project study area. Variations in wind speeds can have a dramatic effect on noise levels in the area. Ranching, dispersed recreation, and mining activities in the area generate occasional vehicular noise, although the traffic is light. Military aircraft flyovers, which occur periodically, often at very low altitudes, produce noise at high levels relative to all other noise sources in the study area.

Noise levels in the CGM Operations Area previously were determined from measurements taken at seven locations in the project vicinity for the Cortez Hills Expansion Project Final EIS (BLM 2008b), a portion of which is located in the project study area. Noise levels generally were very low throughout the area. As would be expected in a rural area, levels were highest in high activity areas near the existing mine operations.

Based on these earlier measurements, background noise is very low in outlying portions of the analysis area, ranging from 29.5 decibels, A-weighted (dBA) to 32.6 dBA, which is equivalent to a library reading room. Average equivalent continuous sound levels ranged from 37.3 to 45.6 dBA in outlying areas, influenced by low level aircraft flyovers. With flyovers deleted, the range dropped to 34.2 to 41.1 dBA.

3.15.2 Environmental Consequences

3.15.2.1 Proposed Action

The Proposed Action would generate noise primarily from the operation of dozers and a directional drill for conduit installation, a backhoe for installing vaults, and a cable jetter for installing the cable in the conduit. Light and medium duty trucks also would be on site as needed for transporting workers and equipment. Construction equipment would be mobile, progressing along the ROW at an average rate of approximately 1 mile every 3 days. Therefore, noise emissions would not be consistent at any particular location for more than a few days at a time.

Noise emissions from the proposed project would be highest during construction. Maximum noise levels from construction activities are estimated at approximately 89 dBA at a reference distance of 50 feet (USEPA 1971). The nearest noise-sensitive receptors to the proposed ROW are the workers at the JD Ranch at a distance of approximately 2,000 feet from the ROW. At this distance, the highest noise level from project construction would be conservatively estimated at less than 57 dBA (USEPA 1971). Noise at this level would be loud enough to be heard, though at a level that is not considered high enough to interrupt speech communication. A number of other factors tend to mitigate the potential effects of the construction noise. Construction would be very short-term in nature, and maximum noise emissions would not occur consistently during construction, as most equipment would only be operating at peak output for 25 to 50 percent of the time. Also, the nature of this type of construction is such that the various types of equipment would often be somewhat dispersed along the ROW rather than tightly clustered in a way that would generate the maximum noise levels. Finally, construction would only occur

during daylight hours, so sleep interruption would be unlikely. Therefore, project-related noise effects would be negligible.

3.15.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and the associated noise impacts would not occur. Therefore, noise emissions and noise levels at sensitive receptors would not change from current conditions.

3.15.3 Cumulative Effects

Noise impacts associated with the Proposed Action would be negligible and, therefore, would not be anticipated to substantially contribute to cumulative noise impacts.

3.15.4 Monitoring and Mitigation Measures

No monitoring or mitigation measures are recommended for noise.

3.15.5 Residual Adverse Effects

Upon completion of project construction and reclamation, there no longer would be project-related noise emissions except at a very low level from occasional maintenance activity. Therefore, there would be no residual adverse noise effects as a result of the Proposed Action.

3.16 Hazardous Materials and Solid Waste

The project study area for direct and indirect impacts for hazardous materials and solid waste encompasses the proposed ROW. The CESA is the same as the project study area.

3.16.1 Affected Environment

The affected environment for hazardous materials includes soil, biological resources, and water that potentially could be affected by an accidental release of hazardous materials during project construction.

As discussed in Section 2.2.1.2, Hazardous Materials and Waste Management, hazardous materials that would be used during project construction would consist of petroleum-based fuels (diesel and gasoline), hydraulic fluid, and lubricants. The transport of these materials is regulated under the U.S. DOT and NDOT.

Based on NDEP (2015b) information, no leaking underground or uncontrolled hazardous waste sites are known to occur along the proposed ROW.

