Draft Environmental Assessment Boston Hill Mine Safeguard Project Grant County, New Mexico

AMLIS Key NM 935059-PAD Boston Hill

Prepared for

NMEMNRD Mining and Minerals Division
Abandoned Mine Land Program
Santa Fe, New Mexico

Prepared in cooperation with

U.S. Department of Interior Office of Surface Mining Reclamation and Enforcement, Western Region and the Bureau of Land Management, Las Cruces District Office

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August 12, 2021

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Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
AML	Abandoned Mine Land Program
BA/BE	Biological Assessment/Biological Evaluation
BCI	Bat Conservation International
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
District	Boston Hill Mining District
EA	Environmental Assessment
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impact
IPA	Important Plant Area
IPaC	Information, Planning, and Consultation System
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NMEMNRD	New Mexico Energy, Minerals, and Natural Resources Department
NMDGF	New Mexico Department of Game and Fish
NMPM	New Mexico Principal Meridian
OSMRE	Office of Surface Mining Reclamation and Enforcement
Proposed Project	Boston Hill Mine Safeguard Project
PFYC	Potential Fossil Yield Classification system
Project Area	Boston Hill Mining District
RMP	*Mimbres Resource Management Plan*
PUF	Polyurethane foam
SHPO	New Mexico State Historic Preservation Officer
SMCRA	Surface Mining Control and Reclamation Act
Town	Town of Silver City
USC	United States Code

USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Services
VRI	Visual resource inventory
VRM	visual resource management

1. Introduction

1.1 Summary of Proposed Project

The New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD), Abandoned Mine Land Program (AML), in partnership with the U.S. Department of Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), and the Bureau of Land Management (BLM), is proposing to safeguard numerous hazardous abandoned mine openings/features throughout the Boston Hill Mining District (District or Project Area) located adjacent to the Town of Silver City, Grant County, New Mexico (Figure 1). The District is primarily known for the production of manganiferous iron ore with mine production first occurring from the 1870s until the Silver City smelters closed in 1907. Mining restarted in 1916 at the Legal Tender and Silver Spots mines and at numerous surface pits within the District. Mining activity ceased in the early 1970s, soon after the railroad company that shipped the ore to smelters ceased operations and removed the tracks.

Today, much of what was once an important mining district for Grant County is now included in the Boston Hill Open Space under the Town of Silver City's (Town's) jurisdiction. The open space is a unique resource for the Town, containing numerous hiking and biking trails as well as scenic overlooks of Silver City and beyond. The District also includes privately owned and BLM-managed lands (Figure 2), and the whole District contains hundreds of historical mining features, many of which are hazardous and in need of safeguarding.

The Boston Hill Mine Safeguard Project (herein referred to as the Proposed Project) involves the implementation of safeguarding measures in the most dangerous locations of the District. Measures would include the construction or replacement of structural barriers designed to restrict human access. Fence replacement around Legal Tender and other mine openings and the installation of new fences, gates, cupolas, or other wildlife-compatible closures would be implemented site-wide where dangerous features are located. Structural closures would be built on-site to BLM's Visual Resource Management specifications. Finally, whenever possible, existing roads would be used to access the mining features proposed for closure.

1.2 Project Location

The Proposed Project is located on the Boston Hill Mining District within Grant County, adjacent (southwest) to the Town of Silver City, New Mexico (Figure 1). Access points to the trailheads of the District are located on Cooper Street, Cheyenne Street, Spring Street, and Market Street.

The Project Area is within Section 9, Township 18 South, Range 14 West New Mexico Principal Meridian (NMPM), as depicted on the Silver City, New Mexico 7.5 minute USGS topographic quadrangle (USGS, 2013) (Figure 1).

1.3 Purpose and Need for Proposed Project

The purpose of the Proposed Project is to safeguard the general public from hazards associated with historical mining features—including adits, shafts, subsidence features, and other mine openings—throughout the District, while preserving recreational opportunities where allowed, cultural resources, and wildlife habitat.

There is a need for the Proposed Project as there are unprotected mine features throughout the District that are hazardous and yet easily accessible to the public. As much of the District is designated open space, it is a recreational destination popular with local citizens as well as visitors who use the numerous trails daily for exercise or to experience the historical features and scenic views of the area. There are also areas within the District that are on private property and are vulnerable to trespass or have been illegally breached in order to access some of the most dangerous areas of the District. Mine safeguarding is needed to reduce or eliminate the many safety hazards of the District both to protect the visiting public and to prevent trespass on private property. Safety hazards include unprotected mine shaft openings, deep caverns, areas of potential subsidence, and exposed high walls.

1.4 Project History/Background

Enacted on May 2, 1977 (amended in 2006), the Surface Mining Control and Reclamation Act (SMCRA) created the nationwide AML reclamation program. It places fees on active coal mines to fund the reclamation of coal mines abandoned before 1977. The OSMRE distributes funds to the state and tribal abandoned mine land programs, which rank abandoned mine land problems on a priority scale of 1 to 3 as defined by federal law. High priority reflects the degree of need for the protection of public health, safety, and property from the adverse effects of coal mining practices prior to 1977, including restoration of land, water, and the environment. The funds are

also allowed for safety closures of mine sites other than coal mines if they have been determined to be a high-priority public safety hazard.

The District encompasses approximately 603 acres of land that are privately owned (46 acres) or managed by the BLM Las Cruces District Office (64 acres), the Town (475 acres), or Grant County (21 acres). Mining was first conducted in the early 1870s for silver ore and then later for manganiferous iron ore. The latter became the principal ore mined at the site and operations grew through the early 1900s, with a narrow gauge (24-inch) railroad built around the south and west sides of Boston Hill in 1906 on a route to mines at Pinos Altos (Gendron, 2019). Mining continued until the Silver City smelters closed in 1907. Mining restarted in 1916 at the Legal Tender and Silver Spots mines and numerous surface pits on the hill. Mining activity on Boston Hill continued until the early 1970s, when operations ceased and the railroad tracks were removed.

In 1999, after a concerted effort by a core group of residents and a generous donation from an area resident, the Town purchased a majority of the claims associated with the District as its first open space acquisition. In 2001, the Town obtained a grant to develop a non-motorized trail system and has developed at least 10 miles of hiking and biking trails in the area, safeguarded several mine openings, and used the District to promote public education on the history of mining in the Silver City area. In June 2019, the Town redesignated approximately 300 acres of the Town-owned property as an open space district. As part of the Town's Trails and Open Spaces Initiative, the District preserves important parts of the Town's natural environment and historical areas, providing local residents and visitors with the ability to experience mining history within a large open space that is located minutes away from the historic downtown.

Since the 1990s, the AML and the BLM have completed selective safeguarding measures in the District, including fencing around the most intensely mined area known as the Legal Tender Mine, located on BLM land and private property, as well as portions of the Raven Pit site. Chain link fencing was installed around the mine openings, but the fencing has since been breached and the public continues to access the openings. High tensile strength steel mesh has been installed in at least one location where a vertical pit is flush with the ground.

In early 2009, AML approached the Town to further explore the possibility of completing abandoned mine safeguarding work on the Boston Hill open space area. A key concern expressed by the Town councilors and staff was the preservation of mining history in the area, a concern shared by AML. The Boston Hill Open Space is a community asset that not only

continues to offer opportunities to preserve the Town's mining heritage, but also to attract tourists to the area and to improve the quality of life in the community.

1.5 Project Decision

This Environmental Assessment (EA) for the Proposed Project was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321, et seq.) and Council on Environmental Quality (CEQ) guidelines (40 CFR 1500-1508), which require a systematic, interdisciplinary approach to project planning and implementation and emphasize that the environmental impacts of federally funded projects be seriously considered in the decision-making process.

This EA was prepared for the AML and evaluates the environmental consequences of implementing the Proposed Project and project alternatives. This EA will also be reviewed by the OSMRE and BLM and made available to the public for review, comment, and consideration. As applicable, a Finding of No Significant Impact (FONSI) will then be prepared describing the findings of the analysis in this EA. The OSMRE Western Regional Office is the lead federal agency and will be the signatory for the FONSI and Authorization to Proceed. The BLM Las Cruces District Manager may also choose to sign a Decision Record for the Proposed Project.

1.6 Relevant Statutes and Regulations

The Proposed Project does not conflict with any known state or local planning or zoning ordinances. The Proposed Project is required to conform and comply with the following applicable and relevant regulations and statutes:

- American Indian Religious Freedom Act of 1978 (42 United States Code [USC] 1996)
- Archaeological Resources Protection Act (ARPA) of 1979 (16 USC 470)
- Clean Air Act (CAA) of 1972, as amended (42 USC 7401 et seq.)
- Clean Water Act (CWA) of 1972, as amended (33 USC 1251 et seq.)
- Endangered Species Act (ESA) of 1973, as amended (16 USC 1531 et seq.)
- Environmental Justice (Executive Order [EO] 12898)
- Floodplain Management (EO 11988)
- Invasive Species (EO 13112)
- NEPA of 1969, as amended (42 USC 4321 et seq.)

- Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500 et seq.)
- Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 USC 703–712)
- National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470 et seq.)
- National Pollutant Discharge Elimination System (NPDES), as amended (33 USC 1251 et seq.)
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 USC 3001 et seq.)
- Protection and Enhancement of the Cultural Environment (EO 11593)
- Protection of Wetlands (EO 11990)
- Secretarial Order 3206, American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act

1.7 Conformance with BLM Resource Management Plan

The Proposed Project is in conformance with the terms and the conditions of the approved *Mimbres Resource Management Plan (RMP), Las Cruces District Office Mimbres Resource Area, Bureau of Land Management, December 1993,* (BLM-NM-PT-93-009-4410), as required by *43 CFR 1610.5* (BLM, 1993). The purpose of the RMP is to provide guidance to the BLM Las Cruces District Office for management of public land under their jurisdiction in Doña Ana, Luna, Hidalgo, and Grant counties, New Mexico. The RMP provides a comprehensive framework for managing public land and allocating resources in accordance with the principles of multiple use and sustained yield of public lands set forth in the Federal Land Policy and Management Act of 1976 (FLPMA). The RMP for the BLM Las Cruces District Office is incorporated into this EA by reference and available for review at https://eplanning.blm.gov/eplanning-ui/project/72801/510.

1.8 Public Involvement

AML's goal is a collaborative approach with the community, involving it and other stakeholders by soliciting ideas and input, building consensus, and including user participation in the design and building processes. The goal is to create a harmonious, humane, widely supported solution to the issue of safeguarding local abandoned mine hazards.

Stakeholders in the planning process include landowners, local biking and hiking interests, cultural preservation groups, merchant associations, the Town of Silver City, Grant County, the OSMRE and the BLM Las Cruces District Office, the State Historic Preservation Division, and the public.

A virtual public meeting for the Proposed Project was held on Thursday, February 25, 2021, from 6:00 to 7:00 p.m., through the internet service of Zoom (Webinar). The purpose of the public meeting was to provide a project overview and answer questions from the public. To advertise the public meeting, a notice was published in the *Silver City Sun News* on February 12, 2021 and in the *Silver City Daily Press* on February 9, 2021. The meeting notice was also emailed for distribution to the Silver City Mayor and Council, Grant County Commissioners' Office, State Representatives (Districts 38 and 39), State Senator (District 28), the Silver City Trails and Open Space Committee, the Director of Public Works and Parks, the Gila Hike and Bike, the Museum of Silver City, and the Silver City Grant County Chamber of Commerce. Adjacent property owners were also contacted by the AML. Additionally, meeting notices were posted at four trailheads in the District and at the local Silver City Food Coop events bulletin board. Panelists for the meeting included 29 community members and 9 agency representatives, including AML and BLM staff.

The public meeting notice and the presentation given at the public meeting indicated a March 25, 2021 deadline for public comment submittals. As of the March 25, 2021, the 30-day deadline for comments, nine comments had been received from the public regarding the proposed safeguarding project. Comments are included in the Meeting Summary Report (Appendix A).

A second public meeting is to be held on August 25, 2021 to present the Proposed Project and the findings of the Draft EA. A 30-day public comment period will follow the public meeting. The meeting will again be conducted virtually. Stakeholder and public notifications have gone out through the same outreach sources as the first public meeting. Following the public comment period, another meeting summary report will be prepared as part of the Final EA.

2. Description of Alternatives

2.1 Proposed Project

The Proposed Project is designed to safeguard priority one hazardous mine features in the District (Figure 3), while allowing for open access by wildlife, including bats. Appendix B includes example photographs of the mine safety features. The following measures would be taken in priority areas, some of which have yet to be identified:

- *Fencing*. Existing fencing has been cut repeatedly by people wanting access to the abandoned mines around the District, especially the Legal Tender Mine complex, located partially on private property in the northeast part of Boston Hill. Custom weathering steel picket fencing is an option for replacing existing chain link fencing around the areas that have been breached. The existing fencing would be replaced around open stopes and dangerous mine complexes, and new fencing would be installed at high walls that have been determined to be a hazard.
    - *New fencing* would consist of two-rail fencing, 4 to 5 feet in height. The steel fence would be installed at the top of high walls where trails are located. The 2-inch -square tubular steel, weathering steel, would be anchored into the soil or rock using 1-inch-diameter steel rods and concrete. An estimated 2,500 feet of the two-rail new fence would be needed.
    - *Existing fence replacement* would consist of three-rail fencing, 8-foot-tall picket fence with 4-inch-square steel posts and 2-inch-square steel rails. Pickets would be 1-inch-square tubular steel, spaced at 6 inches on center. An estimated 2,750 feet of three-rail replacement fence would be needed.
- *Gates*. Gates would be installed in mine entryways where they are determined to be the best method for blocking access to mine features. The gates would be designed in accordance with the latest industry standards and would be modified as necessary to fit the specific entryway. The basic gate design would consist of a vertically placed flat grid of bars across the mine entryway. The bars would be oriented horizontally, with vertical supports spaced widely. Spacing of the bars would be designed to allow access of bats and other small mammals, but would not be wide enough to allow human entry. Gates would be constructed of 2-inch by 4-inch and 2-inch-square tubular steel, with weathering steel that would be anchored into rock with 1-inch steel rods. The gates would be designed to not inhibit air flow into the mine feature and would be constructed of angled steel oriented with the apex up to maximize the airflow through the gate (Fant et al., 2009; BCI, 2019).

  The gates would be installed at all features identified for closure by Bat Conservation International (BCI) in their 2019 report conducted for the District (BCI, 2019). Construction timing would be in accordance with the recommendations of the BCI report. There would be an estimated 55 gates needed over shafts and 45 gates over adits. In addition, on some adit and shaft openings within the open stopes of the District, gates constructed and anchored as described above would be installed. An estimated 10 gates around open stopes would be needed. An estimated 110 shaft, adit, and open stope gates would be needed.

- *Rock/Concrete Bulkhead with Culvert Gate*. In some locations, gates would consist of a bulkhead constructed of a 2- to 4-foot-thick section of rocks cemented together with concrete. A 3- to 4-foot steel culvert with a steel gate would be constructed inside. An estimated 12 bulkheads with culvert gates would be needed.
- *High tensile steel mesh*. High tensile strength steel mesh, or Spyder mesh, would be installed in locations where a vertical pit or a mine entrance is flush with the ground. The mesh is constructed of braided strands of high tensile strength steel wire manufactured by Geobrugg. The Spyder mesh is anchored into the soil or rock with a base of 1-inch steel bolts and concrete. The mesh can be ordered in a variety of patterns, colors, and/or apertures (hole sizes). The edges of the mesh would extend at least 3 feet beyond the edge of the mine opening and then anchored. Locations of the steel mesh and construction timing would be in accordance with the recommendations of BCI (2019). An estimated 20 mesh panels over shafts would be needed. The Spyder mesh would also be installed horizontally over openings. Approximately 25,000 square feet of mesh would be needed.
- *Cupolas*. Cupolas are a type of gate designed to fit over a vertical mine shaft. Bat-friendly cupolas may be installed over mine shafts if determined to be an appropriate measure for safeguarding a feature in the District. Locations and construction timing would be in accordance with the recommendations of the bat report by BCI (2019).
- *Backfill*. Mine openings may be backfilled with adjacent waste rock piles.
- *Other Structural Closures*. Polyurethane foam (PUF) plugs, gated culverts, and other structures may be used to safeguard mine openings.

The Proposed Project ground disturbance footprint would be focused on the identified hazardous mine features throughout the District (Figure 3). A narrow two-track dirt road that comes in from the south side of Boston Hill from Truck Bypass Road would be used as primary access for vehicles. Existing disturbed and flat areas would be used for construction staging of all equipment and materials.

Implementation of the Proposed Project is anticipated to begin in the spring of 2022 and work would be conducted in multiple construction phases.

2.2 No Action Alternative

The OSMRE would deny a federal grant to implement the abandoned mine land reclamation proposal described below under the Proposed Action. The No Action Alternative would not

allow for proposed safeguarding activities to protect the general public from the hazards associated with the historical mining features—including adits, shafts, subsidence features, and other mine openings—located throughout the District. Specifically, the No Action Alternative does not satisfy the Proposed Project's purpose and need because it does not allow for the:

1. Protection of public health, safety, general welfare, and property from extreme danger resulting from the adverse effects of past mineral mining practices.
2. Protection of public health, safety, and general welfare from adverse effects of past mineral mining and processing practices that do not constitute an extreme danger.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

One additional alternative was identified for the Boston Hill Mine District early in the planning process. This alternative would consist of safeguarding all of the mine features of the 603-acre District. This alternative was eliminated from detailed analysis due to the prohibitive cost of construction, especially as materials supply and demand drove construction costs up over the last year. The alternative is therefore not considered for further analysis.

3. Affected Environment

3.1 General Project Setting

The District is located adjacent to the Town of Silver City, within minutes of the historic downtown containing shops, restaurants, and hotels. The northern and northeast portion of the District is also adjacent to residential neighborhoods as well as the Grant County Courthouse. The St. Vincent de Paul Catholic Cemetery is located along the eastern boundary of the District. The southern portion of the District is in a less developed region, but is surrounded by scattered rural residential and light industrial development.

The District lies along an east-trending ridge that contains three small round hills, with the lowest part of the area lying at an elevation of approximately 6,040 feet above mean sea level (feet msl) in the southwest, rising to 6,380 feet msl at the highest point, the summit of Boston Hill. The slopes are generally gentle, but are slightly steeper on the north side of the Boston Hill Mining District than on the south and east sides. There are ephemeral drainages that carry stormwater runoff from the hills within Boston Hill to the surrounding areas, including

residential neighborhoods that surround the site on the north and east. The mean temperatures of the area are 23/53 degrees Fahrenheit (°F) (min/max) in January and 56/87°F in July (Griffith et al., 2006). Mean annual precipitation is 13 to 20 inches.

The general vegetation communities at Boston Hill vary between the north and south aspects, but are generally classified as (1) Madrean Encinal transitioning into Chihuahuan Piedmont Semi-Desert Grassland ecoregion (USGS, 2004) at the lower and southern exposure parts of the Proposed Project Area and (2) Madrean Encinal transitioning into aspects of Madrean Pinyon-Juniper Woodland on the higher and north-facing slopes.

3.2 Cultural Resources

The Boston Hill Mining District is one of two mining subdistricts (along with Chloride Flat) of the Silver City District, and it is mainly associated with a history of extraction of manganiferous iron ores from open pit and underground mines. After the Spanish began copper mining at Santa Rita, placer gold deposits were discovered at Pinos Altos in 1860, triggering a gold rush in the area (Paul, 1963). Prospecting in the Boston Hill area began in 1870 when John Bullard discovered silver chloride ores at nearby Chloride Flat, and other prospectors immediately filed claims at Silver Flat and Legal Tender, on the northern side of Boston Hill (Okun Consulting Solutions, 2019). Chloride Flat quickly developed into an important silver-producing district. However, silver mines were not developed at Boston Hill during this early period, and only small-scale prospecting occurred in the area during the 1870s and 1880s, although mining claims would be filed across the entire district between 1879 and 1917. The name "Boston Hill" comes from the purchase of numerous early claims by the Massachusetts and New Mexico Mining Company (also known as the Boston Company) in 1880.

Large-scale industrial production first started in 1916, when the Boston Hill Mining District shifted from small-scale prospecting to large underground mining efforts due to increased demand for manganiferous iron ore to support the steel industry (Okun Consulting Solutions, 2019). Manganiferous iron ore mines were operated continuously in Boston Hill from 1916 until 1931, with more than 400,000 tons of ore being shipped from the District during the 15-year period. Development began with the establishment of the Legal Tender and Silver Spot mines by R.I. Kirchman, as well as small surface pits that were excavated across the eastern side of the District. The complex underground workings of the Legal Tender Mine were established near the northern end of a ridge extending north from Boston Hill, overlooking Silver City (Okun Consulting Solutions, 2019). The Legal Tender Mine was operated by R.I. Kirchman during World War I (1916-1918), when it produced large amounts of iron ore and manganese for the

war effort, and again by the Manganese and Flourspar Producers Corporation from 1924 to 1928.

After a hiatus from 1931 to 1936 with the onset of the Great Depression, manganiferous iron ores were again extracted beginning in 1937. Operations across the Boston Hill District reached their peak in the 1940s. During that time, new and larger-scale mines and open pits were established, including the North Pit, Comanche Pit, and Raven Pit (Ackerly, 2001). According to Carter (1946), the Comanche Pit produced most of the ore until May 1944, while almost all the ore came from the North Pit for the next two years.

Mining was scaled back following World War II as the need for steel declined. At the same time, ore became more difficult to access, and many of the open pits were exhausted. After a peak in 1944, production declined almost every year until 1953, after which most of the mines were abandoned. The area did, however, continue to be mined sporadically, and the Luck Mine remained active at least through the 1970s. Ward and Mead (1986) reported ongoing iron ore extraction by the Luck Mining Company in the 1980s. The result is a landscape "pocked with pits, trenches, and open cuts" (Kelley, 1949) that contains hundreds of mining features ranging from small prospects and waste rock piles to massive open pits and deep underground shafts.

Neil Ackerly (2001) surveyed the mining district and documented hundreds of individual mining features, all presented in *An Archaeological Survey of the Boston Hill Mining District, Town of Silver City, Grant County, New Mexico*. In June through September 2018 and January 2019, Okun Consulting Solutions archaeologists conducted a new and independent inventory of Boston Hill, presenting historical mining features as they currently exist across the landscape. Following Ackerly's (2001) approach and the guidance provided by AML Program staff, all historical mining features were documented under the single resource number (LA 130556) assigned to the District during the 2001 survey. This archaeological site number subsumes other resource numbers that were assigned to portions of the district during earlier targeting surveys or recording efforts

A total of 2,821 historical features, 12 historical artifact concentrations, 62 isolated historical artifacts, and seven prehistoric/aboriginal isolated occurrences were documented during the 2018 and 2019 inventory (Okun Consulting Solutions, 2019). All features and historical artifacts were documented as part of LA 130556, and no new archaeological sites were discovered. Waste rock piles (n = 1,158), berms (n = 151), and prospect pits (n = 769) are by far the most common feature types in the Project Area, demonstrating the importance of small-scale prospecting throughout the history of the Boston Hill Mining District. Features that result from

industrial open pit mining—open cuts (n = 255) and waste rock platforms (n = 98 or underground lode mining shafts (n = 46) and adits (n = 42)—demonstrate the shift to large-scale enterprises within the district. A wide range of other landscape, transportation, and infrastructure features were also documented.

Following Ackerly's (2001) survey, LA 130556 was determined eligible for listing by the New Mexico State Historic Preservation Office (SHPO) under Criterion D (HPD Log No. 61839). The site remains in similar condition and clearly has the potential to provide important information related to mining technology and engineering, changes in mining technology over time, and the spatial organization of the historical mining landscapes. It should, therefore, remain eligible for listing on the National Register of Historic Places (NRHP) under Criterion D.

Although it has been documented only as an archaeological site in the past, Boston Hill may also qualify as a historic district, defined in *National Register Bulletin 15* as a "significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development." As this definition makes clear, districts are defined by the interrelationships among their contributing properties, which must form a unified entity that visually conveys a significant historic theme or period and a strong sense of time and place, even if the individual elements may lack distinction. The concentration of mine-related features within LA 130556 forms a dramatic visible landscape that is a material expression of mining in the early and middle twentieth century. Mining landscapes can therefore be evaluated using the same methodology as rural historic landscapes, and they are usually defined as historic districts for the purposes of NRHP eligibility and/or evaluation. Registration of the Boston Hill area as a historic district would require defining a historic context, applying NRHP criteria to assess historic significance, defining the spatial extent and period of significance of the District, and assessing the integrity of the District and its individual components (Noble and Spude, 1997).

3.3 Water Resources

There are no surface waters, wetlands, or riparian areas within the District. There are ephemeral drainages that carry stormwater runoff from the hills within the District to the surrounding areas, including residential neighborhoods that surround the site on the north and east. The nearest perennial Waters of the U.S. navigable water is the Gila River, approximately 15 miles to the west of the District. The District is within an area of minimal flood hazard (FEMA, 2011).

Groundwater levels around the perimeter of Boston Hill indicate that the depth to groundwater ranges from 27 to 86 feet (USGS, 2019b). The depths do not factor in the topography of the hills within the Project Area; therefore, the depth could range from 27 to 386 feet at the top of Boston Hill. Regional groundwater flow is to the southeast toward San Vincente Creek, also known as the Big Ditch. Groundwater supplied to residents by the Town of Silver City is tested for constituents that include bacteria, chlorine, heavy metals, minerals, nitrates and nitrites, radium, and uranium (Town of Silver City, 2020). Water use is approximately 740 million gallons per year.

3.4 Vegetation

The general vegetation communities at the District vary between the north and south aspects, but are generally (1) Madrean Encinal transitioning into Chihuahuan Piedmont Semi-Desert Grassland (USGS, 2004) at the lower elevation and southern aspects of the area and (2) Madrean Encinal transitioning into aspects of Madrean Pinyon-Juniper Woodland on the higher and north-facing slopes (Figure 4). Madrean Encinal occurs on foothills, canyons, bajadas, and plateaus in the Sierra Madre Occidental and Sierra Madre Oriental in Mexico, extending north into Trans-Pecos Texas, southern New Mexico, and sub-Mogollon Arizona (NatureServe, 2019). This woodland system is dominated by Madrean evergreen oaks along a low-slope transition below Madrean Lower Montane Pine-Oak Forest and Madrean Pinyon-Juniper Woodland. Lower-elevation stands are typically open woodlands or savannas where they transition into desert grasslands, chaparral, or in some cases desert scrub. Common evergreen oak species include Arizona oak (*Quercus arizonica*), Emory oak (*Quercus emoryi*), dwarf oak (*Quercus intricata*), and gray oak (*Quercus grisea*). Ground cover is dominated by warm-season grasses such as *Aristida* spp., blue grama (*Bouteloua gracilis*), side oats grama (*Bouteloua curtipendula*), curly mesquite (*Hilaria belangeri*), and muhly grass (*Muhlenbergia* spp.). Chaparral species such as mountain mahogany (*Cercocarpus montanus*) and Wright's silk tassel (*Garrya wrightii*) are present but do not co-dominate.

The southern portion of the District is warmer and drier, supporting drought-resistant perennial bunchgrasses (growing in clumps) such as Indian ricegrass (*Achnatherum hymenoides*), ring muhly (*Muhlenbergia torreyi*), and grama (*Bouteloua* sp.); shrubs that include bear grass (*Nolina microcarpa*), soapweed yucca (*Yucca elata*), Wheeler's sotol (*Dasylirion wheeleri*), and bricklebush (*Brickellia californica*); and succulents such as prickly pear (*Opuntia* sp.), cane cholla (*Cylindro opuntia spinosior*), and hedgehog cactus (*Echinocereus* sp.). The northern portion contains larger, denser vegetation, especially in drainages, that is similar to juniper/oak/pinyon

woodland. Species more commonly found in this area include alligator juniper (*Juniperus deppeana*), pinyon pine (*Pinus edulis*), one-seeded juniper (*Juniperus monosperma*), Emory oak, and gray oak. In addition to the understory grasses, herbaceous flowering plants common to the area include rubber rabbitbrush (*Ericameria nauseosa*), tansy aster (*Machaeranthera tanacetifolia*), blackfoot daisy (*Melampodium leucanthum*), and verbena (*Verbena bracteata*). There is no surface water on the District and no wetland vegetation.

The mine features throughout the District are generally sparsely vegetated; however, vegetation can be dense around horizontal pit openings, making the pits difficult to see. Some pits also have large trees such as junipers growing out of the bottom. Tree of heaven (*Ailanthus altissima*) was seen frequently growing out of the larger pit openings. There are species such as horehound (*Marrubium vulgare*) at the large mine openings, such as at the Legal Tender Mine complex, that appear to be more adapted to the cooler climate produced by the cavernous openings.

Noxious weeds were observed during the biological survey on July 16 through 18, 2019 (DBS&A 2019). Siberian elm (*Ulmus pumila*) and tree of heaven, both Class C species, were observed primarily in areas of disturbance. The tree of heaven was common around mine features that could have safety measures taken as part of the Proposed Project.

3.5 Livestock

There is no livestock grazing on the District, including on BLM-controlled lands.

3.6 Wildlife

The District harbors species adapted to arid environments, as well as the noise and disturbance associated with proximity to residential development, roads, and light industrial and commercial development. In addition, the entire area of the Boston Hill Mining District is used for recreational hiking and biking, and trails cross the entire area. During the July 16 through 18, 2019 biological survey, 35 vertebrate species or evidence of their presence (i.e., nests, scat, tracks, etc.) were recorded, including 25 species of birds, 7 species of mammals, and 3 species of reptiles (DBS&A, 2019).

Blue grosbeaks (*Passerina caerulea*), northern mockingbirds (*Mimus polyglottos*), western kingbirds (*Tyrannus verticalis*), and curve-billed thrashers (*Toxostoma curvirostre*) all occurred in the grasslands to the south. Curve-billed thrasher nests were observed in many of the chollas, while western kingbird activity was concentrated along the power line bisecting the southern

part of the District. Gambel's quail (*Callipepla gambelii*) and black-throated sparrows (*Amphispiza bilineata*) were found in brushy desert vegetation in the east and southeast. Spotted towhees (*Pipilo maculatus*) were often heard in areas with dense understory or midstory vegetation. Great horned owls (*Bubo virginianus*), greater roadrunner (*Geococcyx californianus*), Chihuahuan raven (*Corvus cryptoleucus*), and American kestrels (*Falco sparverius*) were observed in and around the larger pits of the District. More commonly observed were rock wrens (*Salpinctes obsoletus*), canyon wrens (*Catherpes mexicanus*), and rufous-crowned sparrows (*Aimophila ruficeps*) along the walls of the mining pits and on rocky hillsides. Typical birds of the northern, more wooded portion of the Project Area included phainopepla (*Phainopepla nitens*), summer tanager (*Piranga rubra*), American bushtit (*Psaltriparus minimus*), and especially Woodhouse's scrub-jay (*Aphelocoma woodhouseii*) and white-winged dove (*Zenaida asiatica*). Chihuahuan raven, Eurasian collared-doves (*Streptopelia decaocto*), house finches (*Haemorhous mexicanus*), and Say's phoebes (*Sayornis saya*) occurred along the urban edges of the District.

Among mammals, rock squirrels (*Otospermophilus variegatus*) were common on rocky slopes throughout the Boston Hill area, while desert cottontail rabbits (*Sylvilagus audubonii*) occupied both the grasslands to the south and the juniper and juniper-oak associations mainly to the north and west. Deer tracks were observed in the grasslands and likely belonged to both mule deer (*Odocoileus hemonius*) and Coues white-tailed deer (*O. virginianus couesi*). Other mammals of the Project Area were observed directly or through evidence such as scat and include the gray fox (*Urocyon cinereoargenteus*), cliff chipmunk (*Neotamias dorsalis*), woodrat (*Neotoma* sp.), and coyote (*Canis latrans*) (DBS&A, 2019). Bats occupy mine features of the District and have been documented previously, including in 2013, when both Townsend's big-eared bat (*Corynorhinus townsendii*) and a myotis bat (*Myotis* sp.) were detected at the Legal Tender Mine (BCI, 2019).

Reptiles are common throughout the District. Species observed during the survey included the Sonoran spiny lizard (*Sceloporus clarkii*), whiptail lizard (*Cnemidophorus* spp.), and gopher snake (*Pituophis melanoleucus*).

BCI (2019) surveyed 89 unique features located throughout the Project Area on December 11-13, 2018 and April 2, 2019, following standardized protocols and safety procedures. Only 7 of the 89 features underwent a comprehensive internal survey and recommendation, as the rest of the features had no subterranean habitat or had subterranean habitat that represented a low potential for use by wildlife. BCI surveys, however, provided biological data and closure recommendations for all of the features (Figure 5). Of the 7 unique features that received comprehensive biological surveys, 6 offered some level of subterranean

habitat with potential for bat use, and 4 of those 7 features contained bats or evidence of bats. Of the 7 features, 4 were recommended for bat-compatible closures, 2 recommended for "other wildlife-compatible closure" and one recommended for a "destructive closure with exclusion, warm season" (BCI, 2019). Since the 2019 BCI report, several features in the southeast area of the District have experienced further subsidence, opening up new sinkholes in the area of the High Desert Humane Society. BCI conducted a supplemental survey of these features in 2020 and determined that while no bat activity was observed, climate conditions for temperature and humidity would be suitable for future roosting habitat for bats (SCDP, 2020).

3.7 Special Status Species

Special status species include those species that are (1) federally listed as threatened or endangered, are candidates for listing as federally threatened or endangered, or are species proposed for listing under the provisions of the ESA, (2) species listed by the State of New Mexico as threatened or endangered, and (3) those designated by the BLM's State Director as sensitive. The BLM Las Cruces District Office has prepared a list of special status species that focuses management efforts on the mitigation of potential impacts to species and associated habitats, under a multiple use mandate.

Prior to the 2019 biological survey, the U.S. Fish and Wildlife Service (USFWS), the New Mexico Department of Game and Fish (NMDGF), the BLM Las Cruces District Office, and the New Mexico Rare Plant Technical Council (NMRPTC) databases were reviewed to determine potential occurrence of BLM sensitive and state or federal proposed, threatened, endangered, and candidate species in the Project Area (DBS&A, 2019) (Appendix C). Specifically, the Information, Planning, and Consultation System (IPaC) planning tool from the USFWS (New Mexico) was used to obtain information on federally listed flora and fauna species (https://ecos.fws.gov/ipac/). The BISON-M database (http://www.bison-m.org/) was searched for state-listed fauna species. The State Endangered Plant Species List was searched for information on potential state endangered flora species within Grant County (https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/NM-ENDANGERED-PLANT-List_2021.pdf). The BLM Las Cruces Office was consulted about BLM sensitive species with the potential to occur within the Project Area.

Species descriptions for the targeted species were then developed, and habitat requirements were compared to the habitat found in the Project Area to identify which species were likely to occur. Species considered unlikely to occur and for which suitable habitat does not exist within the Project Area, were removed from further consideration. A list of target species—those species that are likely to occur or have potential habitat within the Project Area—was developed

from these comprehensive lists prior to the biological survey. The Project Area does not contain critical habitat for any federally listed species (DBS&A, 2019).

Based on the Biological Assessment/Biological Evaluation (BA/BE) (DBS&A, 2019) (Appendix C), the following determinations were made for special status species as defined above.

3.7.1 Federally Endangered, Threatened, and Proposed Species

Due to the lack of federal critical habitat, suitable habitat, or occurrence records, it was determined that none of the federally endangered, threatened, and proposed species analyzed in the BA/BE were likely to occur within the Project Area.

One species, the northern aplomado falcon (*Falco femoralis septentrionalis*), designated federally in New Mexico as a non-essential, experimental population, had a low potential to occur in the southern part of the Project Area as an occasional or casual migrant or accidental species (DBS&A, 2019). No effect determination and no Section 7 consultation are needed for this species based on its federal status.

3.7.2 Species of Concern

Federal species of concern were also evaluated for their occurrence in the Project Area. Three plant species—Metcalfe's ticktrefoil (*Desmodium metcalfei*), Pinos Altos fame flower (*Phemeranthus humilis*) and Thurber's campion (*Silene thurberi*)—were determined to have the potential to occur in the Project Area. No species of concern were observed during the biological survey on July 16 through 18, 2019.

3.7.3 BLM Sensitive Species

Nine of the Las Cruces District Office listed species were determined to have the potential to occur within the Project Area. The species included one plant species (Sibara [*Sibara grisea*]), one arthropod (monarch butterfly [*Danaus plexippus plexippus*]), five birds (Mexican whip-poor-will [*Antrostomus arizonae*], McCown's longspur [*Calcarius mccownii*], chestnut-collared longspur [*Calcarius ornatus*], pinyon jay [*Gymnorhinus cyanocephalus*] and Bendire's thrasher [*Toxostoma bendirei*]), one mammal (Townsend's big-eared bat [*Corynorhinus townsendii*], known to occur), and one reptile (Gila monster [*Heloderma suspectum*]).

3.7.4 State-Listed Species

Of the species listed as by the state as endangered or threatened in Grant County, one reptile, the Gila monster (also BLM sensitive species), and two birds, the northern aplomado falcon (also federal experimental population) and the gray vireo (*Vireo vicinior*), were determined to have some potential to occur within the Project Area.

A total of three State endangered plant species are located within Grant County (NMEMNRD, 2019). One State endangered plant species, night-blooming cereus (*Peniocereus greggii* var. *greggii*), was determined to have the potential for occurrence in the Project Area, but no species of night-blooming cereus were observed during the biological survey around the mine features of the area. No endangered plants were observed during the biological survey on July 16 through 18, 2019.

Also evaluated were Important Plant Areas (IPAs), specific places in New Mexico that support either a high diversity of sensitive plant species or are the last remaining locations of the state's most endangered plants (NMEMNRD-Forestry Division, 2017). It was determined that there are no IPAs present in the District (DBS&A, 2019). The nearest IPA is north of Silver City, from the Pinos Altos Range north into the Gila Mountains.

3.8 Topography/Geology/Soils

3.8.1 Topography

Boston Hill is a low hill that rises above the surrounding landscape approximately 400 feet at its highest point to an elevation of 6390 feet and covers an area of approximately 1 square mile. Because of its unique geologic structures, tectonic history, and similarity to other mining districts in the region, Boston Hill has been explored extensively for valuable minerals. There are numerous prospect pits, adits, shafts, and open pit mines over the District (Section 3.8.2)

Spoil banks of waste rock and piles of overburden from the open pit mines are spread over the area and are near the mining features. These materials would be used as backfill, precluding the necessity of bringing in backfill from outside the site.

3.8.2 Geology

The area is within the Gila Conglomerate, a geologic formation in Arizona and New Mexico that consists of basin-filling sedimentary rocks that include volcaniclastic conglomerate, sandstone,

siltstone, as well as interlayered basaltic to dacitic lava flows and associated intrusions (USGS, 2019a).

Silver City/Boston Hill lies in a transition zone between the Basin and Range and the Colorado Plateau provinces, and its structural geology is complex (Trauger, 1965). The geology of Boston Hill and the Silver City area, as described by Cunningham (1974) (Figure 6), has undergone a "complex tectonic history . . . including long, essentially uninterrupted, subsidence and sedimentation, followed by several episodes of uplift, warping and igneous activity." This is evidenced by how Paleozoic formations are exposed and tilt eastward, from the oldest formation on the west side of Boston Hill to the youngest on the east side of Boston Hill. Under normal conditions, formations are superimposed with the younger formations over older formations, but at Boston Hill older formations overlie younger units due to folding and then faulting. Tertiary igneous intrusive dikes on the eastern margin of the Project Area intersect older formations, also indicating tectonic activity.

3.8.3 Soils

Past mining activities at Boston Hill have directly or indirectly impacted historical native soils surrounding the mine features and associated infrastructure. Brief soil descriptions, as taken from two soil surveys conducted in Grant County (USDA, 1983; USDA, 2021), are provided below. The soil types/units are discussed in order of relative abundance in the Project Area (Figure 7). (The number preceding the unit name was designated by early investigators.)

- *46-Plts-Dumps association, extremely steep*. This map unit is the most common soil type on hills and flats of the Project Area where the pits are open excavations from which soil and underlying material have been removed, exposing rock or other material that supports little if any plant life (NRCS, 2019). It is irregular in shape and varies in size. Slopes range from 3 to more than 75 percent. Pits and dumps are fragmented material composed of mixed alluvium and/or colluvium derived from igneous, metamorphic, and sedimentary rock.

  Mine spoil initially is very strongly alkaline; however, the sulfides rapidly oxidize after three or four years, causing the surface layer to become extremely acid. This unit has limited value for agricultural uses because of the lack of precipitation and organic matter, abundance of rock fragments, and extreme acidity or alkalinity. The value of this unit as construction material depends, to a large extent, on the texture of the material. This unit is 45 percent pits and 45 percent dumps. Included in this unit are small areas of other soil types that make up about 10 percent of the total acreage.

- *39- and 40-Oro Grande-Rock outcrop complex*. Soils other than the mined areas are generally of the Oro Grande-Rock outcrop complex and are found on hills and mountain slopes. The units are derived from weathered limestone and dolomite and are typically very cobbly loam down 13 to 17 inches to bedrock. The only variance is in the steepness of the slopes; the units are split between ranging from 5 to 15 percent slopes (unit 39) and ranging from 25 to 75 percent slopes (unit 40).
- *13-Encierro-Rock outcrop complex*. This unit is found in the northwest side of the Project Area. This group is made up of gravelly loam and rock outcrop with small areas of Oro Grande soils. Limestone is at a depth of 9 inches.

It is unclear if the soils are contaminated by heavy metals, but dust from the spoil piles that are used as backfill would be treated in such a way to keep dust at a minimum (Section 3.12).

3.9 Mineral/Paleontological Resources

Grant County has many mineral resources ranging from vast copper deposits to substantial amounts of molybdenum, zinc, lead, and iron. Exploration of the Boston Hill area for valuable minerals began in the late nineteenth century because the feature had characteristics similar to the Chloride Flat silver mining district that lies west and north of Silver City. Silver was present only in small quantities at Boston Hill, but there were manganiferous ore deposits that could economically be exploited through pit mines or mines with shallow shafts. The ore was distributed to a Silver City smelter that closed early in the twentieth century and was thereafter transported by rail to other smelters in Pueblo, Colorado and eastward until the middle 1970s.

For evaluation of paleontological resources for the Proposed Project, the Potential Fossil Yield Classification (PFYC) system was used. The PFYC provides an estimate of the potential that significant paleontological resources will be found in a mapped geological unit, and it is used to assess possible resource impacts and mitigation needs for federal actions that involve surface disturbance, land use planning, or land tenure adjustment (BLM, 2021).

The District is located within the Gila Conglomerate geologic unit (NMBGMR, 2003). The fluvial and lacustrine strata of the Gila Conglomerate contain depositional sediments that can include the fossils of vertebrates, freshwater invertebrates such as diatoms, and petrified wood (Reid and Buffler, 2004; SWCA, 2011). Because of its high vertebrate fossil content, the Gila Conglomerate is generally considered to have very high paleontological sensitivity (PFYC Class 5). However, because of the highly disturbed nature of the Project Area, field observations, and soil types found in the District, the Gila Conglomerate would be considered to have a low

paleontological sensitivity (PFYC Class 3) within the Project Area in particular. In addition, there are no BLM Areas of Critical Environmental Concern (ACECs) for paleontological resources within or near the District (BLM, 1993). The potential for the Proposed Project to impact a significant paleontological resource would therefore be low.

3.10 BLM Special Management/Designation Areas

There are no BLM ACECs, Special Management Areas—Trails, Research Natural Areas, or National Natural Landmarks within the District (BLM, 1993).

3.11 Visual Resources

The BLM has developed a comprehensive system for visual resource management (VRM) for the purpose of carrying out NEPA- and FLPMA-prescribed impact assessments, meeting its visual management objectives, and preserving the natural scenic quality of federal land. As described in BLM Manual Section 8400 – Visual Resource Management, the BLM recognizes its basic stewardship responsibility to identify and protect visual values on all BLM-managed public land.

VRM classes define the degree of acceptable visual change within a characteristic landscape. A class is based on the physical and sociological characteristics of any given homogeneous area and serves as a management objective. Categories assigned to public lands are based on scenic quality, sensitivity level, and distance zones. Each class has an objective that prescribes the amount of change allowed in the characteristic landscape (BLM Handbook H-1601-1, Land Use Planning). According to the BLM Las Cruces District Office's RMP (BLM, 1993), the Project Area includes both Class III and Class IV VRMs, which allow for moderate to major landscape modifications that conform to the basic characteristics of the existing landscape. Class III and IV are described as follows:

- *Class III*. The objective of this classification is the *partial retention* of the existing landscape character. Moderate levels of change are acceptable. Management activities may attract attention but should not dominate the casual observer's view. Changes should conform to the basic elements of the predominant natural features of the characteristic landscape.
- *Class IV*. This classification provides for major landscape *modification* management activities. These management activities may dominate the view and become the focus of viewer attention. Every effort should be made to minimize the impact of these projects by carefully locating activities, minimizing disturbance, and designing the projects to conform to the characteristic landscape.

3.12 Air Quality

There is a sulfur dioxide (SO_2) maintenance area in Grant County. The non-attainment maintenance area is located at the Phelps Dodge Chino Copper Smelter and covers an area south, east, and north of Bayard, New Mexico. The maintenance area is defined as a 3.5-mile-radius region around the smelter. The maintenance area also includes high-elevation areas within an 8-mile radius (NMED AQB, 2020).