3.16.2 Environmental Consequences

3.16.2.1 Proposed Action

Under the Proposed Action, no hazardous materials would be stored on site. Rather, all fuel would be transported to the site and stored in certified, placarded fuel tanks located on the crew trucks. Oil, grease, and lubricants also would be transported and stored on the crew trucks. Since fuels and hazardous materials would not be stored on site, the risk of a large spill would be minimal. In the event of a potential spill, implementation of BCI's Spill Contingency Plan (see A-2 in **Appendix A**) would minimize potential impacts. As a result, it is anticipated that the transportation and use of hazardous material would pose small risk to human health and the environment.

Based on the lack of identified uncontrolled hazardous waste or petroleum spill sites along the proposed ROW, the unforeseen discovery of ground contaminated with fuels or other hazardous substances during project construction would be unlikely.

Based on the nature of the proposed project activities, it is not anticipated that hazardous waste would be generated. Solid waste (e.g., paper, plastic wrapping, pallets, empty innerduct and cable reels, etc.) would be disposed of off site in a permitted landfill or recycled, as appropriate.

The sewage from portable "blue room" facilities would be transported off site and disposed of in an approved facility.

3.16.2.2 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and the potential associated impacts would not occur.

3.16.3 Cumulative Effects

Based on the limited duration of the proposed project, the implementation of the Spill Contingency Plan, and the relatively small amounts of hazardous materials and solid waste that would be involved, the potential contribution to cumulative impacts would be negligible.

3.16.4 Monitoring and Mitigation Measures

To further minimize potential impacts in the event of a spill, it is recommended that all fueling and maintenance of vehicles and equipment be conducted at least 100 feet from drainages with flowing water.

3.16.5 Residual Adverse Effects

Residual adverse effects from the use of hazardous materials under the Proposed Action would depend on the substance, quantity, timing, location, and response involved in the event of an accidental spill or release. Prompt cleanup of potential spills and releases in accordance with BCI's Spill Contingency Plan (see A-2 in **Appendix A**) would minimize the potential for residual adverse effects.

3.17 Wild Horses and Burros

3.17.1 Affected Environment

The Rocky Hills HMA is intersected by the study area on the extreme northern boundary. Management of wild horses on BLM-administrated lands is regulated under the Wild Free-Roaming Horses and Burros Act of 1971 and the multiple use objectives of FLPMA. The act requires that wild horse populations be managed at levels that allow for the preservation and maintenance of healthy ecosystems. Wild horse populations are controlled through relocation and adoption programs and fertility control through injections of immunocontraceptives. The BLM also is guided by the Nevada Northeastern Great Basin Resource Advisory Council to promote healthy rangelands through implementation of standards and guidelines for maintaining healthy wild horse HMAs. There are no wild burros within the Rocky Hills HMA.

The Rocky Hills HMA (totaling 83,997 acres) overlaps with the northeast portion of the Grass Valley Allotment and the western half of the JD Allotment. The appropriate management level is set at 86 to 143 horses. In 2011 the BLM conducted the Callaghan and New Pass/Ravenswood Complex Gather which included the Rocky Hills HMA, leaving 113 horses in the Rocky Hills HMA (BLM 2011). The current estimated population is 155 wild horses based on the direct count obtained during the August 2012 helicopter inventory and estimated herd growth since that time.

Historic wild horse inventory and use data indicate that wild horses have not been observed anywhere near the Proposed Action (JD Ranch Road) area. Inventory data between 2002 and 2012 indicate that the majority of the wild horses concentrate in the Simpson Park Mountains in the northeastern portion of the HMA. Additionally, no water sources are known to occur within the vicinity of the Proposed Action, which would contribute to the area not being used by wild horses. There have been no documented wild horse vehicle collisions within the vicinity of the Proposed Action. Therefore, since no wild horses are known to frequent the Proposed Action study area, no direct or indirect impacts would occur as a result of the Proposed Action. Because there are no identified impacts, no monitoring or mitigation is recommended, no residual adverse impacts would occur, and this resource is not carried forward for further analysis.

3.17.1.1 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed, and the potential associated impacts would not occur.

4.0 Public Coordination

4.1 Agencies Contacted

Agencies contacted during preparation of this EA include NDOW and Lander County Assessor. Information also was obtained from agency websites during preparation of this EA, as documented in Chapter 6.0, References.