3.13 Noise

The most sensitive noise receptors to the District are residential neighborhoods that border the Boston Hill Open Space boundary, primarily to the north and northeast. Otherwise, the area to the southeast, south, and west consists of scattered rural, residential, commercial, and other business development. In general, the areas surrounding the District would be considered quiet, with the District itself an area of relative solitude with only non-motorized uses allowed (hiking and biking).

3.14 Human Health and Safety

Abandoned mine hazards associated with historical mining features are present throughout the District. Hazards include open shafts and horizontal openings resulting from underground mining and unstable vertical cliff-like high walls, rusting machinery, and defective explosives from surface mines. These features present serious threats to human health and safety. When many of the underground mines were abandoned, the entries into them were not adequately sealed. Unstable or open portals and shafts on the ground surface can be very hazardous. Dangers within the mines include oxygen deficiencies, flooded sections, unstable roofs, hard-to-see vertical shafts, venomous insects, poisonous snakes, and disorienting mazes of mine workings. These problems are compounded by total darkness within underground mines. For inexperienced visitors to abandoned mines, the hazards are not always apparent, posing an even greater safety risk. According to records maintained by the AML, numerous injuries, some of them fatal, have occurred in abandoned mines around New Mexico (Mining Technology, 2015).

Since the 1990s, the AML and the BLM have completed selective safeguarding measures in the District, including fencing around the most intensely mined area known as the Legal Tender Mine, located on BLM land and private property, as well as portions of the Raven Pit site. Chain link fencing was installed around the mine openings, but the fencing has since been breached

and the public continues to access the openings. High tensile strength steel mesh has been installed in at least one location where the opening to a vertical pit is flush with the ground.

3.15 Recreation

The majority of the District is owned and managed by the Town exclusively for recreational purposes. Approximately 300 acres of the Town-owned property is officially designated as an open space district. A portion of the District is located on private property and is not purposed for recreation. The Town has developed at least 10 miles of hiking and biking trails in the area and used the District to promote public education on the history of mining in the Silver City area. As part of the Town's Trails and Open Spaces Initiative, the District preserves important parts of the Town's natural environment and historic areas, providing to local residents and visitors the ability to experience mining history within a large open space that is located minutes away from the historic downtown.

The southeast portion of the District is on federal public land, administered by the BLM. The BLM lands are open to the public.

3.16 Socioeconomic

Based on recent censuses, the population of Silver City was 10,315 in 2010, but only 9,386 in 2019, a drop of 9 percent in the last decade (USCB, 2021). The population of the Town and the region continues to be dependent in large part, but not entirely, upon mining for its economy. In addition to being the County seat, the Town is the home of the Gila Regional Medical Center and Western New Mexico University. The Town has been able to diversify its economy in part due to both the university and health services, but also as a recreational hub for tourism. The Town is able to promote the rich historical and cultural resources of the region as well as the vast public open spaces that surround the community. The District, as part of the Town's open space initiatives, plays an important role in the diversification of the economy by providing more tourist opportunities for recreation, which in turn support local businesses of the Town.

4. Environmental Impacts

This section identifies and discusses the environmental impacts from implementing each of the two alternatives identified (i.e., Proposed Project and No Action). The EA presents an evaluation of all the environmental impacts that could result from the alternatives.

The No Action alternative would result in no change to the human or natural environment and is not discussed further unless an impact was identified for a resource value.

4.1 Cultural Resources

During the construction phase, AML would avoid any remaining mining features such as structural foundations and artifact scatters, whether it be with equipment, vehicles, foot traffic, or any other ground surface disturbing activity. Designated avoidance areas would be established prior to construction and would extend up to 50 feet (15 meters) from cultural resources. When working near designated avoidance areas, high-visibility barrier and/or indicators would be installed around the avoidance perimeter. High-visibility barrier and/or indicators would similarly be set up where construction access routes pass near avoidance areas. Moving, removing, or collecting archaeological or historic materials from the Project Area or its vicinity would be strictly prohibited. If previously unidentified archaeological sites, deposits, or in situ artifacts are encountered, the AML Project Manager and Contractor would terminate all operation in that immediate area (100-foot or 30-meter radius) until the proper preservation agencies and Native American groups have been notified and offered the opportunity to assess the discovery site.

Given the above avoidance measures, no adverse impacts to cultural resources are anticipated from the implementation of the Proposed Alternative. Long-term beneficial impacts are expected as a result of the installation of structural barriers (e.g., locked gates and fences), which would not only enhance public safety but also help preserve cultural resources including sites eligible for inclusion in the NRHP.

4.2 Water Resources

No surface waters are located within the Project Area and no safeguarding activities would occur within the limits of ordinary high-water marks. Various ephemeral drainages would be crossed by construction equipment; however, the movement of equipment vehicles would be confined to existing roads and would not require further disturbance. No impacts to Waters of the United States would therefore be incurred from the proposed action.

4.3 Vegetation

Construction activities would have minimal impacts to vegetation. Existing roads and trails would be utilized for moving equipment, thereby minimizing vegetation disturbance. Tree

removal may occur in localized areas if removal is necessary as part of a safeguarding measure (e.g., tree blocking an adit that is to be gated). This impact is considered insignificant given the high number of piñon and juniper in and near the Project Area. Noxious weeds were observed during the biological survey on July 16 through 18, 2019. Siberian elm (*Ulmus pumila*) and tree of heaven (*Ailanthus altissima*), both Class C species, were observed primarily in areas of disturbance. The tree of heaven was common around mine features that could have safety measures taken as part of the Proposed Project. As part of construction activities, any tree of heaven in or near a proposed safeguarding measure would be removed and properly disposed of. Revegetation with a native seed mix following site closures would reduce the potential of further colonization by noxious weeds into the Project Area following construction.

4.4 Livestock

No livestock are grazed within the District; therefore, there would be no impact to livestock from the Proposed Project.

4.5 Wildlife

Short-term direct impacts to wildlife in the Project Area would include noise and ground disturbance during construction. Construction activities would likely result in direct mortality among some of the smaller, less-mobile wildlife, such as small mammals and reptiles, and the displacement of other, more mobile animals to adjacent undisturbed habitats until construction activities are completed. The most common wildlife responses to noise and the presence of construction equipment and human presence are avoidance or accommodation. Avoidance would result in displacement of animals from an area larger than the actual disturbance area. Overall, avoidance of the Project Area would be relatively short-term and would cease soon after completion of construction activities.

The measures that would be taken for safeguarding include blocking access at mine entrance to humans with gates or cupolas. The enclosures would be designed to be wildlife compatible for movement of smaller wildlife, including bats, small mammals, and reptiles. There would be no direct impact to wildlife therefore from the enclosures.

No long-term detrimental impacts to wildlife are anticipated. Townsend's big-eared bat should benefit from the Proposed Action in the long-term, through more effective fencing that restricts public access to underground mine features and reduces the potential for human disturbance. According to BCI (2019), bat use of the occupied mine features primarily represents minor to

moderate day and night roosting, likely by solitary bats or relatively small clusters on a periodic basis. A few features also demonstrate conditions potentially suitable for winter hibernation use. White-Nose Syndrome, which is the leading cause of population declines in many bat species, primarily affects hibernating bats. The fungus responsible for White-Nose Syndrome can be spread from one hibernaculum to another by humans accidentally carrying it on their shoes or clothing. The newly formed sinkhole near the Animal Humane Shelter would continue to be evaluated for any necessary safeguarding measures, as well as to determine the potential for future bat habitat.

4.6 Special Status Species

4.6.1 Federally Endangered, Threatened, and Proposed Species

The proposed action would have no effect on the following federally listed species: southwestern willow flycatcher (*Empidonax trailii extimus*), Mexican spotted owl (*Strix occidentalis*), yellow-billed cuckoo (*Coccyzus americanus*), Mexican wolf (*Canis lupus baileyi*), Mexican long-nosed bat (*Leptonycteris nivalis*), narrow-headed garter snake (*Thamnophis rufipunctatus*), Mexican garter snake (*Thamnophis eques megalops*), Chiricahua leopard frog (*Rana chiricahuensis*), beautiful shiner (*Cyprinella formosa*), Chihuahua chub (*Gila nigrescens*), Gila chub (*Gila intermedia*), Gila topminnow (*Poeciliopsis occidentalis occidentalis*), Gila trout (*Oncorhynchus gilae*), loach minnow (*Rhinichthys cobitis*), and spikedace (*Meda fulgida*). The lack of impact is because (1) the Project Area does not contain the necessary habitat or prey base, or (2) the analyzed species does not occur within the Project Area (DBS&A, 2019) (Appendix C).

One species, the northern aplomado falcon, was determined to have a low potential for occurrence in the southern part of the District. Northern aplomado falcons have been documented in Grant County in the past, though not recently. Construction for the project activities would not have direct impacts on the falcon, as it would be centered on mine features, and existing roads would be used for construction equipment. No habitat used by the falcon would be disturbed. There would be a potential for construction noise to impact a northern aplomado falcon that may be within the area of the District as a casual occurrence, but the noise would be temporary and no nesting habitat would be disturbed.

Effect determinations are not needed for non-essential, experimental populations except on National Wildlife Refuge and National Park land. No aplomado falcons have been found in several decades in the area near Silver City (Cartron, 2010). With the Project Area located at the northern edge of the species distribution and with no anticipated impacts on yucca grasslands

in the southern portion of Boston Hill, it is highly unlikely that the Proposed Project would jeopardize the existence of the northern aplomado falcon.

4.6.2 Other Special Status Species

The Proposed Project would have no impact on State threatened or endangered and BLM sensitive species with the exception of the following nine species that are known to occur in the Project Area or have the potential to be found there. They include one invertebrate (the monarch butterfly), one reptile (the Gila monster), six birds (the Mexican whip-poor-will, McCown's longspur, chestnut-collared longspur, pinyon jay, Bendire's thrasher and gray vireo), and one mammal (Townsend's big-eared bat) (DBS&A, 2019) (Appendix C).

Short-term direct impacts to the nine species with the potential to occur in the Project Area would include noise and ground disturbance during construction. The most common responses to noise and the presence of construction equipment and human presence would be avoidance or accommodation. Overall, avoidance of the Project Area would be relatively short-term and would cease soon after completion of construction activities. Gates or cupolas installed would be wildlife friendly, allowing for passage of bats. No long-term detrimental impacts to the species are anticipated.

Three plants—the night-blooming cereus, slender spiderflower (*Peritoma multicaulis*), and Parish's alkali grass (*Puccinellia parishii*)—were listed as State endangered for Grant County. One of the three plant species, night-blooming cereus, which is also considered a federal species of concern, was determined to have the potential to occur within the District. The night-blooming cereus was not observed during the biological survey near any mine feature and was therefore determined to not be affected by any project construction activities. One additional plant, Sibara, has the potential to occur in the District. It is listed by BLM as a sensitive species. None of these plant species should be impacted by the Proposed Project even if they were to occur in the Project Area. The biological survey focused especially on areas of proposed disturbance around mine features, and none of these species were documented in those areas (DBS&A, 2019).

4.7 Geology/Soils

There are no prime or unique farmland soils as defined by the Farmland Protection Policy Act in the District. Past mining activities have directly or indirectly impacted historical native soils surrounding the mine features and associated infrastructure. The most common soil unit

located around the mines is the Pits-Dumps association that was formed from overburden removed during open pit mining and excavating activities and cast aside as spoilage. Pits-Dumps association soil is the most available material and would be the soil type most commonly used for backfill as needed for the Proposed Project.

Soils other than the mined areas are generally of the Oro Grande-Rock outcrop complex and are found on hills and slopes of the District.

The Pits-Dumps association soil type is acidic and can only support replanted vegetation that is adapted to acidic soils.

There would be no lasting impact on soil or geologic resources from dust or noise caused by the relocation of the soil as backfill. Dust and wind erosion would be minimized with implementation of sediment fences, straw wattles, and other best management practices (BMPs). Using available native materials for backfill would have no significant impact on remaining ground cover.

4.8 Mineral/Paleontological Resources

Mining has not occurred on the Boston Hill District since the 1970s, and much of the District is used for recreation purposes. Therefore, the mineral resources of the area would not be directly or indirectly impacted by the Proposed Project.

The Proposed Project is not in an area of significant paleontological resources that have been documented, and given that the soil type of the Project Area is highly disturbed from historic mining, the Proposed Project would have no direct or indirect impact on paleontological resources.

4.9 BLM Special Management/Designation Areas

No BLM special management/designation areas are located within the District (BLM, 1993). Therefore, no direct or indirect impact to designated or special management areas would result from the Proposed Project.

4.10 Visual Resources

The BLM oversees large areas of public land and has a basic stewardship responsibility to identify and protect visual values on all public land under BLM's purview. The BLM has developed a comprehensive visual resource management (VRM) system for visual resource

inventory, management, and impact assessment. Although BLM's portion of the Project Area is small, the evaluation conducted for the entire District is based on BLM's impact assessment methods.

Visual resource inventories (VRIs) are conducted to assess and record the quantity, quality, and distribution of elements that make up the character of a landscape. The VRI was developed for the purpose of carrying out NEPA visual management objectives and preserving the natural scenic quality of federal lands. The BLM's policy is described in BLM Manual Section 8400 – Visual Resource Management. The inventory assessment includes a quality rating process, a sensitivity level analysis, and distance zone delineation. The VRI class objectives are listed below:

- *Class I Objective*. This designation is reserved for special areas under congressional or administrative decision outside of the land use planning process. Landscape characteristics are not changed, and natural ecological changes must require the least amount of management.
- *Class II Objective*. This designation requires visual characteristics to be retained and the level of change to be low. Management activities must not attract attention. Changes must repeat the natural basic elements of the predominant natural features of the landscape.
- *Class III Objective*. This designation requires that changes to lands partially retain the character of existing landscape with a moderate amount of change, and that management activities be low. Changes must repeat the natural basic elements of the predominant natural features of the landscape.
- *Class IV Objective*. This designation provides for management activities that require major modifications to the character of the existing landscape at a high level that dominates the view and becomes the primary focus of attention.

According to the BLM Las Cruces District Office's RMP (BLM, 1993), the Project Area includes both Class III and Class IV VRMs, which allow for moderate to major landscape modifications that conform to the basic characteristics of the existing landscape. The Proposed Project involves the installation of weathered steel for fences, gates, and webbing, use of native materials when cementing bulkheads, and careful placement of structures so as not to interfere with sight lines. These modifications would therefore have no lasting impact on visual resources.

Mining features filled with existing waste rock or polyurethane foam (PUF) would remain visible as shallow depressions, and residual waste rock material would be recontoured in place. In

addition, mine openings with highly visible waste piles, particularly on steep slopes, would be closed by an alternate method (PUF or other structural closure), thereby leaving the views of the mining landscape intact. Structural closures would typically be built on-site to BLM VRM specifications. Whenever possible, AML would use existing roads to access the features scheduled for closure.

4.11 Air Quality

The Project Area is not located in any special air quality zones regulated by State or local authorities. There would be no major sources of hazardous air pollutants and greenhouse gases during the project activities. There would be impacts during construction from the operation of equipment; however, the impacts would be temporary and localized and therefore negligible to the overall air quality of the area. There would be no long-term direct or indirect impacts to air quality as a result of the Proposed Project.

4.12 Noise

There would be noise impacts during construction from the operation of equipment; however, the impacts would be temporary and localized. Noise may impact visitors to the District during construction, but the negative impact would be negligible. There are neighborhoods along the north and east side of the District that would potentially be impacted by construction noise. The Proposed Project would comply with the Town's noise control ordinance (Code 1979, § 18-58; Code 2005, § 132.007, Section 34-179), and construction activities would be conducted only during weekdays between the hours of 8:00 a.m. and 8:00 p.m. Noise impacts would be insignificant and short term.

4.13 Human Health and Safety

The purpose of the Proposed Project is to safeguard the general public from hazards associated with historical mining features throughout the District. The project would install features that would limit access to dangerous and hazardous mine features. There would therefore be a positive long-term impact to human health and safety due to the increased safety measures implemented as a result of the Proposed Project.

Under the No Action Alternative, the mining features throughout the Project Area would remain open with their continued hazards and risks to the health and safety of visitors to the District. Continued trespass on private property would occur within areas that are deemed an extreme

safety hazard. The No Action alternative would therefore have a negative, long-term impact that potentially would be severe and significant.

4.14 Recreation

Approximately 300 acres are designated open space with at least 10 miles of trails open to the public for hiking and biking. Additionally, there is a portion of the District that is federally managed BLM land that is open to the public. There is also property within the District that is privately owned and is included as part of the Proposed Project, but is not intended for recreation.

The Town-owned property and trail system would be impacted temporarily during construction, as access to the mine features is obtained from the existing road and trails within the District. However, not all trails would be required to be shut down; access would likely be limited only in areas where construction is occurring and roads and/or trails are blocked. The impact of construction activities therefore would be localized and short-term.

Hazardous mine features such as the Legal Tender are on private property, and access to the general public is currently not allowed. Therefore, the Proposed Project within private property would have no impact on recreation. Recreation within Town-owned and BLM lands of the District does not include accessing any hazardous mine feature. There would therefore be no long-term negative impact to recreation from the Proposed Project. There would be a positive long-term impact to recreation from the Proposed Project as areas that are a hazard would be restricted and/or would have signs informing the public of dangers. Features such as fencing, gates, or signs would provide clear guidance to visitors regarding where they are allowed and where there are hazards to avoid, therefore allowing for safe recreation opportunities. In addition, the AML would work with the Town to potentially provide information through signage or kiosks to visitors to highlight the mining history of the District and the value of the natural landscape. The AML is producing an informational brochure that is based on the cultural resource surveys and could be provided to visitors.

4.15 Socioeconomic

The population of the Town has dropped over the last decade, primarily due to the fluctuations of mining in the region. As a result, the importance of diversifying the economy is a priority with the Town. The Town's economy is increasingly dependent upon the richness of its historic and natural resources, and the District is a major factor in the ability to promote the town as a

vacation destination. With its proximity to downtown Silver City where restaurants, hotels, art galleries, and other shopping are located, it is important that the District continue to be managed as a place for a unique outdoor experience.

The short-term impact to the socioeconomic resources of the Town would be both negative and positive. The short-term negative impact would be from construction at and around the mine features, as there may be increased noise from equipment and possible temporary restricted access to visitors in some areas under construction. The positive impact would occur from the increase in revenue from construction jobs provided as a result of the construction. Both impacts would be temporary.

The long-term impact as a result of the Proposed Project would be positive, as the Town would be able to promote the historical value of the District at the same time that it could count on the safety of visitors to the area.

5. Cumulative Impacts

Under NEPA, cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. OSMRE requires that potential cumulative impacts from the Proposed Project be identified for each of the resource values so as to not overlook any impact resulting from the "fragmentation" of actions.

Past, present, and reasonably foreseeable future activities within the vicinity of the Project Area include the prior installation of fences and other safeguarding structures, together with the continued use of the trails by the public.

The implementation of the No Action Alternative would have no cumulative impacts on the resources in the study area.

The effects of past, present, and reasonably foreseeable future actions in context with the Project would lead to beneficial, cumulative impacts to health and human safety within the Project region. Although an overall increase in human visitation to the area is possible, overall the safeguarding measures outlined under the Proposed Action would reduce risks associated with human health and safety issues.

6. Mitigation/Avoidance

6.1 Cultural Resources

As described in Section 4.1, avoidance areas would be established around cultural resources prior to construction. Avoidance areas would extend up to 50 feet (15 meters) from the edge of any documented cultural resource. High-visibility barrier and/or indicators would be installed where access roads or proposed construction activities come near avoidance areas.

In the event that previously unidentified archaeological sites, deposits, or in situ artifacts are encountered, the AML Project Manager and Contractor would interrupt all operation in that immediate area (100-foot or 30-meter radius) until the proper preservation agencies and Native American groups have been notified and offered the opportunity to assess the discovery site.

6.2 Water Resources

No water resources mitigation measures are necessary for the Proposed Project.

6.3 Vegetation

All equipment access would be restricted to existing roads and trails of the District wherever possible. Any vegetation that is disturbed would be reseeded with a native grass and forbs mix. Any tree of heaven (a Class B noxious weed) disturbed around mine openings would be removed and properly disposed of.

6.4 Livestock

No livestock mitigation measures are necessary for the Proposed Project.

6.5 Wildlife

Conservation measures are recommended to minimize any impacts on wildlife and plants of the Project Area. The following actions would be incorporated into the design of the Proposed Project:

- Existing roads and trails would be used as primary access for all vehicles and construction equipment.

- Secondary access would be limited to the extent possible. Once construction is completed, the disturbed areas would be reseeded with native grass and forb species.
- Existing disturbed and flat areas would be used for construction staging of all equipment and materials. The staging areas would be located on or adjacent to the existing roads and trails.
- If possible, construction activities would take place outside of the migratory bird nesting season (February 15 to September 15). If not, a pre-construction nesting survey of the Project Area would be conducted prior to the commencement of construction. If active nests are located during the pre-construction survey, consultation with the BLM, NMDGF, and/or USFWS would occur. Nests would be flagged, and an avoidance buffer would be assigned during construction activities. .

The BCI Bat Survey Report (BCI, 2019) (Appendix D) provides recommendations for reducing impacts to any bats from the construction of structural barriers, based on habitat potential. For example, for mining features that are not associated with any potential bat habitat, no closure stipulations were recommended (i.e., mining features can be closed at any time by any means deemed necessary). For features that possess good habitat, closure was recommended to take place using an approved bat compatible closure structure. Construction features for gates at mine entrances would be designed in accordance with BCI recommendations to allow access of bats and other small mammals and reptiles, but would not be wide enough to allow human entry. Construction would be timed consistent with BCI recommendations (BCI, 2019)

6.6 Special Status Species

No additional measures are necessary beyond the measures listed in Section 6.5.

6.7 Geology/Soils

Soils disturbed by construction activities would be restored to match existing contours such that erosion would be minimized, and erosion control measures such as reseeding with native vegetation and installing straw wattles as necessary would be implemented to minimize disturbance.

6.8 Mineral/Paleontological Resources

No mitigation measures for mineral/paleontological resources are necessary for the Proposed Project.

6.9 BLM Special Management/Designation Areas

There are no BLM special management areas in the District; therefore, no mitigation measures are necessary for the Proposed Project.

6.10 Visual Resources

6.10.1 Mitigation of VRM

Every effort would be made to minimize the impact of the safeguard project by carefully selecting the placement of construction activities, minimizing ground disturbance, and designing the features listed below to conform to the characteristic landscape. The impact of the project on the aesthetics of Boston Hill would also be minimized by using material types that blend with the landscape and prioritizing reinforcement and repair of existing structural barriers for minimal to no change to the existing landscape.

Features that would be visually minimized include:

- *Fencing*. Fencing that would replace existing chain link fencing and any new fencing that is installed would consist of weathered steel picket fencing.
- *Mesh Covering*. Reinforced steel mesh installed over pits or shafts would be placed at ground level for a minimal effect on the overall landscape.
- *Polyurethane foam plug*. Foam plugs for shafts would be covered to the existing ground elevation with adjacent rock materials and would blend into the existing landscape.
- *Cupolas*. Bat cupolas would be constructed to fit into contours of the landscape for a less obtrusively visual effect.
- *Gates*. Gates that restrict access are typically inset slightly into the mine feature opening. If necessary, cemented native rocks would be inserted around the gate to blend into the existing landscape.

Appendix B, Photographs 9 through 15, show examples of the features.

The Proposed Project would not dominate a casual observer's view. Changes would conform to the basic, predominant natural features of the characteristic landscape and would therefore cause no significant impacts.

6.11 Air Quality

Measures taken under the Proposed Project to minimize impacts to air quality would include the following:

- Construction equipment would temporarily generate fumes and air emissions. Motorized equipment would be in compliance with local and federal air emission standards.
- Hydraulic hoses and valves of equipment would be properly maintained to avoid leakage.
- Fugitive dust generated during the spreading and grading of soil would be localized and would occur slowly, allowing it to resettle within the vicinity of the Project Area.
- As required by BLM, cabs on equipment would be sealed during backfilling if there is a potential for heavy metal pollution in the soils being hauled.
- Dust suppressants or water would be utilized as necessary to control fugitive dust generated by vehicles accessing the Project Area and while loading the trucks for soil disposal.
- Use of heavy equipment would be held to a minimum.

6.12 Noise

Construction activities would be conducted only during weekdays between the hours of 8:00 a.m. and 8:00 p.m.

6.13 Human Health and Safety

A health and safety plan would be developed and implemented by the contractor during construction. No other mitigation or avoidance measures are recommended.

6.14 Recreation

No mitigation measures are recommended. Impacts to recreation during construction would be temporary, and long-term impacts are beneficial.

6.15 Socioeconomic

No mitigation measures are recommended. Socioeconomic impacts during construction would be temporary, and long-term impacts are beneficial.

7. Agency Consultation

The following public agencies and tribal entities were contacted or consulted with during the development of this EA (in alphabetical order).

- Acoma Pueblo
- Bureau of Land Management, Las Cruces District Office
- Ft. Sill Apache Tribe
- Grant County Commissioner
- Hopi Tribe
- Isleta Pueblo
- Mescalero Apache Tribe
- Navajo Nation
- New Mexico Department of Game and Fish, online county species list for State listed species
- New Mexico State Historic Preservation Office
- Town of Silver City
  - Mayor and District 3 City Councilor
  - Museum of Silver City
  - Public Works and Parks
  - Silver City Grant County Chamber of Commerce
  - Town Clerk
  - Trails and Open Space Committee
- U.S. Fish and Wildlife Service, Ecological Services Field Office, online IPaC report services
- White Mountain Apache Tribe
- Zuni Pueblo

Appendix E contains agency and tribal outreach letters and responses.

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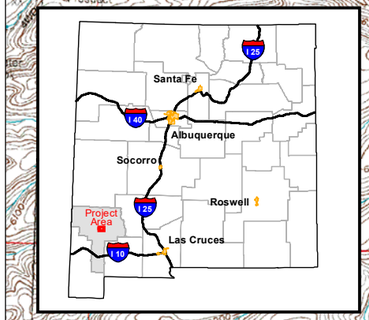
Figures



N

0 0.25 0.5 Miles

Legend

Project Area

Image Source: 7.5 Minute Quadrangle Map, Tyrone, New Mexico, 2013

BOSTON HILL MINE SAFEGUARD PROJECT
ENVIRONMENTAL ASSESSMENT

Location Map

Daniel B. Stephens & Associates, Inc.
8/6/2021 JN DB17.1289

Figure 1

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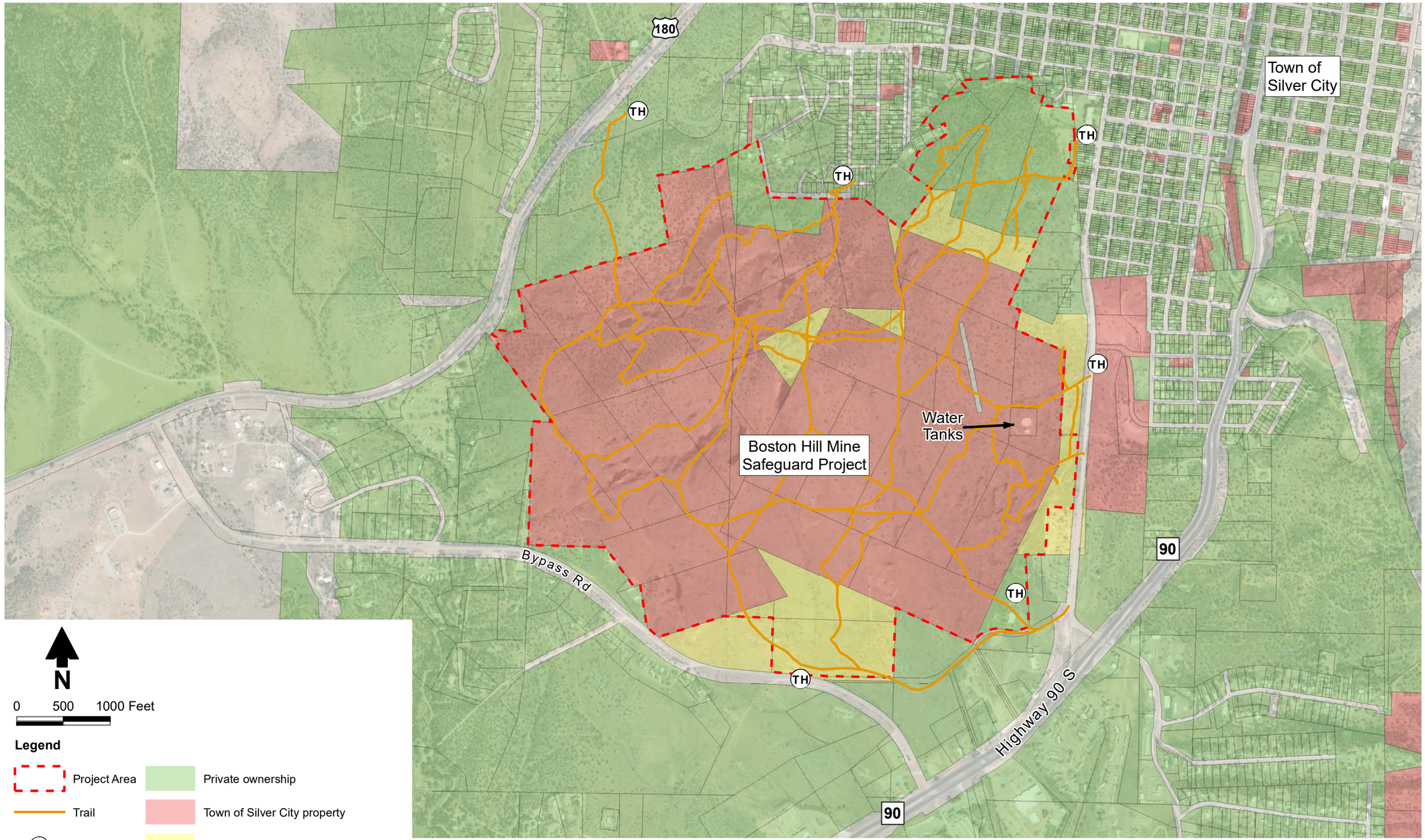

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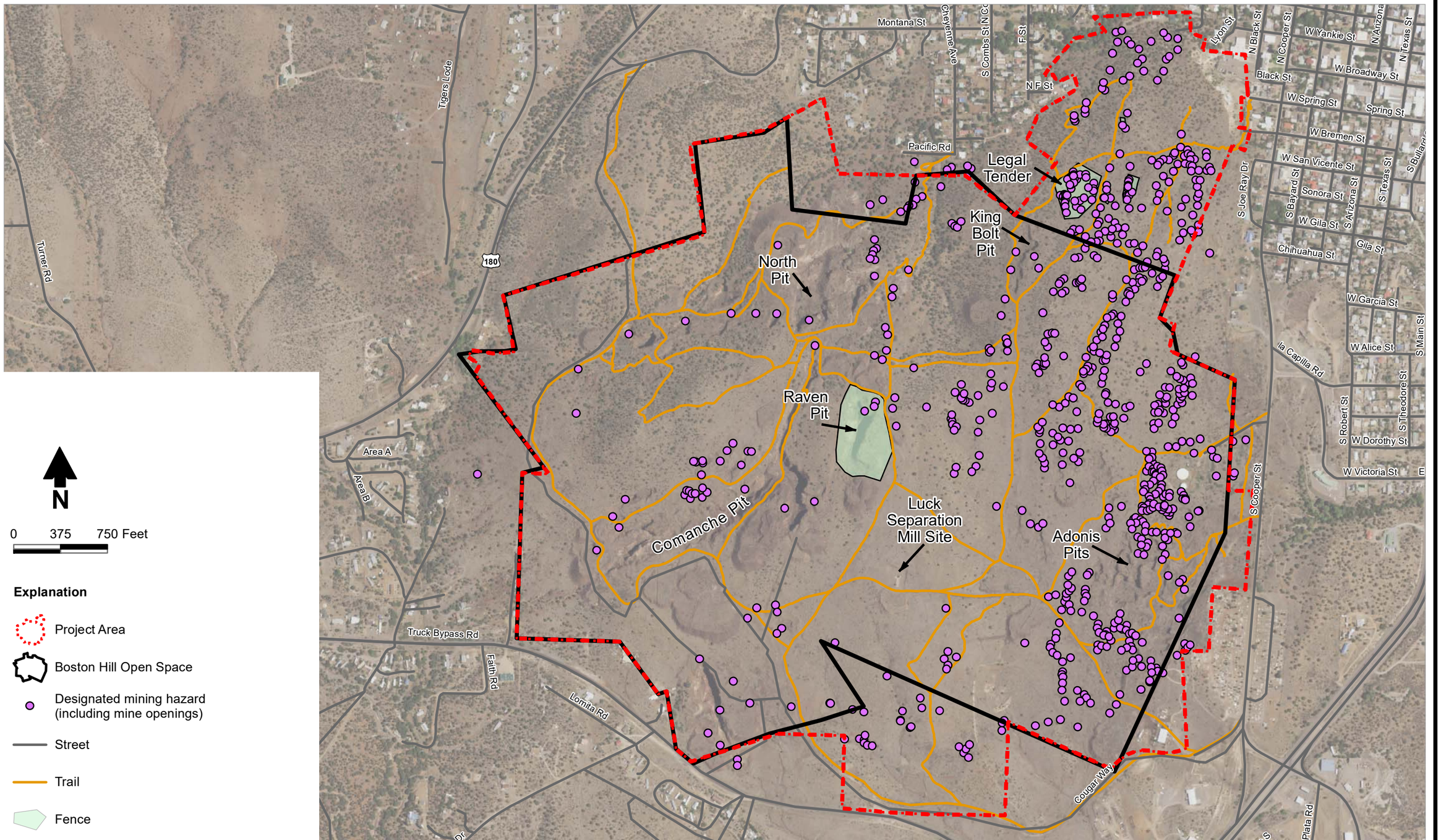
Daniel B. Stephens & Associates, Inc.
8/11/2021
JN DB17.1289

BOSTON HILL MINE SAFEGUARD PROJECT
ENVIRONMENTAL ASSESSMENT

Boston Hill Mine District Land Ownership

Figure 2



Explanation

- Project Area
- Boston Hill Open Space
- Designated mining hazard (including mine openings)
- Street
- Trail
- Fence

Image Source: National Agriculture Imagery Program (NAIP), 2016

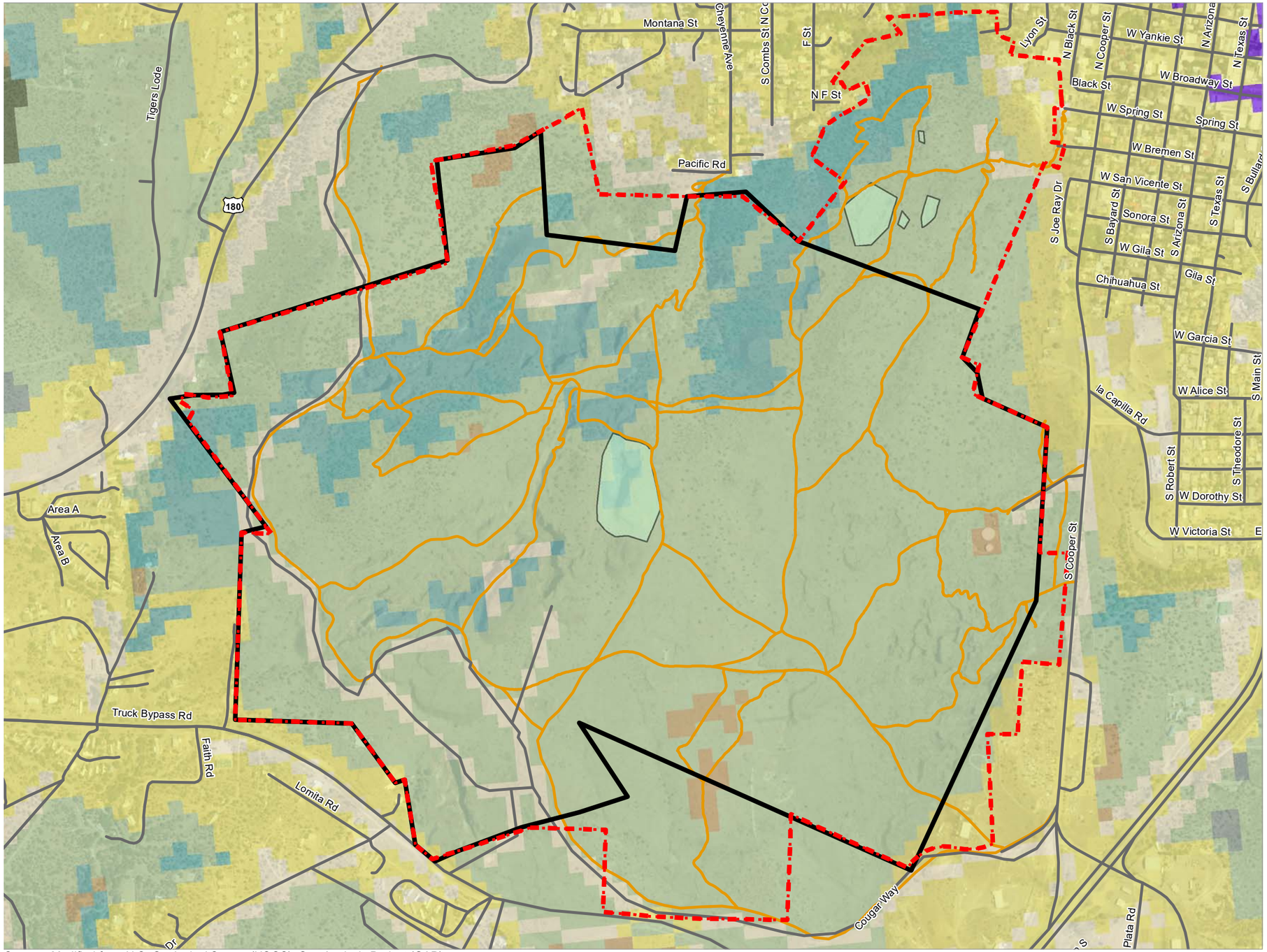
BOSTON HILL MINE SAFEGUARD PROJECT
ENVIRONMENTAL ASSESSMENT

Mine Features Map

Daniel B. Stephens & Associates, Inc.
8/6/2021 JN DB17.1289

Figure 3

\\ss6abq\Data5\Projects\DB17.1289_Abandoned_Mine_Land_Program_NEPA\GIS\T9 Boston Hill BE\MXDs\20210806\F03_Mine_Features_Map.mxd



N

0 375 750 Feet

Explanation

- Project Area
- Boston Hill Open Space
- Street
- Trail
- Fence

Vegetation

- Madrean Encinal
- Madrean Pinyon-Juniper Woodland
- Apacherian-Chihuahuan Semi-Desert Grassland and Steppe
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity

Source: Modified from U.S. Geological Survey (USGS), Gap Analysis Project (GAP)

BOSTON HILL MINE SAFEGUARD PROJECT
ENVIRONMENTAL ASSESSMENT

Vegetation Map

Daniel B. Stephens & Associates, Inc.
8/6/2021 JN DB17.1289

Figure 4

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N

0 375 750 Feet

Explanation

- Project Area
- Boston Hill Open Space
- Trail
- Street
- Fence

Danger Rating

- Extreme
- High
- Moderate
- Low

Image Source: National Agriculture Imagery Program (NAIP), 2016
Bat habitat data provided by Bat Conservation International (BCI), 2019

BOSTON HILL MINE SAFEGUARD PROJECT
ENVIRONMENTAL ASSESSMENT

BCI Inspection Results

Figure 5

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8/6/2021 JN DB17.1289

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N

0 375 750 Feet

Explanation

Project Area

Boston Hill Open Space

DEVONIAN

Dpb
Dpr

Percha Shale

Dpb, Box Member: *Light-gray to buff, containing gray limestone nodules and lenses, 135 ft thick, grades into Dpr*
Dpr, Ready Pay Member: *Gray to black fissile shale, 290 ft thick*

SILURIAN

Sf

Fusselman Dolomite

Dark brownish-gray, slabby to massive dolomite; pitted surface and vugs common; mottled color in southern portion due to manganese stain; 100 ft

Montoya Group

UPPER ORDOVICIAN

Omc

Cutter Dolomite

Light to medium brownish-gray sublithographic dolomite; 40 ft

Omo

Aleman Formation

Alternating bands (1 to 3") of medium-gray, fine-grained dolomite and pink to gray chert; 60 ft

Oms

Second Value Dolomite

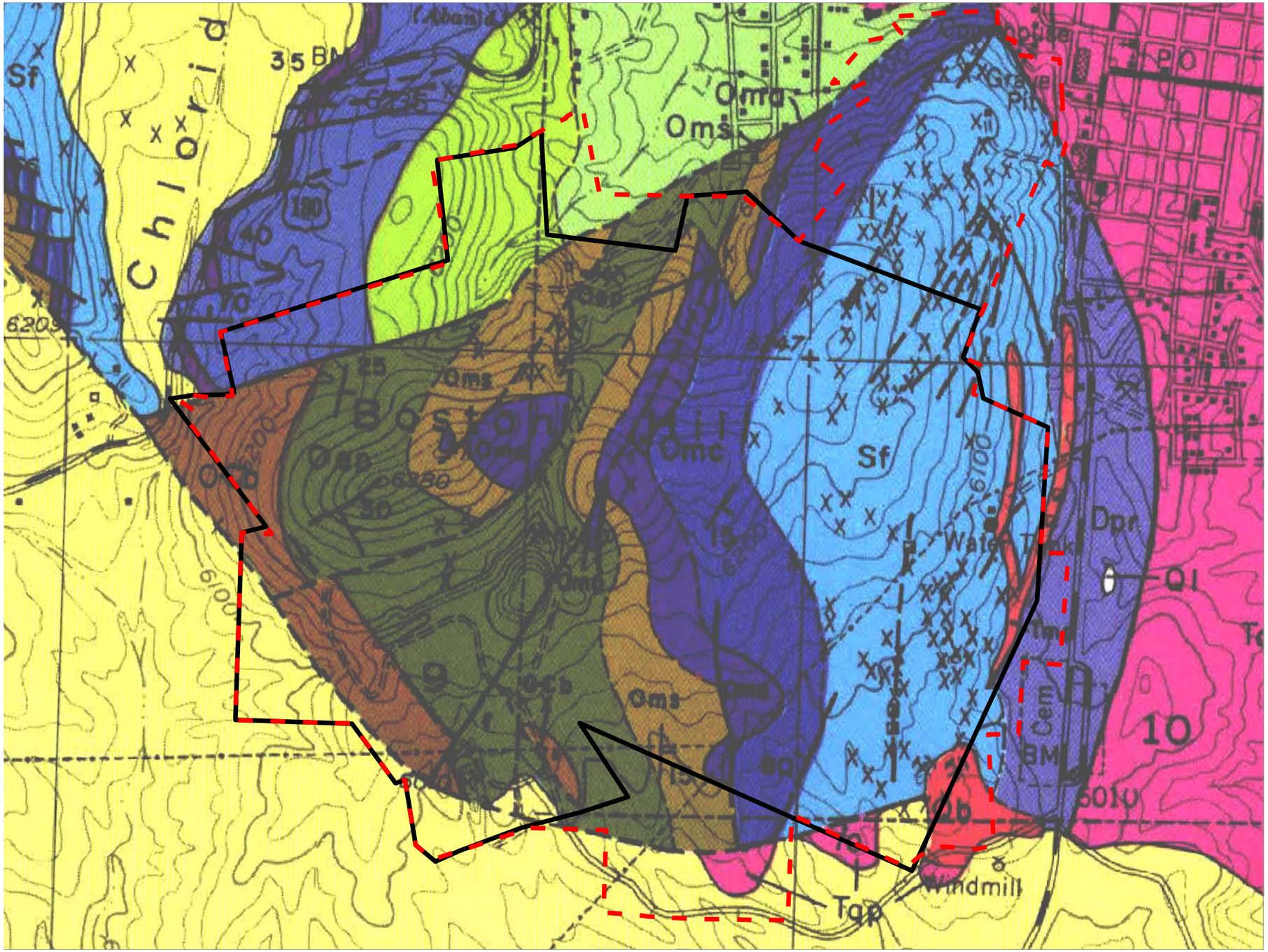
Medium-gray, fine-grained, silty or sandy dolomite (Upham Dolomite Member); lowermost 3 to 20 ft is brown coarse dolomitic sandstone Cable Canyon member; 105 ft

LOWER ORDOVICIAN

Oep

El Paso Dolomite

Medium-gray to gray-brown, often mottled, fine to coarsely crystalline dolomite, sandy dolomite, and mudstone; lower third is fuccoidal; upper two-thirds has lenses and nodules of pink to gray chert; contains intraformational breccias, channel and mound structures, and, in lower beds, scattered glauconite; 330 ft



New Mexico Bureau of Mines and Mineral Resources
Base from U.S. Geologic Survey
Geology by John Cunningham 1969-1974

BOSTON HILL MINE SAFEGUARD PROJECT
ENVIRONMENTAL ASSESSMENT

Geology Map

Daniel B. Stephens & Associates, Inc.
8/6/2021 JN DB17.1289

Figure 6

\\ss6abq\Data5\Projects\DB17.1289_Abandoned_Mine_Land_Program_NEPA\GIS\T9 Boston Hill BE\MXDs\20210806\F06_Geology_Map.mxd

N

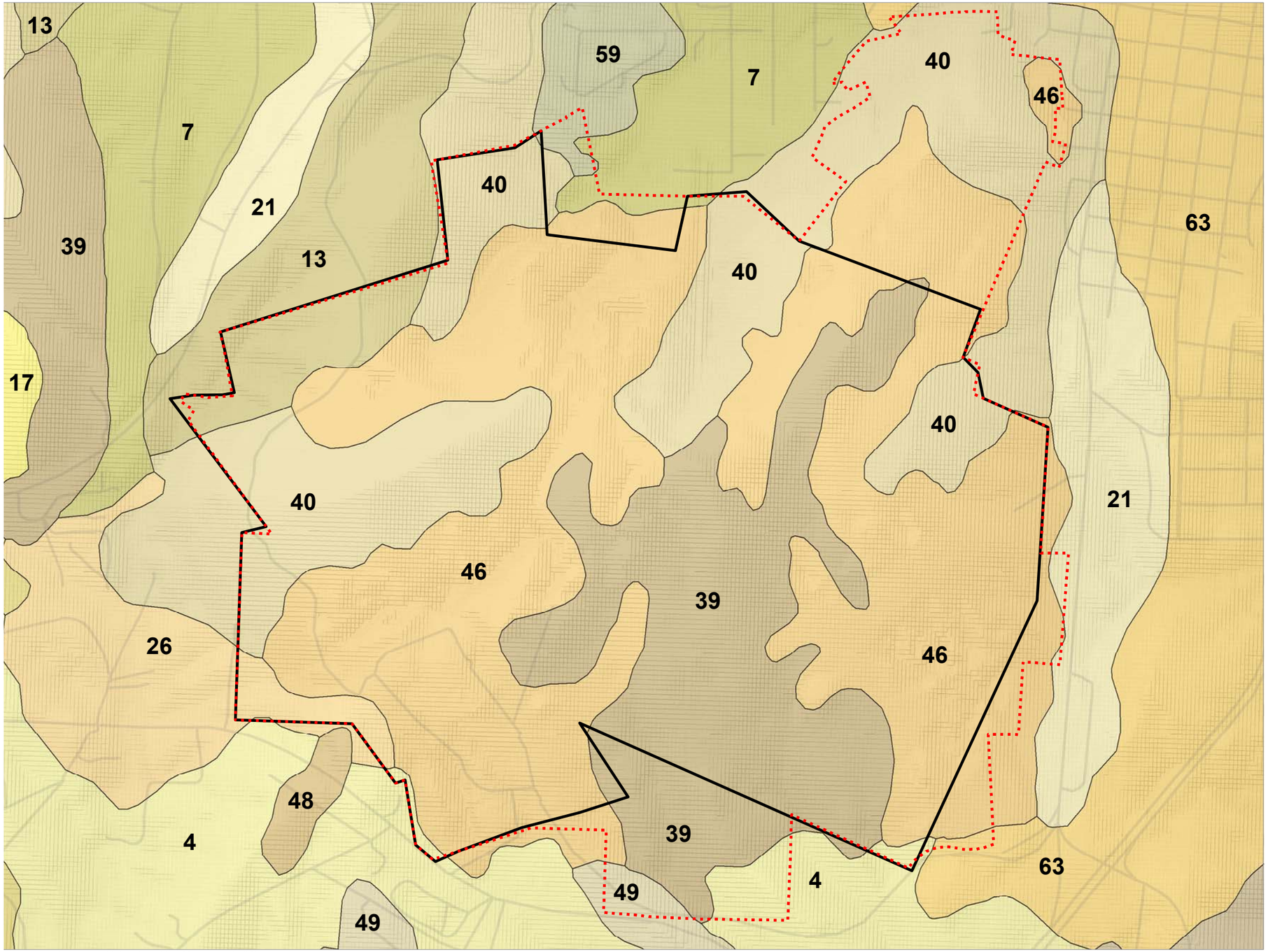
0 375 750 Feet

Explanation

Project Area

Boston Hill Open Space

Map Unit Symbol	Soil Type
4	Boysag clay loam, 15 to 35 percent slopes
7	Carnero-Santa Fe complex, 5 to 15 percent slopes
13	Encierro-Rock outcrop complex, 15 to 35 percent slopes
15	Gaddes-Santa Fe-Rock outcrop complex, 15 to 45 percent slopes
17	Guy very cobbly loam, 15 to 35 percent slopes
21	Jonale sandy clay loam, 15 to 35 percent slopes
25	Lonti gravelly loam, 15 to 35 percent slopes
26	Lonti gravelly clay loam, 0 to 8 percent slopes
27	Lonti-Denver variant complex, 1 to 25 percent slopes
33	Manzano loam, 1 to 3 percent slopes
39	Oro Grande-Rock outcrop complex, 5 to 15 percent slopes
40	Oro Grande-Rock outcrop complex, 25 to 75 percent slopes
41	Orthents, 25 to 60 percent slopes
44	Paymaster-Ellicott complex, 1 to 3 percent slopes
46	Pits-Dumps association, extremely steep
48	Plack variant-Guy complex, 1 to 8 percent slopes
49	Plack variant-Guy complex, 15 to 35 percent slopes
59	Santa Fe-Rock outcrop complex, 5 to 15 percent slopes
60	Santa Fe-Rock outcrop complex, 20 to 45 percent slopes
63	Santana-Rock outcrop complex, 1 to 25 percent slopes



Modified Source: USDA Web Soil Survey)WSS)
https://websoilsurvey.sc.egov.usda.gov/

BOSTON HILL MINE SAFEGUARD PROJECT
ENVIRONMENTAL ASSESSMENT
Soils Map

\\ss6abq\Data5\Projects\DB17.1289_Abandoned_Mine_Land_Program_NEPA\GIS\T9 Boston Hill BE\MXDs\20210806\F07_Soils_Map.mxd

Daniel B. Stephens & Associates, Inc.
8/6/2021 JN DB17.1289

Figure 7

Appendix A

Public Meeting Summary

DBS&A
Daniel B. Stephens & Associates, Inc.

DBS&A
Daniel B. Stephens & Associates, Inc.

Memorandum

To: Lloyd Moiola and James Hollen,
Abandoned Mine Land Program

Date: August 12, 2021

From: Julie Kutz and Jean-Luc Cartron

Subject: Public Scoping Summary, Boston Hill Mine Safeguard Project
February 25, 2021 Public Meeting

The New Mexico Energy Minerals and Natural Resources Department (EMNRD), Mining and Minerals Division (MMD), Abandoned Mine Land Program (AML) is preparing an environmental assessment (EA) for the Boston Hill Mine Safeguard Project located in the Town of Silver City, New Mexico. Two alternatives are being considered, the Proposed Project and the No Action alternative. As part of preparation of the EA, a public meeting was conducted on February 25, 2021 using the online application Zoom Webinar.

Public Meeting Outreach

Notification of the meeting was completed by the following methods (Attachment 1):

- Agency stakeholders and other interested parties were e-mailed a stakeholder letter providing information regarding the project on February 8, 2021.
- Newspaper announcements were run one time in English and Spanish in two newspapers: *Silver City Daily Press* (February 9, 2021) and *Silver City Sun News* (February 12, 2021).
- Radio public service announcements (PSAs) were played on Silver City Radio, KSCQ 92.9 FM, KNFT 102.9 FM, and KNFT 950 AM (one 10-second PSA), and Gila Mimbres Community Radio, KURU 89.1 FM (six 15-second PSAs).
- Flyers (in Spanish and English) were posted at the Silver City Coop market event board and at four trailheads around Boston Hill Mine District on February 18, 2021.
- Private landowners were contacted by the AML.
- A meeting announcement was posted on the AML website by February 17, 2021.
- A meeting announcement was posted on the Daniel B. Stephens & Associates, Inc. (DBS&A) website as of February 17, 2021.

Public Meeting

The meeting was conducted via Zoom Webinar on February 25, 2021 from 6:00 to 7:30 p.m. A PowerPoint presentation was given to introduce the project team, purpose and need, proposed project, NEPA process, major topics of interest from the EA, and examples of AML safeguarding measures (Attachment 2). Following the presentation, the discussion was opened up for questions and comments.

There were 29 attendees and 9 panelists present at the meeting. Questions during the meeting were as follows:

1. On the map, the southwest portion of the southernmost parcel of BLM land on Boston Hill is shown outside of the Project Area. Could you explain why this is?
2. Can we request the report on the cultural features?
3. Will this GIS map of historical features be made available to the public?
4. In cataloging the mining features, did you consider opportunities for mining tourism on Boston Hill—places where tourists can get a view of what it was like to work underground and to work in a pit situation?
5. I would like to receive the public version of the cultural resources report including the map of your findings.

Comments

The comment period was set to be from February 25, 2021 until March 25, 2021. The comments and responses are summarized in the table provided as Attachment 3. Comments received are provided in Attachment 4.

Attachment 1

Outreach Documentation

DBS&A
Daniel B. Stephens & Associates, Inc.

Stakeholders

Town of Silver City
www.townofsilvercity.org

Town Clerk
townclerk@silvercitynm.gov

Mayor Ken Ladner
kenladner@hotmail.com

Jose A. Ray, Councilor, District 3
jose_r88061@yahoo.com

Trails and Open Space Committee
Community Development Director
Phone: 575-534-6349
Jamie Embick
jembick@silvercitynm.gov
townclerk@silvercitynm.gov

Director of Public Works and Parks
Peter Pena
pwdirector@silvercitynm.gov

Museum of Silver City
312 W. Broadway
Silver City, New Mexico, 88062
Ph: 575-538-5921
www.silvercitymuseum.org
Bart Roselli (Museum Director)
director@silvercitymuseum.org

Silver City Grant County Chamber of Commerce
Mailing Address: Post Office Box 1028
Silver City, NM 88062-1028
(575) 538-3785 or (800) 548-9378 Fax: (575) 597-3790
director@silvercity.org (Steve)

District 38 Representative Rebecca Dow
rebecca.dow@nmlegis.gov

District 39 Representative Luis M. Terrazas
luis.terrazas@nmlegis.gov

District 28 Senator Sia Correa Hemphill
siah.hemphill@nmlegis.gov

Grant County Commissioner Harry Browne
hbrowne@grantcountynm.gov

Bureau of Land Management
Chris Teske
cteske@BLM.gov

Other Public Involvement Contacts

Adjacent Property owner:
Jim Gruwell
jimgruwell@msn.com
jgruwell@wnmtitle.com (work email)

Gila Hike and Bike
https://www.gilahikeandbike.com/
gilahikeandbike1@gmail.com Martin

High Desert Humane Society
http://www.highdeserthumane.org/
3050 Cougar Way
Silver City, NM 88062
575-538-9261
hdhs@gilanet.com

Grant County Beat
Mary Alice Murphy
Editor@grantcountybeat.com

Flyer postings at BHMD trailheads and at the Coop.

Ads/PSAs

Silver City Sun News
https://www.scsun-news.com/
Note: for running 2 print ads (1 ENG and 1 ESP); and 2 digital ads (1 ENG and 1 ESP);

Silver City Daily Press
https://www.scdailypress.com/#
Note: for running 2 print ads (1 ENG and 1 ESP);

Radio Stations:
Silver City Radio, KSCQ 92.9 FM, KNFT 102.9 FM,
and KNFT 950 AM
https://silvercityradio.com/
(575) 538-3396
Manager: sabrina@silvercityradio.com
DBS&A will send a PSA (10sec)

Gila Mimbres Community Radio, KURU 89.1 FM
http://www.gmcr.org/#
Marcus, manager@gmcr.org
(575) 597-4891
6 of their 15sec. announcement spots;

From:	Cartron, Jean-Luc
Cc:	Kutz, Julie; Moiola, Lloyd, EMNRD; Hollen, James, EMNRD; West, Sandra
Subject:	Boston Hill Mine Safeguard Project
Date:	Monday, February 8, 2021 3:20:22 PM
Attachments:	Boston Hill Stakeholder Letter on MMD-Letterhead.pdf PUBLIC MEETING Print Flyer_ENG.pdf PUBLIC MEETING Print Flyer_ESP.pdf

---

Dear Stakeholders and Interested Parties,

The purpose of this email is to inform you and your organizations of an upcoming public meeting regarding the Abandoned Mine Land Program's Boston Hill Mine safeguard project on February 25. Attached to this email is a stakeholder letter describing the proposed project and its purpose. Also attached are flyers that provide information on the date and time of the meeting, and how to participate. Please feel free to use these flyers and advertise the public meeting to members of your organizations and to your community partners.

An announcement has also been posted on the website of the Abandoned Mine Land Program: http://www.emnrd.state.nm.us/MMD/announcements.html

Thank you,

Jean-Luc Cartron

Jean-Luc E. Cartron, Ph.D.
Senior Biologist

Daniel B. Stephens & Associates, Inc.
a Geo-Logic Company
6020 Academy Road NE, Suite 100
Albuquerque, New Mexico 87109
Office: (505) 822-9400 ¦ Direct: (505) 822-9400 ¦ Mobile: (505) 977-7716
jcartron@dbstephens.com or jcartron@geo-logic.com

www.dbstephens.com ¦ www.geo-logic.com

SILVER CITY SUN-NEWS

AFFIDAVIT OF PUBLICATION

Ad No.
GCI0588305-01

Daniel B. Stephens & Associates, Inc

6020 Academy RD NE Suite 100

Albuquerque, NM 87109-3396

I, a legal clerk of the **Silver City Sun-News,** a newspaper published daily at the county of Grant, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

2/12/2021

Despondent further states this newspaper is duly qualified to publish legal notice or advertisements within the meaning of Sec. Chapter 167, Laws of 1937.

Legal Clerk
STATE OF WISCONSIN
County of Brown
Subscribed and sworn before me this
9th of February. 2021

NOTARY PUBLIC in and for
Brown County, Wisconsin

9.19.21

Commission expires

Ad#:
GCI0588305-01

P O .
# of Affidavits 0.00

VICKY FELTY
Notary Public
State of Wisconsin

PUBLIC MEETING NOTICE

Boston Hill Mine
Safeguarding Project in Silver City,NM

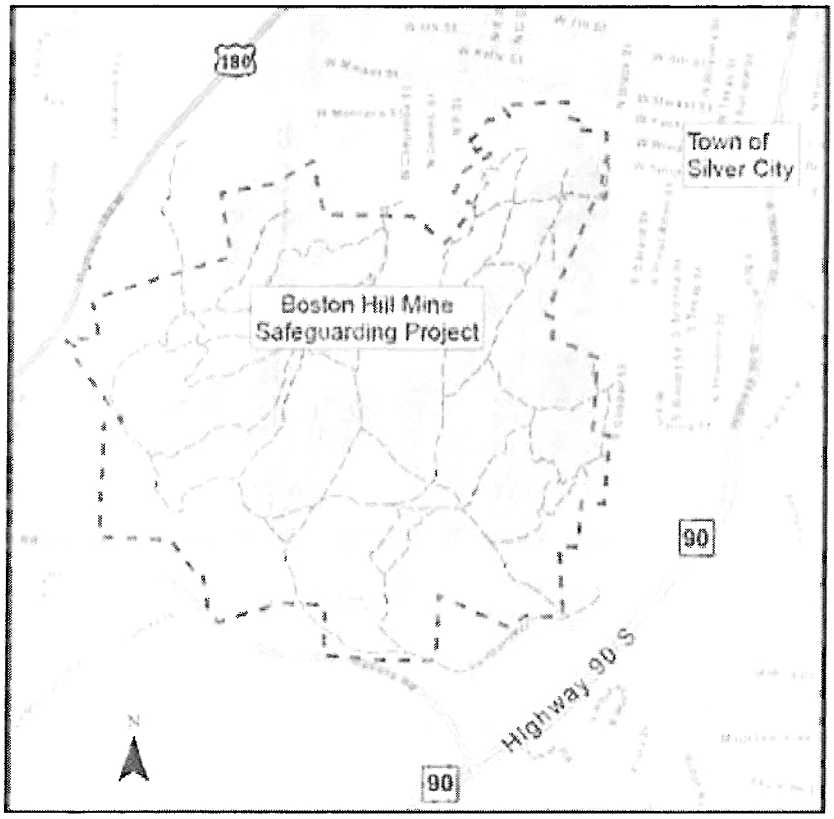
Thursday,February 25, 2021, 6:00 –7:30 pm

Presentation&Feedback

Virtual Meeting via Zoom Webinar

To attend:
Register online at
https://zoom.us/webinar/register/WN_EO70C5spSYC8uZMHUY1oAQ
OR call (505) 353-9190

QR code to register online:



Meeting Purpose: (1) To provide an overview of the proposed project;(2) to provide an opportunity for the public, area neighbors, and businesses to ask questions and provide input.

ADA: To request Americans with Disabilities Act (ADA)-related accommodations for this meeting, or should you require an interpreter, contact Jean-Luc Cartron with Daniel B. Stephens &Assoc. at (505) 822-9400 or jcartron@dbstephens.com by Feb. 24, 2021 at 6:00 pm.

Comments: Comments will be accepted and recorded at the public meeting, or they may be emailed to jcartron@dbstephens.com, mailed to Jean-Luc Cartron at Daniel B. Stephens &Assoc., 6020 Academy Road NE, Suite 100, Albuquerque, NM 87109, or provided over the phone by calling (505) 353-9190. Please submit comments before March 25, 2021.

SILVERCITY SUN-NEWS

AFFIDAVIT OF PUBLICATION

Ad No.
GCI0588305-02

Daniel B. Stephens & Associates, Inc

6020 Academy RD NE Suite 100

Albuquerque, NM 87109-3396

I, a legal clerk of the **Silver City Sun-News,** a newspaper published daily at the county of Grant, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

2/12/2021

Despondent further states this newspaper is duly qualified to publish legal notice or advertisements within the meaning of Sec. Chapter 167, Laws of 1937.

Legal Clerk
STATE OF WISCONSIN
County of Brown
Subscribed and sworn before me this
9th of February. 2021

NOTARY PUBLIC in and for
Brown County, Wisconsin

9.19.21

Commission expires

Ad#:
GCI0588305-02

P O :
# of Affidavits 0.00

VICKY FELTY
Notary Public
State of Wisconsin

AVISO DE REUNIÓNPÚBLICO

Proyecto de Salvaguardia de Boston Hill localizado en Silver City,NM

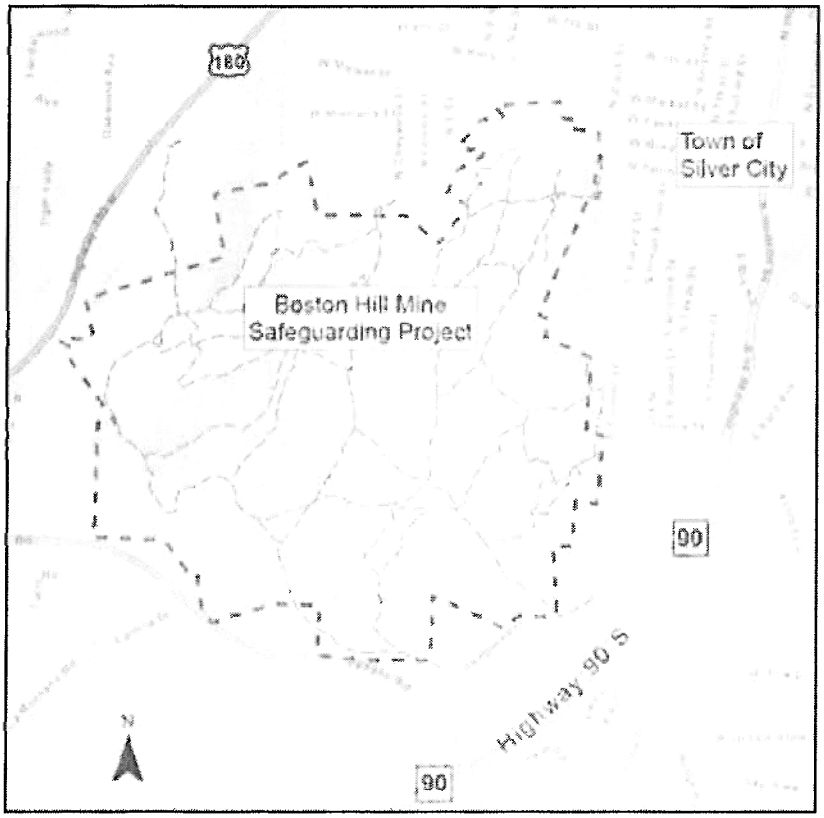
El jueves, 25 de febrero de2 021, 6:00 – a las 7:30 pm

Presentación & Comentarios

Reunión Virtualvía Zoom (Internet)

Asistencia: Registra en línea en https://zoom.us/webinar/register/WN_EO70C5spSYC8uZMHUY1oAQ o llama a (505) 353-9190

CódigoQR para registra en línea:



Objetivo delReunión: (1) Proporcionar unadescripción del proyecto propuesto; (2) proveer oportunidad al público, vecinos de área, y negocios locales para ofrecer preguntas y proveer comentarios.

ADA: Para solicitar alojamientos para esta reunión en acuerdo con la Ley sobre Estadounidenses con Discapacidades (ADA), o si usted requiere a un intérprete, póngase en contacto con Jean-Luc Cartron de Daniel B. Stephens & Associates, en (505) 822-9400 o jcartron@dbstephens.com antes del 24 de febrero de 2021 alas 6:00 pm.

Comentarios: Los Comentarios serán aceptados y registrados en la reunión pública, o pueden ser enviados por correo electrónico a jcartron@dbstephens.com, enviados por correo a Jean-Luc Cartron, Daniel B. Stephens & Associates, 6020 Academy Road NE, Suite100, Albuquerque, NM 87109, o proporcionados sobre el teléfono llamando (505) 353-9190. Por favor proporcione comentarios antes del 25 de marzo de 2021.

New Mexico Legislature trying to organize broadband efforts

Cedar Attanasio
ASSOCIATED PRESS

SANTA FE – The New Mexico Legislature is considering a bill that would consolidate the efforts of multiple state agencies to expand high-speed internet.

The effort comes a year into the pandemic that has pushed education and health care online, eroding residents' access to public services proportional to how far they are from an internet connection.

"We watched the collapse of our educational system during the COVID, and during the shutdown. And we all were watching our kids and our grandkids, dealing with this problem," said Rep. Susan Herrera, of Embudo, who represents residents in three surrounding rural counties north of Santa Fe.

One in five students didn't have access to the internet at all in the first months of the pandemic, according to a survey by the New Mexico Public School Facilities Authority.

At-home COVID-19 testing rolled out by the state last year required participants to use video chat. Vaccine distribution efforts focus on getting residents to sign up online.

That might complicate things for residents 65 and older, who are less likely to have internet access. However, there is a workaround via phone.

The Connect New Mexico Act introduced by Rep. Herrera and four others won't solve the state's internet woes during the pandemic but could increase the rate at which broadband is expanded.

The bill made it through a House committee focused on infrastructure Tuesday in an 8-1 vote. It will next be heard in the House Appropriations and Finance Committee. The state's annual legislative session started in January.

If passed, it would allocate $950,000 to create a broadband clearinghouse inside the Department of Information Technology. The new agency would distribute an existing $19 million fund to match federal broadband grants, a task currently shared by departments including DoIT.

"Most of the money that comes in for broadband is through federal grants. That's just how this works. So what we needed was a pool of money, and a staff to really get those grants in and to provide the match," said Rep. Natalie Figueroa, of Albuquerque.

Other bills under consideration in the house would allocate funds to expand broadband directly, including a proposal a one-time allocation of $95 million for the Native American Library Internet and Education bill.

The New Mexico Department of Information Technology estimated last year that providing internet access to all New Mexicans would cost between $2 billion and $5 billion for fiber optic cable, and under $1 billion for a combination of fiber optic and radio technology.

Worldwide, companies like SpaceX and Google are testing technologies – satellite networks and high altitude balloons – that could cut costs for rural broadband in the future.

"We don't specify that it has to be fiber line, it might be a dirigible in the sky, it might be a satellite, it might be a tower," Figueroa said.

Attanasio is a corps member for the Associated Press/Report for America Statehouse News Initiative. Report for America is a nonprofit national service program that places journalists in local newsrooms to report on under-covered issues.

NM state Senate approves economic relief package

Morgan Lee
ASSOCIATED PRESS

SANTA FE – The New Mexico Senate pressed forward Wednesday with pandemic-related financial relief measures, including minimal-interest loans to small businesses that have been battered by the virus and emergency health restrictions.

The Democrat-led chamber overwhelmingly approved a trio of bills that also would offer tax breaks for restaurants and a temporary waiver on liquor license fees.

The bills now move to the state House for consideration. Gov. Michelle Lujan Grisham has signaled her willingness to approve broad relief measures amid aggressive public health restrictions placed on businesses by her administration.

A centerpiece bill from state Sen. Jacob Candelaria of Albuquerque would authorize loans of up to $150,000 to small businesses at sub-prime rates of less than 2% annual interest. It passed on a 35-3 vote with several senators recusing themselves from a vote because of ties to businesses that might apply for relief.

The bill allows a state trust fund to invest up to $500 million in loans to businesses with ownership ties to New Mexico – forsaking some traditional investments based on risks and returns.

The proposed policy builds on a more limited small business loan program last year that provided a total of about $40 million in loans of as much as $75,000 each. The new program would allow the loans to be refinanced at more favorable terms.

"The best thing we can hope for in terms of our recovery is that firms across the state begin to grow again, take risks, taking out loans, taking out credit to build, to invest, to grow, to employ more people, to make capital investments," Candelaria told a Senate panel earlier this week.

The Legislature is racing against the clock during its 60-day session that ends March 20 to enact economic relief measures, amid uncertainty about a possible new round of direct federal aid to state and local governments.

A pending decision from the state Supreme Court could allow businesses to pursue compensation from the state in response to emergency health orders. In separately proposed legislation, lawmakers from both parties are calling for checks on the governor's emergency powers during pandemics.

Across much of the state, health restrictions have shut down entertainment venues including movie theaters, prohibit large public gatherings and limit access to indoor dining at restaurants. State health officials on Wednesday lifted a mandatory self-quarantine period for in-bound travelers.

The state Senate unanimously approved a proposal to provide a $600 tax rebate to working, low-income families and provide a tax break on business sales and services to food establishments such as restaurants, craft breweries and food trucks

A bill that would waive fees for all liquor licenses in the hard-hit hospitality industry won Senate approval on a 41-1 vote.

Republican Sen. Cliff Pirtle of Roswell warned that the relief bills won't resolve economic hardships linked to current public health orders and urged colleagues to "rein in the executive branch of government."

"They're a Band-Aid on a pretty large wound," Pirtle said. "The reality is we are still shut down."

Affidavit of Publication

STATE OF NEW MEXICO]
COUNTY OF GRANT] S S

Nickolas C. Seibel, being first duly sworn, on his oath says: That he is the publisher of the Silver City Daily Press and Independent, a newspaper published in the Town of Silver City, in the County of Grant and the State of New Mexico, and that said newspaper is now, and was at all times herein mentioned, a newspaper of general circulation.

That the advertisement, copy of which is hereto attached, was published in said hereinbefore mentioned newspaper once each and every week for 1 consecutive week(s), the first publication thereof having been made on 2/9/2021 and the last publication thereof having been made on 2/9/2021 That said newspaper was regularly printed, published and issued with said notice

2/9/2021

Nickolas C. Seibel

Subscribed and sworn to before me on this 23rd day of February 2021.

Notary

Official Seal
MELANIE K. ROGERS
Notary Public
State of New Mexico
My Comm. Expires 6/1/22

PUBLIC MEETING NOTICE

Energy, Minerals and Natural Resources Department

Boston Hill Mine
Safeguarding Project in Silver City, NM

Thursday, February 25, 2021, 6:00 – 7:30 pm
Presentation and Feedback
Virtual Meeting via Zoom Webinar

To attend: Register online at https://zoom.us/webinar/register/WN_EO70C5spSYC8uZMHUY1oAQ OR call (505) 353-9190

QR Code:

Meeting Purpose: (1) To provide an overview of the proposed project; (2) to provide an opportunity for the public, area neighbors, and businesses to ask questions and provide input.

ADA: To request Americans with Disabilities Act (ADA)-related accommodations for this meeting, or should you require an interpreter, contact Jean-Luc Cartron with Daniel B. Stephens & Assoc. at (505) 822-9400 or jcartron@dbstephens.com before February 24, 2021 at 6:00 pm.

Comments: Comments will be accepted and recorded at the public meeting, or they may be mailed to Jean-Luc Cartron at Daniel B. Stephens & Assoc., 6020 Academy Road NE, Suite 100, Albuquerque, NM 87109, emailed to jcartron@dbstephens.com, or provided over the phone by calling (505) 353-9190 before March 25, 2021.

Affidavit of Publication

STATE OF NEW MEXICO]
COUNTY OF GRANT] S S

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2/9/2021

Nickolas C. Seibel

Subscribed and sworn to before me on this 23rd day of February 2021.

Notary

Official Seal
MELANIE K. ROGERS
Notary Public
State of New Mexico
My Comm. Expires 6/1/22

Energy, Minerals and Natural Resources Department

AVISO DE REUNIÓN PÚBLICO

Proyecto de Salvaguardia de Boston Hill localizado en Silver City, NM

El jueves, 25 de febrero de 2021, 6:00 – a las 7:30 pm
Presentación & Comentarios
Reunión Virtual vía Zoom (Internet)

Asistencia: Registra en línea en https://zoom.us/webinar/register/WN_EO70C5spSYC8uZMHUY1oAQ o llama a (505) 353-9190

Código QR para registra en línea

Objetivo del Reunión: (1) Proporcionar una descripción del proyecto propuesto; (2) proveer oportunidad al público, vecinos de área, y negocios locales para ofrecer preguntas y proveer comentarios.

ADA: Para solicitar alojamientos para esta reunión en acuerdo con la Ley sobre Estadounidenses con Discapacidades (ADA), o si usted requiere a un intérprete, póngase en contacto con Jean-Luc Cartron de Daniel B. Stephens & Associates, en (505) 822-9400 o jcartron@dbstephens.com antes del 24 de febrero de 2021 a las 6:00 pm.

Comentarios: Los Comentarios serán aceptados y registrados en la reunión pública, o pueden ser enviados por correo electrónico a jcartron@dbstephens.com, enviados por correo a Jean-Luc Cartron, Daniel B. Stephens & Associates, 6020 Academy Road NE, Suite 100, Albuquerque,

State, local plans for Silver City open spaces draw interest

scdailypress.com/2021/03/01/state-local-plans-silver-city-open-spaces-draw-interest/

March 1, 2021

(Press Staff Photo by Geoffrey Plant)
Silver City Trails and Open Space Advisory Committee Chairman Bob Schiowitz hikes towards a new section of trail, visible in the distance, that was recently completed on the southeast side of the town's Boston Hill Open Space, near the Cooper Street Trailhead.

VIVABostonHill_GeneralizedMapreduced

Last week was a busy one for Silver City's Trails and Open Space Advisory Committee, which held its regular monthly meeting Wednesday — an online event that saw an unusual number of citizens participate via Zoom in discussions about ongoing work being done to the San Vicente and Boston Hill trails and open space areas, as well as the possible future development of a disc golf course at the old Hearst Millsite.

Then on Thursday, a public meeting/webinar about a pending Boston Hill Mine Safeguarding Project was hosted by the New Mexico Energy, Minerals and Natural Resources Department's Abandoned Mine Land Program. The state, in partnership with the U.S. Department of the Interior's Office of Surface Mining Reclamation and Enforcement and the U.S. Bureau of Land Management, plans to improve existing safety measures on Boston Hill and look at establishing new, wildlife-friendly barriers at now-unobstructed mine entrances.

A full recording of the first Boston Hill Mine Safeguarding Project webinar, which was attended by about 30 people, is posted on YouTube at youtube.com/watch?v=ENqm5TvhTcQ. A copy of the webinar presentation is available at the EMNRD website, emnrd.state.nm.us/MMD/documents/BostonHillpublicmeetingpresentation_02242021_final.pdf

There is a March 25 deadline for public comments, which may be submitted via email to , by telephoning 505-353-9190, or by addressing letters to DBS&A c/o Jean-Luc Cartron, 6020 Academy NE, Suite 100, Albuquerque, N.M. 87109

Mines, safety, bats

※There are approximately 15,000 abandoned mine features in New Mexico," said Project Manager Jean-Luc Cartron of Daniel B. Stephens and Associates, who led the webinar presentations. ※There are, on a regular basis, accidents that take place in the western U.S. People do fall in vertical shafts, or they get trapped in those shafts; some of them experience a lack of oxygen or they break a leg," and in some instances those events result in death.

Because Silver City acquired most of the property that comprises the Boston Hill Mining District two decades ago, and the rest of it is owned by either private landowners or the U.S. Bureau of Land Management, it presents some unique circumstances for a safeguarding project, which generally takes place on entirely private or undeveloped public lands. Boston Hill, however, is already open to the public as a municipal recreation area. Because of that, ※safeguarding is needed to reduce or eliminate safety hazards," Cartron said.

※Only a small percentage of the features need safeguarding measures," however, Cartron noted. ※The priority is to reinforce or repair existing safeguarding measures, for minimal change to the existing landscape."

Cultural Resources Consultant Adam Okun mapped 2,821 historic features over 603 acres of Boston Hill that he surveyed in 2018-19.

As an example, Cartron said, more attractive and less obtrusive ※weathered steel picket fencing is an option for replacing existing chain link fencing around the areas that have been breached," such as around the Legal Tender Mine directly behind the Grant County Courthouse. An existing mesh enclosure over a large vertical shaft on the south side of Boston Hill, known locally as ※the net," will probably be replaced.

State-of-the-art ※bat cupolas may be an option to cover [smaller] vertical shafts," Cartron continued, or polyurethane foam might be used to fill vertical shafts — a safeguarding measure that can be made friendly to pollinators like bees. ※Gates may be installed in mine entryways where they are determined to be the best method for safeguarding mine openings. The gates" — horizontal bars mounted on vertical columns, with cartoon mouse hole-like openings in the bottom corners of some — "would be designed according to the latest industry standards, and be wildlife compatible, following recommendations by Bat Conservation International."

A 2019 report by that organization identified several species of bats on Boston Hill, including the Townsend's big-eared bat, ※which would actually benefit in the long term from the safeguarding project" because it would segregate bat habitats from human disturbance, Cartron said. He noted that white nose syndrome, a deadly fungal infection that is afflicting bat colonies across North America, can be spread by the soles of people's shoes.

※Bats are very sensitive to human disturbance," he said. ※The less visits there are by humans, the better."

Next to human safety, the preservation of bat habitats is one of the primary goals of the safeguarding project, as is cultural and historic preservation.

※Along with the mine safeguarding and reclamation, we are able to spend funding on interpretative measures such as signs and other things that the public could see out on Boston Hill," such as ※underground mapping of some of the mine workings in the district," said Lloyd Moiola, environmental manager with the state Abandoned Mine Land Program. ※It's possible we could do an interpretive display that would allow the public to see some of those underground workings based on Lidar imagery.

※If Silver City is interested, we can spend funds on measures like that," Moiola added, requesting that the public submit comments in that regard, as well as on the subject of what kind of safeguarding structures they want to see. ※We would talk to city officials about it prior to construction.

※We put up several in Cerrillos Hills State Park" in Santa Fe County, where the community successfully combined outdoor recreation and mining history into what eventually became a state park, Moiola said.

Bob Schiowitz, who chairs the town's Trails and Open Space Advisory Committee, was interested to learn that the safeguarding project, which is paid for out of a federal fund that is supported by fees on domestic coal production, may also offer Silver City an opportunity to obtain historical markers and other interpretative features to help visitors engage more with Boston Hill's mining history.

Schiowitz's main concern last week, however, was how moving heavy equipment around for the safeguarding project might impact existing trails and overall landscape on Boston Hill. The on-the-ground component of the mine safeguarding project likely won't start until summer or fall of 2022, and meanwhile, the Trails and Open Space Advisory Committee is building new trails on the south side of Boston Hill, and improving existing trails over the entire open space.

State officials assured Schiowitz that crews use the smallest equipment possible in order to preserve the landscape.

Trails and open space

Meanwhile, a new, half-mile-long downhill mountain bike trail on the south face of Boston Hill is slated to be completed in the next week or two using money from a 30something grant, and a brand new pedestrian/bicycle trail was completed several weeks ago on the southeast side. The closest trailhead access to the newly completed pedestrian/bicycle trail is from Cooper Street.

Thanks to several other grants made through the VIVA Connects organization, the goal of which is to foster public health through trails and outdoor recreation development in rural communities, quite a bit of new trails signage and color-coded wayfinders have also been installed on Boston Hill over the past several months, and older, poorly designed trails are being closed off. An AmeriCorps crew has also recently been doing trail work on Boston Hill.

According to Trails and Open Space Advisory Committee member Martyn Pearson, six new benches have also arrived and are ready to be installed on Boston Hill. In addition, several new trailhead kiosks that will serve to consolidate visitor information — and display a newly updated trail map — in an attractive and practical manner are being produced by the Future Forge. A bicycle repair station is slated to be installed near the Market Street trailhead as well.

According to Schiowitz's comments at last week's advisory committee meeting, Silver City could be doing more in terms of advising the public about the improvements taking place on Boston Hill — especially since some members of the public don't see the new trail work as ※improvements."

As an example, the town could have informed the public that they were installing new gates to the entrance of the parking area at the Spring Street trailhead, and posted signs telling the public that the gates will henceforth be locked at 5 every evening.

※We started doing that on Thursday," said Town Manager Alex Brown, who had to field the question, ※Who do I call …." from a Daily Press reporter who found his car accidentally impounded at the trailhead Friday evening. (※Call Central Dispatch" was the answer.)

Brown said signage would appear soon.

As far as major trailwork, ※we could do a much better job at informing the public, and most recently probably should have done some press releases, at a minimum, and probably information at the kiosks," Schiowitz said, going on to describe the sometimes negative reactions he and others got while they were working on trails recently.

※When someone goes out there and sees their favorite place where they've been hiking for 30 years disturbed — I can see how it's a real shock to somebody," he said. ※I think the committee is at the point where we think we shouldn't be building much more [new] trail, and for the most part should be concentrating on improving the quality of the [existing] trails."

Community Development Director Jaime Embick acknowledged during the committee meeting that ※there are a couple of people who are unhappy with the progress on Boston Hill," but said that ※there's no project we do within the town that someone isn't unhappy with.

※I think the people that don't like what's happening want it to remain untouched, and to let it erode and have no human impact on the area whatsoever," Embick said, noting that her mission as Silver City's community development director is to advance the town's goals in accordance with the town's Land Use Code. ※The town's definition of open space is to develop it for biking or hiking and use."

Meanwhile, the town's other major outdoor recreation initiative, the San Vicente Creek Trail and Open Space, will soon have an accompanying map similar to the one that exists for Boston Hill, according to cartographer Desiré Liska.

A draft of the newly designed map was made available at last week's committee meeting and shows the main, 2-mile-plus-long San Vicente Creek Trail — now bikeable from top to bottom — along with several spurs and loops that take advantage of undeveloped town property in the vicinity of Brewer Hill on the northern end of the open space, as well as in the area surrounding the creek farther south, near Scott Park.

Finally, the Trails and Open Space Advisory Committee heard a pitch from Jeff and Alicia Cramm regarding what to do with the portion of the old Hearst Millsite across San Vicente Creek from Silver Street, approximately between Lamb and Birch streets, which the town purchased last year.

※Thanks for giving us a voice for disc golf," Alicia Cramm said. ※When we caught wind that [Silver City] is talking about a multi-use park at the old Hearst Millsite, we wanted to bring up disc golf and how that could be integrated."

She added that a Facebook petition in support of a Hearst Millsite disc golf course had just surpassed 500 signatures.

※We think that it would be a wonderful place to have a little nine-hole course there," Alicia Cramm said, arguing that a disc golf course would not only benefit local residents but also draw out-of-town visitors.

Embick said she would advise Assistant Town Manager James Marshall of their disc golf pitch, as well as relay some of the concerns raised by members of the committee and the public about the need not only for trash and cut trees to be cleaned up at the Hearst Millsite but also possibly for bringing in an arborist to assess fire-damaged trees in the area, which was the site of a wildfire last year.

Geoffrey Plant may be reached at

Spread the love

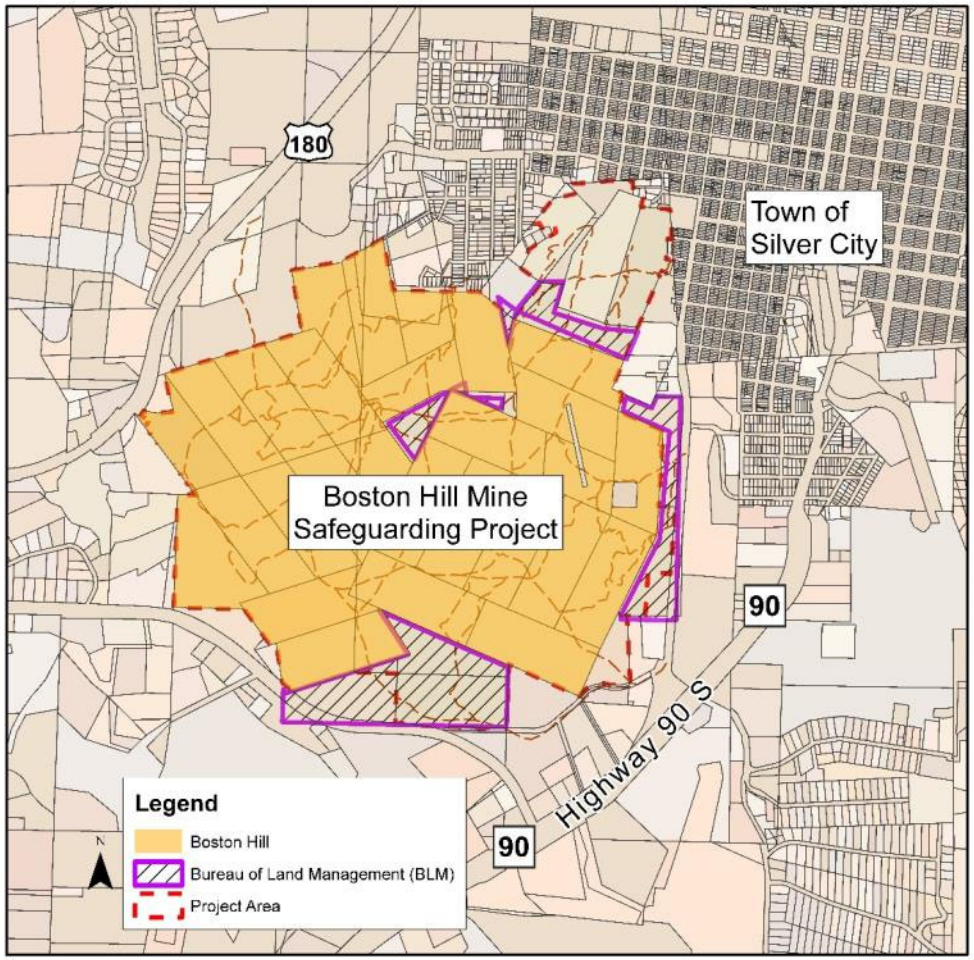
Attachment 2

Meeting Presentation

DBS&A
Daniel B. Stephens & Associates, Inc.

Boston Hill Mine Safeguarding Project
Public Meeting
02/25/2021

Extent of Project Limits



Project Purpose and Need

- Many of Boston Hill's mine features continue to be accessible to the public, yet they represent safety hazards.
- Mine safeguarding is needed to reduce or eliminate safety hazards and protect visitors.
- Mine safeguarding is compatible with the preservation of recreational opportunities, cultural resources, and wildlife habitat.

Project Team

- Abandoned Mine Land Program: Mike Tompson, AML Program Manager, Lloyd Moiola, Environmental Manager; James Hollen, NEPA Coordinator.
- Bureau of Land Management: Chris Teske, Abandoned Mine Land Coordinator.
- Daniel B. Stephens & Associates: Jean-Luc Cartron, Project Manager/NEPA and Natural Resources Lead.
- Okun Consulting Solutions: Adam Okun, Cultural Resources Expert.

Safeguarding Project

- **Fencing.** Custom steel picket fencing is an option for replacing existing chain link fencing around the areas that have been breached. Additional areas may be determined suitable for fencing, which would then be installed around the perimeter of the mine feature.
- **Gates.** Gates may be installed in mine entryways where they are determined to be the best method for safeguarding mine openings. The gates (horizontal bars mounted on vertical columns) would be designed according to the latest industry standards, and wildlife compatible, following recommendations by Bat Conservation International.
- **Cupolas.** Bat cupolas may be an option to cover vertical shafts.
- **Mesh covering**. High tensile strength steel mesh may be installed at locations where a vertical pit or a mine entrance is flush with the ground.
- **Backfill**. Mine openings may be backfilled with adjacent waste rock piles.
- **Other Structural Closures**. Polyurethane Foam (PUF) plugs, gated culverts, and other structures may be used to safeguard mine openings.

National Environmental Policy Act

- Federal agencies and their representatives are required to provide meaningful opportunities for public participation. A primary goal of public involvement is to ensure that all interested and affected parties are aware of the proposed action.
- An analysis of all the potential impacts is being conducted.