4.2 Native American Consultation

In compliance with federal mandates, the BLM initiated government-to-government consultation for the Proposed Action on December 20, 2013, by sending letters to the following tribal groups: Te-Moak Tribe of the Western Shoshone, Battle Mountain Band, Duckwater Shoshone Tribe, and South Fork Band. The letters were sent to inform the tribes and bands of the proposed undertaking and to solicit their participation in identifying traditional/cultural sites, activities, or resources in proximity to the proposed project. The letters also requested their participation in the development of mitigation measures, should such resources be identified.

5.0 List of Preparers/Reviewers

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Appendix A

Barrick Cortez Inc.'s Proposed Project-specific Plans

A-1: Soil Erosion Prevention and Control Plan (BCI 2014b)

A-2: Spill Contingency Plan (BCI 2014a)

A-1: Soil Erosion Prevention and Control Plan

The following erosion and runoff control measures will be implemented in areas of surface disturbance, as needed.

- Best Management Practices (BMPs) will be utilized to control erosion and sedimentation. BMPs may include, but not be limited to, installation of fabric and/or certified weed free straw bale filter fences, siltation or filter berms, and water bars in order to prevent unnecessary or undue degradation to the environment.
- During reclamation, the surface disturbance will be re-graded, contoured, and available topsoil/growth medium replaced, and the area will be seeded with an appropriate and approved seed mixture in order to establish a ground cover and minimize potential erosion effects. Revegetation activities will commence at the earliest feasible time following site preparation.

A-2: Spill Contingency Plan

In the event of oil, fuel, or hydraulic fluid leaks, cleanup will be conducted as soon as possible. In the event of a major spill, the following actions will be taken in addition to any applicable federal, state, and local health and safety regulations:

- Contain the spread or migration of the spill using the on-hand supply of erosion control structures and/or by creating dirt berms, as feasible and necessary.
- Pursuant to 43 Code of Federal Regulations (CFR) 8365.1-1(b)(3), no sewage, petroleum products, or refuse will be dumped from any trailer or vehicle.
- Regulated wastes will be removed from the project area and disposed of in an approved state, federal, or local designated area.
- If a spill of a petroleum constitute is considered to meet the reportable quantity per the Nevada Division of Environmental Protection (NDEP) guidelines (greater than 25 gallons or greater than 3 cubic yards of impacted material) or a reportable quantity for hazardous waste is released based on the U.S. Environmental Protection Agency guidelines established under Title III List of Lists (40 CFR Part 302), the BLM Battle Mountain District Office (775-635-4000) and NDEP (775-687-4670) will be notified within 24 hours and the appropriate remedial actions and confirmation sampling will be conducted under direction of the NDEP.

Appendix B

Vegetation and Wildlife Resources Information

June 2015

Table B-1 BLM Sensitive Plant Species Potentially Occurring in or Near the Project Study Area

Common Name/Scientific Name	Status[1]	Habitat Requirements[2]	Potential for Occurrence in or Near the Project Study Area	Eliminated from Detailed Analysis
Beatley buckwheat/ *Eriogonum beatleyae*	BLM	This species is known to inhabit dry volcanic outcrops. Typically found at elevations between 5,600 and 8,745 feet amsl. Closest known occurrence is in Eureka County, approximately four miles to the north of the proposed fiber optic line.	Low	No
Elko rockcress/ *Arabis falcifructa*	SOC; BLM	This species inhabits dry, densely vegetated, relatively undisturbed light-colored silty soils with high cover of moss. Typically found on moderately steep north-facing slopes at elevations between 5,300 and 6,100 feet amsl. Known to occur in Elko and Lander counties, but has not been documented within 40 miles of the proposed fiber optic line.	None	Yes. Eliminated based on habitat requirements and known distribution.
Eastwood's milkweed/ *Asclepias eastwoodiana*	SOC; BLM	This species inhabits open areas on a wide variety of basic soils, including calcareous clay knolls, sand, carbonate or basaltic gravels, shale outcrops, generally barren and lacking competition, and frequently in small washes or other moisture-accumulating microsites. Common in shadscale, mixed- shrub, sagebrush, and lower piñon-juniper zones, at elevations between 4,680 and 7,080 feet amsl. Known to occur in Esmeralda, Lander, Lincoln, and Nye counties, but has not been documented within 40 miles of the proposed fiber optic line.	Low	No
Nevada willowherb/ *Epilobium nevadense*	BLM	This species inhabits rocky limestone slopes, rock outcrops, and talus at elevations between 6,000 and 8,930 feet amsl. Known to occur in Eureka, Clark, and Lincoln counties, Nevada, and in Utah. The closest known occurrence to the study area is over 20 miles to the east in the Diamond Mountains.	None	Yes. Eliminated based on habitat requirements and known distribution.