Biological Surveys

- Plants and wildlife species were documented during a biological survey conducted in 2019 by Daniel B. Stephens & Assoc.
- During the survey, an evaluation of potential impacts to special-status species and their habitat was conducted.
- A separate survey of bats and bat habitat was conducted by Bat Conservation International.

Bats and Bat Habitat

- Bat Conservation International (BCI) evaluated bat occupancy and potential habitat associated with the mine features in 2018-2019.
- BCI's 2019 report indicates that bat species such as Townsend's big-eared bat would benefit in the long-term from the project due to less human disturbance.
- An additional survey of the sink holes discovered in 2020 near the High Desert Humane Society building revealed potential future bat habitat.

History of the Boston Hill Mining District

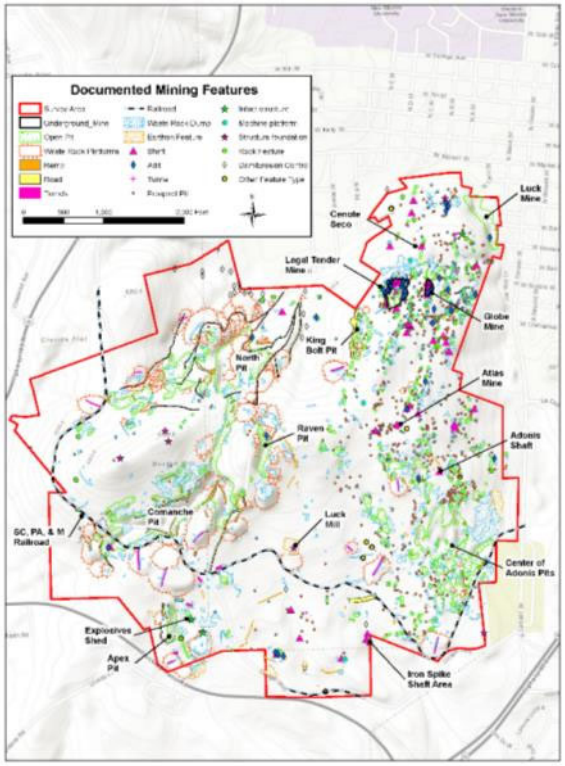
View of Silver City from Boston Hill in 1887

Wagons Hauling Manganese Ore from Boston Hill along San Vicente Street around 1920

- Prospecting began in 1870 but the District was not significantly mined until the 1910s.
- Large-scale mining began during WWI when manganese ore was needed for the steel industry to support the war effort.
- Legal Tender Mine on private property and Globe Mine in NE part of district developed as complex underground mines from WWI through the mid-1920s.
- After a hiatus during the Great Depression, mining resumed in 1937 and reached its peak during WWII. Activities shifted to the western part of the District and from underground mines to large open pits.
- Comanche and North Pits were the largest mining features in the history of the District.

Cultural Resource Survey

- Cultural resources survey was conducted in 2018-2019 by Okun Consulting Solutions to document historic mining features and help the project comply with the National Historic Preservation Act and other historic preservation laws.
- 603 acres were surveyed as part of a detailed documentation of the District.



- 2,821 historic features, 12 historic artifact concentrations, and other artifacts were recorded during the survey by Okun Consulting
- Small features such as waste rock piles and prospect pits were most common

The Mining District Today

Historic Mining Features

- Below are examples of historic mining features
- AML will work to preserve significant features where feasible

Waste Rock Platforms and Access Ramps

Explosives Shed

Adit Entrances to the Legal Tender Mine

Comanche Pit

Recreation

- The majority of the Boston Hill District is owned by the Town of Silver City for recreation.
- Most of the Legal Tender Mine area is on private property that is <u>not</u> open to recreation.
- Safeguarding measures on private property would therefore have no negative effects on recreation.
- Other areas proposed for safeguarding that are open to the public for recreation would experience a long-term benefit by enhancing safety for hikers, bikers and other visitors to the District.

Visual Resources

Changes resulting from project implementation would conform as much as possible to the predominant natural features of the surrounding landscape. To achieve this goal the AML would:

- Minimize the impact of the project on the aesthetics of Boston Hill through the use of material types that blend with the landscape;
- Carefully choose the location(s) where new safeguarding measures are implemented;
- Prioritize reinforcement and repair of some existing safeguarding measures for minimal to no change to the existing landscape; and
- Minimize construction disturbance.

Existing fence at Legal Tender Mine

Visual Resources

Example of a fenced mine opening with weathered steel fencing material to assist in blending into the landscape .

Example of a weathered steel picket fence (Cerrillos Hills State Park).

Typical AML Closures

Structures can be modified to accommodate any potential visual resources issues to make them less obtrusive on the landscape.

Closeup of typical weathered steel picket fence.

Weathered steel picket fence enclosure around a partially filled shallow shaft (Cerrillos Hills State Park)

Typical AML Closures

Bat cupola – stepped into hillside for a less visually obtrusive feature.

Rock bulk-headed culvert with bat-friendly gate. Cemented rocks assist with blending into landscape

Typical AML Closures

Bat and wildlife friendly gate enclosure

Culvert with bat and wildlife-friendly gate

Typical AML Closures

Polyurethane foam plug with a drain pipe (Cerrillos Hills State Park)

A complete polyurethane foam closure with beehive grate and concrete collar

Typical AML Closures

Installation of high-strength steel mesh with rock anchors. Note the partially completed bridge abutments on two sides of the shaft opening.

The completed mesh and bridge installation over a shaft (Cerrillos Hills State Park)

Any Questions?

- For questions or additional information, please contact:
  - Lloyd Moiola, <lloyd.moiola@state.nm.us>, 505-629-3757
  - James Hollen,<James.Hollen@state.nm.us>, 505-231-8332 OR
  - Mike Tompson P.E., <Mike.Tompson@state.nm.us>, 505-690-8063
  - Chris Teske, (BLM) <cteske@blm.gov>, 575-525-4323

- To submit comments, please email:

  jcartron@geo-logic.com, call 505-353-9190, or mail to:

  DBS&A, c/o Jean-Luc Cartron

  6020 Academy NE, Suite 100

  Albuquerque, NM 87109

<u>Please provide comments by March 25, 2021</u>

Thank you!

Attachment 3

Comment Summary

DBS&A
Daniel B. Stephens & Associates, Inc.

Public Involvement Input for Boston Hill Mine Safeguard Project

Comment No.	Name	Comment	Date	Response
1	Alan Ragins	1) Would like to see increased recreation at Legal Tender Mine. 2) Would like to have educational presentations on history of Boston Hill.	3/3/2021	1) Legal Tender Mine is privately owned and is not open to recreation. 2) The AMLP will be publishing a brochure on the history of Boston Hill and potentially include signage of some of the features.
2	Jane Pipan	Not in favor of the safeguarding project. Feels that heavy machinery would be destructive. Does not want to see existing chain link fencing replaced.	3/6/2021	Construction machinery will be comprised of small bobcats, pickup trucks or other small-scale construction equipment. No large machinery is anticipated to be necessary for the installation of safeguarding measures. Construction is temporary and all machinery will utilize existing roads or trails, keeping vegetation disturbance to a minimum. Any disturbance of vegetation will be mitigated by reseeding with native grasses/herbacious species. Where determined necessary, chainlink fencing will be replaced by weathered steel picket fencing, thereby mitigating visual impacts by using a material that blends into the landscape more than regular steel fencing. The weathered look is also designed to look more antiquated, and would be more appropriate for the historic elements of the District.
3	Marshall Fischer	Prefer less intervention of Boston Hill, not in favor of any safety measures. Would like to see frisbee golf on Boston Hill.	3/7/2021	Comment is noted.

Public Involvement Input for Boston Hill Mine Safeguard Project

Comment No.	Name	Comment	Date	Response
4	Martyn Pearson	1) Who requested the proposed project? A specific entity or part of larger project of safeguarding mines on public spaces? 2) In favor of minimizing the impact safeguarding features will have on the landscape, with the favored feature being mesh nets over holes. 3) Wants to be involved as the project progresses.	2/25/2021	1) The New Mexico Abandoned Mine Land (AML) Program has already conducted mine safeguarding at Boston Hill Mine District in coordination with the Town of Silver City, the Bureau of Land Management (BLM) and private landowners and the AML continues to assist with repairs primarily due to breaching of fencing. The proposed project is a larger effort to complete necessary safeguarding measures across the district. 2) The most recent project by the AML was the installation of mesh netting over a large hole in the southern part of the District. Mesh netting will be a part of the proposed project to be installed as appropriate. All other measures will be mitigated to the extent possible to have minimal visual impact. 3) The AML wants input from the public as the project moves forward and will continue to conduct outreach to the community for providing feedback on the design plans.
5	Marcellus E. Connor	Would like to have the trails and trailhead maps more clearly marked.	3/2/2021	Trail maintenance and maps are outside of the proposed project scope. The email comment has been forwarded on to Jamie Embick, Trails and Open Space Committee, Town of Silver City.
6	Mary Lynn Newell	Would like to have pit toilets installed at trailheads. Also would like trail improvements.	3/2/2021	Pit toilets and trail improvements are outside of the proposed project scope. The email comment has been forwarded on to Jamie Embick, Trails and Open Space Committee, Town of Silver City.

Public Involvement Input for Boston Hill Mine Safeguard Project

Comment No.	Name	Comment	Date	Response
7	Debra J. Dakota	Would like improved trail signage and trail markers.	3/3/2021	Trail signage improvements are outside of the proposed project scope. The email comment has been forwarded on to Jamie Embick, Trails and Open Space Committee, Town of Silver City.
8	Debbie Guerra	Showing support for replacing existing chain link fences and would like to see additional fencing around other dangerous pits. Also would like AML to consider replacing the Danger signs with Caution signs and have historic interpretive signage for all areas which are closed to entry	3/22/2021	Comment is noted, fencing is an important part of the scope and interpretive signs will be considered.
9	Kim McCreery & Robert Robbins	Safeguarding public and bats with least obtrusive measures is very important. Interpretive signs should only be at entry points. Too much signage will contribute to an increasingly urban appearance of the space.	3/22/2021	Comment is noted.

Attachment 4

Comments Received

DBS&A
Daniel B. Stephens & Associates, Inc.

From: Alan ragins
To: Cartron, Jean-Luc
Subject: Boston Hill Mine Safeguarding Project Comments
Date: Wednesday, March 3, 2021 7:54:33 PM

Greetings,

I was able to view the recording of your recent public presentation on YouTube and would offer two comments/questions:

1) Given the importance of outdoor recreation to Silver City - both tourists and residents - It seems like the Legal Tender/Globe complex would benefit from a focussed planning effort that goes a little beyond traditional mine safeguarding. Arguably that complex represents the greatest hazards, but also has the greatest potential for **increased** recreational activity. Expanding access to the area (on a public or limited basis) would require mine safeguarding AND changes in ownership, liability, and management strategies that would be needed to allow for safe recreational activities (and protect bats?). Can the planning for that sector be more detailed and multi-faceted to address these opportunities? Saying that continuing to NOT allow for legal access to the complex is not a negative impact seems a little misleading, especially if the safeguarding treatments foreclose future options.

2) I am the volunteer coordinator here in Silver City for the Western Institute for Lifelong Learning's Lunch and Learn program. We recently entered into an agreement with the Silver City Museum to present joint programs each semester. I'm thinking a program on the history of Boston Hill would be excellent and timely. Would you or Adam Okun (I'll give him a call too) consider being presenters or have any suggestions on others I should reach out to or what the program should include? (LIDAR mapping sounded really cool?!).

Thanks for all your great work and the opportunity to comment.

Alan Ragins
Silver City, NM
303-868-0724

From: Jane Papin
To: Cartron, Jean-Luc
Subject: Boston Hill Mine Safeguarding
Date: Saturday, March 6, 2021 1:23:14 PM

Greetings,

I write you as a lover and hold great appreciation of the area of land in Silver City referred to as Boston Hill. I have walked this land for over 20 years and know it intimately. I am not in support of the proposed Safeguarding Project. This land has Soul and I feel all the proposed work would just violate her more. All the heavy machinery would be so destructive to her beauty and plants. I greatly dislike the idea of replacing existing chain link fencing with something new. Totally unnecessary in my view. I pray this does not move forward.

Jane Papin

From: John Q. Public
To: Cartron, Jean-Luc
Subject: Boston Hill open space..
Date: Sunday, March 7, 2021 11:52:59 AM

As a 20 year resident living on the Eastern flank of Boston Hill I would appreciate less intervention versus more. Are you going to try to toddler proof Boston Hill? One thing would be a sure by product, it will make it a lot less interesting... We live in rough country there are holes in the ground, look around.. if people were looking for nice easy walks they would vacation in Kansas.....

Again, don't toddler proof Boston Hill with bunch of machinery and unnecessary iron works. What's wrong with the net over that vertical hole, worried that somebody might try to park four tanks on it? Maybe we could recycle all of Grant county's tires, grind them up and coat Boston Hill with it so nobody knocks a knee on a rock accidentally. #safty! Sorry not sorry. Though I'm not opposed to the frisbee golf idea.

Sincerely, Marshall Fischer 204 South Cooper silver City.

From: Martyn Pearson
To: Cartron, Jean-Luc
Subject: Boston Hill Project
Date: Thursday, February 25, 2021 8:27:28 PM

Hello,

My name is Martyn Pearson. I'm a member of the Silver City Cycling Group. I'm also a member of the Town of Silver City Trails and Open Space Committee and I'm one of the owners of the Gila Hike and Bike in town. Boston Hill is one of my favorite outdoor spaces in the area. I first found it in 2005 as a student of WNMU and it's one of the reasons I wanted to stay in the area. I've been lucky to be involved in the development of some of the trails on the hill - I'm an avid mountain biker, but I use the hill to hike and walk my dog also.

I wonder who requested the work you're looking to do? Did the town request it? Or is your work part of a bigger project focusing on safeguarding mines around public spaces?

From an aesthetic perspective, I'm pleased that you'll be considering minimizing the impact these features will have on the landscape. If I had an opportunity to comment on safeguarding features that already exist on Boston Hill, mesh nets are my favorite. They don't obstruct the view in any way, but provide thorough safety for users who don't know that a feature is nearby. I know of a sink hole that opened up close to the Animal Shelter fairly recently, and I think a mesh net over that would go a long way to make people feel safer.

I look forward to seeing the plans as they evolve. I also hope to get other members of the cycling group involved in the project as you make more calls for public input.

Thanks,

Martyn Pearson

From:	Marcellus E. Connor
To:	Cartron, Jean-Luc
Subject:	Boston Hill trail heads
Date:	Tuesday, March 2, 2021 4:48:35 PM

Unfortunately, the monthly meeting held on Wednesday, February 24th, was missed due to only seeing the notice posted on the trail head bulletin board was not viewed until Friday, February, 26st.

At the time, the notice was viewed, two other people; and myself was attempting to walk the "H" loop, starting at the "Market Street Trail Head". This was our second attempt to walk this trail. We got missed placed the first time, but we didn't mind.

We took the liberty to photograph the map of the Trail Heads, have it enlarged; and then laminated, so we could carry it so we could refer to it when needed.

The first time it proved not to be of use was when we started at the "Market Street Trail Head", going to the "Summit".

Going up to the "Summit", was no problem, the trail was clearly marked; and easy to follow.

When our group decided to start down from the "Summit", to the "Market Street Trail Head", the trail we followed actually took us down the side of the mountain. The person in the lead had to choose a path that they thought would get us back on a trail leading to the"Market Street Trail Head". In the end we made out fine, however, there was no clearly marked trail leading down from the Summit, back to the "Market Street Trail Head".

It would be nice if there was a trail, clearly marked, leading down from the Summit, to the "Market Street Trail Head", or any other Trail Head.

As we were headed down from the "Summit", we reach a point where we found a marker telling hikers the "trail was closed"- this is the trail we came down. When we reached the marker, we all were in agreement that going up the trail we had just come down would not be any fun.

Our other difficulty in hiking the trails, is trying to follow the "H" loop, starting from the "Market Street Trail Head".

For some reason, we are not able to pick up the correct trail that will take us back to the " Market Street Trail Head". For the two attempts to get it right, on both attempts, we found ourselves at the " Cheyenne Street Trail Head". We think, there's a "connector trail" (black line), that we are missing.

We think, it would be helpful, if the "connector trails" (black lines) were marked more clearly.

We hope to do all the trail loops, before doing the "Blue Loop", which will be done before the weather gets too hot.

Those of us in this group is sincerely appreciative of the effort you and your organization is putting forth to improve Boston Hill and the Trail Heads.

The people in this group range in age from 54 to 75. We walk the trails three days a week and look forward to everyday.

--

May God Richly Bless You
Marcellus

From:	MARY LYNNE NEWELL
To:	Cartron, Jean-Luc
Subject:	Comment on Boston Trail changes
Date:	Tuesday, March 2, 2021 11:10:25 PM

Hello--I just read the SC Daily Press article on the proposed Boston Hill revisions, and wanted to add one very big request for consideration:

PIT TOILETS AT THE TRAILHEADS! At least, one at Market Street, which I think is the most used. I do not live in Silver City, but will come to town to hike Boston Hill, especially when hunting seasons disrupt other hiking areas. There are few public access restrooms around Silver, to begin with, and the pandemic has aggravated this.

Also, the Market Street access point has a very crappy descent to the entry, precarious for us older folk with balance issues, or anyone with an eager dog pulling at the leash. The slope is eroded, the gravel is slippery, etc.etc. I hope the plan will include a proper parking/descent to the trails themselves.

From:	DJD
To:	Cartron, Jean-Luc
Subject:	Input on Boston Hill
Date:	Wednesday, March 3, 2021 4:56:05 PM

Hello,

I read that you are making improvements to Boston Hill and I have a comment.

What Boston Hill needs most is better and more extensive trail signage and better trail markers. I know I am not the only person who has gotten lost there -- and that is a safety issue. People can get stuck out there at the end of the day and short on water. I once emerged at the bottom of a hill roughly a mile downhill from my car. I was already tired, out of water, and had a very difficult time trudging up the road to the trailhead where I parked.

Signage should be a MUCH higher priority than making new trails, and higher than improving the trails. I think it should be the #1 funds expenditure. It needs a readable trail map at every trail intersection. That would be a LOT of signs.

Thank you for your consideration.

Deborah J. Dakota
Silver City

From: Deborah Guerra
To: Cartron, Jean-Luc
Subject: Boston Hill needs FENCING!
Date: Monday, March 22, 2021 2:18:12 PM

Greetings!
I have lived in Silver City since 1980 and I am familiar with the concerns at Boston Hill.
When many improvements were made re safety and hiking, it became a very beautiful and popular place to go to and of course it still is.
The biggest issue is fencing and I am grateful that you are replacing the chain links around Legal Tender and Globe with steel rung fencing.
The Raven Pit fence should come down and be replaced, as well as the North Pit and other unfenced pits.
Please consider replacing the Danger signs with Caution signs and have historic interpretive signage for all areas which are closed to entry.
Thank you for your attention to these comments.
Sincerely, Debbie Guerra
2308 Cottage San Rd.
88061
575-313-2028

Sent from my iPhone

From: Lycaon Pictus
To: Cartron, Jean-Luc
Subject: Public comments- Boston Hill MIne Safeguarding Project
Date: Monday, March 22, 2021 2:10:52 PM

Attention: Jean-Luc Cartron

Re: Comments on Boston Hill Mine Safeguarding Project

Living adjacent to Boston Hill, we have been running and hiking this open space for ten years. Safeguarding the public and bats using the least obtrusive means (for bats, following Bat Conservation International recommendations) are important actions to undertake. Interpretive displays of mining activities, however, would be best restricted to entry points. Boston Hill is a small open space and increasing signage and/or markers will contribute to an increasingly urban appearance and congestion, not a nearby getaway into remnants of nature in an old mining area. As a wildlife researchers and conservation educators, we have noticed with growing urbanization of this small area (more signs and trail cutoffs) a decline in wildlife observations. Although, never abundant, seeing wildlife in this area near to our home, Silver City, is a highlight. Minimizing impact when executing this project is also important, particularly given the historical impact that remains clearly visible.

Kim McCreery & Robert Robbins
Silver City, NM

Appendix B

Photographs

1. View from Boston Hill Mining District toward the Town of Silver City

2. View to north from south end of the District at the Truck Bypass trailhead

3. Agency meeting and field visit by AMLP and BLM at Legal Tender

4. Spring Street Trailhead, note proximity to residence

5. Northwest quadrant: Boston Hill summit

6. Northwest quadrant: View to west showing North Pit

7. Southeast quadrant: Recently constructed wire mesh covering over open pit

8. Southwest quadrant: Unprotected explosives area

9. Example of steel gate for vertical shafts

10. Example of Spyder steel mesh panel over shaft

11. Example of steel gate over adit

12. Example of a rock/concrete bulkhead with culvert gate

13. Two-rail picket fence

12. Close-up of weathered steel picket fence

15. Spyder mesh: Steel mesh constructed of braided strands of high tensile strength steel wire

16. Tubular steel two-rail fence for high walls

17. Spyder mesh: Steel mesh constructed of braided strands of high tensile strength steel wire

Appendix C

Biological Assessment/ Biological Evaluation

DBS&A
Daniel B. Stephens & Associates, Inc.

Biological Assessment and
Biological Evaluation
Boston Hill Mine Safeguard Project
Grant County, New Mexico

Prepared for **NMEMNRD Mining and Minerals Division**
Abandoned Mine Lands Program
Santa Fe, New Mexico

December 16, 2019

Daniel B. Stephens & Associates, Inc.

6020 Academy NE, Suite 100 • Albuquerque, New Mexico 87109

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Biological Assessment and Biological Evaluation
Boston Hill Mine Safeguard Project
Grant County, New Mexico

1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this biological assessment/ biological evaluation (BA/BE) to assess the effects of the Boston Hill Mine Safeguard Project (Proposed Action) on state and federal protected natural resources. The Proposed Action is located on the Boston Hill Mining District (Project Area) within Grant County, adjacent to the southwest of the Town of Silver City, New Mexico (the Town) (Figure 1). The Proposed Action is to be undertaken to mitigate historical mining within the boundaries of the Project Area, most of which was purchased by the Town of Silver City in 2000 and currently functions as the Boston Hill Open Space Trail System, with adjacent privately owned property and Bureau of Land Management (BLM) parcels. The Proposed Action involves measures to safeguard hazardous abandoned mine features such as shafts, pits, and entryways. These measures might consist of destructive closures, including but not limited to backfills, or structural closures, including but not limited to gates, mesh, and/or fencing.

Section 7(a)(1) of the Endangered Species Act (ESA) directs all federal agencies to carry out programs for the conservation of threatened and endangered species. Section 7(a)(2) of the ESA requires federal agencies to ensure that any actions authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of any threatened, endangered, or proposed species or to adversely modify critical habitat. This BA/BE documents the potential effects of the Proposed Action on federally listed endangered and threatened species that have the potential to occur in the Action Area, together with critical habitat for any of these species. It also helps fulfill requirements set forth under the State of New Mexico's Wildlife Conservation Act [17-2-37 NMSA 1978]. Under the Wildlife Conservation Act, it is unlawful to "take" species determined to be endangered within the state as set forth by regulations of the State Game Commission. From Section 3(18) of the ESA, the term "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

As used in the Wildlife Conservation Act [17-2-37 to 17-2-46 NMSA 1978], “take” or “taking” means to harass, hunt, capture, or kill any wildlife or attempt to do so.

2. Project Description

2.1 Background

Enacted on May 2, 1977 (amended in 2006), the Surface Mining Control and Reclamation Act (SMCRA) created the nationwide Abandoned Mine Land Reclamation (AML) Program. It places fees on active coal mines to fund the reclamation of coal mines abandoned before 1977. The Office of Surface Mining Reclamation and Enforcement (OSMRE) distributes funds to the state and tribal abandoned mine land programs, which rank abandoned mine land problems on a priority scale of 1 to 3 as defined by federal law. High priority reflects the degree of need for the protection of public health, safety, and property from the adverse effects of coal mining practices prior to 1977, including restoration of land, water, and the environment. The funds are also allowed for safety closures of mine sites other than coal mines if they have been determined to be a public safety hazard.

The Boston Hill Mining District encompasses approximately 603 acres of land owned by private individuals (46 acres), lands managed by the BLM Las Cruces District Office (64 acres), lands managed by the Town of Silver City (475 acres), and lands managed by Grant County (21 acres). The first mining was conducted in the early 1870s for silver ore, and then later for manganiferous iron ore. This became the principal ore mined at the site and operations grew through the early 1900s with a narrow gauge (24-inch) railroad built around the south and west sides of Boston Hill in 1906 on a route to mines at Pinos Altos (Gendron, 2019). Mining activity on Boston Hill continued until the early 1970s, when the railroad tracks were removed and operations ceased.

The Town of Silver City purchased a majority of the claims associated with the Boston Hill Mining District in 1999 as its first open space acquisition; in 2001, the Town obtained a grant to develop a non-motorized trail system. In June 2019, the Town redesignated approximately

300 acres of the Town-owned property as an open space district. The Open Space District is intended to preserve and enhance public open space (Plant, 2019).

Since the 1990s, the AML Program and the BLM have completed selective safeguarding measures in the Project Area in portions of Boston Hill including fencing around the most intensely mined area known as the Legal Tender Mine, located on BLM land and private property, as well as portions of the Raven Pit site. Chain link fencing was installed around the mine openings, but the fencing has since been breached and the public continues to access the openings. A high tensile steel mesh netting was recently installed over a mine shaft to replace a vandalized existing mesh closure in the southern part of Boston Hill. The netting is an open mesh that allows access for small animals, including bats.

2.2 Project Description

The Proposed Action is designed to safeguard hazardous mine features in the Boston Hill Mining District, while allowing for open access by wildlife, including bats (Figure 2). The following measures will be taken in priority areas, some of which have yet to be identified:

- *Fencing.* Existing fencing has been cut repeatedly by people wanting access to the abandoned mines around the Legal Tender Mine complex, located partially on private property in the northeast part of Boston Hill. Custom steel picket fencing is an option for replacing existing chain link fencing around the areas that have been breached. Additional areas may be determined most suitable for fencing, and new fencing can be installed around the perimeter of the mine feature.

- *Gates.* Gates may be installed in mine entryways where it is determined to be the best method for blocking access to mine features. The gates will be designed in accordance with the latest industry standards and will be modified as necessary to fit the specific entryway. The basic gate design would consist of a vertically placed flat grid of bars across the mine entryway. The bars are to be oriented horizontally, with vertical supports spaced widely. Spacing of the bars will be designed to allow access of bats and other small mammals, but will not be wide enough to allow human entry. The gate

will be designed to not inhibit air flow into the mine feature and will be constructed of 4-inch angled iron oriented apex up to maximize the airflow through the gate (Fant et al., 2009; BCI, 2019). Construction timing will be in accordance with the recommendations of the bat report by Bat Conservation International (BCI) (BCI, 2019).

- *High tensile steel mesh.* High tensile strength steel mesh may be installed in locations where a vertical pit or a mine entrance is flush with the ground. The mesh can be ordered in a variety of patterns, colors, and/or apertures (hole sizes). The edges of the mesh will extend at least 3 feet beyond the edge of the mine opening and will be bolted down with either a soil or rock anchor. Construction timing will be in accordance with the recommendations of BCI (2019).

The Proposed Action ground disturbance footprint will be focused on the identified mine entryways throughout Boston Hill (Figure 3). A narrow two-track dirt road that comes in from the south side of Boston Hill from Truck Bypass Road will be used as primary access for vehicles. Existing disturbed and flat areas will be used for construction staging of all equipment and materials.

Implementation of the Proposed Action is anticipated to begin at the earliest in fall 2021.

3. Action Area

50 CFR 402 establishes the procedural regulations governing interagency cooperation under Section 7 of the ESA. For species listed under the ESA, the impact analysis must be conducted within the so-called Action Area, defined as all areas that may be affected directly or indirectly by the Proposed Action. This report provides analyses of the environmental baseline, impacts from the Proposed Action, and the potential for any incidental take conducted specifically for the Action Area.

The delineation of the Action Area for this project is primarily based on expected noise from construction. The Action Area includes an approximate 200-foot buffer around the project area where ground disturbance would occur.

4. Environmental Baseline

On July 16, 17, and 18, 2019, two DBS&A biologists conducted a 100 percent pedestrian survey for mapping and documentation of natural resources in the Project Area (Figure 4). The survey was conducted for the mine features and the surrounding habitat within the 603-acre Boston Hill Mining District. The Project Area map provided by the AML Program was used for general orientation. Trails were used to gain access. The Legal Tender Mine complex was accessed during the guided tour led by AML Program staff. Fieldwork consisted of the following specific tasks:

- Documentation and mapping of noxious weed infestations.
- A general botanical survey with an inventory of important or sensitive plant species or plant communities (e.g., milkweed colonies).
- Documentation of all evidence (e.g., nests) of or observed fauna (including raptors and statutory migratory birds) encountered during fieldwork (notes and photographs).
- Evaluation of habitat types and wildlife corridors to determine the potential for special-status species to occur locally.

Surrounding areas within line of sight were visually inspected using binoculars for the presence of birds, their nests, or past signs of use (e.g., whitewash) within a 200-foot buffer of mine features within the Project Area. Photographs taken during the field survey are provided in Appendix A.

4.1 Soils and Topography

The Project Area lies along an east-trending ridge that contains three small round hills, with the lowest part of the district lying at an elevation of approximately 6,040 feet above mean sea level (feet msl) in the southwest to 6,380 feet msl at the highest point, the summit of Boston Hill. The slopes are generally gentle, but are slightly steeper on the north side of Boston Hill than on the south and east sides. The area is within the Gila Conglomerate, a geologic formation in Arizona

and New Mexico that consists of basin-filling sedimentary rocks that include volcaniclastic conglomerate, sandstone, siltstone, as well as interlayered basaltic to dacitic lava flows and associated intrusions (USGS, 2019a).

Past mining activities have directly or indirectly impacted historical native soils surrounding the mine features and associated infrastructure. One of the soil units located around the mines is the Pits-Dumps association. The unit is located on hills and flats, where the pits are open excavations from which soil and underlying material have been removed, exposing rock or other material that supports little if any plant life (NRCS, 2019). The dumps are fragmental material composed of mixed alluvium and/or colluvium derived from igneous, metamorphic, and sedimentary rock.

Soils other than the mined areas are generally of the Oro Grande-Rock outcrop complex, and are found on hills and mountain slopes (NRCS, 2019). The unit is a residuum weathered from limestone and is typically a very cobbly loam down 13 to 17 inches to bedrock. The only variance is in the steepness of the slopes; the units are split between ranging from 5 to 15 percent slopes and ranging from 25 to 75 percent slopes.

4.2 Groundwater

Groundwater levels around the perimeter of Boston Hill indicate that the depth to groundwater ranges from 27 to 86 feet (USGS, 2019b). The depths do not factor in the topography of the hills within the Project Area; therefore, the depth could range from 27 to 386 feet at the top of Boston Hill. Regional groundwater flow is to the southeast toward San Vincente Creek, also known as the Big Ditch.

4.3 Surface Water

There are no surface waters, wetlands, or riparian areas within Boston Hill. There are ephemeral drainages that carry stormwater runoff from the hills within Boston Hill to the surrounding areas, including residential neighborhoods that surround the site on the north and east.

4.4 Vegetation Communities

The general vegetation communities at Boston Hill vary between the north and south aspects, but are generally (1) Madrean Encinal transitioning into Chihuahuan Piedmont Semi-Desert Grassland (USGS, 2004) at the lower and southern exposure parts of the Project Area and (2) Madrean Encinal transitioning into aspects of Madrean Pinyon-Juniper Woodland on the higher and north-facing slopes (Figure 5). Madrean Encinal occurs on foothills, canyons, bajadas, and plateaus in the Sierra Madre Occidental and Sierra Madre Oriental in Mexico, extending north into Trans-Pecos Texas, southern New Mexico, and sub-Mogollon Arizona (NatureServe, 2019). This woodland system is dominated by Madrean evergreen oaks along a low-slope transition below Madrean Lower Montane Pine-Oak Forest and Madrean Pinyon-Juniper Woodland. Lower-elevation stands are typically open woodlands or savannas where they transition into desert grasslands, chaparral, or in some cases desertscrub. Common evergreen oak species include Arizona Oak (*Quercus arizonica*), Emory oak (*Quercus emoryi*), dwarf oak (*Quercus intricata*), and gray oak (*Quercus grisea*). Ground cover is dominated by warm-season grasses such as *Aristida* spp., blue grama (*Bouteloua gracilis*), side oats grama (*Bouteloua curtipendula*), curly mesquite (*Hilaria belangeri*), and Muhly grass (*Muhlenbergia* spp.). Chaparral species such as mountain mahogany (*Cercocarpus montanus*) and Wright's silk tassel (*Garrya wrightii*) are present but do not co-dominate.

The southern portion of Boston Hill is warmer and drier, supporting drought-resistant perennial bunchgrasses (growing in clumps) such as Indian ricegrass (*Achnatherum hymenoides*), ring muhly (*Muhlenbergia torreyi*), and grama (*Bouteloua* sp.), shrubs that include bear grass (*Nolina microcarpa*), soapweed yucca (*Yucca elata*), Wheeler's sotol (*Dasylirion wheeleri*), and bricklebush (*Brickellia californica*), and succulents such as prickly pear (*Opuntia* sp.), cane cholla (*Cylindro opuntia spinosior*), and hedgehog cactus (*Echinocereus* sp.). The northern portion contains larger, denser vegetation, especially in drainages, that is similar to juniper/oak/pinyon woodland. Species more commonly found in this area include alligator juniper (*Juniperus deppeana*), pinyon pine (*Pinus edulis*), one-seeded juniper (*Juniperus monosperma*), Emory oak, and gray oak. In addition to the understory grasses, herbaceous flowering plants common to the area include rubber rabbitbrush (*Ericameria nauseosa*), tansy aster (*Machaeranthera tanacetifolia*), blackfoot daisy (*Melampodium leucanthum*), and verbena

(*Verbena bracteata*). The mine features on Boston Hill are generally sparsely vegetated; however, vegetation can be dense around horizontal pit openings, making the pits difficult to see. Some pits also have large trees such as junipers growing out of the bottom. Tree of heaven (*Ailanthus altissima*) was seen frequently growing out of the larger pit openings. There are species such as horehound (*Marrubium vulgare*) at the large mine openings, such as at the Legal Tender Mine complex, that appear to be more adapted to the cooler climate produced by the cavernous openings.

A list of plants recorded during the biological survey is provided as Appendix B. Sensitive plant species lists (NMEMNRD, 2019; NMRPTC, 2019) were generated and used in the field to determine whether the Boston Hill Project Area contains any sensitive plant species. No plants on the lists of sensitive species were observed during the site survey.

4.5 Noxious Weeds

The U.S. Department of Agriculture's (USDA's) most updated federal noxious weed list, the 2016 New Mexico noxious weed list (Class A, Class B, and Class C species) (NMDA, 2016) and watch lists were reviewed to determine the current status of and the potential for noxious weeds to be present.

Noxious weeds were observed during the biological survey on July 16 through 18, 2019. Siberian elm (*Ulmus pumila*) and tree of heaven, both Class C species, were observed primarily in areas of disturbance. The tree of heaven was common around mine features that could have safety measures taken as part of the Proposed Action.

4.6 Wildlife

The Project Area and Action Area harbor species adapted to arid environments, as well as the noise and disturbance associated with proximity to residential development, roads, and light industrial and commercial development. In addition, the entire area of Boston Hill is used for recreational hiking and biking, and trails cross the entire area. Table 1 lists all of the species recorded during the July 16 through 18, 2019 biological survey.

The following subsections describe species known to be present and/or observed during the field survey.

4.6.1 Invertebrates

Among the invertebrates documented during the survey were the rainbow grasshopper (*Dactylotum bicolor*), found in the grasslands in the south, and three butterfly species: the variegated fritillary (*Euptoieta claudia*), two-tailed swallowtail (*Papilio multicaudata*), and black swallowtail (*P. polyxenes*).

4.6.2 Fish

There are no surface waters (and therefore no fish) within Boston Hill.

4.6.3 Amphibians and Reptiles

No amphibians were recorded in the Project Area, but lizards were common throughout the Project Area, including the Sonora spiny lizard (*Sceloporus clarkii clarkii*). A gopher snake (*Pituophis melanoleucus*) was seen along the top of Comanche Pit; a whiptail lizard (*Cnemidophorus* spp.) and Sonoran spiny lizard (Sceloporus clarkii) were observed in the northern section of Boston Hill (Table 1).

4.6.4 Birds

A total of 25 bird species were documented during the survey. Blue grosbeaks (*Passerina caerulea*), northern mockingbirds (*Mimus polyglottos*), and curve-billed thrashers (*Toxostoma curvirostre*) all occurred in the grasslands to the south, as did western kingbirds (*Tyrannus verticalis*). Curve-billed thrasher nests were observed in many of the chollas, while western kingbird activity was concentrated along the powerline bisecting the southern part of the Project Area. Gambel's quail (*Callipepla gambelii*) and black-throated sparrows (*Amphispiza bilineata*) were found in brushy desert vegetation in the east and southeast. Spotted towhees (*Pipilo maculatus*) were often heard in areas with dense understory or midstory vegetation. A family of great horned owls (*Bubo virginianus*) was observed along the walls of Apex Pit, located in the southwestern portion of the Project Area, just opposite a nest on a ledge. North Pit was home to a greater roadrunner (*Geococcyx californianus*), observed scaling a cliff wall, and to a pair of American kestrels (*Falco sparverius*), seen roosting together on a ledge. Rock wrens

(*Salpinctes obsoletus*), canyon wrens (*Catherpes mexicanus*), and rufous-crowned sparrows (*Aimophila ruficeps*) were all common along the walls of the mining pits and on rocky hill sides. A Chihuahuan raven nest was found in Adonis Pit, and Chihuahuan raven fledglings were recorded near the Spring Street trailhead in the north. Typical birds of the northern, more wooded portion of the Project Area included phainopepla (*Phainopepla nitens*), summer tanager (*Piranga rubra*), American bushtit (*Psaltriparus minimus*), and especially Woodhouse's scrub-jay (*Aphelocoma woodhouseii*) and white-winged dove (*Zenaida asiatica*). Along with the Chihuahuan raven, Eurasian collared-doves (*Streptopelia decaocto*), house finches (*Haemorhous mexicanus*), and Say's phoebes (*Sayornis saya*) occurred along the urban edges of Boston Hill. Turkey vultures (*Cathartes aura*) were often seen flying over the Project Area. Although not seen, barn owls (*Tyto alba*) likely use some of the underground mine workings.

4.6.5 Mammals

Among mammals, rock squirrels (*Otospermophilus variegatus*) were common on rocky slopes throughout the Project Area, while desert cottontail rabbits (*Sylvilagus audubonii*) occupied both the grasslands to the south and the juniper and juniper-oak associations mainly to the north and west. Deer tracks were observed in the grasslands and likely belonged to both mule deer (*Odocoileus hemonius*) and Coues white-tailed deer (*O. virginianus couesi*). A gray fox (*Urocyon cinereoargenteus*) was seen in an underground mine working at Legal Tender Mine after it had just killed a rabbit. Bats were observed at that same location, which in 2013 harbored both Townsend's big-eared bat (*Corynorhinus townsendii*) and a myotis bat (*Myotis* sp.) (see also BCI, 2019; only Townsend's big-eared bat was recorded in 2018-2019). A chipmunk was observed among boulders in North Pit; although not formally identified, that chipmunk was almost certainly a cliff chipmunk (*Neotamias dorsalis*) on the basis of distribution and habitat associations. A woodrat (*Neotoma* sp.) midden was documented at the Legal Tender Mine complex. Other likely mammalian visitors of the Project Area include the coyote (*Canis latrans*), bobcat (*Lyns rufus*), and javelina (collared peccary) (*Tayassu tajacu*).

5. Species/Critical Habitat Considered

This section evaluates the potential for listed species to occur in the Project Area or Action Area and be affected by the Proposed Action. For federally listed species, the Information, Planning,

and Consultation System (IPaC) planning tool from the U.S. Fish and Wildlife Service (USFWS) (New Mexico) was used to obtain information on biological resources of the area (USFWS, 2019) (Appendix C). The state (animal) species list was obtained for Grant County from the New Mexico Department of Game and Fish (NMDGF) Biota Information System of New Mexico (BISON-M) website (NMDGF, 2019) (Appendix C). In addition, the BLM Sensitive Species list (verified in the Las Cruces BLM district) was developed for evaluation.

Table 2 lists the federally listed species identified in the IPaC report for the Project Area. Table 3 includes all other special-status species and their potential for occurrence within the Project Area and/or Action Area. Table 4 lists BLM sensitive species and potential for their occurrence. The following subsections summarize the results of these queries.

5.1 Federal Threatened and Endangered Species

The IPaC report obtained for this project lists a total of 16 federal threatened, endangered, and proposed threatened or endangered species, with none of them having designated or proposed critical habitat for the area of the project (USFWS, 2019) (Appendix C). One additional species, the northern aplomado falcon (*Falco femoralis septentrionalis*) is designated federally in New Mexico as a non-essential, experimental population. For the purposes of consultation under Section 7 of the ESA, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under Section 7(a)(2) of the ESA) and as a proposed species on private land (no Section 7(a)(2) requirements, but federal agencies must not jeopardize their existence (Section 7(a)(4)).

Of the 17 species, only 1 has the potential to occur in the Project Area. Table 2 contains habitat descriptions for all 17 federal listed species and determination on their potential for occurrence in the Project Area and/or Action Area. The following is a detailed description of the northern aplomado falcon, the only species that has the potential to occur in the Project Area/Action Area. No effect determination and no Section 7 consultation are needed for this species based on its federal status.

The northern aplomado falcon was listed as endangered on February 25, 1986, but its federal status was changed in New Mexico and Arizona to that of a non-essential, experimental population in July 26, 2006. In New Mexico, there had been no verified occurrences for nearly 40 years when a major increase in sightings began in the early 1990s (NMPF, 2007). The best documented post-1980 New Mexico localities include Gray Ranch and Animas Valley in Hidalgo County, Separ and Hachita in Grant County, Carlsbad in Eddy County, San Antonio in Socorro County, and three individuals observed in 1999 in Doña Ana and Otero Counties (NMPF, 2007). After 50 years of no known nesting in the U.S., a successful nesting of aplomado falcons was observed in Luna County south of Deming in 2002. Once considered common in its range, the falcon's decline is attributed primarily to loss of grassland habitat from range fire control, intense overgrazing, and agricultural development (USFWS, 2007).

The Peregrine Fund and the USFWS began an aplomado falcon reintroduction program in New Mexico in 2006 to augment falcon populations in the northern Chihuahuan Desert (Federal Register 50 CFR Part 17, Vol. 71, No. 143, July 26, 2006). A similar reintroduction program had been successful in Texas, but it failed in New Mexico although naturally occurring nesting of wild falcons had been documented in prior years (American Bird Conservancy, 2010).

The northern aplomado falcon is associated with savannas and grasslands with a sparse canopy of woody vegetation; particularly in New Mexico, the falcon is associated with semidesert grasslands in the Chihuahuan Desert (Cartron, 2010). The grasslands are characterized by scattered yuccas, mesquite, and cactus. The amount of grass cover at occupied falcon sites varies, but is estimated to be around 40 percent, with an overall vegetation ground cover between 30 and 70 percent. Woody density is estimated to be typically less than 300 plants per hectare at nest sites (Cartron, 2010). Characterization of nesting habitat has been extrapolated from known nesting sites in Chihuahua, Mexico; the areas thought to be suitable habitat for nesting consist of open tobosa (*Pleuraphis mutica*) swale within a desert grassland/shrubland mosaic (Cartron, 2010).

The Project Area lies approximately 54 miles north of Hachita, one of the recorded locations of the falcon on the edge of desert grasslands. While the northern portion of the Project Area would likely be too densely wooded with pinyon, juniper, and oak, there are areas of desert

grassland with scattered yuccas and cactus in the southern part of Boston Hill. The grasslands are at the northern edge of the region's Chihuahuan desert grassland. While there is a low potential for the falcon to occur within the southern portion of Boston Hill, there would likely not be nesting habitat for the falcon, as there are no tabosa swales, which are thought to be an important element for nesting of the falcon.

5.2 State-Listed and other Special-Status Species

The list of Grant County's state threatened or endangered species was also reviewed as part of this evaluation (Appendix C). It consists of 3 plants, 7 fish, 2 mollusks, 2 amphibians, 3 reptiles, 25 birds, and 3 mammals, for a total of 45 species. Table 3 provides habitat descriptions for these species—including 14 species that are also federally listed—and an assessment of the potential for their occurrence in the Project Area.

Important Plant Areas (IPAs) are specific places in New Mexico that support either a high diversity of sensitive plant species or are the last remaining locations of the state's most endangered plants (EMRND, 2017). IPAs and their biodiversity rank were reviewed for the project footprint, and it was determined that there are no IPAs present in the region of Boston Hill (EMRND, 2017). The nearest IPA is north of Silver City from the Pinos Altos Range north into the Gila Mountains.

A total of 3 state endangered plant species are located within Grant County (NMEMNRD, 2019) (Table 3). In addition to reviewing state-listed species, DBS&A reviewed the New Mexico Rare Plant Conservation Scorecard (scorecard) for the Project Area. The scorecard provides an analysis of the current conservation status of the 235 strategy rare plants, including threats, degree of protection, and actions needed to conserve species (management actions, inventories, monitoring, taxonomic work, etc.) (NMNHP, 2019). One species found in the Chihuahuan Desert ecoregion, Metcalfe's ticktrefoil (*Desmodium metcalfei*), was determined as having the potential to occur in the Project Area. The species is on List C of the scorecard, which contains species that are weakly conserved. Metcalfe's ticktrefoil is found on rocky slopes and canyons in grasslands, oak/pinyon-juniper woodlands, and riparian forests. Current land uses apparently pose no threat to this species (NMRP, 2019). This species is listed as a

federal “species of concern” (SOC) (NMNHP, 2019). Table 3 lists the habitat for the state endangered and New Mexico rare plant species and their potential for occurrence in the Project Area.

Appendix B provides a list of all plant species observed during the biological survey. No species of concern were observed during the biological survey on July 16 through 18, 2019.

6. Effects Analysis

6.1 Northern Aplomado Falcon

Although not recently, northern aplomado falcons have been documented in Grant County. Construction for the project activities would not have direct impacts on the falcon, as it would be centered on mine features and existing roads would be used for construction equipment. No habitat used by the falcon would be disturbed. There would be a potential for construction noise to impact a northern aplomado falcon that may be within the area of Boston Hill as a casual occurrence, but the noise would be temporary and no nesting habitat would be disturbed.

No effect determination is needed for non-essential, experimental populations except on National Wildlife Refuge and National Park land. No aplomado falcons have been found in several decades in the area near Silver City (Cartron, 2010). With the Project Area located at the northern edge of the species distribution and with no anticipated impacts on yucca grasslands in the southern portion of Boston Hill, it is highly unlikely that the Proposed Action would jeopardize the existence of the northern aplomado falcon.

6.2 Other Wildlife

A total of 9 state-listed or BLM sensitive animal species are known to occur in the Project Area or have the potential to be found there. They include one invertebrate (the monarch butterfly [*Danaus plexippus plexippus*], one reptile (the Gila monster [*Heloderma suspectum*], six birds (the Mexican whip-poor-will [*Antrostomus arizonae*], McCown’s longspur [*Calcarius mccownii*], chestnut-collared longspur [*C. ornatus*], pinyon jay [*Gymnorhinus cyanocephalus*], Bendire’s

thrasher [*Toxostoma bendirei*], and gray vireo [*Vireo vicinior*]), and one mammal (Townsend's big-eared bat [*Corynorhinus townsendii*]).

Short-term direct impacts to wildlife in the Project Area would include noise and ground disturbance during construction. Construction activities would likely result in the direct loss of some smaller, less-mobile species of wildlife, such as small mammals and reptiles, and displacement of more mobile species to adjacent undisturbed habitats until construction activities are completed. The most common wildlife responses to noise and the presence of construction equipment and human presence are avoidance or accommodation. Avoidance would result in displacement of animals from an area larger than the actual disturbance area. Overall, avoidance of the Project Area would be relatively short-term and would cease soon after completion of construction activities.

No long-term detrimental impacts to wildlife are anticipated. Townsend's big-eared bat should benefit from the Proposed Action in the long-term, through more effective fencing that restricts public access to underground mine features and reduces the potential for human disturbance. According to BCI (2019), bat use of the occupied mine features primarily represents minor to moderate day and night roosting, likely by solitary bats or relatively small clusters on a periodic basis. A few features also demonstrate conditions potentially suitable for winter hibernation use. White-Nose Syndrome, which is the leading cause of population declines in many bat species, primarily affects hibernating bats. The fungus responsible for White-Nose Syndrome can be spread from one hibernaculum to another by humans accidentally carrying it on their shoes or clothing.

6.3 Plants

No federally endangered or threatened plant species are listed for the Project Area within Grant County. Three plants, the night-blooming cereus (*Peniocereus greggii var. greggii*), slender spiderflower (*Peritoma multicaulis*), and Parish's alkali grass (*Puccinellia parishii*) were listed as state endangered for Grant County. Only one of the three plant species, night-blooming cereus, which is also considered a federal species of concern, was determined to have the potential to occur within Boston Hill. The night-blooming cereus was not observed during the biological

survey near any mine feature, and was therefore determined to not be affected by any project construction activities. Table 2 contains descriptions of the species and potential for presence in the Project Area.

Other than the night-blooming cereus, three additional plants listed as species of concern (List C) were determined to have the potential to occur in the Project Area: Metcalfe's ticktrefoil (*Desmodium metcalfei*), Pinos Altos fame flower (*Phemeranthus humilis*), and Thurber's campion (*Silene thurberi*) (Table 3). Metcalfe's ticktrefoil and Thurber's campion both grow on rocky slopes and the Project Area falls within their elevational range. The Pinos Altos flame flower is found on shallow, gravelly, usually clayey soils overlying rhyolite, usually on rock benches in sloping terrain, but also in soil pockets overlying rock in nearly level areas in Madrean grassland, oak woodland, or pinyon-juniper woodland, often with beargrass (*Nolina microcarpa)* and Parry's agave (*Agave parryii)*. The Project Area contains shallow, gravelly soils but not clayey soils overlaying rhyolite. There is beargrass throughout the Boston Hill area and a few Parry's agaves were observed during the survey. The biological survey focused especially on areas of proposed disturbance around mine features; the species was not observed and no associated species were observed near areas (i.e., mine features) that would have the potential to be disturbed by construction activities.

One additional plant, sibara (Sibara grisea) has the potential to occur in the Project Area. It is listed by BLM as a sensitive species, and it grows at the base of limestone cliffs in interior chaparral and pinyon-juniper woodland communities (Table 4).

None of these plant species should be impacted by the Proposed Action even if they were to occur in the Project Area. The biological survey focused especially on areas of proposed disturbance around mine features, and none of these species were documented.

6.4 Cumulative Effects Analysis

As defined under the ESA, "cumulative effects" encompass only effects of future state or private activities reasonably certain to occur within the Project Area. After completion of the Proposed Action, planned future actions may include activities conducted by the Town. These activities

could include trail maintenance or building and signage, none of which would be expected to impact local plants and wildlife. No additional actions by the AML Program are planned and no cumulative effects to any listed resources are anticipated.

7. Conservation Measures

Although Section 7 consultation is not necessary for the Proposed Action, some conservation measures are recommended to minimize any impacts on wildlife and plants of the Project Area. The following actions are incorporated into the design of the proposed action:

- The existing roads and trails in the Project Area will be used as primary access for all vehicles.
- Secondary access will be limited to the extent possible. Once construction is completed, the disturbed areas will be reseeded with native grass and forb species.
- Existing disturbed and flat areas will be used for construction staging of all equipment and materials. The staging areas will be located on or adjacent to the existing roads and trails.
- If possible, construction activities should all take place outside of the migratory bird nesting season. If not, a pre-construction nesting survey of the Project Area will be conducted prior to the commencement of construction. Any active nests found will be flagged for avoidance during construction activities.

8. Conclusions

The Proposed Action is designed to safeguard dangerous mine features located within the Boston Hill Mining District. Conservation measures such as using bat-friendly gates, using existing roads, and conducting pre-construction nesting surveys will be implemented as part of the project.

A biological survey was conducted on July 16 through 18, 2019 to observe field conditions, assess the likelihood of occurrence of special-status (including federal threatened and endangered) species, and evaluate potential impacts.

There is no critical habitat within the Project Area, as noted in the USFWS IPaC report generated for this project (Appendix C). This evaluation finds that the project will have no effect on critical habitat.

Among federally listed species, the northern aplomado falcon was determined to have the potential to occur within the Project Area or Action Area. The northern aplomado falcon is listed in New Mexico as a non-essential, experimental population. No Section 7 consultation is required for this species, as the Project Area lies on the northern edge of its distribution and the Proposed Action is unlikely to jeopardize its existence.

Two state-listed animal species were determined to have the potential to occur within the Action Area or Project Area. An additional 7 species listed as sensitive by the BLM were found to have the potential to occur in the Project Area. One in particular, Townsend's big-eared bat, is known to occupy some of the mine features in the Project Area. No long-term, negative impact to them is anticipated as a result of the project. Townsend's big-eared bat is likely to benefit in the long term from more effective fencing restricting public access of caves used by the species.

Humans can spread the fungus that causes White-Nose Syndrome from one hibernaculum to another by accidentally carrying the fungus on shoes, clothing, or gear. Reduced human access to any of the mine features that harbor or could harbor bats in the future is another expected benefit of the Proposed Action to bat species.

One state endangered plant, the night-blooming cereus, was determined to have the potential to occur within Boston Hill. The night-blooming cereus was not observed during the biological survey near any mine feature. Therefore, no impact to the species is anticipated as a result of the project.

The work will temporarily disturb vegetation within the Project Area, which in turn may temporarily affect local wildlife and habitat.

Project impacts to non-listed species would include temporary noise impacts, vegetation removal, and ground disturbance. With conservation measures implemented, these effects would likely be negligible.

9. Contacts Made

No ESA Section 7 consultation is necessary for this project.

10. Preparers

This BA/BE documents the findings from biological surveys conducted on July 16 through 18, 2019 and potential impacts from the proposed Boston Hill Mine Safeguard Project. This BA/BE was prepared by DBS&A biologists Dr. Jean-Luc Cartron and Julie Kutz.

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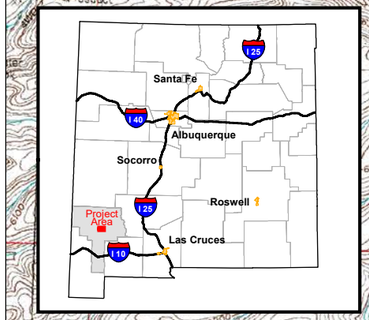
Figures



N

0 0.25 0.5 Miles

Legend

Project Area

Image Source: 7.5 Minute Quadrangle Map, Tyrone, New Mexico, 2013

BOSTON HILL MINE SAFEGUARD PROJECT
BIOLOGICAL ASSESSMENT/BIOLOGICAL EVALUATION

Location Map

Daniel B. Stephens & Associates, Inc.
12/16/2019 JN DB17.1289

Figure 1

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N

0 375 750 Feet

Explanation

- Project Area
- Boston Hill Open Space
- Trail
- Street
- Fence

Danger Rating

- Extreme
- High
- Moderate
- Low

Image Source: National Agriculture Imagery Program (NAIP), 2016
Bat habitat data provided by Bat Conservation International (BCI), 2019

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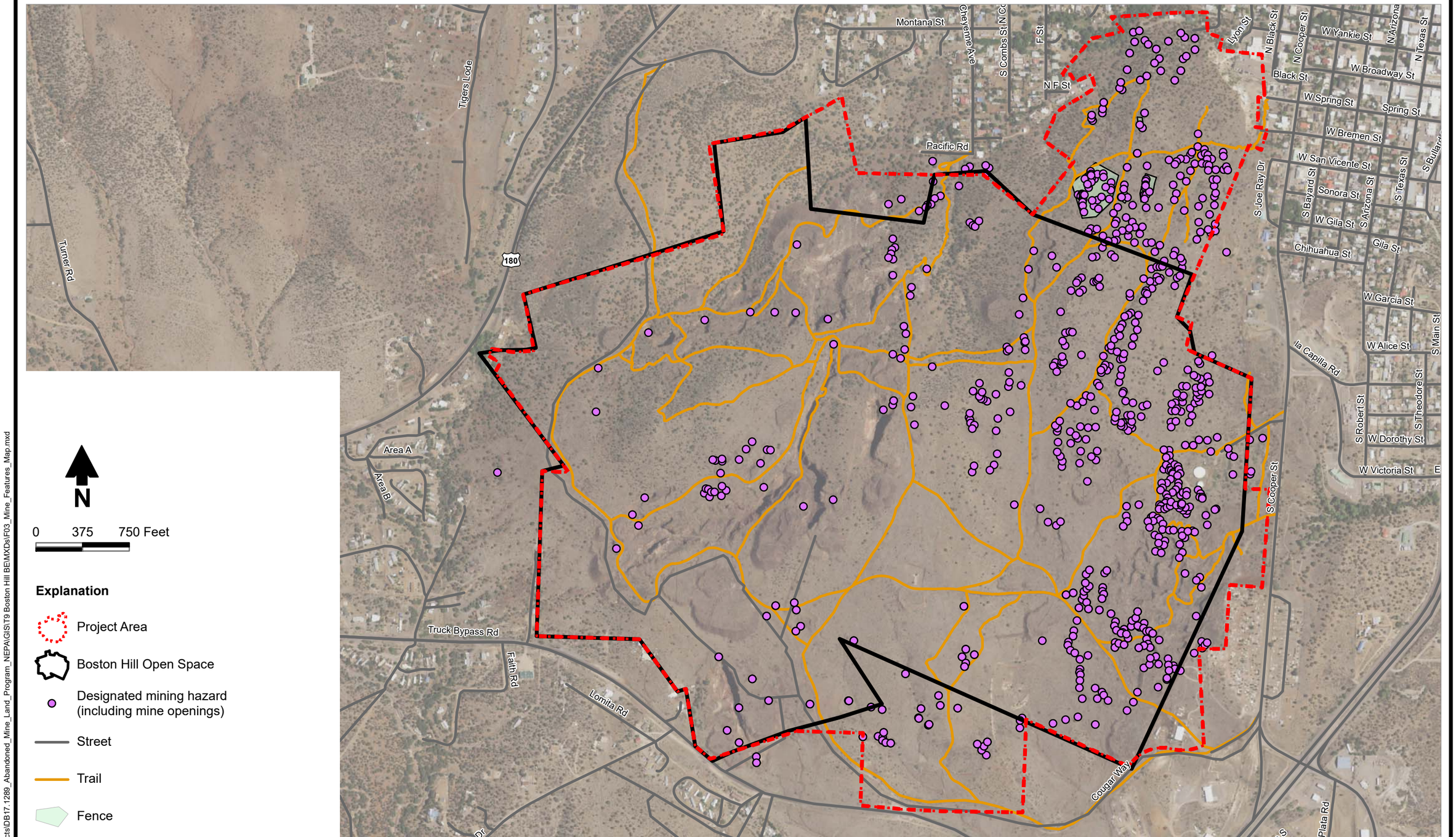
Daniel B. Stephens & Associates, Inc.
12/16/2019 JN DB17.1289

BOSTON HILL MINE SAFEGUARD PROJECT
BIOLOGICAL ASSESSMENT/BIOLOGICAL EVALUATION

BCI Inspection Results

Figure 2



N

0 375 750 Feet

Explanation

- Project Area
- Boston Hill Open Space
- Designated mining hazard (including mine openings)
- Street
- Trail
- Fence

Image Source: National Agriculture Imagery Program (NAIP), 2016

BOSTON HILL MINE SAFEGUARD PROJECT
BIOLOGICAL ASSESSMENT/BIOLOGICAL EVALUATION

Mine Features Map

Figure 3

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\\ss6abq\Data5\Projects\DB17.1289_Abandoned_Mine_Land_Program_NEPA\GIS\T9 Boston Hill BE\MXDs\F03_Mine_Features_Map.mxd

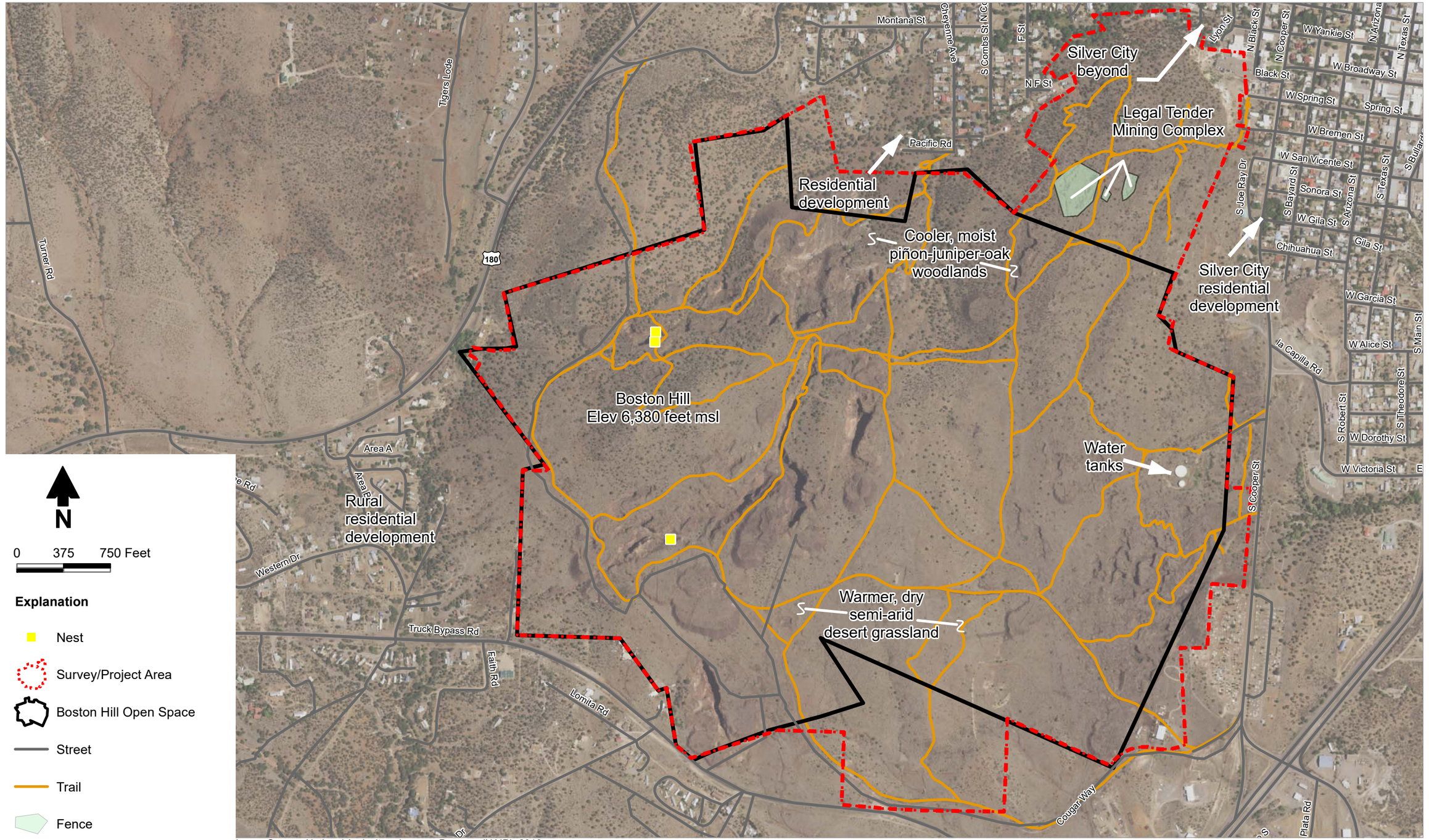

Image Source: National Agriculture Imagery Program (NAIP), 2016

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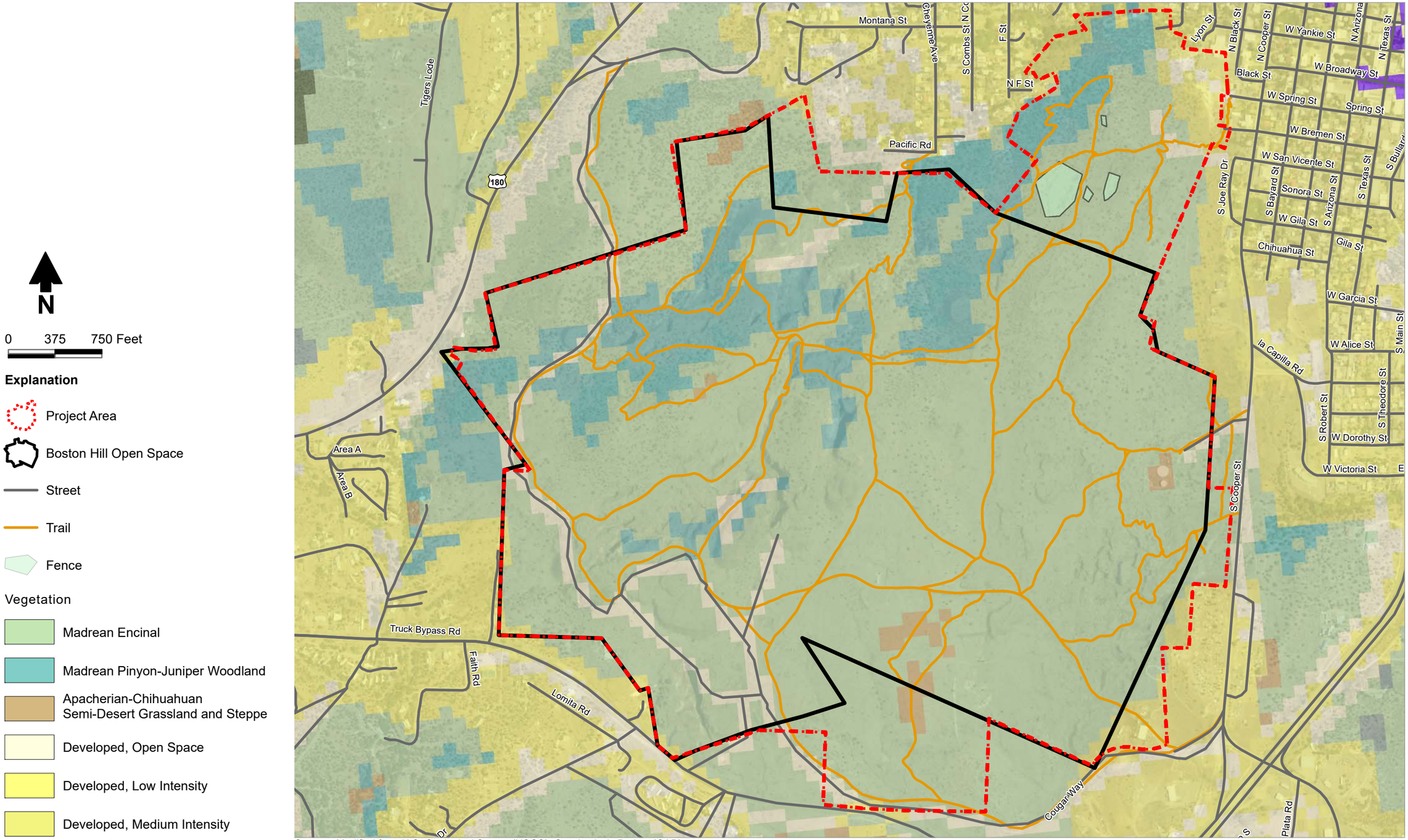
BOSTON HILL MINE SAFEGUARD PROJECT
BIOLOGICAL ASSESSMENT/BIOLOGICAL EVALUATION

Biological Survey Map

Daniel B. Stephens & Associates, Inc.
12/16/2019 JN DB17.1289

Figure 4



Source: Modified from U.S. Geological Survey (USGS), Gap Analysis Project (GAP)

BOSTON HILL MINE SAFEGUARD PROJECT
BIOLOGICAL ASSESSMENT/BIOLOGICAL EVALUATION

Vegetation Map

Daniel B. Stephens & Associates, Inc.
12/16/2019 JN DB17.1289

Figure 5

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Tables

Table 1. Fauna Observed During Biological Survey

Class	Family	Species
Invertebrates	Acrididae	Rainbow grasshopper (*Dactylotum bicolor*)
	Nymphalidae	Variegated fritillary (*Euptoieta claudia*)
	Papilionidae	Two-tailed swallowtail (*Papilio multicaudata*)
		Black swallowtail (*Papilio polyxenes*)
Reptiles	Phrynosomatidae	Sonoran spiny lizard (*Sceloporus clarkii*)
	Cnemidophorus	whiptail (*Cnemidophorus* spp.)
	Colubridae	gopher snake (*Pituophis melanoleucus*)
Birds	Odontophoridae	Gambel's quail (*Callipepla gambelii*)
	Columbidae	Mourning dove (*Zenaida asiatica*)
		Eurasian collared-dove (Streptopelia decaocto)
	Cuculidae	Greater roadrunner (*Geococcyx californianus*)
	Cathartidae	Turkey vulture (*Cathartes aura*)
	Strigidae	Great horned owl (*Bubo virginianus*)
	Falconidae	American kestrel (*Falco sparverius*)
	Tyraniidae	Western kingbird (*Tyrannus verticalis*)
		Ash-throated flycatcher (*Myiarchus cinerascens*)
		Say's phoebe (*Sayornis saya*)
	Corvidae	Woodhouse's scrub jay (*Aphelocoma woodhouseii*)
		Chihuahuan raven (*Corvus cryptoleucus*)
	Hirundinidae	Cliff swallow (*Petrochelidon pyrrhonota*)
	Aegithalidae	American bushtit (*Psaltriparus minimus*)
	Troglodytidae	Canyon wren (*Catherpes mexicanus*)
		Rock wren (*Salpinctes obsoletus*)
	Mimidae	Curve-billed thrasher (*Toxostoma curvirostre*)
		Northern mockingbird (*Mimus polyglottos*)
	Ptiliogonatidae	Phainopepla (*Phainopepla nitens*)
	Fringillidae	House finch (*Haemorhous mexicanus*)
	Passerillidae	Rufous-crowned sparrow (*Aimophila ruficeps*)
		Black-throated sparrow (*Amphispiza bilineata*)
		Spotted towhee (*Pipilo maculatus*)
	Cardinalidae	Summer tanager (*Piranga rubra*)
		Blue grosbeak (*Passerina caerulea*)
Mammals	Cervidae	Deer (*Odocoileus* sp.)
	Canidae	Gray fox (*Urocyon cinereoargenteus*)
	Sciuridae	Rock squirrel (*Otospermophilus variegatus*)
		Cliff chipmunk (*Neotamias dorsalis*)
	Cricetidae	Woodrat (*Neotoma* sp.)
	Leporidae	Desert cottontail (*Sylvilagus audubonii*)
	Vespertilionidae	Townsend's big eared bat (*Corynorhinus townsendii*) and/or Myotis bat (*Myotis* sp.)

Table 2. Federally Listed Species Included in the Analysis and Likelihood of Occurrence in the Project Area/Action Area

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area and/or Action Area
Birds	Southwestern willow flycatcher (*Empidonax trailii extimus*)	FE	Habitat for the southwestern willow flycatcher consists of dense riparian vegetation along rivers, streams, or other wetlands, where its diet consists primarily of insects. Vegetation includes dense growth of willows (*Salix* spp.), arrow weed (*Pluchea sericea*), alder (*Alnus* spp.), and saltcedar (*Tamarix ramosissima*).	The Project Area does not contain any dense riparian vegetation or surface water.
	Mexican spotted owl (*Strix occidentalis*)	FT	Primarily within shaded, mesic, and cool canyons with steep sides that have mixed conifer, pine-oak, and riparian forest types. Forests used for roosting or nesting often contain moderate to high canopy closure, a wide range of tree sizes suggestive of uneven-age stands, large overstory trees of various species, and high plant species richness with adequate levels of residual plant cover to maintain fruits, seeds, and regeneration to provide for the needs of prey species for the owl.	The Project Area does not harbor any shaded, mesic, and cool steep-sided canyon or forest patches with moderate to dense canopy cover.
	Northern Aplomado falcon (*Falco femoralis septentrionalis*)	ExpPop, NE	In New Mexico, the aplomado falcon is a rare resident of desert grasslands, typically associated with yucca grasslands and adjacent shrubby habitats at lower elevations. The falcon uses trees or shrubs such as yuccas or mesquite for nesting. Records of the falcon are mostly in the southern to extreme southern part of the state, including the area around Deming, and as far north as a location southwest of Silver City (Cartron, 2010).	***There is a low potential for the aplomado falcon to occur in the southern part of the Project Area as an occasional or casual migrant or accidental species.***
	Yellow-billed cuckoo (*Coccyzus americanus*)	FT	The yellow-billed cuckoo is an obligate riparian species found in woodlands dominated by cottonwoods or mesquites. It prefers mature or late-successional cottonwood/willow associations with a dense, scrubby vegetation understory.	The Project Area is located approximately 18 miles east of the Gila River, where the yellow-billed cuckoo is known to occur, and where the nearest proposed critical habitat is found. There is no riparian woodland habitat within the Project Area.

Note: Explanations and definitions are provided on the last page of the table.

Table 2. Federally Listed Species Included in the Analysis and Likelihood of Occurrence in the Project Area/Action Area
Page 2 of 3

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area and/or Action Area
Mammals	Mexican wolf (*Canis lupus baileyi*) [a]	FPE, ExpPop NE [a]	Mexican gray wolves are generally associated with montane habitat, although they are wide ranging and travel between mountain ranges. The known packs that are nearest the project area are mostly radio-collared and their movements are tracked. They are located north of the Project Area.	The Project Area is within the recovery range of the Mexican gray wolf. The habitat of the Project Area is not montane and is surrounded by human development and activity; therefore, no wolves are anticipated to occur within the Project Area even as a vagrant occurrence.
	Mexican long-nosed bat (*Leptonycteris nivalis*)	FE	In New Mexico, Mexican long-nosed bats inhabit upper desert scrub-pine oak woodlands in or near mountainous areas, where they are colonial cave dwellers. Characteristic vegetation in these areas includes agaves (*Agave* spp.), junipers (*Juniperus* spp.), oaks (*Quercus* spp.), and Mexican pinyon (*Pinus cembroides*). The only known populations of this bat in New Mexico are found in Hidalgo County.	Not recorded in 2018 and 2019 by Bat Conservation International (BCI) during surveys of the Project Area (BCI 2019). The nearest known locations of the Mexican long-nosed bat are the Big Hatchet Mountains, the Animas Mountains, and the Peloncillo Mountains of Hidalgo County (USGS, 2006).
Reptiles	Narrow-headed gartersnake (*Thamnophis rufipunctatus*)	FT	The narrow-headed garter snake occurs on and immediately below the Mogollon Plateau, primarily in the Pacific drainage in Catron, Grant, and Hidalgo counties. It is a highly aquatic species that is strongly associated with clear, rocky streams, using predominantly pool and riffle habitat that includes cobbles and boulders.	The Project Area is not near aquatic habitat.
	Mexican garter snake (*Thamnophis eques megalops*)	FT	The Mexican garter snake is a semi-aquatic species found rarely and sporadically in shallow, slow-moving streams and at least partially vegetated bodies of water, such as around springs. It is found in the lower Gila River basin.	The Project Area is not near aquatic habitat.
Amphibians	Chiricahua leopard frog (*Rana chiricahuensis*)	FT	The Chiricahua leopard frog is found in a variety of aquatic habitats including thermal springs and seeps, stock tanks, wells, intermittent rocky creeks, and mainstream river reaches.	There is no surface water in the Project Area.

Note: Explanations and definitions are provided on the last page of the table.

Table 2. Federally Listed Species Included in the Analysis and Likelihood of Occurrence in the Project Area/Action Area
Page 3 of 3

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area and/or Action Area
Fish	Beautiful shiner (*Cyprinella formosa*)	FT	This species has been extirpated from the state, where it formerly occurred in the Mimbres drainage. The subspecies was known only from the Mimbres River where it was native. Now extirpated, its demise is probably the result of ephemeral stream flows, especially downstream of Dwyer, Grant County, resulting from drought conditions and diversion of water from the river for agriculture purposes.	No longer known to occur in New Mexico. In addition, the Project Area does not contain any surface water.
	Chihuahua chub (*Gila nigrescens*)	FT	In New Mexico the Chihuahua chub is restricted to the Mimbres River drainage.	The Project Area does not contain any surface water.
	Gila chub (*Gila intermedia*)	FE	The Gila chub is endemic to the Gila basin of Arizona and New Mexico; it presently occurs only in southeastern Arizona.	There are no known extant populations in New Mexico and the Project Area does not contain any surface water.
	Gila topminnow (*Poeciliopsis occidentalis occidentalis*)	FE	The Gila topminnow is confined to the Gila River basin in Arizona and New Mexico.	The Project Area is not located along the Gila River and it does not contain any surface water.
	Gila trout (*Oncorhynchus gilae*)	FT	The Gila trout is endemic to the Verde River drainage of Arizona and the upper Gila basin of New Mexico.	The Project Area is not located along the Gila River and it does not contain any surface water.
	Loach minnow (*Rhinichthys cobitis*)	FE	The loach minnow is found in fragmented segments of the San Francisco and Tularosa rivers, the Cliff-Gila Valley portion of the Gila River, and the lowermost portions of the West and Middle forks of the Gila River.	The Project Area is not located along the Francisco, Tularosa, or Gila River, and it does not contain any surface water.
	Spikedace (*Meda fulgida*)	FE	The spikedace is now restricted to portions of the upper Gila River.	The Project Area is not located along the Gila River and it does not contain any surface water.

FE = Federal endangered
FT = Federal threatened
FPE = Federal proposed endangered
ExpPop = Experimental population
NE = Non-essential

[a] This mammal is listed twice in the USFWS IPaC report: as Gray wolf (*Canus lupus*) a southwestern distinct population segment, FPE and as the subspecies Mexican wolf (*Canus lupus baileye*), ExpPop, NE. The listings have been combined for this effects analysis.

Table 3. State-Listed Species and Rare Plants Identified for Project Area and/or Action Area

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Plants	Grayish-white giant hyssop (*Agastache cana*)	SoC	Found in crevices and bases of granite cliffs or in canyons with small-leaved oaks at the upper edge of the desert and lower edge of the pinyon-juniper zone, at 4,600–5,900 ft (1,400–1,800 m). Habitat is somewhat restricted to igneous rock on north-facing or northeast-facing slopes at the ecotone between desert and scrub.	The Project Area contains some igneous rock, but lies above the known elevational range of the species (approximately 6,000–6,380 ft).
	Gila brickellbush *(Brickellia chenopodina)*	SoC	Restricted to alluvial soils along the Gila River, 4,500 ft (1,370 m).	The Project Area is not within the Gila River floodplain.
	Wooton's hawthorn (Crataegus wootoniana)	SoC	Found in canyon bottoms and in the understory of lower montane coniferous forest, 6,500–8,000 ft (1,900–2,500 m).	The Project Area is not within any montane coniferous forest.
	Davidson's cliff carrot (*Cymopterus davidsonii)*	SoC	Found in cool, rocky places in pinyon-juniper woodland and lower montane coniferous forest, 6,500–8,000 ft (1,980–2,440 m).	The Project Area is outside of the elevational range of the species.
	Metcalfe's ticktrefoil *(Desmodium metcalfei)*	SoC	Rocky slopes and canyons in grasslands, oak/pinyon-juniper woodlands, and riparian forests, 4,000–6,500 ft (1,310–2,000 m). Current land uses apparently pose no threat to this species. Additional field searches are needed to determine the rarity of this plant.	***May occur.*** The Project Area is within the elevational range of this species and contains rocky slopes. The biological survey focused especially on areas of proposed disturbance and the species was not observed.
	Mogollon whitlowgrass *(Draba mogollonica)*	SoC	Found on cool, moist northern slopes of mountains, ravines, and canyons on volcanic rocks and soil in montane forests; 5,000–9,000 ft (1,500–2,900 m).	The Project Area is within the elevational range of this species, but does not contain mountains or montane forests.
	Ray Turner's spurge (*Euphorbia rayturneri)*	SoC	Found within desert grassland, 4,590–5,580 ft (1,400–1,700 m).	The Project Area is outside of the elevational range of the species.
	New Mexico gumweed *(Grindelia arizonica var. neomexicana)*	SoC	Rocky slopes and ledges in pinyon-juniper woodland and lower montane coniferous forest, 6,500–7,500 ft (2,000–2,300 m).	The Project Area is outside of the elevational range of the species.

Note: Explanations and definitions are provided on the last page of the table.

Table 3. State-Listed Species and Rare Plants Identified for Project Area and/or Action Area

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Plants (cont.)	Night-blooming cereus (*Peniocereus greggii var. greggii)*	SoC, SE, SS	Mostly on sandy to silty gravelly soils in gently broken to level terrain in desert grassland or Chihuahuan desert scrub. Typically found growing up through and supported by shrubs, especially *Larrea divaricata* and *Prosopis glandulosa*.	***May occur.*** The Project Area contains some broken to level terrain in desert grassland and Chihuahuan desert scrub. The biological survey focused especially on areas of proposed disturbance around mine features and the species was not observed.
	Maguire's beardtongue *(Penstemon linarioides ssp. maguirei)*	SoC	Limestone cliffs in pinyon-juniper woodland, 6,000–6,500 ft (1,830–1,980 m). The only known population left is located in Arizona.	According to New Mexico Rare Plants, the plant has not been seen in the state for over 100 years. It may persist, but only in canyons along the Gila River. The species is therefore not likely to occur within the Project Area.
	Slender spiderflower (*Peritoma multicaulis)*	SoC, SE	Wet, saline, or alkaline soils; often in and around alkali sinks, alkaline meadows, or old lake beds.	The Project Area does not contain wet, saline, or alkaline soils.
	Pinos Altos fame flower *(Phemeranthus humilis)*	SoC	Shallow, gravelly, usually clayey soils overlying rhyolite, usually on rock benches in sloping terrain, but also in soil pockets overlying rock in nearly level areas; Madrean grassland, oak woodland, or pinyon-juniper woodland, often with *Nolina microcarpa* and *Agave parryii*.	***May occur***. The Project Area contains shallow, gravelly soils but not clayey soils overlaying rhyolite. The biological survey focused especially on areas of proposed disturbance around mine features and the species was not observed.
	Parish's alkali grass *(Puccinellia parishii)*	SE, SoC, SS	Alkaline springs, seeps, and seasonally wet areas that occur at the heads of drainages or on gentle slopes at 2,600–7,200 ft (800–2,200 m) range-wide. The species requires continuously damp soils during its late winter to spring growing period. It frequently grows with *Distichlis stricta* (salt grass), *Sporobolus airoides* (alkali sacaton), *Carex* spp. (sedges), *Scirpus* spp. (bulrushes), *Juncus* spp. (rushes), *Eleocharis* spp. (spike rushes), and *Anemopsis californica* (yerba mansa).	The Project Area is not located within alkaline springs, seeps, or seasonally wet areas or continuously wet soils.

Note: Explanations and definitions are provided on the last page of the table.

Table 3. State-Listed Species and Rare Plants Identified for Project Area and/or Action Area
Page 3 of 9

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Plants (cont.)	Mimbres figwort (*Scrophularia macrantha)*	SoC, SS	Steep, rocky, usually north-facing igneous cliffs and talus slopes, occasionally in canyon bottoms; pinyon-juniper woodland and lower montane coniferous forest, 6,500–8,200 ft (2,000–2,500 m).	The Project Area is outside of the elevational range of this species and does not contain igneous cliffs and talus slopes.
	Thurber's campion or woolly campion *(Silene thurberi)*	SoC	Found in protected locations on rocky areas and slopes; in arroyos and mountains; elevational range not documented, but presumed to be 5,000–7,000 ft (1,520–2,130 m).	***May occur.*** The Project Area is within the elevational range of the species and it contains rocky areas, slopes, and arroyos. The biological survey focused especially on areas of proposed disturbance around mine features and the species was not observed.
	Wright's campion *(Silene wrightii)*	SoC	Cliffs and rocky outcrops in Rocky Mountain montane and subalpine conifer forests; about 6,800–8,000 ft (2,070–2,440 m).	The Project Area is not within the elevational range of the species or within Rocky Mountain montane and subalpine conifer forests.
	Porsild's starwort (*Stellaria porsildii)*	SoC	In shade and partially open understory of mixed conifer and aspen forests, and occasionally scattered on roadsides with steep, loamy, and rocky embankments, 7,900–8,200 ft (2,400–2,500 m).	The Project Area is not within the elevational range of the species or within mixed conifer and aspen forests.
Invertebrates	None			
Fish	Chihuahua chub (*Gila nigrescens*)	SE	In New Mexico, the Chihuahua chub is restricted to the Mimbres River drainage.	The Project Area does not contain surface water.
	Roundtail chub *(Gila robusta)*	SE, SS	The roundtail chub is found within river systems including the lower Gila River and the San Francisco River.	The Project Area does not contain surface water.
	Loach minnow (*Rhinichthys cobitis*)	SE	The loach minnow is found in fragmented segments of the San Francisco and Tularosa rivers, the Cliff-Gila Valley portion of the Gila River, and the lowermost portions of the West and Middle forks of the Gila River.	The Project Area does not contain surface water.
	Spikedace (*Meda fulgida*)	SE	The spikedace is now restricted to portions of the upper Gila River.	The Project Area does not contain surface water.
	Gila trout (*Oncorhynchus gilae*)	ST	The Gila trout is endemic to the Verde River drainage of Arizona and the upper Gila basin of New Mexico.	The Project Area does not contain surface water.

Note: Explanations and definitions are provided on the last page of the table.

Table 3. State-Listed Species and Rare Plants Identified for Project Area and/or Action Area
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Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Fish (cont.)	Gila topminnow (*Poeciliopsis occidentalis occidentalis*)	ST	The Gila topminnow is confined to the Gila River basin in Arizona and New Mexico.	The Project Area does not contain surface water.
Amphibians	Lowland leopard frog (*Lithobates yavapaiensis*)	SE	The lowland leopard frog is an aquatic species and is normally found at elevations below 1,500 m in small to medium-sized streams and occasionally in small ponds.	The Project Area does not contain surface water.
Mollusks	New Mexico hot spring snail (*Pyrgulopsis thermalis*)	ST	The New Mexico hot spring snail is restricted to a series of thermal springs along the Gila River.	The Project Area is 18 miles away from the Gila River and does not harbor any thermal springs.
	Gila spring snail (*Pyrgulopsis gilae*)	ST	The Gila spring snail is found in a series of thermal springs along the Gila River	The Project Area is 18 miles away from the Gila River and does not harbor any thermal springs.
Reptiles	Gila monster (*Heloderma suspectum*)	SS, SE	The Gila monster is found in deserts, grasslands, and woodlands of southwestern North America, where suitable refuge shelters are present in rock cavities and crevices or in mounds and burrows created by other reptiles or mammals. This species is most widely distributed in desert and mesquite-grassland, but also occurs in pine-oak forest, tropical deciduous forest, and thorn forest. It is usually found in rocky foothills and avoids open flats. It occurs in the Gila River Basin in Arizona and in Hidalgo, Grant, Luna, and likely also Doña Ana counties in southwestern New Mexico. Records of occurrence exist from near Silver City.	***May occur.*** Habitat would be available for the Gila monster within the Project Area. Rocky outcrops and other potentially suitable refuges were focused on during the site survey. No evidence of Gila monsters was observed during the biological survey.
	Mexican garter snake (*Thamnophis eques megalops*)	SE	The Mexican garter snake is a semi-aquatic species found rarely and sporadically in shallow, slow-moving streams and at least partially vegetated bodies of water, such as around springs. It is found in the lower Gila River basin.	The Project Area is not near aquatic habitat.

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Table 3. State-Listed Species and Rare Plants Identified for Project Area and/or Action Area

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Reptiles (cont.)	Narrow-headed gartersnake (*Thamnophis rufipunctatus*)	ST	The narrow-headed garter snake occurs on and immediately below the Mogollon Plateau, primarily in the Pacific drainage in Catron, Grant, and Hidalgo Counties. It is a highly aquatic species that is strongly associated with clear, rocky streams, using predominantly pool and riffle habitat that includes cobbles and boulders.	The Project Area is not near aquatic habitat.
Birds	Brown pelican (*Pelecanus occidentalis*)	SE	The brown pelican is found along seacoasts, lakes, and rivers. This species is a vagrant to New Mexico, having been verified primarily at Bloomfield (San Juan Co.), Snow Lake (Catron Co.), and Bitter Lake National Wildlife Refuge; there are also records of the species near Cliff (Grant Co.). Mostly associated with large lakes or major rivers, including the San Juan, Gila, Rio Grande, and Pecos drainages.	The Project Area does not contain surface water.
	Common black hawk (*Buteogallus anthracinus anthracinus)*	ST	The black hawk is found within wooded habitat along permanent streams. The species summers primarily at lower elevations along the Gila, San Francisco, and Mimbres drainages, which are key habitat areas.	The Project Area does not contain surface water or riparian woodlands.
	Bald eagle (*Haliaeetus leucocephalus*)	ST	The bald eagle is primarily a winter resident in New Mexico, where it occurs along lakes and larger rivers. A few nesting pairs have been documented in the state, typically in association with water and with large prairie dog colonies. Nests are usually high in trees.	The Project Area does not contain surface water or large prairie dog colonies.
	Aplomado falcon (*Falco femoralis*)	SE	In New Mexico, the aplomado falcon is a rare resident of desert grasslands, typically associated with yucca grasslands and adjacent shrubby habitats at lower elevations. The falcon uses trees or shrubs such as yuccas or mesquite for nesting. Records of the falcon are mostly in the southern to extreme southern part of the state, including the area around Deming, and as far north as a location southwest of Silver City (Cartron, 2010).	There is a ***low potential*** for the aplomado falcon to occur in the southern part of the Project Area as an occasional or casual migrant or accidental species.