Table B-1 BLM Sensitive Plant Species Potentially Occurring in or Near the Project Study Area

Common Name/Scientific Name	Status[1]	Habitat Requirements[2]	Potential for Occurrence in or Near the Project Study Area	Eliminated from Detailed Analysis
Windloving buckwheat/ *Eriogonum anemophilum*	SOC; BLM	This species typically is found at higher elevations, up to 9,836 feet amsl on exposed ridges and slopes in loose gravel of limestone or on volcanic outcrops. Known to occur in Churchhill, Humboldt, Lander, Pershing, and Washoe counties, Nevada. The closest known occurrence is over 30 miles to the west along State Route 305.	None	Yes. Eliminated based on habitat requirements and known distribution.
Low feverfew/ *Parthenium ligulatum*	BLM	This species inhabits barren shale knolls at elevations between 5,400 and 6,500 feet amsl.	None	Yes. Eliminated based on habitat requirements.
Tiehm's beardtongue/ *Penstemon tiehmii*	BLM	This species inhabits neutral sandy-loam soil pockets on steep, southerly-facing volcanic talus and scree slopes at elevations between 7,500 and 9,600 feet amsl. Known to occur in Lander County near one mountain peak and in a canyon leading to the west. Closet known occurrence is 25 miles to the northwest of the proposed fiber optic line.	None	Yes. Eliminated based on habitat requirements and known distribution.

[1] BLM – BLM Sensitive Species; SOC – USFWS Species of Concern.

[2] Information based on NNHP 2001; 2014b.

Table B-2 State of Nevada Noxious Weed List and Presence within the Vicinity of the Study Area

Common Name	Scientific Name	Category[1]	Documented in the Vicinity of the Project Study Area[2]
Russian knapweed	*Acroptilon repens*	B	No
Camelthorn	*Alhagi camelorum*	A	No
Mayweed chamomile	*Anthemis cotula*	A	No
Giant reed	*Arundo donax*	A	No
Sahara mustard	*Brassica tournefortii*	B	No
Hoary cress	*Cardaria draba*	C	Yes
Musk thistle	*Carduus nutans*	B	Yes
Purple star thistle	*Centaurea calcitrapa*	A	No
Diffuse knapweed	*Centaurea diffusa*	B	No
Iberian starthistle	*Centaurea iberica*	A	No
Spotted knapweed	*Centaurea masculosa*	A	No
Malta star thistle	*Centaurea melitensis*	A	No
Yellow starthistle	*Centaurea solstiltialis*	A	No
Squarrose knapweed	*Centaurea virgata*	A	No
Rush skeletonweed	*Chondrilla juncea*	A	No
Water hemlock	*Cicuta maculata*	C	No
Canada thistle	*Cirsium arvense*	C	Yes
Poison hemlock	*Conium maculatum*	C	Yes
Common crupina	*Crupina vulgaris*	A	No
Houndstongue	*Cynoglossum officinale*	A	No
Leafy spurge	*Euphorbia esula*	B	No
Goats rue	*Galega officinalis*	A	No
Hydrilla	*Hydrilla verticillata*	A	No
Black henbane	*Hyoscyamus niger*	A	No
Klamath weed	*Hypericum perforatum*	A	**Yes**
Dyer's woad	*Isatis tinctoria*	A	No
Perennial pepperweed	*Lepidium latifolium*	C	No

Table B-2 State of Nevada Noxious Weed List and Presence within the Vicinity of the Study Area

Common Name	Scientific Name	Category[1]	Documented in the Vicinity of the Project Study Area[2]
Dalmation toadflax	*Linaria dalmatica*	A	No
Yellow toadflax	*Linaria vulgaris*	A	No
Purple loosestrife	*Lythrum salicaria, L. virgatum* and their cultivars	A	No
Eurasian water-milfoil	*Myriophyllum spicatum*	A	No
Scotch thistle	*Onopordum acanthium*	B	Yes
African rue	*Peganum harmala*	A	No
Green fountain grass	*Pennisetum setaceum*	A	No
Sulfur cinquefoil	*Potentilla recta*	A	No
Austrian fieldcress	*Rorippa austriaca*	A	No
Mediterranean sage	*Salvia aethiopis*	A	No
Giant salvinia	*Salvinia molesta*	A	No
Carolina horse-nettle	*Solanum carolinense*	B	No
White Horse-nettle	*Solanum elaeagnifolium*	B	No
Sow thistle	*Sonchus arvensis*	A	No
Johnson grass	*Sorghum halepense*	C	No
Austrian peaweed	*Sphaerophysa salsula / Swainsona salsula*	A	No
Medusahead	*Taeniatherum caput-medusae*	B	No
Salt cedar (tamarisk)	*Tamarix* spp.	C	Yes
Puncture vine	*Tribulus terrestris*	C	No
Syrian bean caper	*Zygophyllum fabago*	A	No

[1] Category A weeds are not currently found or have limited distribution throughout the state and eradication and control are required by the state in all infestations; Category B weeds are found in scattered populations in some counties of the state and control is required by the state in areas where populations are not well established or previously unknown to occur; and Category C weeds are currently established and generally widespread in many counties of the state and control is at the discretion of the state quarantine officer.

[2] Species have been documented during surveys for nearby projects including the Cortez Hills Expansion Project Final EIS (BLM 2014d, 2008b), Horse Canyon/Cortez Unified Exploration Project Plan of Operations EA (BLM 2014c), and West Pine Valley Exploration Project EA (BLM 2004).

Source: NDA 2015.

Table B-3 BLM Sensitive Species with Potential to Occur in the Study Area

Common Name	Scientific Name	Habitat	Potential to Occur in the Project Study Area[1]
Mammals			
Pallid bat	*Antrozous pallidus*	Range: Widespread throughout much of the west. Habitat: Semidesert shrublands, montane shrublands, piñon-juniper woodlands, and foothill riparian woodlands. Roost sites include rock outcrops, mines, hollow trees, caves, buildings, and bridges.	High
Townsend's big-eared bat	*Corynorhinus townsendii*	Range: Most of Nevada and the west. Habitat: Piñon-juniper, mountain mahogany, white fir, blackbrush, sagebrush, salt desert scrub, agricultural lands, and urban habitats. Roosts in caves, mines, and building.	Moderate
Big brown bat	*Eptesicus fuscus*	Range: Widespread throughout the U.S. Habitat: Piñon-juniper, blackbrush, creosote, sagebrush, and salt desert scrub at an elevation between 985 to 9,850 feet amsl. Roost sites include caves, mines, buildings, bridges, and trees.	Moderate
Spotted bat	*Euderma maculatum*	Range: Widespread throughout Nevada. Habitat: Pine woodlands, montane forests, piñon-juniper woodlands, riparian areas, and semidesert shrublands. Roost sites include rocky crevices in cliffs, along washes, or in rock outcrops.	Moderate
Silver-haired bat	*Lasionycteris notivagans*	Range: Throughout much of the western U.S. Habitat: Forests and wooded areas near water, including piñon–juniper forests and wooded riparian corridors. Summer roosts are in trees. Winter roosts include hollow trees, rock crevices, mines, and caves.	Low
Western red bat	*Lasiurus blossevillii*	Habitat: Forests and riparian woodlands.	None
Hoary bat	*Lasiurus cinereus*	Habitat: Forests, including piñon-juniper and forested riparian zones.	Low
California myotis	*Myotis californicus*	Range: Throughout Nevada. Habitat: Occurs in a variety of habitats from Lower Sonoran desert scrub to forests. This species typically roosts singly or in small groups. Desert to forest; 690 to 8,960 feet amsl. Roost sites include mines, caves, buildings, rock crevices, hollow trees, and beneath tree bark.	Moderate
Western small-footed myotis	*Myotis ciliolabrum*	Range: Most of Nevada and the west. Habitat: Various, including grasslands, shrubland, coniferous forest, and urban settings. Roosts include caves, rock crevices, abandoned mines, buildings, and under tree bark.	High