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Table 3. State-Listed Species and Rare Plants Identified for Project Area and/or Action Area
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Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Birds (cont.)	Peregrine falcon (*Falco pergrinus*)	ST	Habitat of the peregrine falcon is primarily located in open wetlands near cliffs, often in association with large concentrations of waterfowl, doves, or other prey species. In New Mexico, breeding territories center on cliffs that are in wooded/forested habitats with large "gulfs" of air nearby in which these predators can forage.	Cliffs are present in the Project Area, but there are no wetlands and no large concentrations of waterfowl or other potential prey species.
	Neotropic cormorant (*Phalacrocorax brasilianus*)	ST	In New Mexico, neotropic cormorants are generally found on larger bodies of water such as reservoirs, where they prey on fish.	The Project Area does not contain surface water.
	Common ground-dove (*Columbina passerina*)	SE	In New Mexico, common ground doves inhabit lowland riparian areas in the southwestern part of the state. They occur most frequently in the lower Gila Valley (from Cliff southward) and in Hidalgo County within Guadalupe Canyon (NMPF, 2007).	The Project Area does not contain riparian areas.
	Buff-collared nightjar (*Antrostomus ridgwayi*)	SE	North of the Mexican border, the buff-collared nightjar is only known from several rocky desert canyons in southeastern Arizona and extreme southwestern New Mexico (Hidalgo and Doña Ana Counties) including Guadalupe Canyon. Typically inhabits open stands of mesquite (*Prosopis glandulosa*) and other small trees and large shrubs in Guadalupe Canyon and elsewhere.	The species is not known to occur in the Project Area, which lies north of the species distribution area.
	Broad-billed hummingbird (*Cynanthus latirostris*)	ST	In the U.S., the broad-billed hummingbird is found primarily in desert riparian deciduous woodland that occurs where desert streams provide sufficient moisture for a narrow band of trees and shrubs. In Guadalupe Canyon, these woodlands are characterized by Fremont cottonwood (*Populus fremontii*), Arizona sycamore (*Platanus wrightii*), Arizona white oak (*Quercus arizonica*), and netleaf hackberry (*Celtis reticulata*).	There are no riparian deciduous woodlands in the Project Area.

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Table 3. State-Listed Species and Rare Plants Identified for Project Area and/or Action Area
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Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Birds (cont.)	Costa's hummingbird (*Calypte costae*)	ST	The Costa's hummingbird is a desert scrub species of the southwestern U.S. and northern Mexico. In New Mexico, it is an uncommon and sporadic breeder in the southwest and south-central mountains. It occurs most regularly in Guadalupe Canyon and in side canyons along the lower Gila River from Cliff south.	The Project Area is far to the north of Guadalupe Canyon and lies more than 18 miles east of the Gila River. The species is not expected to occur in the Project Area other than as a casual visitor at best.
	Lucifer hummingbird (Calothorax lucifer)	ST	New Mexico harbors a small Lucifer hummingbird population that only breeds regularly in the Peloncillo Mountains of Hidalgo County (NMPF, 2007).	Due to its limited range in New Mexico, it is unlikely to occur in the Project Area.
	White-eared hummingbird (*Hylocharis leucotis*)	ST	The white-eared hummingbird is found primarily in the high mountain forests of Mexico and is only an uncommon visitor to the southwestern U.S. In New Mexico, it is known to occur in the Animas Mountains.	The Project Area is not near the Animas Mountains.
	Elegant trogan (*Trogon elegans*)	SE	The elegant trogon is primarily a Mexican species with a limited breeding population in several mountain ranges of southeast Arizona, with at most a few pairs breeding regularly in the Peloncillo Mountains of New Mexico. It requires moist riparian canyons with a sycamore component and upland areas of arid woodland (NMPF, 2007).	The Project Area is not near the Peloncillo Mountains and does not contain riparian habitat.
	Gila woodpecker (*Melanerpes uropygialis*)	ST	The Gila woodpecker is a Sonoran Desert species with limited distribution in riparian areas of southwest New Mexico. It requires large patches of mature riparian woodland habitat including snags and large trees for nesting (NMPF, 2007).	The Project Area does not contain riparian habitat.
	Northern beardless-tyrannulet (*Camptostoma imberbe*)	SE	In New Mexico, the northern beardless-tyrannulet inhabits riparian habitat and is only known to occur at a single breeding location in Guadalupe Canyon (NMPF, 2007).	The Project Area does not contain riparian habitat and is not located near Guadalupe Canyon.
	Southwestern willow flycatcher (*Empidonax trailii extimus*)	SE	Habitat for the southwestern willow flycatcher consists of dense riparian habitats along rivers, streams, or other wetlands where its diet consists primarily of insects. Vegetation includes dense growth of willows (*Salix* spp.), arrow weed (*Pluchea sericea*), alder (*Alnus* spp.) salt cedar (*Tamarix ramosissima*) and other riparian vegetation.	The Project Area does not contain riparian habitat or surface water.

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Table 3. State-Listed Species and Rare Plants Identified for Project Area and/or Action Area
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Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Birds (cont.)	Thick-billed kingbird (*Tyrannus crassirostris*)	SE	In New Mexico, the thick-billed kingbird inhabits riparian habitat and it is known to breed in Guadalupe Canyon (NMPF, 2007).	The Project Area does not contain riparian habitat.
	Bell's vireo *(Vireo bellii arizonae)*	ST	Bell's vireo is found in association with willows and mesquite thickets near water.	The Project Area does not contain riparian habitat.
	Gray vireo (*Vireo vicinior*)	ST	In New Mexico, the gray vireo inhabits pinyon-juniper and scrub-oak habitat within the western two-thirds of the state.	***May occur.*** Pinyon-juniper is present in the Project Area; however, construction activities would be focused on mine features and would be unlikely to disturb any suitable habitat for the gray vireo.
	Yellow-eyed junco (*Junco phaeonotus*)	ST	The yellow-eyed junco occupies high-elevation forests in the Animas Mountains, Big Burro Mountains, and possibly in the Big Hatchet and Pinos Altos Mountains.	The Project Area is not within the Animas, Big Burro, Big Hatchet, or Pinos Altos mountains.
	Baird's sparrow (*Ammodramus bairdii*)	ST	The Baird's sparrow breeds in a fairly small geographic area of south-central Canada, Montana, and North and South Dakota. It winters on grasslands of the northern Mexican plateau, primarily in Chihuahua and Durango but including portions of bordering states. The winter range extends into small portions of southeast Arizona, southern New Mexico, and southwest Texas. In New Mexico, Baird's Sparrow has been found on Otero Mesa and in the Animas Valley, and may occur in other areas of suitable winter habitat, particularly in the southeast portion of state (NMPF, 2007).	The Project Area is west and north of the known winter range of the Baird's sparrow and is not within the species' breeding distribution.
	Abert's towhee (*Melozone aberti*)	ST	The Abert's towhee is a riparian species occurring primarily within the Sonoran Desert ecoregion. In New Mexico, a small population occupies the Gila River corridor from the Arizona border to Mogollon Creek in Grant County and at the San Simon Cienega in Hidalgo County.	The Project Area is located approximately 18 miles east of the Gila River and does not contain riparian habitat.

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Table 3. State-Listed Species and Rare Plants Identified for Project Area and/or Action Area

Species Category	Species	Status	Habitat Associations	Potential for Presence in Project Area
Birds (cont.)	Varied bunting (*Passerina versicolor*)	ST	The varied bunting occurs in arid habitat consisting of desert canyons, thorn-scrub, and riparian edges. In New Mexico, there are very small breeding populations in three locations: Guadalupe Canyon in Hidalgo County, Doña Ana County, and canyons of Carlsbad Caverns National Park in Eddy County (NMPF, 2007). The species migrates to Mexico and Central America for the winter.	The Project Area is not close to any of the known locations where varied bunting populations have been documented. It does not contain desert canyons, thorn-scrub, or riparian habitat.
Mammals	Lesser long-nosed bat (*Leptonycteris yerbabuenae*)	ST, SS	Habitat of lesser long-nosed bats includes canyons and nearby areas in desert grasslands and shrublands, including lower edges of oak woodlands. They roost in caves, mine tunnels, and occasionally old buildings.	Not recorded in 2018 and 2019 by Bat Conservation International (BCI) during surveys of the Project Area (BCI, 2019)
	Spotted bat (*Euderma maculatum*)	ST, SS	Spotted bats inhabit a wide variety of habitats, from riparian and pinyon-juniper woodlands to ponderosa pine and spruce-fir forests. In New Mexico, the species has been collected from the lower Rio Grande Valley near Las Cruces (1,200 m) to near the summit of Mt. Taylor (3,230 m), but most records are in or near forested areas—usually of bats captured in nets placed over bodies of water. Preferred roost structures include high cliffs, caves, large rock outcrops, and manmade structures	Not recorded in 2018 and 2019 by BCI during surveys of the Project Area (BCI 2019).
	Mexican gray wolf (*Canis lupus baileyi*)	SE	Mexican gray wolves are generally associated with montane habitat, although they are wide ranging and travel between mountain ranges. The known packs that are nearest the project area are mostly radio-collared and their movements are tracked. They are located north of the Project Area.	The Project Area is within the recovery range of the Mexican gray wolf. The habitat of the Project Area is not montane and is surrounded by human development and activity; therefore, no wolves are anticipated to occur within the Project Area even as a vagrant occurrence.

Unless otherwise noted, habitat and distribution data were taken from NMDGF (2019) and the New Mexico Rare Plant Technical Council.
SE = State endangered
ST = State threatened
SS = Sensitive species (Bureau of Land Management)
SoC = Species of concern (U.S. Fish and Wildlife Service)

Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
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Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Plants	Organ Mountains giant hyssop (*Agastache pringlei* var*. verticillata*)	Humus-covered igneous talus and boulders at protected bases of steep cliffs in woodlands of Douglas fir, yellow pine, and Gambel oak, 5,900–7,500 ft (1,800–2,300 m).	There are no woodlands forests of Douglas fir, yellow pine, and Gambel oak in the Project Area.
	Howard's gyp ringstem (*Anulocaulis leiosolenus var. howardii*)	Open gypsum outcrop of the Yeso Formation, with limestone cobble, at about 4,425–4,750 ft (1,350–1,450 m). This species is locally abundant within its restricted habitat, a single gypsum outcrop on the lower western slope of the Guadalupe Mountains.	The Project Area is not in the Guadalupe Mountains and does not contain gypsum outcroppings.
	Chapline's columbine (*Aquilegia chrysantha* var. *chaplinei*)	Limestone seeps and springs in the montane scrub or riparian canyon bottoms at 4,700–5,500 ft (1,400–1,700 m).	There are no seeps or springs in the Project Area.
	Maguire's milkvetch (*Astragalus cobrensis var. maguirei*)	Dry creek beds, banks, canyon sides, generally dry, open slopes with oaks, juniper, and pine, 5,500–7,000 ft (1,650–2,150 m). The variety *maguirei* has been collected only once in New Mexico, in the Peloncillo Mountains near the Arizona border.	The Project Area is not located in the Peloncillo Mountains.
	Wind Mountain rock-cress (*Boechera zephyra*)	This species is found on rocky slopes of varying geology (either syenite, limestone, or basaltic scoria), primarily in the upper margins of Chihuahuan Desert scrub, occasionally in juniper savannah or oak-juniper woodlands. Most of the known populations are in remote locations that are relatively undisturbed, and usually occupy sites that are steep enough to limit cattle grazing or other potentially disruptive land uses. The distribution in New Mexico is confined to Doña Ana, Eddy, and Otero Counties.	The species is not known to occur in Grant County.
	Organ Mountains paintbrush (*Castilleja organorum*)	Open to partly shady montane slopes and rocky canyons in pinyon-juniper woodland or lower montane coniferous forest, 7,000–8,000 ft (2,000–2,400 m). This species is endemic to the higher elevations of the Organ Mountains.	The Project Area is not located in the Organ Mountains.
	Wright's marsh thistle (*Cirsium wrightii*)	Wet, alkaline soils in spring seeps and marshy edges of streams and ponds, 3,450–8,500 ft (1,130–2,600 m).	There are no springs, seeps, ponds, or streams in the Project Area.
	Beehive cactus *(Coryphantha robustispina ssp. scheeri)*	Favors nearly level areas in desert grassland and Chihuahuan desert scrub, usually on gravelly or silty soils, occasionally on rocky benches or bajadas on limestone or gypsum, 3,300–3,600 ft (1,000–1,100 m).	The Project Area is hilly terrain and is outside of the elevational range of the species.

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Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
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Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Plants (cont.)	Guadalupe mescal bean *(Dermatophyllum guadalupense)*	Outcrops of pink, limy, fine-grained sandstone that is 1 to 2% gypsum (by analysis) in Chihuahuan desert scrub and juniper savanna, 5,260–6,650 ft (1,720–2,180 m). Known distribution is only in Otero and Eddy Counties, Brokeoff Mountains and Upper Dog Canyon area of the Guadalupe Mountains in New Mexico and adjacent Culberson County, Texas.	There are no known occurrences of this species in Grant County.
	Duncan pincushion cactus *(Escobaria duncanii)*	Cracks in limestone and limy shale in broken terrain in Chihuahuan desert scrub, 5,100 ft (1,550 m) in New Mexico.	The Project Area is outside of the elevational range of this species.
	Villard pincushion cactus *(Escobaria villardii)*	Loamy soils of desert grassland with Chihuahuan desert scrub on broad limestone benches in mountainous terrain, 4,500–6,500 ft (1,370–2,000 m). Known distribution in New Mexico is confined to Otero and Doña Ana Counties: west slope of the Sacramento Mountains and northern Franklin Mountains.	There are no known populations of this species within Grant County.
	New Mexico bitterweed *(Hymenoxys ambigens* var*. neomexicana)*	Rocky to sandy granitic soils on open canyon floors or slopes; oak woodland, Apache pine forests, or along intermittent streamsides with Arizona cypress, Arizona walnut, and Arizona sycamore, 5,400–7,250 ft (1,640–2,200 m). A narrow endemic that occurs in small populations and is known from only three localities in Hidalgo County, all within a 30-square kilometer area.	The Project Area is not near any of the locations where the species has been documented.
	Gypsum scalebroom *(Lepidospartum burgessii)*	Stabilized gypsum dunes with Chihuahuan desert scrub and arid grassland, 3,500–3,700 ft (1,050–1,110 m). A very narrow endemic of the Alkali Lakes area west of the Guadalupe Mountains.	The Project Area is not near the area where the species has been documented.
	Guadalupe stickleaf *(Mentzelia humilis* var*. guadalupensis)*	Open gypsum outcrops of the Yeso Formation, with limestone cobble, at about 4,425–5,080 ft (1,350–1,550 m). This plant is locally abundant within its restricted habitat, a series of gypsum outcrops that occur for about a dozen kilometers on the west face of the northern portion of the Guadalupe Mountains.	The Project Area is not near the known location of the species.

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Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
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Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Plants (cont.)	Crow Flats fan-mustard *(Nerisyrenia hypercorax)*	Found only on sparsely vegetated exposures of gypseous clay of the Yeso Formation, from Pup Canyon north to 1.5 miles north of the Chaves/Otero County line along the west base of the Guadalupe Mountains.	The Project Area is not near the known location of the species.
	Dune pricklypear *(Opuntia arenaria)*	Sandy areas, particularly semi-stabilized sand dunes among open Chihuahuan desert scrub, often with honey mesquite and a sparse cover of grasses, 3,800–4,300 ft (1,160–1,300 m).	The Project Area is outside of the elevational range of the species.
	Wilkinson's nailwort *(Paronychia wilkinsonii)*	In New Mexico, P. wilkinsonii is represented by only one known population, about 400 m east to west, on the gravelly limestone bajada of the Guadalupe Mountains.	The Project Area is not near the known location of the species.
	Chihuahua scurf pea *(Pediomelum pentaphyllum)*	Desert grassland or desertscrub among creosote bush or mesquite in sandy or gravelly loam soils, 4,400–6,600 ft (1,350–2,000 m). Known in New Mexico only from Hidalgo County.	The Project Area is not in Hidalgo County.
	Night-blooming cereus (*Peniocereus greggii* var*. greggii)*	Mostly in sandy to silty gravelly soils in gently broken to level terrain in desert grassland or Chihuahuan desert scrub. Elevational range is 3,940–4,920 ft (1,200–1,500 m). Typically found growing up through and supported by shrubs, especially chaparral bush *(Larrea divaricata)* and honey mesquite (*Prosopis glandulosa)*.	The Project Area contains some broken to level terrain, but lies outside the elevational range for the night-blooming cereus.
	Alamo beardtongue *(Penstemon alamosensis)*	Sheltered rocky areas, canyon sides and bottoms, on limestone, 4,300–5,300 ft (1,300–1,620 m). In New Mexico, it occurs slightly east of the Guadalupe Mountains and in limited areas of the Sacramento Mountains.	The Project Area is not near the known location of the species.
	Nodding cliff daisy (*Perityle cernua*)	Igneous cliffs, primarily on rhyolite, occasionally on andesite, 5,000–8,800 ft (1,520–2,680 m). The species is a narrow endemic of the Organ Mountains.	The Project Area is not near the known location of the species.
	Parish's alkali grass *(Puccinellia parishii)*	Alkaline springs, seeps, and seasonally wet areas that occur at the heads of drainages or on gentle slopes at 2,600–7,200 ft (800–2,200 m) range-wide. The species requires continuously damp soils during its late winter to spring growing period. It frequently grows with *Distichlis stricta* (salt grass), *Sporobolus airoides* (alkali sacaton), *Carex* spp. (sedges), *Scirpus* spp. (bulrushes), *Juncus* spp. (rushes), *Eleocharis* spp. (spike rushes), and *Anemopsis californica* (yerba mansa).	The Project Area does not have any alkaline springs, seeps, or seasonally wet areas or continuously wet soils.

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Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
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Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Plants (cont.)	Organ Mountain figwort (*Scrophularia laevis*)	Moist canyons on quartz monzonite substrate in pinyon-juniper woodland and Rocky Mountain montane coniferous forest, 6,900–8,500 ft (2,100–2,600 m).	The Project Area is located outside the elevational range of the species.
	Mimbres figwort (*Scrophularia macrantha)*	Steep, rocky, usually north-facing igneous cliffs and talus slopes, occasionally in canyon bottoms; pinyon-juniper woodland and lower montane coniferous forest, 6,500–8,200 ft (2,000–2,500 m).	The Project Area is outside of the elevation range of this species and does not contain igneous cliffs or talus slopes.
	Sibara *(Sibara grisea)*	In crevices and at the base of limestone cliffs in interior chaparral and pinyon-juniper woodland communities at 4,500–6,000 ft (1,350–1,800 m).	***May occur.*** There is limestone and pinyon-juniper in the Project Area. The biological survey focused especially on areas of proposed disturbance around mine features and the species was not observed.
	Organ Mountains scaleseed *(Spermolepis organensis)*	In sandy and gravelly soils derived from quartz monzonite at elevations of 4,600–5,400 ft (1,400–1,650 m). The type specimen was collected near a spring at the lower edge of Madrean chaparral, with *Quercus, Juniperus*, *Cercocarpus*, *Garrya*, and *Rhus*. Known in New Mexico from Doña Ana County, on the northeastern bajada of the Organ Mountains.	The Project Area is not located in the Organ Mountains.
Amphibians	Southwestern toad *(Anaxyrus* (*bufo*) *microscaphus)*	Range encompasses scattered locations in southwestern Utah, southern Nevada, Arizona, and western New Mexico. Habitat includes rocky stream courses in the pine-oak zone (e.g., Arizona, New Mexico), stream courses bordered by willows and cottonwoods, irrigation ditches, flooded/irrigated fields, and reservoirs (NatureServe, 2019).	There is no surface water within the Project Area.
Arthropods	Monarch butterfly *(Danaus plexippus plexippus)*	This is a migratory subspecies that breeds in summer across North America, including parts of about 48 states, north into southern Canada (NatureServe, 2019). In New Mexico, a seasonal resident on the Gray Ranch, Hidalgo County. The flight period for this species (on the Gray Ranch) is from July to October (BISON-M, 2019). The monarch butterfly is a nectarivore with milkweed species representing critical plants for hosting caterpillars.	***May occur.*** There is antelope milkweed (*Asclepias asperula*) present in the Project Area, though none was found in areas of proposed disturbance.

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Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
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Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Arthropods (cont.)	Anthony blister beetle *(Lytta mirifica)*	Blister beetles are common insects occurring on the flowers and foliage of various plants. Adult blister beetles are plant feeders, and some are serious pests of potatoes, tomatoes, beets, clover, and other plants. Larvae that parasitize bees climb onto flowers and attach themselves to bees visiting the flowers. The bees then carry these larvae to their nest, where the larvae attack the bee eggs (BISON-M). The Anthony blister beetle's distribution is restricted to sand dunes around El Paso, including in Doña Ana, New Mexico.	The Project Area is not located near El Paso.
Birds	Botteri's sparrow *(Aimophila baterii)*	The Botteris's sparrow is a year-round resident across much of Mexico and portions of Central America. It breeds in grassland and savanna habitats from southeast Arizona and northwest Mexico south through the Mexican central plateau and portions of the Pacific slope to Nicaragua and Costa Rica. In New Mexico, this species breeds exclusively (or nearly so) at several locations in the Animas Valley in Hidalgo County, in the vicinity of Rodeo, Animas, and Hachita (NMPF, 2007) Breeding populations in the Animas Valley are vulnerable to loss of older or senescent stands of giant sacaton, a bunch grass of floodplains and river bottoms that is the species' primary breeding habitat (NMPF, 2007).	The Project Area is outside of the species known distribution. No stands of giant sacaton were observed during the biological survey.
	Baird's sparrow (*Ammodramus bairdii*)	The Baird's sparrow breeds in a fairly small geographic area of south-central Canada, Montana, and North and South Dakota. It winters on grasslands of the northern Mexican plateau, primarily in Chihuahua and Durango but including portions of bordering states. The winter range extends into small portions of southeast Arizona, southern New Mexico, and southwest Texas. In New Mexico, Baird's Sparrow has been found on Otero Mesa and in the Animas Valley, and may occur in other areas of suitable winter habitat, particularly in the southeast portion of state (NMPF, 2007).	The Project Area is west and north of the known winter range of the Baird's sparrow and is not within the species' breeding distribution.
	Grasshopper sparrow (*Ammodramus savannarum*)	The grasshopper sparrow is a grasslands species occupying spaces that are void of too much scrub or ground cover, preferring open grasslands with patchy bare ground. In New Mexico, the grasshopper sparrow may be present in summer in the eastern plains.	The Project Area is outside of the known range of the grasshopper sparrow in New Mexico.

Note: Explanations and definitions are provided on the last page of the table.

Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
Page 6 of 10

Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Birds (cont.)	Western burrowing owl *(Athene cunicularia)*	The burrowing owl is found on dry, open, shortgrass, treeless plains; nests are associated with abandoned burrows of prairie dogs, ground squirrels and other burrowing mammals.	Areas of proposed disturbance around the mine openings were examined for evidence of burrowing owls. No signs of burrowing owls were observed at any burrows or other openings.
	Sprague's pipit *(Anthus spragueii)*	The Sprague's pipit is an endemic grassland species of the northern Great Plains. In New Mexico, Sprague's pipit occurs sporadically in winter in southern desert grasslands, primarily in the lower Pecos River Valley, Otero Mesa (southeastern New Mexico) and the Animas Valley. The pipit prefers dry, open grasslands of intermediate grass height and thickness, although it may also use taller grass on winter grounds (NMPF, 2007). Sprague's pipit is present in southern New Mexico from October to early April.	The Project Area is hilly and there are no large open areas of grassland. In addition, the Project Area is outside of the primary winter range of the pipit (as well as its breeding distribution).
	Mexican whip-poor-will *(Antrostomus arizonae)*	The Mexican whip-poor-will breeding habitat is found in areas of pinon/juniper woodlands, ponderosa/oak forests, and mixed conifer forests near the Rio Grande, Pecos Basins, and the Rio Grande in Albuquerque. It is shown as a transient in Grant County in spring and fall (BISON-M).	***May occur*** as a transient in the Project Area.
	McCown's longspur *(Calcarius mccownii)*	The McCown's longspur is a bird of the northern Great Plains that winters in the southwestern U.S. and portions of northern Mexico (NMPF, 2007). In New Mexico, McCown's longspur may be present in winter nearly statewide, but is more common in the southern two-thirds of the state, particularly on the eastern plains and in the Animas Valley (NMPF, 2007).	***May occur*** during winter, not during the breeding season.
	Chestnut-collared longspur (*Calcarius ornatus)*	The chestnut-collared longspur breeds in the Great Plains and Canadian Prairie Provinces. A native-prairie specialist, its breeding range is restricted to short- and mixed-grass prairie regions. It winters in dry grasslands, deserts, and plateaus of the south-central and southwestern U.S., including the southern half of New Mexico, as well as north-central Mexico (NMPF, 2007).	***May occur*** in the Project Area during winter, not during the breeding season.

Note: Explanations and definitions are provided on the last page of the table.

Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
Page 7 of 10

Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Birds (cont.)	Piñon jay *(Gymnorhinus cyanocephalus)*	The piñon jay is found year-round in foothills throughout the state, wherever large blocks of pinyon-juniper woodland habitat are present.	***May occur.*** Construction will be focused around the openings of mine features and existing roads will be used for construction equipment access. Therefore, it is unlikely that construction would negatively affect any piñon jay.
	Bendire's thrasher *(Toxostoma bendirei)*	Bendire's thrasher breeds across the Southwest, but its distribution appears to be patchy. In New Mexico, it breeds in scattered locations throughout the state, but most frequently in the southwest, particularly the northern Animas Valley (NMPF, 2007). It inhabits sparse desert shrubland and degraded grassland vegetation or open woodland with scattered shrubs. It avoids riparian areas and arroyos with dense shrub cover.	***May occur.*** Construction will be focused around the openings of mine features and existing roads will be used for construction equipment access. Therefore, it is unlikely that construction would negatively affect any Bendire's thrasher.
	Bell's vireo *(Vireo bellii arizonae)*	Bell's vireo is found in association with willows and mesquite thickets near water.	The Project Area does not contain riparian habitat.
	Virginia's warbler *(Vermivora virginiae)*	Virginia's warbler habitat consists of coniferous woodland or forest mixed with deciduous shrubs or trees. It is associated with pinyon-juniper and oak woodlands and in New Mexico its elevational range extends upward into mixed conifer habitat containing Gambel oak, New Mexico locust, maple, or other shrubby deciduous vegetation.	Pinyon-juniper woodland is present in the Project Area, but it lacks the deciduous trees or shrubs that are important to the Virginia's warbler.
Crustaceans	Salt Playa fairy shrimp *(Phallocryptus sublettei)*	An aquatic species of the Chihuahuan desert, the salt playa fairy shrimp is found only in Otero County.	There is no aquatic habitat for the species in the Project Area, which is also not located in Otero County.
	Moore's fairy shrimp (*Streptocephalus moorei)*	The Moore's fairy shrimp is an aquatic species that has been found in four tank pits in the Chihuahuan Desert ecoregion of Doña Ana, Luna, and Sierra counties.	There is no aquatic habitat for the species within the Project Area, which is also not located in Doña Ana, Luna, or Sierra County.
	Bowman's fairy shrimp *(Streptocephalus thomasbowmani)*	Bowman's fairy shrimp is an aquatic species found in Hidalgo and Socorro counties.	There is no aquatic habitat for the species within the Project Area, which is also not located in Hidalgo or Socorro County.

Note: Explanations and definitions are provided on the last page of the table.

Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
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Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Fish	Desert sucker *(Catostomus clarkii)*	The desert sucker is found within river systems including the upper Gila River.	The Project Area does not contain any surface water.
	Sonora sucker (*Catostomus insignis)*	The Sonora sucker is found within river systems including the upper Gila River.	The Project Area does not contain any surface water.
	Rio Grande sucker *(Catostomus plebeius)*	The Rio Grande sucker is found within river systems including the upper Gila River.	The Project Area does not contain any surface water.
	Roundtail chub *(Gila robusta)*	The roundtail chub is found within river systems including the lower Gila River and the San Francisco River.	The Project Area does not contain any surface water.
Mammals	Mexican long-tongued bat (*Choeronycteris mexicana*)	The Mexican long-tongued bat inhabits sycamore, cottonwood, and rabbitbrush riparian habitats. It also inhabits mines and quarries in spring, summer, and fall. The species occurs in deep canyons where it uses caves and mine tunnels as day roosts. It has also been found in buildings and is often associated with big-eared bats.	Not recorded in 2018 and 2019 by Bat Conservation International (BCI) during surveys of the Project Area (BCI, 2019).
	Townsend's big-eared bat (*Corynorhinus townsendii*)	The Townsend's big-eared bat inhabits semi-desert shrublands, pinyon-juniper woodlands, and open montane forests. It is frequently associated with caves and abandoned mines, which are used for day roosts and hibernacula. It is also found in abandoned buildings and crevices on rock cliffs, which serve as refuge.	***Known to occur in the Project Area.*** Townsend's big-eared bat was documented at three mine features during 2018-2019 surveys (BCI, 2019).
	Spotted bat (*Euderma maculatum*)	Spotted bats inhabit a wide variety of habitats, from riparian and pinyon-juniper woodlands to ponderosa pine and spruce-fir forests. In New Mexico, the species has been collected from the lower Rio Grande Valley near Las Cruces (1,200 m) to near the summit of Mt. Taylor (3,230 m), but most records are in or near forested areas--usually of bats captured in nets placed over bodies of water. Preferred roost structures include high cliffs, caves, large rock outcrops, and manmade structures	Not recorded in 2018 and 2019 by BCI during surveys of the Project Area (BCI, 2019).
	Western yellow bat (*Lasiurus xanthinus*)	The western yellow bat occurs in Hidalgo county within Guadalupe Canyon, in wooded areas over water. It is thought to nest in trees and other vegetation.	The Project Area is not located in Hidalgo County and contains no open water.

Note: Explanations and definitions are provided on the last page of the table.

Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
Page 9 of 10

Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Mammals (cont.)	Lesser long-nosed bat (*Leptonycteris yerbabuenae*)	Lesser long-nosed bat habitat includes canyons and nearby areas in desert grassland and shrublands including lower edges of oak woodlands. Lesser long-nosed bats roost in caves, mine tunnels, and occasionally old buildings.	Not recorded in 2018 and 2019 by BCI during surveys of the Project Area (BCI, 2019).
	Black-tailed prairie dog (*Cynomys ludovicianus*)	The black-tailed prairie dog occurs in shortgrass plains and in sacaton and desert grasslands.	The southern portion of the Project Area contains desert grassland, but no prairie dog colonies were observed during the biological survey.
	White-sided jack rabbit (*Lepus callotis*)	The white-sided jackrabbit is dependent on well-developed, pure grasslands that have low shrub density and level terrain.	The Project Area is within hilly terrain and is characterized by high shrub densities; therefore, it is not suitable habitat for the white-sided jack rabbit.
	Arizona shrew (*Sorex arizonae*)	In New Mexico, occupies relatively mesic, wooded areas, the most common trees being Douglas-fir (*Pseudotsuga menziesi*), quaking aspen (*Populus tremuloides*), and netleaf oak (*Quercus rugosa*).	The Project Area does not contain mesic wooded habitat; therefore, it is not suitable habitat for the Arizona shrew.
Mollusks	Hacheta Grande Woodland snail (*Ashmunella hebardi*)	The Hacheta Grande woodland snail is a local endemic to the Big Hatchet Peak area.	The Project Area is not near Big Hatchet Peak.
	Cooke's Peak snail (*Ashmunella macromphala*)	The Cooke's Peak snail is endemic to Cooke's Peak.	The Project Area is not near Cooke's Peak.
	Cross holospira snail (*Holospira crossei*)	The cross holospira snail is endemic to the Big Hatchet Mountains.	The Project Area is not near the Big Hatchet Mountains.
	Metcalf holospira snail (*Holospira metcalfi*)	The metcalf holospira snail is endemic to Howells Ridge within the Little Hatchet Mountains.	The Project Area is not near the Little Hatchet Mountains.
	New Mexico talussnail (*Sonorella hachitana*)	The New Mexico talussnail (Big Hatchet) is endemic to the Big Hatchet range.	The Project Area is not near the Big Hatchet Mountains.
	New Mexico talussnail (*Sonorella hachitana flora*)	The New Mexico talussnail (Floridas) is endemic to the Florida Mountains.	The Project Area is not near the Florida Mountains.
	Doña Ana talussnail (*Sonorella todseni*)	The Doña Ana talussnail is endemic to the Doña Ana Mountains.	The Project Area is not near the Doña Ana Mountains.

Note: Explanations and definitions are provided on the last page of the table.

Table 4. BLM Las Cruces Verified Sensitive Species Identified for the Project
Page 10 of 10

Species Category	Species	Habitat Associations	Potential for Presence in Project Area
Reptiles	Gray-checkered whiptail (*Aspidoscelis dixoni*)	The gray-checkered whiptail is found in the Peloncillo Mountains, specifically at Antelope Pass, about 10.5 km west of Animas, Hidalgo County.	The Project Area is not near the Peloncillo Mountains.
	Gila monster (*Heloderma suspectum*)	The Gila monster is found in deserts, grasslands, and woodlands of southwestern North America, where suitable refuge shelters are present in rock cavities and crevices or in mounds and burrows created by other reptiles or mammals. This species is most widely distributed in desert and mesquite-grassland, but also occurs in pine-oak forest, tropical deciduous forest, and thorn forest. It is usually found in rocky foothills and avoids open flats. It occurs in the Gila River Basin in Arizona and in Hidalgo, Grant, Luna, and likely also Doña Ana counties in southwestern New Mexico. Records of occurrence exist from near Silvery City.	***May occur.*** Habitat would be available for the Gila monster within the Project Area. Rocky outcrops and other potentially suitable refuges were focused on during the site survey. No evidence of Gila monsters was observed during the biological survey.
	Desert massasauga (*Sistrurus tergeminus*)	The desert massasauga inhabits grasslands found in the Chihuahuan Desert, short-grass prairies, and high plains and tablelands. In New Mexico it is found primarily in the eastern part of the state.	The Project Area does not contain grasslands preferred by the species and is not located in the eastern part of the state.
	Big Bend slider (*Trachemys gaigeae*)	The Big Bend slider is an endemic aquatic turtle of the Rio Grande and Rio Conchos drainage systems in the southwestern U.S. and northeastern Mexico	The Project Area is not located in the Rio Grande and Rio Conchos watersheds and does not contain any aquatic habitat.

Unless otherwise noted, habitat and distribution data were taken from NMDGF (2019) and the New Mexico Rare Plant Technical Council.

Appendix A

Photographs

1. Northeast quadrant, view of Legal Tender Mine area

2. Northeast quadrant, view of Legal Tender Mine area

3. Vegetation at Legal Tender Mine opening in moister, cooler environment

4. Inside Legal Tender Mine opening near bat roosts

5. Juniper grassland typical of east side

6. View from the northeast looking west

7. Pinyon-juniper habitat typical of northeast Project Area

8. View of southeast area of Boston Hill showing Chihuahuan desert grassland

9. Example of large tree growing in mine pit

10. View to north from southern end of Comanche Pit

11. Mines west of Boston Hill

12. Chihuahuan desert grassland typical of southern portion of Boston Hill

13. View around northwest portion of Boston Hill showing dense, tall vegetation of pinyon-juniper woodland

14. View of area around North Pit showing rock walls and dense vegetation

15. View to the west toward Comanche Pit

16. View of Comanche Pit showing canyon-like walls created by mining

17. Inactive nest on mine pit wall west of North Pit

18. View from Boston Hill to east

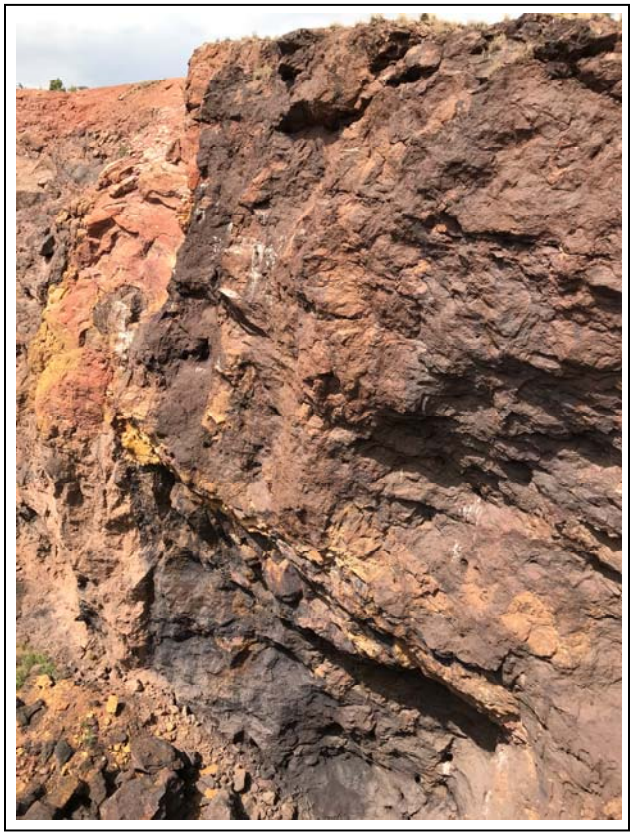
19. North Pit

20. Comanche Pit

21. Example of noxious weed (tree of heaven) at a mine feature opening

22. View of mine cavern at Legal Tender Mine complex

23. Comanche Pit with white wash on pit walls



24. White wash on Comanche Pit walls

25. View during nocturnal survey

26. One of many hiking trails in Boston Hill

Appendix B

Vegetation Species of Project Area

Table B-1. Vegetation Species Observed July 16 through July 18, 2019

Scientific Name [a]	Common Name [a]	NM Noxious Weed Class	Native (N) [b] or Introduced (I) [b]	Family
Trees				
Juniperus deppeana	alligator juniper	—	N	Cupressaceae
Juniperus monosperma	one-seeded juniper	—	N	Cupressaceae
Quercus emoryi	emory oak	—	N	Fagaceae
Quercus grisea	gray oak	—	N	Fagaceae
Pinus edulis	Piñon	—	N	Pinaceae
Ulmus pumila	Siberian elm	C	I	Ulmaceae
Ailanthus altissima	tree of heaven	C	I	Simaroubaceae
Populus deltoides ssp. *wislizeni*	Rio Grande cottonwood	—	N	Salicaceae
Shrubs				
Ericameria nauseosa	rubber rabbitbrush	—	N	Asteraceae
Gutierrezia sarothrae	broom snakeweed	—	N	Asteraceae
Brickellia californica	bricklebush	—	N	Asteraceae
Ericameria laricifolia	turpentine bush	—	N	Asteraceae
Quercus turbinella	shrub oak	—	N	Fagaceae
Rhus trilobata	skunkbush sumac	—	N	Anacardiaceae
Chilopsis linearis	desert willow	—	N	Bignoniaceae
Dasylirion wheeleri	Wheeler's sotol	—	N	Agavaceae
Nolina microcarpa	beargrass	—	N	Agavaceae
Yucca baccata	banana yucca	—	N	Agavaceae
Yucca elata	soapweed yucca	—	N	Agavaceae
Agave palmeri	century plant	—	N	Agavaceae
Echinocereus sp.	hedgehog cactus	—	N	Cactaceae

[a] For the purposes of this report, most plant species names are referred to as listed in the Natural Resources Conservation Service (NRCS) Plants Database (NRCS, 2019). However, sometimes older nomenclature was used for species in other project-associated reports. For consistency between reports, those older names were used with the new nomenclature or associated codes following in parentheses.

[b] Based on U.S. Department of Agriculture Plants Database species information (NRCS, 2019).

Table B-1. Vegetation Species Observed July 16 through July 18, 2019
Page 2 of 3

Scientific Name [a]	Common Name [a]	NM Noxious Weed Class	Native (N) [b] or Introduced (I) [b]	Family
Shrubs (cont.)				
Escobaria sp.	pincushion cactus	—	N	Cactaceae
Opuntia sp.	prickly pear	—	N	Cactaceae
Cylindro opuntia spinosior	cane cholla	—	N	Cactaceae
Cercocarpus montanus	mountain mahogany	—	N	Rosaceae
Fallugia paradoxa	Apache plume	—	N	Rosaceae
Graminoids				
Achnatherum hymenoides	Indian ricegrass	—	N	Poaceae
Bouteloua curtipendula var. *curtipendula*	sideoats grama	—	N	Poaceae
Bouteloua gracilis	blue grama	—	N	Poaceae
Aristida purpurea	three-awn grass	—	N	Poaceae
Muhlenbergia torreyi	ring muhly	—	N	Poaceae
Bouteloua hirsuta	hairy grama	—	N	Poaceae
Forbs				
Asclepias asperula	antelope milkweed	—	N	Asclepiadaceae
Berlandiera lyrata	chocolate flower	—	N	Asteraceae
Cirsium ochrocentrum	yellow-spine thistle	—	N	Asteraceae
Ericameria nauseosa	rubber rabbitbrush	—	N	Asteraceae
Gaillardia pinnatifida	blanket flower	—	N	Asteraceae
Gutierrezia sarothrae	snakeweed	—	N	Asteraceae
Helianthus sp.	sunflower	—	N	Asteraceae
Machaeranthera tanacetifolia	tansy aster	—	N	Asteraceae

[a] For the purposes of this report, most plant species names are referred to as listed in the Natural Resources Conservation Service (NRCS) Plants Database (NRCS, 2019). However, sometimes older nomenclature was used for species in other project-associated reports. For consistency between reports, those older names were used with the new nomenclature or associated codes following in parentheses.

[b] Based on U.S. Department of Agriculture Plants Database species information (NRCS, 2019).

Table B-1. Vegetation Species Observed July 16 through July 18, 2019
Page 3 of 3

Scientific Name [a]	Common Name [a]	NM Noxious Weed Class	Native (N) [b] or Introduced (I) [b]	Family
Forbs (cont.)				
Melampodium leucanthum	blackfoot daisy	—	N	Asteraceae
Ratibida columnifera	prairie coneflower	—	N	Asteraceae
Lepidium montanum	peppergrass	—	N	Brassicaceae
Cucurbita foetidissima	buffalo gourd	—	N	Cucurbitaceae
Marrubium vulgare	horehound	—	N	Lamiacea
Linum neomexicanum	New Mexico yellow flax	—	N	Linaceae
Argemone hispida	rough pricklypoppy	—	N	Papaveraceae
Sphaeralcea sp.	globe mallow	—	N	Malvaceae
Convolvulus arvensis	field bindweed	—	I	Convolvulaceae
Verbena bracteata	verbena	—	N	Verbenaceae
Acacia angustissima	acacia	—	N	Fabaceae
Dalea sp.	dalea	—	N	Fabaceae
Caesalpinia gilliesii	bird of paradise	—	I	Fabaceae
Castilleja integra	foothills paintbrush	—	N	Scrophulariaceae
Verbascum thapsus	Mullein	—	N	Scrophulariaceae
Datura wrightii	Sacred datura	—	N	Solanaceae
Solanum elaeagnifolium	Silver-leaf nightshade	—	N	Solanaceae
Solanum rostratrum	Buffalo bur	—	N	Solanaceae

[a] For the purposes of this report, most plant species names are referred to as listed in the Natural Resources Conservation Service (NRCS) Plants Database (NRCS, 2019). However, sometimes older nomenclature was used for species in other project-associated reports. For consistency between reports, those older names were used with the new nomenclature or associated codes following in parentheses.

[b] Based on U.S. Department of Agriculture Plants Database species information (NRCS, 2019).

Appendix C

Federal and State Listed Species

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
Phone: (505) 346-2525 Fax: (505) 346-2542
http://www.fws.gov/southwest/es/NewMexico/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: July 09, 2019
Consultation Code: 02ENNM00-2019-SLI-1097
Event Code: 02ENNM00-2019-E-02313
Project Name: Boston Hill Mining District Reclamation Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq.), the Migratory Bird Treaty Act (MBTA) as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act (BGEPA) as amended (16 USC 668-668c). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area and to recommend some conservation measures that can be included in your project design.

FEDERALLY-LISTED SPECIES AND DESIGNATED CRITICAL HABITAT

Attached is a list of endangered, threatened, and proposed species that may occur in your project area. Your project area may not necessarily include all or any of these species. Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

If you determine that your proposed action may affect federally-listed species, consultation with the Service will be necessary. Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take "after-the-fact." For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at www.fws.gov/endangered/esa-library/index.html#consultations.

The scope of federally listed species compliance not only includes direct effects, but also any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect or cumulative effects that may occur in the action area. The action area includes all areas to be affected, not merely the immediate area involved in the action. Large projects may have effects outside the immediate area to species not listed here that should be addressed. If your action area has suitable habitat for any of the attached species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts.

Candidate Species and Other Sensitive Species

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species be included in your surveys and considered for planning purposes. The Service monitors the status of these species. If significant declines occur, these species could potentially be listed. Therefore, actions that may contribute to their decline should be avoided.

Lists of sensitive species including State-listed endangered and threatened species are compiled by New Mexico state agencies. These lists, along with species information, can be found at the following websites:

Biota Information System of New Mexico (BISON-M): www.bison-m.org

New Mexico State Forestry. The New Mexico Endangered Plant Program: www.emnrd.state.nm.us/SFD/ForestMgt/Endangered.html

New Mexico Rare Plant Technical Council, New Mexico Rare Plants: nmrareplants.unm.edu

Natural Heritage New Mexico, online species database: nhnm.unm.edu

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value.

We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website, www.fws.gov/wetlands/Data/Mapper.html integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

The MBTA prohibits the taking of migratory birds, nests, and eggs, except as permitted by the Service's Migratory Bird Office. To minimize the likelihood of adverse impacts to migratory birds, we recommend construction activities occur outside the general bird nesting season from March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until the young have fledged.

We recommend review of Birds of Conservation Concern at website www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BCC.html to fully evaluate the effects to the birds at your site. This list identifies birds that are potentially threatened by disturbance and construction.

BALD AND GOLDEN EAGLES

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the ESA on August 9, 2007. Both the bald eagle and golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For information on bald and golden eagle management guidelines, we recommend you review information provided at www.fws.gov/midwest/eagle/guidelines/bgepa.html.

On our web site www.fws.gov/southwest/es/NewMexico/SBC_intro.cfm, we have included conservation measures that can minimize impacts to federally listed and other sensitive species. These include measures for communication towers, power line safety for raptors, road and highway improvements, spring developments and livestock watering facilities, wastewater facilities, and trenching operations.

We also suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding State fish, wildlife, and plants.

Thank you for your concern for endangered and threatened species and New Mexico's wildlife habitats. We appreciate your efforts to identify and avoid impacts to listed and sensitive species in your project area. For further consultation on your proposed activity, please call 505-346-2525 or email nmesfo@fws.gov and reference your Service Consultation Tracking Number.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
(505) 346-2525

Project Summary

Consultation Code: 02ENNM00-2019-SLI-1097

Event Code: 02ENNM00-2019-E-02313

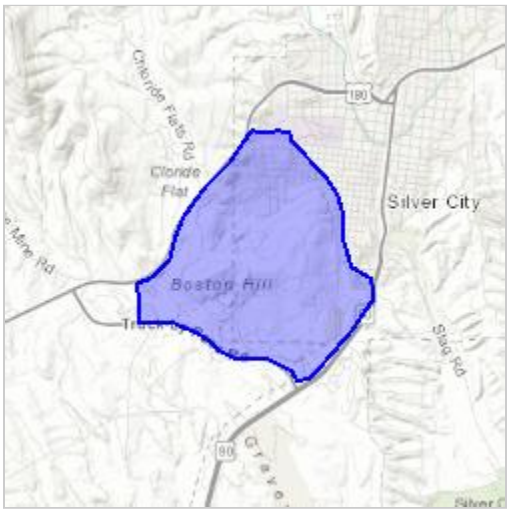
Project Name: Boston Hill Mining District Reclamation Project

Project Type: ** OTHER **

Project Description: This project involves the installation of safety features to safeguard the abandoned mines of the Boston Hill area.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/32.76384357003222N108.29014746490387W



Counties: Grant, NM

Endangered Species Act Species

There is a total of 17 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Wolf *Canis lupus* Population: Southwestern Distinct Population Segment No critical habitat has been designated for this species.	Proposed Endangered
Mexican Long-nosed Bat *Leptonycteris nivalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8203	Endangered
Mexican Wolf *Canis lupus baileyi* Population: U.S.A. (portions of AZ and NM)see 17.84(k) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3916	Experimental Population, Non-Essential

Birds

NAME	STATUS
Mexican Spotted Owl *Strix occidentalis lucida* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Northern Aplomado Falcon *Falco femoralis septentrionalis* Population: U.S.A (AZ, NM) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1923	Experimental Population, Non-Essential
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Narrow-headed Gartersnake *Thamnophis rufipunctatus* There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2204	Threatened
Northern Mexican Gartersnake *Thamnophis eques megalops* There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7655	Threatened

Amphibians

NAME	STATUS
Chiricahua Leopard Frog *Rana chiricahuensis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1516	Threatened

Fishes

NAME	STATUS
Beautiful Shiner *Cyprinella formosa* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7874	Threatened
Chihuahua Chub *Gila nigrescens* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7156	Threatened
Gila Chub *Gila intermedia* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/51	Endangered
Gila Topminnow (incl. Yaqui) *Poeciliopsis occidentalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1116	Endangered
Gila Trout *Oncorhynchus gilae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/781	Threatened
Loach Minnow *Tiaroga cobitis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6922	Endangered
Spikedace *Meda fulgida* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6493	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black Throated Sparrow *Amphispiza bilineata* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Sep 5
Black-chinned Sparrow *Spizella atrogularis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31

NAME	BREEDING SEASON
Chestnut-collared Longspur *Calcarius ornatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Common Black-hawk *Buteogallus anthracinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 1 to Sep 20
Lark Bunting *Calamospiza melanocorys* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

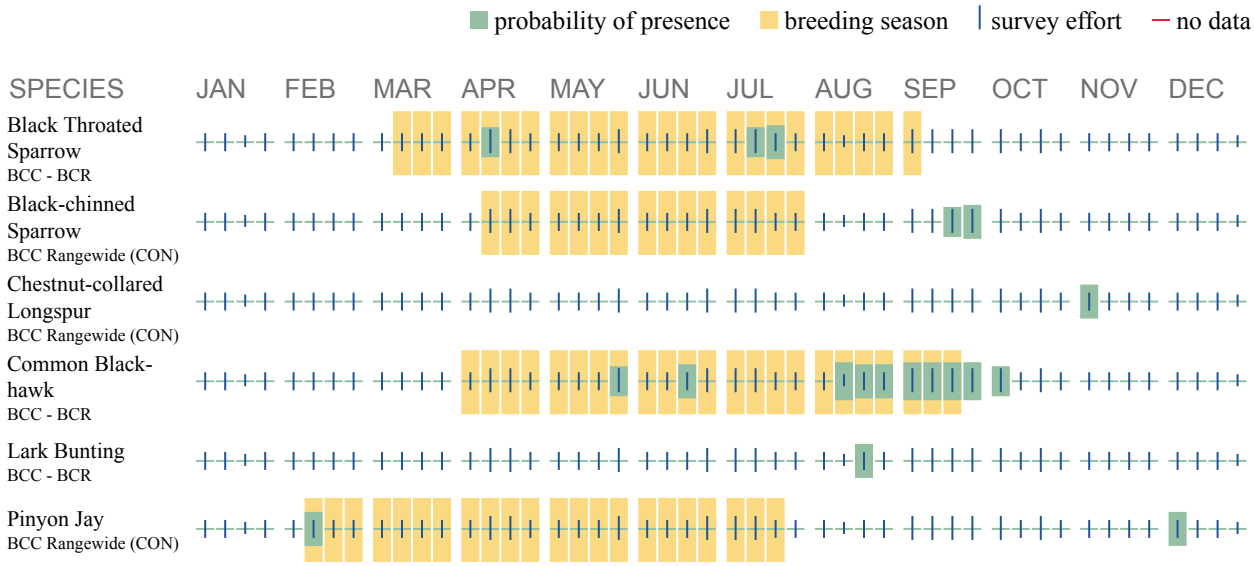
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

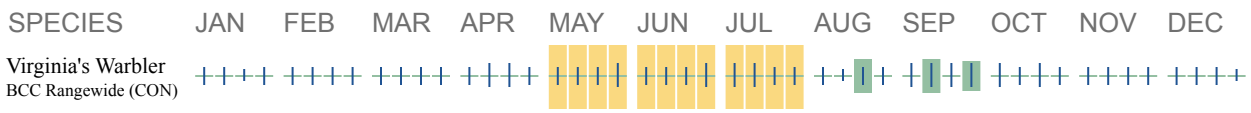
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.
Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?
The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird

model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Federal or State Threatened/Endangered Species

Grant

Taxonomic Group	# Species	Taxonomic Group	# Species
Fish	7	Birds	25
Amphibians	2	Mammals	3
Reptiles	3	Molluscs	2

TOTAL SPECIES: 42

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Lesser Long-nosed Bat	Leptonycteris yerbabuenae	T			Y	View
Spotted Bat	Euderma maculatum	T			Y	View
Mexican Gray Wolf	Canis lupus baileyi	E	E		Y	View
Brown Pelican	Pelecanus occidentalis	E				View
Common Black Hawk	Buteogallus anthracinus	T			Y	View
Bald Eagle	Haliaeetus leucocephalus	T			Y	View
Aplomado Falcon	Falco femoralis	E	E		Y	View
Peregrine Falcon	Falco peregrinus	T			Y	View
Neotropic Cormorant	Phalacrocorax brasilianus	T			Y	View
Common Ground-dove	Columbina passerina	E			Y	View
Yellow-billed Cuckoo (western pop)	Coccyzus americanus occidentalis		T		Y	View
Mexican Spotted Owl	Strix occidentalis lucida		T	Y	Y	View
Buff-collared Nightjar	Antrostomus ridgwayi	E				No Photo
Broad-billed Hummingbird	Cynanthus latirostris	T			Y	View
Costa's Hummingbird	Calypte costae	T			Y	View
Lucifer Hummingbird	Calothorax lucifer	T			Y	View
White-eared Hummingbird	Hylocharis leucotis	T				View
Elegant Trogon	Trogon elegans	E			Y	View
Gila Woodpecker	Melanerpes uropygialis	T			Y	View
Northern Beardless-Tyrannulet	Camptostoma imberbe	E			Y	View
Southwestern Willow Flycatcher	Empidonax traillii extimus	E	E	Y	Y	View
Thick-billed Kingbird	Tyrannus crassirostris	E			Y	View
Bell's Vireo	Vireo bellii	T			Y	View
Gray Vireo	Vireo vicinior	T			Y	View

Federal or State Threatened/Endangered Species
Grant

Common Name	Scientific Name	NMGF	US FWS	Critical Habitat	SGCN	Photo
Yellow-eyed Junco	Junco phaeonotus	T			Y	View
Baird's Sparrow	Centronyx bairdii	T			Y	View
Abert's Towhee	Melozone aberti	T			Y	View
Varied Bunting	Passerina versicolor	T			Y	View
Reticulate Gila Monster	Heloderma suspectum suspectum	E			Y	View
Mexican Gartersnake	Thamnophis eques	E	T		Y	View
Narrow-headed Gartersnake	Thamnophis rufipunctatus	T	T		Y	View
Chiricahua Leopard Frog	Lithobates chiricahuensis		T	Y	Y	View
Lowland Leopard Frog	Lithobates yavapaiensis	E			Y	View
Chihuahua Chub	Gila nigrescens	E	T		Y	No Photo
Gila Chub	Gila intermedia		E	Y	Y	View
Roundtail Chub (lower Colorado River populations)	Gila robusta	E			Y	View
Loach Minnow	Rhinichthys cobitis	E	E	Y	Y	No Photo
Spikedace	Meda fulgida	E	E	Y	Y	No Photo
Gila Trout	Oncorhynchus gilae	T	T		Y	View
Gila Topminnow	Poeciliopsis occidentalis occidentalis	T	E		Y	View
New Mexico Hot Springsnail	Pyrgulopsis thermalis	T			Y	No Photo
Gila Springsnail	Pyrgulopsis gilae	T			Y	No Photo

Appendix D

Bat Survey Report

DBS&A
Daniel B. Stephens & Associates, Inc.

batcon.org
BAT CONSERVATION INTERNATIONAL

TO:

Chris Teske
AML Program Lead
Bureau of Land Management
Las Cruces District Office
Las Cruces, New Mexico

Lloyd Miola
Environmental Manager
Wendell Chino Building, Third Floor
Sante Fe, NM 87505

FROM: Subterranean Program, Bat Conservation International

Jason Corbett	Director	Flagstaff, AZ
Shawn Thomas	Program Manager	Olympia, WA
Nate Breece	Field Lead	Portland, OR

SUBJECT: Report on Boston Hill (Las Cruces District) Abandoned Mine Bat Surveys

SURVEY DATE: December 11-13, 2018; April 2, 2019

OVERVIEW:

This biological survey project assessed abandoned mines within the Las Cruces District managed by the Bureau of Land Management. The AML features surveyed are in the Boston Hill Open Space adjacent to Silver City. All sites were surveyed by Bat Conservation International (BCI) staff following standardized protocols and safety procedures for the purpose of providing subterranean biological data and closure recommendations. Surveys focused on documenting bat and other wildlife use of each feature. The field project resulted in surveys being conducted on 89 unique features, with only 7 features receiving a comprehensive internal survey and recommendation. The rest of the features had no subterranean habitat or had subterranean habitat which represented a low potential for use by wildlife. Bat habitat assessments and closure recommendations are provided for all features. A survey summary and full survey results can be referenced on the following pages.

ACKNOWLEDGEMENTS:

BCI wishes to thank the BLM, specifically Chris Teske and Jacob Salas, as well as the EMNRD, specifically Lloyd Miola and Richard Wessel, for their contributions in organizing feature information including directions and providing on-site support.

All surveys conducted by BCI Subterranean Program staff: Nate Breece, Jackson Bain, Dillon Metcalfe, and Jason Corbett.

Report and photos provided to BLM November 1, 2019

SECTION 1: SURVEY SUMMARY

BIOLOGICAL SURVEY SUMMARY:
Biological surveys are focused on subterranean habitat, with a primary emphasis on bat use. Surveys attempt to identify bat species present, document other bat sign (e.g., guano, insect parts, roost staining), and determine roost function of the site. Additionally, surveys document other wildlife use of features, evident by live animals, scat, nests, etc. All bat and other wildlife observations inform habitat assessments and closure recommendations.

Bat Use:
Of the 7 unique features that received comprehensive biological surveys, 6 offered some level of subterranean habitat with potential for bat use, and 4 of those 7 features contained bats or bat sign. Evidence of use by bats included scattered guano and insect parts from night roosting. Three features contained live bats:

- Townsend's big-eared bat (*Corynorhinus townsendii*); COTO
  Present in 3 features. Roosts of 4, 1, 1. Total of 6 COTO bats.

Bat use of the occupied features primarily represents minor to moderate day and night roosting, likely by solitary bats or relatively small clusters on a periodic basis. A few features also demonstrated conditions potentially suitable for winter hibernation use. Other features surveyed were minor prospects or small adits that offered little or no subterranean habitat and poor potential for bat use.

Other Wildlife Use:
In addition to bat sign, several features contained evidence of other small mammal use, observed in the form of scat, tracks, and nesting material. A live red fox (*Vulpes vulpes*), and a pair of canyon wrens (*Catherpes mexicanus*) were observed. Sign from woodrat (*Neotoma sp.*) and unidentified small to medium-sized carnivore use were documented. Bird droppings were found in several features. Invertebrate occupancy was common and included moths, black flies, harvestmen, and spiders.

LiDAR:
During BCI's survey in April of 2019, an internal scan of the Legal Tinder Mine was completed. Once the scan was downloaded and processed, it was determined that the multi-part scan could not be assembled to produce a point-cloud reflective of the internal workings of this mine. As a result, it was decided to return to the Legal Tinder Mine after developing new methods that would be capable of properly scanning the complex internal workings. The next LiDAR scan will be taking place during the beginning of December 2019. BCI has been in contact with representatives of the equipment used to conduct LiDAR scans. These representatives will be joining BCI in the field during the next scanning event at the Legal Tinder mine to provide support and advice in the acquisition of quality data in this intricate feature.

This project area within the Boston Hill Open Space has received a relatively large amount of mining activity over time. At some point in the future, it may be beneficial to use aerial acquisition of LiDAR in coordination with ArcGIS to ensure that a complete inventory of this area has been completed. Based on the 2 surveys that were completed for this project, there is a high likelihood that additional mines (some including subterranean habitat) that were not surveyed by BCI exist. Working in coordination with the BCI Subterranean Team, the entities conducting these future inventory efforts may be able to use photos and/or other data to rule out the need of additional surveys in this area. If it is determined that significant subterranean habitat may exist in these additional mines, however, then future surveys may need to be scheduled.

BAT HABITAT ASSESSMENT SUMMARY:

Bat habitat assessments are determined based on observed bats and bat sign, along with physical characteristics of the site such as complexity and extensiveness of workings, portal size and obstructions, ceiling textures that bats select for, hydrological activity (such as seasonal flooding) that may preclude bat use, and any additional observations that may influence bat use of the site. See Appendix 3 for additional details on assessment classifications. Bat habitat assessments for this project are summarized in Table 1.

Table 1. Bat habitat assessments for AML features surveyed.

Bat Habitat Assessment	# Features
None	1
Poor	2
Marginal	0
Moderate	2
Good	2
Excellent	0
Unknown	0

CLOSURE RECOMMENDATION SUMMARY:

Closure recommendations generally fall into bat-friendly or destructive closure categories and include a seasonal component that recommends the closure to occur either during the warm season, cold season, or at any time. See Appendix 4 for additional details on recommendation classifications and Appendix 5 for guidance on conducting exclusion prior to closure. Closure recommendations for this project are summarized in Table 2.

Table 2. Closure recommendations for AML features surveyed.

Closure Recommendation	Code	# Features
Bat-compatible closure, any time	BCAT	4
Bat-compatible closure, cold season	BCCS	0
Bat-compatible closure, warm season	BCWS	0
Other wildlife-compatible closure	OWC	2
Destructive closure by any means, any time	DCAT	0
Destructive closure with exclusion, warm season	DCWS	1
No action (leave as is)	LAI	0

FEATURES WITH NO SUBTERRANEAN HABITAT:

The features listed in Table 3 contain no subterranean habitat. For the purposes of this survey, subterranean habitat is defined as subsurface space with conditions distinctly different from those aboveground. Some of the features listed include fall hazards which may necessitate the need for mitigation. Other features listed represent an insignificant threat to human safety. Mitigation action to any of these features will not result in the degradation of subterranean habitat since it does not exist. Closure recommendations for these features are left up to the discretion of the BLM or EMNRD as a result.

Table 3. Features with no subterranean habitat. AMLCHLT18SR14WS should precede each BLM number.

BLM#	EMNRD#	BLM#	EMNRD#
03-02		10-105	40
03-04		10-107	617,619, 621
03-14	119	10-159	26
03-17	88	10-208	15
03-21		10-263	
03-25	72	10-284	
03-27	70	10-285	
03-29	69	10-294	
03-30	68	10-297	750,754
03-32	82		318
03-33	83		323
03-44			763
03-45			917
03-74			973
03-106			980
03-106A*			1010,1011
04-12			1130
04-21			1154
09-18	203		1190
09-35			1192,1193
09-38 09-44			1284
09-42			1417
09-47	234		1418
09-62			1623
09-63			1811
10-35 10-79			1816
10-61			1844
10-74			1845
10-93	673		

*DENOTES FEATURES THAT WERE NOT ON A BLM OR EMNRD FEATURE LIST

COORDINATES (UTM-WGS 84, 12N): 03_106A- E754440, N3628536

FEATURES WITH LOW QUALITY SUBTERRANEAN HABITAT:

The features listed in Table 4 contain subterranean habitat which provides a low potential for use by wildlife. The bat habitat within these features is considered poor to marginal. Since the areas surrounding these features include significant subterranean habitat, protective closure of these features is not recommended. Some of these features include fall hazards and may have subterranean space which is easily accessible from the community of Silver City. In addition, some have fences and signs which may need repair. Closure recommendations for these features are left up to the discretion of the BLM or EMNRD as a result. The use of destructive closures, installation of fences and signs, and leaving features as they are may be appropriate. For features with subterranean space that is not completely visible from the surface, an exclusion should be conducted prior to destructive closure work. For features where the subterranean space is completely visible from the surface, a visual inspection should be conducted prior to destructive closure work being completed.

Table 4. Features with low quality subterranean habitat. AMLCHLT18SR14WS should precede each BLM number.

BLM#	EMNRD#	BLM#	EMNRD#
03-01		09-32 09-32A 09-33	226
03-03	95,102	09-36	
03-12		09-42A*	
03-19		09-48	
03-26		10-39	
03-34		10-206	
03-51		10-273	
03-61		10-286*	
03-66		10-282	
04-04		10-292	
04-05		10-324	
04-11			157
09-30			

*DENOTES FEATURES THAT WERE NOT ON A BLM OR EMNRD FEATURE LIST

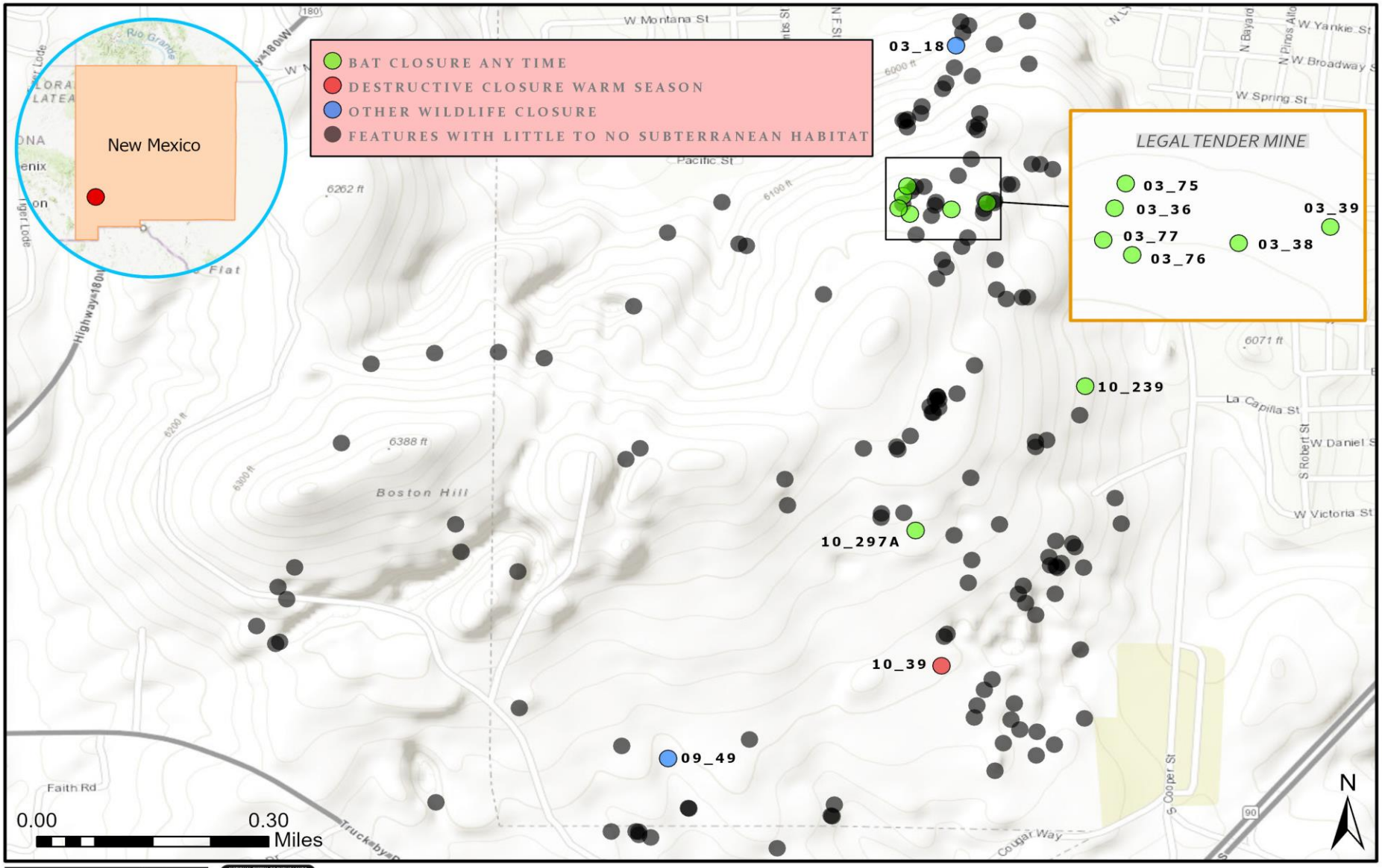
COORDINATES (UTM-WGS 84, 12N): 09_42A1- E753810, N3628201

10_286 - E754313, N3628301

APPENDICES:

Appendix 1 includes a table summarizing bats and bat use observed, bat habitat assessments, and closure recommendations. Appendix 2 contains selected photos from the survey project. Appendix 3 describes bat habitat assessment classifications. Appendix 4 describes closure recommendation classifications. Appendix 5 provides guidance on bat exclusion methods when recommended for destructive closures.

BCI FIELD SURVEYS:
BOSTON HILL MINING FEATURES



batcon.org
BAT CONSERVATION INTERNATIONAL

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

SECTION 2: FULL SURVEY RESULTS

Unless otherwise noted, all features should be considered to be driven in moderate- to good-quality rock (qualitative safety assessment), contain good air*, and exhibit minimal signs of post-mining human disturbance.

* Good air is defined as no alarm sounding on the Altair 4x Multi-gas Detector carried during all surveys. The detector measures four gases (oxygen, carbon monoxide, hydrogen sulfide, methane) and alarms for gas levels that fall outside of safe thresholds.

Feature: AMLCHLT18SR14WS03_18
Date: December 12, 2018
Observations: This feature is a small pit which is approximately 5' in depth and was filled with 3' of water at the time of this survey. This feature has no subterranean habitat or obvious signs of wildlife use, but it can serve as an important water source for wildlife in the area since alternative water sources are limited.
Recommendation: Other Wildlife Closure (OWC)
This feature represents a relatively low risk to human safety, but if a closure is deemed necessary, providing access to the water located within in it for wildlife would be preferable.

Feature: BLM #-AMLCHLT18SR14WS03_36- 03_38- 03_75- 03_76- 03_77;
EMNRD #-2146-2152- 2157- 2160- 2175- 2177- 2182- 2201 (Legal Tinder Mine)
Date: December 13, 2018
Observations: This feature is a heavily developed production class mine with more than a dozen well-established openings including portals, collars, and sinkholes. A gravel road that leads to the west side of the feature and appears to have accessed the internal workings at some point is still visible. The internal workings include a series of drifts, some of which have extensive collapse of the back. Three distinct levels exist within this mine. There are also several openings, within this mine area, which do not appear to have workings that connect to the primary mining feature. On the surface, 2 fenced-in areas encircle the openings leading into this feature. Well over 1000' of total workings are contained within, some of which include evidence of standing water. A ladder, drill bits, metal barrels, and rigging for lighting were observed. The amount of recent human disturbance in this feature is high, with beer cans, graffiti, campfires, fireworks, household trash, and footprints found. Four Townsend's big-eared bats were observed inside. Guano and moth wings made up the rest of the bat sign. This feature provides good bat habitat, is being used as a day and night roost, and has the possibility of being used as a hibernaculum. It is very likely that this feature would receive additional use by bats if human entry was more regulated. Woodrat scat and nesting material, as well as a live red fox, made up the rest of the wildlife sign observed.
Recommendation: Bat-compatible Closure, Any Time (BCAT)
A half mile long, well-established trail leads from downtown Silver City to a break in the fence surrounding this feature. As a result, there is a large amount of current human use. The current fence and sign surrounding this feature has several openings that allow human entry. A gravel road extends between the 2 fenced-in areas surrounding the openings. This road exists on the over-burden for workings below. Travel on this road should be managed with this in mind. It is likely that some openings into the mine may need to be destructively closed while others may need closures that allow for airflow but don't necessarily need to be bat-compatible. It is recommended that BCI's Subterranean Team be consulted during the closure process for this mine.

Feature: BLM#-AMLCHLT18SR14WS03_39;
EMNRD#-2822-471-167-1284-2802-515
Date: December 13, 2018
Observations: This feature includes multiple openings surrounded by a chain-link fence. It is located on and at the base of a U-shaped headwall that is 15' in height. Most of these openings are collars which access a primary trench like drift approximately 35' below the surface. There are approximately 535' of total workings. Not all the openings around the headwall connect to the primary drift below the surface. Evidence of seasonal standing water exists in the primary drift. A wooden ladder made up the historic items observed. Household trash, handheld radios, and footprints made up the recent human disturbance observed. One Townsend's big-eared bat was observed in the primary drift. Guano and moth wings made up the rest of the bat sign. This feature is being used as a day and night roost and provides good bat habitat. Scat from woodrats and other small mammals, as well as black flies, made up the rest of the wildlife sign observed.
Recommendation: Bat-compatible Closure, Any Time (BCAT) 03_39; 167-1284-2802-515
Some of the openings for this feature do not access the primary drift which is the most significant habitat. These openings lead to workings which are completely visible from the surface and can be destructively closed after a visual inspection is conducted. Most of the collared openings do not appear to be heavily used for access by wildlife and can be closed in a way that maintains airflow but does not need to be bat-compatible. The primary openings near the southern part of the headwall should be closed with bat-compatible closures with at least one point of entry for future monitoring.
Destructive Closure, Anytime (DCAT) 2822-471
Perform a visual check of the feature (entire feature visible from the portal) prior to closure to ensure no bats or other wildlife is present.

Feature: BLM#-AMLCHLT18SR14WS09_49
Date: December 11, 2018
Observations: This feature is a sumped shaft with the surface of the water at the time of this survey being 12' below the collar. The depth of the water is unknown. No bat sign was observed, and the bat habitat is poor. It appears that this feature is being used as a water source for wildlife as evidenced by bird and small mammal scat around the water feature. Signs of use by woodrats and birds was observed above the water level.
Recommendation: Other Wildlife Closure (OWC)
This feature presents a fall hazard for humans but also provides a potential water source for wildlife. It is recommended that access to this feature be maintained for birds and small mammals.

Feature: BLM#-AMLCHLT18SR14WS10_39
Date: December 11, 2018
Observations: This is an irregular-shaped shaft with a heavily eroding collar. The workings extend from the opening into a room-like feature that is approximately 35’ in diameter and 20’ in depth from the surface. Near the bottom of this room is a small drift that continues downward for an unknown length. Entry to these workings was not made due to safety concerns. No bat sign was observed, and the overall bat habitat was poor. Rodent scat and bird droppings made up the rest of the wildlife sign observed.
Recommendation: Destructive Closure, Warm Season (DCWS**)**
Follow exclusion protocols as detailed in BCI's "Managing Abandoned Mines for Bats." See Appendix 5 for details.
Alternative Recommendation: Other Wildlife Closure (OWC)
This feature is being used by birds and could continue to provide this habitat with installation of a bird-friendly closure.

Feature: BLM#-AMLCHLT18SR14WS10_239
Date: December 11, 2018
Observations: This is a shaft-like feature with a large opening (35’ x 15’) and extends downward from the surface for approximately 20’. Most of the workings are visible from the surface. Two lateral drifts extend 20’ and 25’ at the base. Signs of seasonal water, metal piping, scattered timbers, sheets of tin, and a wash basin were found on the floor. Lightly scattered guano, moth wings, and roost staining were observed. This feature is being used as a day and night roost and provides moderate overall bat habitat. A pair of canyon wrens, rodent scat and bird droppings made up the rest of the wildlife sign observed.
Recommendation: Bat-compatible Closure, Any Time (BCAT)

Feature: BLM#-AMLCHLT18SR14WS10_297A
Date: December 11, 2018
Observations: This feature is an adit in the wall of a shallow trench. The portal has mostly collapsed. The drift extends 44’ from the portal and accesses a dome-like room that is 15’ in diameter. One Townsend’s big-eared bat that had a parasite on its wing was roosting on the ribs. Lightly scattered guano and moth wings were found. This feature is being used as a day and night roost and provides moderate overall bat habitat. Black flies made up the rest of the wildlife sign observed.
Recommendation: Bat-compatible Closure, Any Time (BCAT**)**

APPENDIX 1

Table 5. Summary of bat survey results and closure recommendations.

Feature		Bats[1]	Other Bat Sign	Roost Function	Bat Habitat	Closure Recommendation[2]
AMLCHLT18SR14WS03_18		none	none	none	None	OWC
AMLCHLT18SR14WS03_36; 03_38; 03_75; 03_76; 03_77 (2201,2182, 2175, 2177, 2160, 2157, 2152, 2146)	^	4 COTO	guano, insect parts	day roost possible hibernaculum	Good	BCAT
AMLCHLT18SR14WS03_39 (2822, 471, 167, 1284, 2802, 515)		1 COTO	guano, insect parts	day/night roost	Good	BCAT
AMLCHLT18SR14WS09_49		none	none	none	Poor	OWC
AMLCHLT18SR14WS10_39	^	none	none	none	Poor	DCWS or OWC
AMLCHLT18SR14WS10_239		none	guano, insect parts	day/night roost	Moderate	BCAT
AMLCHLT18SR14WS10_297A (not on feature list)		1 COTO	insect parts	day/night roost	Moderate	BCAT

*Feature inaccessible; no internal survey conducted.

^Partial internal survey conducted.

#No subterranean habitat available.

[1]Bat species codes:

COTO – Townsend's big-eared bat (*Corynorhinus townsendii*)

[2]Closure recommendations:

Destructive Closures

DCAT – destructive closure, any time

DCWS – destructive closure with exclusion, warm season

No Action

LAI – leave as is

Bat-compatible Closures

BCAT – bat-compatible closure, any time

BCCS – bat-compatible closure, cold season

BCWS – bat-compatible closure, warm season

OWC – other wildlife-compatible closure

APPENDIX 2

Selected photos from the field project. The full set of photos from all features was provided in digital form with this report.

AMLCHLT18SR14WS03_36; 03_38; 03_75; 03_76; 03_77: A gray fox lies in a well-protected area to sun itself.
BCI Photo by Dillon Metcalfe

AMLCHLT18SR14WS03_36; 03_38; 03_75; 03_76; 03_77: Graffiti lines much of the ribs in this feature.
BCI Photo by Dillon Metcalfe

AMLCHLT18SR14WS03_36; 03_38; 03_75; 03_76; 03_77: A Townsend's big-eared bat roosts on the ribs.
BCI Photo by Dillon Metcalfe

AMLCHLT18SR14WS03_39: BCI employees Jackson Bain and Dillon Metcalfe prepare to descend into a shaft accessing the lower workings.
BCI Photo by Nathan Breece

AMLCHLT18SR14WS03_39: Collapsed material lies below an opening in the lower workings.
BCI Photo by Dillon Metcalfe

AMLCHLT18SR14WS03_39: Several openings exist in the back of the main drift.
BCI Photo by Dillon Metcalfe

AMLCHLT18SR14WS03_51: Interesting land bridge in the middle of this feature.
BCI Photo by Nate Breece

AMLCHLT18SR14WS09_32; 09_32A; 09_33: These 2 openings combined with the glow from a headlamp give this feature the look of an alien face.
BCI Photo by Nate Breece

AMLCHLT18SR14WS09_48: Dillon assesses the vastness of this feature.
BCI Photo by Nate Breece

AMLCHLT18SR14WS10_239: A canyon wren flutters around the portal.
BCI Photo by Dillon Metcalfe

AMLCHLT18SR14WS10_297A: A Townsend's big-eared bat with parasites on its wing clings to the ribs.
BCI Photo by Dillon Metcalfe

APPENDIX 3

Bat Habitat Assessment Classifications

Bat habitat is assessed for each feature surveyed and describes the value of that feature for bat use. Determining bat habitat is the primary objective of surveys conducted by the BCI Subterranean Program. Survey of a feature results in seven possible bat habitat classifications: excellent, good, moderate, marginal, poor, no habitat, or unknown. Each of these classifications are described below.

Excellent Bat Habitat

Description

Excellent bat habitat is very rare amongst features surveyed. For a feature to be assessed as having excellent habitat, significant bat use, usually by colonies, must be documented. Typically, this occurs when a large single species roost (>20 bats) is identified using the feature for warm season aggregation, usually in conjunction with substantial guano piles. Bats present in lower numbers but representing multi-species use of three or more species also warrants an assessment of excellent habitat. Bats need not be present to identify excellent habitat, as obvious bat sign such as large guano piles, heavily scattered guano along flyways, and roost staining on ceilings are indicators of significant bat use. Major winter use by bats cannot be confirmed during warm season surveys, though features that exhibit cold temperatures, airflow, and a high diversity of microclimates and roosting habitat can be identified as sites with good potential for serving as hibernacula. Features offering excellent bat habitat usually exhibit striking internal complexity, with extensive workings and possibly multiple levels. Due to the extensiveness of underground workings, these features nearly always offer high quality rock habitat. Exceptions, however, include small features used as maternity sites. Feature stability should be good, with little concern for future collapse that could result in loss of the roost.

Closure Recommendation

Features with excellent bat habitat should nearly always be recommended for protection (exceptions include imminent collapse or other major safety hazards). To minimize disturbance while bats are using the feature for a critical life cycle phase, bat-friendly closures should occur during the opposite season of primary use. For example, closure of a feature that hosts a maternity colony should occur during the cold season, and closure of a feature that serves as a hibernaculum should occur during the warm season. For features with multiple entrances, closures should protect all openings that are either used for bat access or necessary to preserve airflow patterns.

Good Bat Habitat

Description
Good bat habitat is represented by features that contain clear signs of persistent bat use but do not exhibit the striking evidence of significant use by bat colonies. These features often support use by one or two species of bats that use the site as a day roost or night roost. Bat sign such as guano, either scattered or in small piles, and insect parts are common in these features. The internal workings usually exhibit moderate complexity, with rock habitat quality that meets the specific needs of day or night roosting bats, such as domes, drill holes, and/or a heavily featured back. Feature stability should be good, with little concern for future collapse that could result in loss of the roost.

Closure Recommendation
Features with good bat habitat should nearly always be recommended for protection (exceptions include imminent collapse or other major safety hazards). Bat-friendly closures can usually occur at any time of the year, as bat use of these sites is persistent but dispersed and does not represent significant use for warm season maternity colony aggregation or cold season hibernation. For features with multiple entrances, closures should protect all openings that are either used for bat access or necessary to preserve airflow patterns.

Moderate Bat Habitat

Description
Moderate bat habitat generally refers to features that exhibit some signs of minor bat use or have potential for bat use due to the level of complexity and/or stable microclimate offered within. Moderate habitat features are often occupied by one or two bats, possibly on a seasonal nature, but will not display any signs of significant bat use. Guano, if present, will be lightly scattered, or in no more than a few very small piles representative of solitary bats of a single species. Insect parts may also be present, indicating night roosting. Bat sign may also be completely absent from these features at the time of survey, either due to extremely limited bat use, suspected winter use that cannot be detected during a warm season survey, or feature conditions such as flooding that may cover or destroy evidence of bat use. Complexity of the feature will range from simple, if combined with other signs of bat use, to moderately complex. Feature stability should be relatively stable, and rock habitat quality should offer some level of suitable roosting surface.

Closure Recommendation
Features with moderate bat habitat fall into the "grey area" where bat use is not necessarily prominent enough to immediately warrant a protective closure, yet the possibility for increased future bat use exists. Generally, a bat-friendly closure should be recommended for features with moderate habitat in order to maintain a conservative approach to habitat protection. Furthermore, the context of the feature relative to the surrounding landscape may elevate its importance if few other suitable habitat options are available. Scenarios that may call for destructive closure recommendations on features that meet the criteria for moderate habitat include unstable internal conditions that suggest future collapse/destruction of the feature or areas in which the feature is eclipsed by numerous other features with superior habitat. If a destructive closure is recommended, it must be accompanied by bat exclusion prior to closure.

Marginal Bat Habitat

Description
Features designated marginal bat habitat generally lack bats and bat sign. Less commonly, these features may exhibit signs of very minor, infrequent use. A single bat may be present, but there may be no accompanying signs that would allow detection if the bat was absent. Guano and insect parts, if present, will be very sparsely scattered and require diligence for detection. Complexity of the feature will always be simple, with no substantial workings; however, these features are usually extensive enough to include a dark zone, and the entire feature is not visible from the portal or collar. Marginal features are often short, simple adits or blind and bald shafts. Feature stability can be stable, but often poor rock conditions contribute to marginal habitat. Rock habitat quality will generally be poor to fair, with less than ideal roosting surfaces.

Closure Recommendation
Features with marginal bat habitat are almost invariably recommended for destructive closure due to these features lacking bat sign and/or containing unstable conditions that threaten collapse. Given the possibility for bats to be present in these features, exclusion is required prior to closures occurring in the warm season when bats are active. In rare circumstances, a protective closure may be warranted to allow for the possibility of future bat use, especially if the feature represents one of the only subterranean habitat options in the area.

Poor Bat Habitat

Description
Features classified as poor bat habitat tend to be very small prospects that exhibit no signs of bat use. While these features offer some level of subterranean habitat, the workings are so limited as to offer no true dark zone and no area of stable subterranean microclimate. Usually, the entire feature will be visible from the portal or collar. These features are so small that structural stability is often quite good, but they may also be in a state of collapse. Rock habitat quality can range the entire spectrum, but this assessment is largely irrelevant in such small features that offer little physical area from which bats can select roosting spots that have a stable microclimate.

Closure Recommendation
Features with poor bat habitat are recommended for destructive closure. Due to the lack of bat sign or potential for future bat use, a "DCAT" recommendation is usually warranted on these features.

No Bat Habitat

Description
Assessing a feature as containing no bat habitat means no subterranean habitat is available. No underground workings are present at all, and the feature would present no option for bats to roost in subterranean environments. This scenario occurs for features that are totally collapsed, prospect scrapes, entirely and permanently flooded, or some other similar circumstance. This assessment is also appropriate for portals that are almost entirely sloughed closed and/or overgrown with vegetation such that bats would be unable to access the workings.

Closure Recommendation
With no subterranean component and thus no bat habitat, a "DCAT" recommendation is always warranted. For some features, though, especially those that contain no inherent hazard, a "Leave As Is" recommendation may be most appropriate. This recommendation is most applicable to prospect scrapes and pits that contain no headwall and may be largely overgrown.

Unknown Bat Habitat

Description
If an internal survey cannot be conducted, and underground workings are likely to exist based on observations from the surface, then bat habitat cannot be assessed. This usually occurs when the feature is not accessible due to safety concerns (e.g., wildlife hazards, rock or timber hazards) at the portal or collar. Often, looking into the feature from outside confirms that underground workings are present, though inaccessible. An unknown bat habitat assessment may also be appropriate for some partial internal surveys, when a survey is terminated underground due to safety concerns. In these instances, though, if extensive workings and/or bats and bat sign are observed prior to terminating the survey, then a higher bat habitat classification and feature protection are warranted.

Closure Recommendation
Closures of features with unknown bat habitat should follow conservative recommendations to minimize the possibility of destroying potentially important bat roosts. When possible, bat-friendly closures should be recommended for these features. In cases where destructive closures are more appropriate (e.g., collapse of feature is imminent), exclusion is required prior to closures occurring in the warm season when bats are active.

APPENDIX 4

Closure Recommendation Classifications

Closure recommendations are assigned for each feature surveyed and prescribe the appropriate remediation strategy for the site. Bat use, other wildlife use, feature stability, and overall nature of the workings are considered when determining the closure recommendation. Survey of a feature usually results in recommendation of a bat-compatible closure or destructive closure, with a seasonal component to advise suitable timing of the closure. In some cases, features may warrant other wildlife-friendly closures or recommendation of no action (leave as is). Each of these classifications are described below.

Bat-compatible Closures

Bat-compatible closures are recommended for features that contain bats/bat sign or exhibit characteristics that indicate high potential for bat use. These features warrant protective closures to maintain the bat habitat within and allow for continued bat use. Three seasonal designations are used to recommend appropriate timing of bat-friendly closures:

- BCAT (Bat-compatible Closure, Any Time): "Any time" bat closures are recommended for features in which overall bat use is relatively minor or not confined to any single season.

- BCCS (Bat-compatible Closure, Cold Season): Cold season bat closures are recommended for features that display significant warm season use, typically by a maternity colony of bats. Closure is recommended to occur during the cold season to avoid disturbance of bat colonies, which could potentially lead to abandonment of the site.

- BCWS (Bat-compatible Closure, Warm Season): Warm season bat closures are recommended for features that are documented as hibernacula or exhibit characteristics that indicate high potential for significant cold season use by hibernating bats. Closure is recommended to occur during the warm season to avoid disturbance of hibernating bats, which could potentially lead to bats arousing and burning critical energy reserves.

Other Wildlife-compatible Closures

Protection may also be recommended for features that display significant use by wildlife other than, or in addition to, bats. These closure recommendations are relatively rare, and closure methods are dependent on type of wildlife use. Protection of features may be warranted for use by wildlife including, but not limited to, birds (e.g., owls, vultures), mammals (e.g., cats, foxes, porcupines, ringtails), and reptiles/amphibians (e.g., salamanders).

Destructive Closures

Destructive closures are recommended for features that either offer no bat habitat, contain no evidence of bat use, or exhibit only minor, insignificant bat use. Two destructive closure designations are used to recommend appropriate measures based on possible bat use:

- DCAT (Destructive Closure, Any Time): These features exhibit no signs of bat use or potential for bats to be present and can be destructively closed without conducting exclusion, during any season.

- DCWS (Destructive Closure, Warm Season): These features either exhibit signs of minor, insignificant bat use or have the potential for bats to be present during destructive closure. In some cases, other wildlife such as birds may be present, and these animals should also be excluded; alternatively, closure with bat exclusion may be timed for after the nesting season when birds are no longer using the feature. Using appropriate exclusion techniques on the features prior to closure is critical. Exclusion needs to be done during the warm season when bats are active and will be able to escape. See Appendix 5 and refer to “Managing Abandoned Mines for Bats,” published by Bat Conservation International, for guidance on exclusion techniques.

No Action

"Leave as is" treatments are recommended for features that present no inherent safety concerns. A feature with this recommendation is generally either a prospect scrape/trench with no subterranean component, or the portal has completely collapsed, making the feature inaccessible.

APPENDIX 5

Exclusion Guidance as Excerpted from BCI's "Managing Abandoned Mines for Bats"

Timing of Exclusions

The exact timing of exclusions and site closures is best determined locally, given the variability in types of use by different species. As a general rule, bats must be active for exclusions to be effective, so all exclusions should be conducted outside of hibernation season. In general:

- The best time to implement exclusions and portal closures is during late summer or early fall, after cessation of maternity activities and before the onset of hibernation.

- Early-fall closures will best ensure a window for bats to find alternate hibernacula and will give females a full spring season to locate alternate maternity sites.