Table B-3 BLM Sensitive Species with Potential to Occur in the Study Area

Common Name	Scientific Name	Habitat	Potential to Occur in the Project Study Area[1]
Long-eared myotis	*Myotis evotis*	Range: Widespread over the western U.S. Apparently occurs regularly in low numbers throughout the range. Habitat: Primarily associated with coniferous forests. Roost sites include hollow trees, under tree bark, rock crevices, and occasionally caves, mines, and abandoned buildings.	Low
Little brown myotis	*Myotis lucifugus*	Range: Found primarily in the northern portions of Nevada. Habitat: Associated with coniferous forests with a nearby water source. Roost sites include hollow trees, rock outcrops, buildings, and occasionally mines and caves.	Moderate
Fringed myotis	*Myotis thysanodes*	Range: Throughout Nevada and the west. Thought to normally occur in low numbers throughout range. Habitat: Desert to high elevation forest; 1,380 to 7,090 feet amsl. Roost sites include mines, caves, rock crevices, and buildings.	Low
Long-legged myotis	*Myotis volans*	Range: Widespread distribution in western North America; considered locally abundant. Habitat: Piñon-juniper woodland and montane coniferous forests. May use shrub habitat including sagebrush. Roosts in exfoliating tree bark, tree snags, and rock crevices. Hibernates in tunnels and mines.	Low
Yuma myotis	*Myotis yumanensis*	Range: Found primarily in the southern and western half of Nevada. Habitat:Riparian, desert scrub, moist woodlands and forests, but usually found near open water.	Low
Western pipistrelle	*Pipistrellus hesperus*	Range: Throughout Nevada. Habitat: Desert habitats including sagebrush, occasionally in piñon-juniper habitat with rock outcrops and canyons. Day and night roosts include rock crevices, under rocks, burrows, and sometimes buildings or mines. May hibernate in caves, mines, or rock crevices.	High
Pygmy rabbit	*Brachylagus idahoensis*	Range: Throughout the range of sagebrush in the intermountain West.Habitat: Consists of dense Great Basin sagebrush with a dense understory and having soils suitable for burrowing. The rabbit's burrows are distinctive and typically are placed at the base of sagebrush.	High
Dark kangaroo mouse	*Microdipidops megacephalus*	Range: Western U.S. from west-central Utah through central and northwestern Nevada into northeastern California and southeastern Oregon Habitat: Sagebrush shrubland.	High
Pale kangaroo mouse	*Microdipodops pallidus*	Habitat: Restricted to fine sands and alkali sink and desert scrub. Not known in Eureka or Lander Counties, Nevada.	None
Fish Spring pocket gopher	*Thomomys bottae abstrusus*	Known only from Nye County, Nevada.	None

Table B-3 BLM Sensitive Species with Potential to Occur in the Study Area

Common Name	Scientific Name	Habitat	Potential to Occur in the Project Study Area[1]
San Antonio pocket gopher	*Thomomys bottae curtatus*	Known only from San Antonio, Nye County, Nevada.	None
American pika	*Ochotona princeps*	Rocky, talus slopes near or above timberline.	None
Bighorn sheep	*Ovis canadensis*	Steep rugged terrain in mountains, foothills, and canyons.	None
Birds			
Northern goshawk	*Accipiter gentilis*	Range: Throughout Nevada. Habitat: Generally occupies montane forests in spring and summer, with some altitudinal migration into foothills and valleys in the winter. Montane and foothill aspen groves are the species' preferred nesting sites in Nevada, generally near perennial streams.	Low
Bald eagle	*Haliaeetus leucocephalus*	Range: Throughout Nevada. Habitat: Nests in close association with water; winters where abundant food is available, generally feeding near large bodies of water with appropriate roosting trees nearby.	Low
Golden eagle	*Aquila chrysaetos*	Range: Throughout Nevada and the West. Habitat: Occupies a variety of habitats. Nest on cliffs or rock outcrops, less commonly in trees, usually in isolated undisturbed areas.	High
Ferruginous hawk	*Buteo regalis*	Range: Primarily in eastern and central Nevada. Habitat: Edge of piñon-juniper habitat at interface with low shrub grasslands.	High
Swainson's hawk	*Buteo swainsoni*	Range: Throughout Nevada and the west. Habitat: Open habitats, including agricultural areas. Generally nests in trees overlooking these habitats, particularly in cottonwoods overlooking pasture and agricultural lands.	Low
Peregrine falcon	*Falco peregrinus*	Range: Throughout Nevada and the west. Habitat: Desert to mountains in open habitats in proximity to suitable nesting cliffs. When not breeding, occurs in areas where prey concentrate, including farmlands, marshes, lakeshores, river mouths, tidal flats, dunes and beaches, broad river valleys, cities, and airports.	Low
Western burrowing owl	*Athene cunicularia hypugaea*	Range: Throughout Nevada and the West. Habitat: The owls select open areas with low vegetation in grassland, shrubland, and agricultural areas. The owls often select cut banks or berms along roads and field and cut banks along washes. Nest sites include abandoned burrows of prairies dogs, ground squirrels, foxes, and badgers.	High

Table B-3 BLM Sensitive Species with Potential to Occur in the Study Area

Common Name	Scientific Name	Habitat	Potential to Occur in the Project Study Area[1]
Greater sage-grouse[2]	*Centrocercus urophasianus*	Range: Throughout Nevada where sagebrush occurs. Habitat: The species occurs in healthy sagebrush habitats. Leks are located in open areas. Nesting is within sagebrush habitats near leks. Chicks are raised in moist meadows within sagebrush communities.	High
Western snowy plover	*Charadrius alexandrines nivosus*	Range: Much of the Great Basin portion of Nevada. Habitat: The species selects barren salt pans or dry mudflats for nesting, usually at playas in the valley bottoms.	None
Pinyon jay	*Gymnorhinus cyanocephalus*	Range: A common and abundant year-round resident species throughout the Great Basin. Habitat: The species is closely associated with piñon-juniper habitats but also in association with other pines such as Jeffrey pine.	Low
Loggerhead shrike	*Lanius ludovicianus*	Range: Throughout the west and U.S. Habitat: The shrike is a common, but not abundant, summer resident of the Great Basin. It frequents open county in the valleys and foothills of the Great Basin, using a variety of shrub and grassland habitats, perching conspicuously on shrubs and fences, and nesting in dense shrubs.	High
Black rosy finch	*Leucosticte atrata*	Range: Throughout the Great Basin and the west. Habitat: Breeding habitat is open meadows and tundra above tree-line in the western mountains.	Low
Lewis's woodpecker	*Melanerpes lewis*	Range: Throughout the Great Basin and the West. Habitat: Requires areas of trees interspersed with open areas. Primary breeding habitat is open ponderosa and Jeffrey pine forests, but also occurs in logged or burned coniferous forests, and in open mountain mahogany, aspen, and cottonwood groves.	Low
Sage thrasher	*Oreoscoptes montanus*	Range: Breeds throughout much of the central portion of the western U.S. from central Colorado to California, with the winter range extending southward into central Mexico. Habitat: Sagebrush shrubland; generally dependent on large patches and expanses of sagebrush steppe for successful breeding.	High
Brewer's sparrow	*Spizella breweri*	Range: Breeds primarily throughout the intermountain West; winters in the desert scrub of the southwestern U.S. and northern Mexic. Habitat: Sagebrush shrubland.	High

[1] None = No potential for occurrence based on lack of suitable habitat present, no records of occurrence in the study area, and/or out of the species known distributional range.
Low = Little or no potentially suitable habitat (food, cover, or shelter) in study area and few or no records of occurrence in study area.
Moderate = Potentially suitable food, cover, or shelter habitat available in the study area and/or record of species in the study area.
High= Suitable food, cover, and shelter habitat in study area and multiple observations in the study area.

[2] Greater sage-grouse is also a federal candidate species.

Sources: BLM 2014c, 2008b; Great Basin Bird Observatory 2010; Hall 1995; NatureServe 2014; NDOW 2013; Reynolds, T. D., T. D. Rich, and D. A. Stephens 1999; and Rotenberry, J. T., M. A. Patten, and K. L. Preston. 1999.