Exclusions for Destructive Closures

Regardless of the reason for a destructive closure of known or potential bat roosts, steps must be taken to ensure significant bat colonies are not destroyed as a direct result of closure activities. Managers should include adequate exclusions as a routine part of mine reclamation programs to minimize the risk of entombing bats in closed workings. Further, closures should be conducted immediately following exclusion to limit the chance of bats becoming reestablished in the mine. In general, these two guidelines can help determine whether exclusions should be conducted and how intense the exclusion effort should be.

Exclusions Not Required: Exclusions are generally not required if a mine does not offer potential bat habitat, as mutually agreed upon by all partners involved in the mine closure project.

Standard Exclusions: In general, exclusions are recommended at all mines that represent habitat for bats. Given the ephemeral and episodic use of some roosts, it is prudent to err on the side of caution and conduct standard exclusions efforts, especially if significant time has elapsed since biological assessments were conducted.

The use of one-inch mesh material (e.g., chicken wire, polypropylene or similar material) is most often used to exclude bats from a mine. Lighter-weight material may be used for remote mines that require physically transporting the material over long distances or rough terrain. Although this material is very effective for excluding bats, it may also entangle bats and other wildlife. Managers may need to develop a plan to periodically check exclusion materials at sites with large bat colonies or high use by other wildlife to prevent loss of entangled bats, amphibians, reptiles or birds.

Exclusion materials should be maintained for at least three nights prior to portal closure at mines that provide habitat and where little or no bat use has been detected. Simultaneously covering all external openings with exclusion materials and leaving it in place for at least one week is an effective method for excluding most bat species from roosts. Difficulties in navigating through exclusion materials should cause bats to seek alternate roosts rather than continuing to access the mine through the wire.

For most species, simply spreading exclusion materials across portals will be sufficient to allow bats to exit a mine while effectively discouraging their return. However, not all bats in all roosts across all landscapes will respond in an identical manner. As a general rule, smaller colonies in areas where roosts are abundant tend to quickly abandon roosts after exclusion materials are installed. For example, exclusion materials left in place for three to five nights will usually cause small colonies of Townsend's big-eared bat roosting in small mines in Nevada to abandon the roosts.

END OF SURVEY REPORT

Appendix E

Agency and Tribal Coordination

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Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
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Sarah Cottrell Propst
Cabinet Secretary

Todd Leahy, JD, PhD
Deputy Secretary

Jerry Schoeppner, Director
Mining and Minerals Division

18 May 2021

Mr. Jeff Pappas Ph. D., State Historic Preservation Officer and Director
Historic Preservation Division
Department of Cultural Affairs
407 Galisteo Street, Suite 236
Bataan Memorial Bldg.
Santa Fe, NM 87501

Dear Dr. Pappas;

The New Mexico Abandoned Mine Land Program (AML), in partnership with the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is conducting preliminary environmental studies in the Boston Hill mine complex in Grant County, New Mexico, prior to planned mine closures. As a federally funded program this proposed AML undertaking is subject to Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 CFR Part 800: Protection of Historic Properties, as revised August 2004).

The Boston Hill area is part of the Chloride Flat mining district mining area that dates to early 1870s but was primarily worked between 1879 and the mid 1980s. The proposed closure project is designed to protect the public from dangers associated with historical mining features such as adits, shafts, subsidence features, and other mine openings. Proposed safeguarding activities generally include backfilling mine openings, building structural barriers, filling openings with foam plugs and fencing large open trenches, stopes, or excavation pits where high walls are present. The Area of Potential Effect (APE) for these activities is defined as an approximately 603-acre semi-contiguous block that consists, for the most part, of private, municipal (Town of Silver City), Grant County and public lands lands managed by the Las Cruces Field Office of the USDI-Bureau of Land Management.

As part of their preliminary studies, the EMNRD retained Okun Consulting Solutions, LLC. (OCS), to perform a cultural resources inventory of the proposed project APE, and a full-coverage pedestrian survey was performed between June 2018 and January 2019 under the supervision of OCS archaeologists Adam Okun and Jeremy Davis. A total of 2,821 historic features, 12 historic artifact concentrations, 62 isolated historic artifacts, and seven prehistoric/aboriginal IOs were documented during pedestrian survey. As discussed throughout this document, all features and historic artifacts were documented as part of LA 130556, and no new archaeological sites were discovered. One structure

(Feature 1236) was also documented individually as an Historic Cultural Property Inventory resource (HCPI 48254). Several features inadvertently documented just outside the APE are included due to their spatial association with features within the project area. Features that do not seem to be associated with mining and could not be confirmed as historic in age were not documented; examples include check dams with a modern appearance, utility features such as water valves, and features that appear to be associated with remediation or public safety efforts such as fences and road block berms.

Pursuant to 36 CFR Part 800.4(c), and with the concurrence of consulting parties including the BLM and Town of Silver City, we are presenting our determinations of eligibility to the National Register of Historic Places. The AML Program concurs with OCS's recommendation that the recorded sites managed by the BLM are eligible for listing on the National Register of Historic Places. Specifically, we recommend 130556 as eligible under criterion D. We do not recommend any of the Isolated Manafestations as eligible for listing in the NRHP under any of the criteria or considerations for properties being eligible for NRHP listing.

The proposed project is designed to help protect the general public from the hazards associated with abandoned mines by safeguarding shafts, adits, open trench areas, and other physical openings associated with the mining landscape. In general, AML safeguards mine features that are eight (8) feet or more in depth or length, which descend into the ground surface. AML safeguarding activities include a variety proposed methods such as mechanically or manually filling mine openings with surrounding waste material or polyurethane foam (PUF) and building structural barriers that restrict human access such as locking gates, cupolas, or other wildlife compatible closures. In addition, the Boston Hill mining area contains numerous dangerous high walls bounding open mining pits and trenches. Some have already been fenced to exclude public access, however numerous dangerous highwalls remain and the AML proposes to erect fences more durable and less obtrusive than the existing chain-link fences previously erected. These safeguarding measures minimize exposure of hazardous abandoned mine openings to the general public, while also working to preserve cultural manifestations and wildlife habitat, if present.

Mining features filled with existing waste rock or PUF will remain visible as shallow depressions and residual waste rock material will be recontoured in place. In addition, mine openings with highly visible waste piles, particularly on steep slopes, will be closed by an alternate method (PUF or other structural closure), thereby leaving the viewshed of the mining landscape intact. Structural closures are typically be built on site to BLM Visual Resource Management specifications. Whenever possible, AML will use existing roads to access the features scheduled for closure. (Figure 1.)

During the construction phase AML proposes to avoid any remaining mine related features (structural foundations, artifact scatters, etc.) with all equipment, vehicles, foot traffic, and any other ground surface disturbing activities during construction. In addition, designated avoidance areas that extend up to 50 feet (15 meters) from cultural resources will be established prior to construction. When working near designated avoidance areas and where construction access routes pass next to these locations, high visibility barrier/indicators will be installed around the avoidance perimeter. The Contractor and AML Project Manager shall cooperate fully with avoidance practices to preserve archaeological and historic artifacts found within the project area. Moving, removal or

collecting of archaeological or historic materials from the project area or vicinity is prohibited.

Lastly, if previously unidentified archaeological sites, deposits, or in situ artifacts are encountered, the AML Project Manager and Contractor shall terminate all operation in that immediate area (100 foot radius, 30 meters) until the proper preservation agencies and Native American groups have been notified and offered the opportunity to assess the discovery site.

AML has reviewed the referenced documents and agreed with the eligibility recommendations offered OCS. Further, following the above protocol, AML has determined that the proposed project not adversely effect the mining landscape or sites eligible for inclusion to the NRHP. In turn, AML seeks concurrence from your office on eligibility and project effect determinations. Accordingly, please review the report accessed through our FTP site and provide AML with any comments, recommendations, or corrections for the project findings.

If you would like additional information or have any questions, please feel free to contact me by email at richard.wessel@state.nm.us or by phone at 505-819-8856.

Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: _____

New Mexico Historic Preservation Officer

Comments: _____

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd Leahy, JD, PhD
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18 May 2021

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Historic Preservation Division
Department of Cultural Affairs
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AML has reviewed the referenced documents and agreed with the eligibility recommendations offered OCS. Further, following the above protocol, AML has determined that the proposed project not adversely effect the mining landscape or sites eligible for inclusion to the NRHP. In turn, AML seeks concurrence from your office on eligibility and project effect determinations. Accordingly, please review the report accessed through our FTP site and provide AML with any comments, recommendations, or corrections for the project findings.

If you would like additional information or have any questions, please feel free to contact me by email at richard.wessel@state.nm.us or by phone at 505-819-8856.

Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: 6/7/2021
New Mexico Historic Preservation Officer

Comments: Well done w/the report! Thank you.

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd Leahy, JD, PhD
Deputy Secretary

Jerry Schoeppner, Director
Mining and Minerals Division

7 December 2020

Ms. Trinity A Miller
USDI-Bureau of Land Management
Las Cruces Field Office
1800 Marquess Street
Las Cruces, NM 88005

Dear Ms. Miller;

The New Mexico Abandoned Mine Land Program (AML), in partnership with the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is conducting preliminary environmental studies in the Boston Hill mine complex in Grant County, New Mexico, prior to planned mine closures. As a federally funded program this proposed AML undertaking is subject to Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 CFR Part 800: Protection of Historic Properties, as revised August 2004).

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As part of their preliminary studies, the EMNRD retained Okun Consulting Solutions, LLC. (OCS), to perform a cultural resources inventory of the proposed project APE, and a full-coverage pedestrian survey was performed between June 2018 and January 2019 under the supervision of OCS archaeologists Adam Okun and Jeremy Davis. A total of 2,821 historic features, 12 historic artifact concentrations, 62 isolated historic artifacts, and seven prehistoric/aboriginal IOs were documented during pedestrian survey. As discussed throughout this document, all features and historic artifacts were documented as part of LA 130556, and no new archaeological sites were discovered. One structure (Feature 1236) was also documented individually as an HCPI resource (HCPI 48254). Several features inadvertently documented just outside the APE are included due to their spatial association with features within the project area. Features that do not seem to be

associated with mining and could not be confirmed as historic in age were not documented; examples include check dams with a modern appearance, utility features such as water valves, and features that appear to be associated with remediation or public safety efforts such as fences and road block berms.

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The proposed project is designed to help protect the general public from the hazards associated with abandoned mines by safeguarding shafts, adits, open trench areas, and other physical openings associated with the mining landscape. In general, AML safeguards mine features that are eight (8) feet or more in depth or length, which descend into the ground surface. AML safeguarding activities include a variety proposed methods such as mechanically or manually filling mine openings with surrounding waste material or polyurethane foam (PUF) and building structural barriers that restrict human access such as locking gates, cupolas, or other wildlife compatible closures. In addition, the Boston Hill mining area contains numerous dangerous high walls bounding open mining pits and trenches. Some have already been fenced to exclude public access, however numerous dangerous highwalls remain and the AML proposes to erect fences more durable and less obtrusive than the existing chain-link fences previously erected. These safeguarding measures minimize exposure of hazardous abandoned mine openings to the general public, while also working to preserve cultural manifestations and wildlife habitat, if present.

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During the construction phase AML proposes to avoid any remaining mine related features (structural foundations, artifact scatters, etc.) with all equipment, vehicles, foot traffic, and any other ground surface disturbing activities during construction. In addition, designated avoidance areas that extend up to 50 feet (15 meters) from cultural resources will be established prior to construction. When working near designated avoidance areas and where construction access routes pass next to these locations, high visibility barrier/indicators will be installed around the avoidance perimeter. The Contractor and AML Project Manager shall cooperate fully with avoidance practices to preserve archaeological and historic artifacts found within the project area. Moving, removal or collecting of archaeological or historic materials from the project area or vicinity is prohibited.

Lastly, if previously unidentified archaeological sites, deposits, or in situ artifacts are encountered, the AML Project Manager and Contractor shall terminate all operation in that immediate area (100 foot radius, 30 meters) until the proper preservation agencies and Native American groups have been notified and offered the opportunity to assess the discovery site.

AML has reviewed the attached documents and agreed with the eligibility recommendations offered OCS. Further, following the above protocol, AML has determined that the proposed project will have no adverse effect to the mining landscape or sites eligible for inclusion to the NRHP. In turn, AML seeks concurrence from the BLM Las Cruces Field Office on eligibility and project effect determinations. Accordingly, please review the enclosed report and provide AML with any comments, recommendations, or corrections for sites administered by the BLM.

Alternatively, if the BLM has no objections or proposed changes please return a signed copy of this correspondence to concur with AML determinations as presented. Along with BLM concurrence, the AML will forward copies of the final report and administrative documents to the SHPO for final review and concurrence. Lastly, the AML will forward any project related correspondence it receives from the SHPO to the BLM Las Cruces Field Office for the project file.

If you would like additional information or have any questions, please feel free to contact me by email at richard.wessel@state.nm.us or by phone at 505-819-8856.

Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: _____

USDI-Bureau of Land Management, Las Cruces Field Office Manager

Comments: _____

Wessel, Richard, EMNRD

From: Wessel, Richard, EMNRD
Sent: Monday, January 4, 2021 6:42 AM
To: Moiola, Lloyd, EMNRD
Subject: FW: [EXTERNAL] Boston Hill, Grant County CR Report (NIAF No. 144688)

Finally. For now, I'm not asking for a change in the spelling of Neal's name. Or, I can change it in the PDF if Adam has not locked the document.

Thank you,

Rick Wessel
Cultural Resources Manager
EMNRD-MMD-Abandoned Mine Land Program
1220 S. St. Francis Dr., Santa Fe, NM 87505
Cell: 505.819.8856

From: Miller, Trinity A <tamiller@blm.gov>
Sent: Thursday, December 31, 2020 12:56 PM
To: Wessel, Richard, EMNRD <Richard.Wessel@state.nm.us>
Subject: [EXT] Re: [EXTERNAL] Boston Hill, Grant County CR Report (NIAF No. 144688)

Good Afternoon Rick,

I have reviewed the Boston Hill report. BLM LCDO concurs that LA 130556 is eligible under d, and that the proposed undertaking will have no adverse effect. I have one comment: On page 2, 3rd paragraph, Neal Ackerly's name was misspelled as "Neil". On NMCRIS, I have entered the BLM LCDO's Determination of Eligibility for LA 130556. I noticed, however, that that Okun still needs to enter in their DOE as the recorder. Also, the updated site boundaries for LA 130556 needs to be entered into the GIS on NMCRIS.

Could you please send me the shapefile of the entire surveyed area?

Thank you for the opportunity to consult for the Boston Hill project.

Best,
Trinity

Trinity A. Miller
Archaeologist
Bureau of Land Management
Las Cruces District Office
1800 Marquess Street
Las Cruces, New Mexico 88005
Phone: 575-525-4409
Email: tamiller@blm.gov

From: Wessel, Richard, EMNRD <Richard.Wessel@state.nm.us>
Sent: Wednesday, December 30, 2020 2:49 PM
To: Miller, Trinity A <tamiller@blm.gov>
Subject: RE: [EXTERNAL] Boston Hill, Grant County CR Report (NIAF No. 144688)

Thanks, Trinity!

Thank you,
Rick Wessel
Cultural Resources Manager
EMNRD-MMD-Abandoned Mine Land Program
1220 S. St. Francis Dr., Santa Fe, NM 87505
Cell: 505.819.8856

From: Miller, Trinity A <tamiller@blm.gov>
Sent: Wednesday, December 30, 2020 1:31 PM
To: Wessel, Richard, EMNRD <Richard.Wessel@state.nm.us>
Subject: [EXT] Re: [EXTERNAL] Boston Hill, Grant County CR Report (NIAF No. 144688)

Thank you Rick!

I logged in and was able to download the report deliverables. I will review and get back to you ASAP.

Talk soon,
Trinity

Trinity A. Miller
Archaeologist
Bureau of Land Management
Las Cruces District Office
1800 Marquess Street
Las Cruces, New Mexico 88005
Phone: 575-525-4409
Email: tamiller@blm.gov

From: Wessel, Richard, EMNRD <Richard.Wessel@state.nm.us>
Sent: Wednesday, December 30, 2020 1:14 PM
To: Miller, Trinity A <tamiller@blm.gov>
Subject: RE: [EXTERNAL] Boston Hill, Grant County CR Report (NIAF No. 144688)

I can, indeed, Trinity! I'll do that shortly.

Thank you,
Rick Wessel
Cultural Resources Manager
EMNRD-MMD-Abandoned Mine Land Program
1220 S. St. Francis Dr., Santa Fe, NM 87505
Cell: 505.819.8856

From: Miller, Trinity A <tamiller@blm.gov>
Sent: Wednesday, December 30, 2020 12:38 PM
To: Wessel, Richard, EMNRD <Richard.Wessel@state.nm.us>
Subject: [EXT] Re: [EXTERNAL] Boston Hill, Grant County CR Report (NIAF No. 144688)

Good afternoon Rick,

Thank you for your email. I apologize but I somehow missed the link that was sent to my email. So sorry for the delay!

I just found the email, but it shows the that the link to download the files has expired. Can you please resend? I will review the report this week.

Take care,
Trinity

Trinity A. Miller
Archaeologist
Bureau of Land Management
Las Cruces District Office
1800 Marquess Street
Las Cruces, New Mexico 88005
Phone: 575-525-4409
Email: tamiller@blm.gov

From: Wessel, Richard, EMNRD <Richard.Wessel@state.nm.us>
Sent: Wednesday, December 30, 2020 9:30 AM
To: Miller, Trinity A <tamiller@blm.gov>
Subject: [EXTERNAL] Boston Hill, Grant County CR Report (NIAF No. 144688)

Good Morning Trinity;

I hope all is well at the LCFO. We have been teleworking since late February. Hence standard communication channels have had to adapt.

The AML received a final report of the cultural resource efforts at Boston Hill, southwest of Silver City in Grant County. It was long in coming with the original communication extending back to Tom Holcomb's tenure and the renovation of the district field office. Okun Consulting Solutions conducted the inventory under their Cultural Resource User Permit No. NM-18-285-S. 64 acres of the 603 acres of the survey were conducted on Public Lands managed by your office. In

managing these lands, we consider you as a consulting party in the OSMRE's NHPA Section 106 consultation efforts. Some time ago I provided you wit a link to download the file. If something has happened to that link, please let me know. We are trying to determine if the LCFO has any concern with the historic property identification efforts.

Thank you,

Rick Wessel
Cultural Resources Manager
EMNRD-MMD-Abandoned Mine Land Program
1220 S. St. Francis Dr., Santa Fe, NM 87505
Cell: 505.819.8856

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
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Cabinet Secretary

Todd Leahy, JD, PhD
Deputy Secretary

Jerry Schoeppner, Director
Mining and Minerals Division

18 May 2021

Honorable Ken Ladner, Mayor
P. O. Box 1188
Silver City, NM 88062.
Santa Fe, NM 87501

Dear Mayor Ladner;

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AML has reviewed the attached documents and agreed with the eligibility recommendations offered OCS. Further, following the above protocol, AML has determined that the proposed project not adversely effect the mining landscape or sites eligible for inclusion to the NRHP. In turn, AML seeks concurrence from the Town of Silver City on eligibility and project effect determinations. Please provide us with the e-mail address of the Town of Silver City representative who can review the documents. Accordingly, please review the report accessed through our FTP site and provide AML with any comments, recommendations, or corrections for sites administered by the Town of Silver City.

Alternatively, if the Town of Silver City has no objections or proposed undertaking please return a signed copy of this correspondence to concur with AML determinations as presented. Along with Town of Silver City concurrence, the AML will forward copies of the final report and administrative documents to the SHPO for final review and concurrence. Lastly, the AML will forward any project related correspondence it receives from the SHPO to the Town of Silver City for the project file.

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Thank you for your assistance in this project.

Sincerely,
Richard L. Wessel

AML Cultural Resources Manager

CC: Honorable Jose A. Ray, Jr., Didtrict 3 Councilor

Concurrence: _____ Date: _____

Town of Silver City Official

Comments: _____

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

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Todd Leahy, JD, PhD
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Jerry Schoeppner, Director
Mining and Minerals Division

18 May 2021

Juana Charlie
Acoma Pueblo
Acoma PuebloP.O. Box 309
Acoma, NM 87034

Dear Ms.Ms. Juana Charlie

The New Mexico Abandoned Mine Land Program (AML), in partnership with the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is conducting preliminary environmental studies in the Boston Hill mine complex in Grant County, New Mexico, prior to planned mine closures. As a federally funded program this proposed AML undertaking is subject to Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 CFR Part 800: Protection of Historic Properties, as revised August 2004). In so doing, we are requesting input from the Acoma Pueblo regarding any concerns you might have with the project regarding the identification and treatment of historic properties and plaves of tribal significance.

The Boston Hill area is part of the Chloride Flat mining district, mining area that dates to early 1870s but was primarily worked between 1879 and the mid 1980s. The proposed closure project is designed to protect the public from dangers associated with historical mining features such as adits, shafts, subsidence features, and other mine openings. Proposed safeguarding activities generally include backfilling mine openings, building structural barriers, filling openings with foam plugs and fencing large open trenches where high walls are present. The Area of Potential Effect (APE) for these activities is defined as an approximately 603-acre semi-contiguous block that consists, for the most part, of private, municipal (Town of Silver City) State lands, and Bureau of Land Management (BLM) lands.

As part of their preliminary studies, the EMNRD retained Okun Consulting Solutions, LLC. (OCS), to perform a cultural resources inventory of the proposed project APE, and a full-coverage pedestrian survey was performed between June 2018 and January 2019 under the supervision of OCS archaeologists Adam Okun and Jeremy Davis. A total of 2,821 historic features, 12 historic artifact concentrations, 62 isolated historic artifacts, and seven prehistoric/aboriginal IOs were documented during pedestrian survey. As discussed throughout this document, all features and historic artifacts were documented as part of LA 130556, and no new archaeological sites were discovered. One structure Feature 1236) was also documented individually as a Historic Cultural Property (HCPI) (HCPI resource (HCPI 48254). Several features inadvertently documented just outside

the APE are included due to their spatial association with features within the project area. Features that do not seem to be associated with mining and could not be confirmed as historic in age were not documented; examples include check dams with a modern appearance, utility features such as water valves, and features that appear to be associated with remediation or public safety efforts such as fences and road block berms.

Pursuant to 36 CFR Part 800.4(c), and with the concurrence of consulting parties including interested tribes, we are presenting our determinations of eligibility to the National Register of Historic Places. The AML Program concurs with OCS's recommendation that the recorded sites managed by the BLM are eligible for listing on the National Register of Historic Places (NRHP). Specifically, we recommend LA 130556 as eligible under NHPA criterion D. We do not recommend any of the Isolated Manafestations as eligible for listing in the NRHP under any of the criteria or considerations for properties being eligible for NRHP listing.

Of the 62 IOs recorded seven prehistoric/aboriginal IOs were documented during pedestrian survey. All seven IOs consist of a single isolated artifact, including four pieces of lithic debitage (IOs 1, 4, 5, and 6), one early-stage biface (IO 3), one mano (IO 7), and one Mimbres bowl sherd fragment (IO 2) (Photographs 126 and 127). The IOs are unassociated with the Boston Hill Mining District and are not considered to be a part of LA 130556. They are not likely to increase our understanding of local or regional history. They are therefore recommended as ***not eligible*** for listing on the NRHP under any criteria. No further management considerations are warranted for these resources

The proposed project is designed to help protect the general public from the hazards associated with abandoned mines by safeguarding shafts, adits, open trench areas, and other physical openings associated with the mining landscape. In general, AML safeguards mine features that are eight (8) feet or more in depth or length, which descend into the ground surface. AML safeguarding activities include a variety proposed methods such as mechanically or manually filling mine openings with surrounding waste material or polyurethane foam (PUF) and building structural barriers that restrict human access such as locking gates, cupolas, or other wildlife compatible closures. In addition, the Boston Hill mining area contains numerous dangerous high walls bounding open mining pits and trenches. Some have already been fenced to exclude public access, however numerous dangerous highwalls remain and the AML proposes to erect fences more durable and less obtrusive than the existing chain-link fences previously erected. These safeguarding measures minimize exposure of hazardous abandoned mine openings to the general public, while also working to preserve cultural manifestations and wildlife habitat, if present.

Mining features filled with existing waste rock or PUF will remain visible as shallow depressions and residual waste rock material will be recontoured in place. In addition, mine openings with highly visible waste piles, particularly on steep slopes, will be closed by an alternate method (PUF or other structural closure), thereby leaving the viewshed of the mining landscape intact. Structural closures are typically be built on site to BLM Visual Resource Management specifications. Whenever possible, AML will use existing roads to access the features scheduled for closure. A cultural features LA 130556 features within the site are depicted in Figure 1.

During the construction phase AML proposes to avoid any remaining mine related features (structural foundations, artifact scatters, etc.) with all equipment, vehicles, foot traffic, and any other ground surface disturbing activities during construction. In addition,

designated avoidance areas that extend up to 50 feet (15 meters) from cultural resources will be established prior to construction. When working near designated avoidance areas and where construction access routes pass next to these locations, high visibility barrier/indicators will be installed around the avoidance perimeter. The Contractor and AML Project Manager shall cooperate fully with avoidance practices to preserve archaeological and historic artifacts found within the project area. Moving, removal or collecting of archaeological or historic materials from the project area or vicinity is prohibited.

Lastly, if previously unidentified archaeological sites, deposits, or in situ artifacts are encountered, the AML Project Manager and Contractor shall terminate all operation in that immediate area (100 foot radius, 30 meters) until the proper preservation agencies and Native American groups have been notified and offered the opportunity to assess the discovery site.

AML has reviewed the attached documents and agreed with the eligibility recommendations offered OCS. Further, following the above protocol, AML has determined that the proposed project will have no adverse effect to the mining landscape or sites eligible for inclusion to the NRHP. In turn, AML seeks concurrence from the Acoma Pueblo on eligibility and project effect determinations. Accordingly, notify us of the Tribe's interest in becoming a consulting party for the project by reviewing the attached report and providing comments.

Alternatively, if the tribe has no objections or proposed changes please return a signed copy of this correspondence to concur with AML determinations as presented. Along with tribal concurrence, the AML will forward copies of the final report and administrative documents to the SHPO for final review and concurrence.

If you would like additional information or have any questions, please feel free to contact me by email at richard.wessel@state.nm.us or by phone at 505-819-8856.

Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: _____

Acoma Pueblo

Comments: _____

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd Leahy, JD, PhD
Deputy Secretary

Jerry Schoeppner, Director
Mining and Minerals Division

18 May 2021

Lori Gooday-Ware
Fort Sill Apache Tribe
Fort Sill Apache TribeRt. 2, Box 121
Apache, OK 73006

Dear ChairwomanChairwoman Lori Gooday-Ware

The New Mexico Abandoned Mine Land Program (AML), in partnership with the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is conducting preliminary environmental studies in the Boston Hill mine complex in Grant County, New Mexico, prior to planned mine closures. As a federally funded program this proposed AML undertaking is subject to Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 CFR Part 800: Protection of Historic Properties, as revised August 2004). In so doing, we are requesting input from the Fort Sill Apache Tribe regarding any concerns you might have with the project regarding the identification and treatment of historic properties and plaves of tribal significance.

The Boston Hill area is part of the Chloride Flat mining district, mining area that dates to early 1870s but was primarily worked between 1879 and the mid 1980s. The proposed closure project is designed to protect the public from dangers associated with historical mining features such as adits, shafts, subsidence features, and other mine openings. Proposed safeguarding activities generally include backfilling mine openings, building structural barriers, filling openings with foam plugs and fencing large open trenches where high walls are present. The Area of Potential Effect (APE) for these activities is defined as an approximately 603-acre semi-contiguous block that consists, for the most part, of private, municipal (Town of Silver City) State lands, and Bureau of Land Management (BLM) lands.

As part of their preliminary studies, the EMNRD retained Okun Consulting Solutions, LLC. (OCS), to perform a cultural resources inventory of the proposed project APE, and a full-coverage pedestrian survey was performed between June 2018 and January 2019 under the supervision of OCS archaeologists Adam Okun and Jeremy Davis. A total of 2,821 historic features, 12 historic artifact concentrations, 62 isolated historic artifacts, and seven prehistoric/aboriginal IOs were documented during pedestrian survey. As discussed throughout this document, all features and historic artifacts were documented as part of LA 130556, and no new archaeological sites were discovered. One structure Feature 1236) was also documented individually as a Historic Cultural Property (HCPI) (HCPI resource (HCPI 48254). Several features inadvertently documented just outside

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Pursuant to 36 CFR Part 800.4(c), and with the concurrence of consulting parties including interested tribes, we are presenting our determinations of eligibility to the National Register of Historic Places. The AML Program concurs with OCS's recommendation that the recorded sites managed by the BLM are eligible for listing on the National Register of Historic Places (NRHP). Specifically, we recommend LA 130556 as eligible under NHPA criterion D. We do not recommend any of the Isolated Manafestations as eligible for listing in the NRHP under any of the criteria or considerations for properties being eligible for NRHP listing.

Of the 62 IOs recorded seven prehistoric/aboriginal IOs were documented during pedestrian survey. All seven IOs consist of a single isolated artifact, including four pieces of lithic debitage (IOs 1, 4, 5, and 6), one early-stage biface (IO 3), one mano (IO 7), and one Mimbres bowl sherd fragment (IO 2) (Photographs 126 and 127). The IOs are unassociated with the Boston Hill Mining District and are not considered to be a part of LA 130556. They are not likely to increase our understanding of local or regional history. They are therefore recommended as ***not eligible*** for listing on the NRHP under any criteria. No further management considerations are warranted for these resources

The proposed project is designed to help protect the general public from the hazards associated with abandoned mines by safeguarding shafts, adits, open trench areas, and other physical openings associated with the mining landscape. In general, AML safeguards mine features that are eight (8) feet or more in depth or length, which descend into the ground surface. AML safeguarding activities include a variety proposed methods such as mechanically or manually filling mine openings with surrounding waste material or polyurethane foam (PUF) and building structural barriers that restrict human access such as locking gates, cupolas, or other wildlife compatible closures. In addition, the Boston Hill mining area contains numerous dangerous high walls bounding open mining pits and trenches. Some have already been fenced to exclude public access, however numerous dangerous highwalls remain and the AML proposes to erect fences more durable and less obtrusive than the existing chain-link fences previously erected. These safeguarding measures minimize exposure of hazardous abandoned mine openings to the general public, while also working to preserve cultural manifestations and wildlife habitat, if present.

Mining features filled with existing waste rock or PUF will remain visible as shallow depressions and residual waste rock material will be recontoured in place. In addition, mine openings with highly visible waste piles, particularly on steep slopes, will be closed by an alternate method (PUF or other structural closure), thereby leaving the viewshed of the mining landscape intact. Structural closures are typically be built on site to BLM Visual Resource Management specifications. Whenever possible, AML will use existing roads to access the features scheduled for closure. A cultural features LA 130556 features within the site are depicted in Figure 1.

During the construction phase AML proposes to avoid any remaining mine related features (structural foundations, artifact scatters, etc.) with all equipment, vehicles, foot traffic, and any other ground surface disturbing activities during construction. In addition,

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Lastly, if previously unidentified archaeological sites, deposits, or in situ artifacts are encountered, the AML Project Manager and Contractor shall terminate all operation in that immediate area (100 foot radius, 30 meters) until the proper preservation agencies and Native American groups have been notified and offered the opportunity to assess the discovery site.

AML has reviewed the attached documents and agreed with the eligibility recommendations offered OCS. Further, following the above protocol, AML has determined that the proposed project will have no adverse effect to the mining landscape or sites eligible for inclusion to the NRHP. In turn, AML seeks concurrence from the Fort Sill Apache Tribe on eligibility and project effect determinations. Accordingly, notify us of the Tribe's interest in becoming a consulting party for the project by reviewing the attached report and providing comments.

Alternatively, if the tribe has no objections or proposed changes please return a signed copy of this correspondence to concur with AML determinations as presented. Along with tribal concurrence, the AML will forward copies of the final report and administrative documents to the SHPO for final review and concurrence.

If you would like additional information or have any questions, please feel free to contact me by email at richard.wessel@state.nm.us or by phone at 505-819-8856.

Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: _____

Fort Sill Apache Tribe

Comments: _____

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd Leahy, JD, PhD
Deputy Secretary

Jerry Schoeppner, Director
Mining and Minerals Division

18 May 2021

Stuart Koyiyumptewaisleta
Hopi Tribe
Hopi TribeCultural Preservation Office
P.O. Box 123
Kykotsmovi, AZ 86039

Dear Mr.Mr. Stuart Koyiyumptewaisleta

The New Mexico Abandoned Mine Land Program (AML), in partnership with the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is conducting preliminary environmental studies in the Boston Hill mine complex in Grant County, New Mexico, prior to planned mine closures. As a federally funded program this proposed AML undertaking is subject to Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 CFR Part 800: Protection of Historic Properties, as revised August 2004). In so doing, we are requesting input from the Hopi Tribe regarding any concerns you might have with the project regarding the identification and treatment of historic properties and plaves of tribal significance.

The Boston Hill area is part of the Chloride Flat mining district, mining area that dates to early 1870s but was primarily worked between 1879 and the mid 1980s. The proposed closure project is designed to protect the public from dangers associated with historical mining features such as adits, shafts, subsidence features, and other mine openings. Proposed safeguarding activities generally include backfilling mine openings, building structural barriers, filling openings with foam plugs and fencing large open trenches where high walls are present. The Area of Potential Effect (APE) for these activities is defined as an approximately 603-acre semi-contiguous block that consists, for the most part, of private, municipal (Town of Silver City) State lands, and Bureau of Land Management (BLM) lands.

As part of their preliminary studies, the EMNRD retained Okun Consulting Solutions, LLC. (OCS), to perform a cultural resources inventory of the proposed project APE, and a full-coverage pedestrian survey was performed between June 2018 and January 2019 under the supervision of OCS archaeologists Adam Okun and Jeremy Davis. A total of 2,821 historic features, 12 historic artifact concentrations, 62 isolated historic artifacts, and seven prehistoric/aboriginal IOs were documented during pedestrian survey. As discussed throughout this document, all features and historic artifacts were documented as part of LA 130556, and no new archaeological sites were discovered. One structure Feature 1236) was also documented individually as a Historic Cultural Property (HCPI)

(HCPI resource (HCPI 48254). Several features inadvertently documented just outside the APE are included due to their spatial association with features within the project area. Features that do not seem to be associated with mining and could not be confirmed as historic in age were not documented; examples include check dams with a modern appearance, utility features such as water valves, and features that appear to be associated with remediation or public safety efforts such as fences and road block berms.

Pursuant to 36 CFR Part 800.4(c), and with the concurrence of consulting parties including interested tribes, we are presenting our determinations of eligibility to the National Register of Historic Places. The AML Program concurs with OCS's recommendation that the recorded sites managed by the BLM are eligible for listing on the National Register of Historic Places (NRHP). Specifically, we recommend LA 130556 as eligible under NHPA criterion D. We do not recommend any of the Isolated Manafestations as eligible for listing in the NRHP under any of the criteria or considerations for properties being eligible for NRHP listing.

Of the 62 IOs recorded seven prehistoric/aboriginal IOs were documented during pedestrian survey. All seven IOs consist of a single isolated artifact, including four pieces of lithic debitage (IOs 1, 4, 5, and 6), one early-stage biface (IO 3), one mano (IO 7), and one Mimbres bowl sherd fragment (IO 2) (Photographs 126 and 127). The IOs are unassociated with the Boston Hill Mining District and are not considered to be a part of LA 130556. They are not likely to increase our understanding of local or regional history. They are therefore recommended as ***not eligible*** for listing on the NRHP under any criteria. No further management considerations are warranted for these resources

The proposed project is designed to help protect the general public from the hazards associated with abandoned mines by safeguarding shafts, adits, open trench areas, and other physical openings associated with the mining landscape. In general, AML safeguards mine features that are eight (8) feet or more in depth or length, which descend into the ground surface. AML safeguarding activities include a variety proposed methods such as mechanically or manually filling mine openings with surrounding waste material or polyurethane foam (PUF) and building structural barriers that restrict human access such as locking gates, cupolas, or other wildlife compatible closures. In addition, the Boston Hill mining area contains numerous dangerous high walls bounding open mining pits and trenches. Some have already been fenced to exclude public access, however numerous dangerous highwalls remain and the AML proposes to erect fences more durable and less obtrusive than the existing chain-link fences previously erected. These safeguarding measures minimize exposure of hazardous abandoned mine openings to the general public, while also working to preserve cultural manifestations and wildlife habitat, if present.

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AML has reviewed the attached documents and agreed with the eligibility recommendations offered OCS. Further, following the above protocol, AML has determined that the proposed project will have no adverse effect to the mining landscape or sites eligible for inclusion to the NRHP. In turn, AML seeks concurrence from the Hopi Tribe on eligibility and project effect determinations. Accordingly, notify us of the Tribe's interest in becoming a consulting party for the project by reviewing the attached report and providing comments.

Alternatively, if the tribe has no objections or proposed changes please return a signed copy of this correspondence to concur with AML determinations as presented. Along with tribal concurrence, the AML will forward copies of the final report and administrative documents to the SHPO for final review and concurrence.

If you would like additional information or have any questions, please feel free to contact me by email at richard.wessel@state.nm.us or by phone at 505-819-8856.

Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: _____

Hopi Tribe

Comments: _____

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd Leahy, JD, PhD
Deputy Secretary

Jerry Schoeppner, Director
Mining and Minerals Division

18 May 2021

Holly Houghton
Mescalero Apache Tribe
Mescalero Apache TribeP.O. Box 227
Mescalero, NM 88340

Dear Ms.Ms. Holly Houghton

The New Mexico Abandoned Mine Land Program (AML), in partnership with the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is conducting preliminary environmental studies in the Boston Hill mine complex in Grant County, New Mexico, prior to planned mine closures. As a federally funded program this proposed AML undertaking is subject to Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 CFR Part 800: Protection of Historic Properties, as revised August 2004). In so doing, we are requesting input from the Mescalero Apache Tribe regarding any concerns you might have with the project regarding the identification and treatment of historic properties and plaves of tribal significance.

The Boston Hill area is part of the Chloride Flat mining district, mining area that dates to early 1870s but was primarily worked between 1879 and the mid 1980s. The proposed closure project is designed to protect the public from dangers associated with historical mining features such as adits, shafts, subsidence features, and other mine openings. Proposed safeguarding activities generally include backfilling mine openings, building structural barriers, filling openings with foam plugs and fencing large open trenches where high walls are present. The Area of Potential Effect (APE) for these activities is defined as an approximately 603-acre semi-contiguous block that consists, for the most part, of private, municipal (Town of Silver City) State lands, and Bureau of Land Management (BLM) lands.

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Pursuant to 36 CFR Part 800.4(c), and with the concurrence of consulting parties including interested tribes, we are presenting our determinations of eligibility to the National Register of Historic Places. The AML Program concurs with OCS's recommendation that the recorded sites managed by the BLM are eligible for listing on the National Register of Historic Places (NRHP). Specifically, we recommend LA 130556 as eligible under NHPA criterion D. We do not recommend any of the Isolated Manafestations as eligible for listing in the NRHP under any of the criteria or considerations for properties being eligible for NRHP listing.

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Alternatively, if the tribe has no objections or proposed changes please return a signed copy of this correspondence to concur with AML determinations as presented. Along with tribal concurrence, the AML will forward copies of the final report and administrative documents to the SHPO for final review and concurrence.

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Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: _____

Mescalero Apache Tribe

Comments: _____

State of New Mexico
Energy, Minerals and Natural Resources Department

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Todd Leahy, JD, PhD
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Jerry Schoeppner, Director
Mining and Minerals Division

18 May 2021

Tamara Billie
Navajo Nation
Navajo NationNavajo Historic Preservation Dept.
P.O. Box 4950
Window Rock, AZ 86515

Dear Ms.Ms. Tamara Billie

The New Mexico Abandoned Mine Land Program (AML), in partnership with the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is conducting preliminary environmental studies in the Boston Hill mine complex in Grant County, New Mexico, prior to planned mine closures. As a federally funded program this proposed AML undertaking is subject to Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 CFR Part 800: Protection of Historic Properties, as revised August 2004). In so doing, we are requesting input from the Navajo Nation regarding any concerns you might have with the project regarding the identification and treatment of historic properties and plaves of tribal significance.

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(HCPI resource (HCPI 48254). Several features inadvertently documented just outside the APE are included due to their spatial association with features within the project area. Features that do not seem to be associated with mining and could not be confirmed as historic in age were not documented; examples include check dams with a modern appearance, utility features such as water valves, and features that appear to be associated with remediation or public safety efforts such as fences and road block berms.

Pursuant to 36 CFR Part 800.4(c), and with the concurrence of consulting parties including interested tribes, we are presenting our determinations of eligibility to the National Register of Historic Places. The AML Program concurs with OCS's recommendation that the recorded sites managed by the BLM are eligible for listing on the National Register of Historic Places (NRHP). Specifically, we recommend LA 130556 as eligible under NHPA criterion D. We do not recommend any of the Isolated Manafestations as eligible for listing in the NRHP under any of the criteria or considerations for properties being eligible for NRHP listing.

Of the 62 IOs recorded seven prehistoric/aboriginal IOs were documented during pedestrian survey. All seven IOs consist of a single isolated artifact, including four pieces of lithic debitage (IOs 1, 4, 5, and 6), one early-stage biface (IO 3), one mano (IO 7), and one Mimbres bowl sherd fragment (IO 2) (Photographs 126 and 127). The IOs are unassociated with the Boston Hill Mining District and are not considered to be a part of LA 130556. They are not likely to increase our understanding of local or regional history. They are therefore recommended as ***not eligible*** for listing on the NRHP under any criteria. No further management considerations are warranted for these resources

The proposed project is designed to help protect the general public from the hazards associated with abandoned mines by safeguarding shafts, adits, open trench areas, and other physical openings associated with the mining landscape. In general, AML safeguards mine features that are eight (8) feet or more in depth or length, which descend into the ground surface. AML safeguarding activities include a variety proposed methods such as mechanically or manually filling mine openings with surrounding waste material or polyurethane foam (PUF) and building structural barriers that restrict human access such as locking gates, cupolas, or other wildlife compatible closures. In addition, the Boston Hill mining area contains numerous dangerous high walls bounding open mining pits and trenches. Some have already been fenced to exclude public access, however numerous dangerous highwalls remain and the AML proposes to erect fences more durable and less obtrusive than the existing chain-link fences previously erected. These safeguarding measures minimize exposure of hazardous abandoned mine openings to the general public, while also working to preserve cultural manifestations and wildlife habitat, if present.

Mining features filled with existing waste rock or PUF will remain visible as shallow depressions and residual waste rock material will be recontoured in place. In addition, mine openings with highly visible waste piles, particularly on steep slopes, will be closed by an alternate method (PUF or other structural closure), thereby leaving the viewshed of the mining landscape intact. Structural closures are typically be built on site to BLM Visual Resource Management specifications. Whenever possible, AML will use existing roads to access the features scheduled for closure. A cultural features LA 130556 features within the site are depicted in Figure 1.

During the construction phase AML proposes to avoid any remaining mine related features (structural foundations, artifact scatters, etc.) with all equipment, vehicles, foot

traffic, and any other ground surface disturbing activities during construction. In addition, designated avoidance areas that extend up to 50 feet (15 meters) from cultural resources will be established prior to construction. When working near designated avoidance areas and where construction access routes pass next to these locations, high visibility barrier/indicators will be installed around the avoidance perimeter. The Contractor and AML Project Manager shall cooperate fully with avoidance practices to preserve archaeological and historic artifacts found within the project area. Moving, removal or collecting of archaeological or historic materials from the project area or vicinity is prohibited.

Lastly, if previously unidentified archaeological sites, deposits, or in situ artifacts are encountered, the AML Project Manager and Contractor shall terminate all operation in that immediate area (100 foot radius, 30 meters) until the proper preservation agencies and Native American groups have been notified and offered the opportunity to assess the discovery site.

AML has reviewed the attached documents and agreed with the eligibility recommendations offered OCS. Further, following the above protocol, AML has determined that the proposed project will have no adverse effect to the mining landscape or sites eligible for inclusion to the NRHP. In turn, AML seeks concurrence from the Navajo Nation on eligibility and project effect determinations. Accordingly, notify us of the Tribe's interest in becoming a consulting party for the project by reviewing the attached report and providing comments.

Alternatively, if the tribe has no objections or proposed changes please return a signed copy of this correspondence to concur with AML determinations as presented. Along with tribal concurrence, the AML will forward copies of the final report and administrative documents to the SHPO for final review and concurrence.

If you would like additional information or have any questions, please feel free to contact me by email at richard.wessel@state.nm.us or by phone at 505-819-8856.

Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: _____

Navajo Nation

Comments: _____

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd Leahy, JD, PhD
Deputy Secretary

Jerry Schoeppner, Director
Mining and Minerals Division

18 May 2021

Mark Altaha
White Mountain Apache Tribe
White Mountain Apache TribeP.O. Box 1032
Fort Apache, AZ 85926

Dear Mr.Mr. Mark Altaha

The New Mexico Abandoned Mine Land Program (AML), in partnership with the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is conducting preliminary environmental studies in the Boston Hill mine complex in Grant County, New Mexico, prior to planned mine closures. As a federally funded program this proposed AML undertaking is subject to Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 CFR Part 800: Protection of Historic Properties, as revised August 2004). In so doing, we are requesting input from the White Mountain Apache Tribe regarding any concerns you might have with the project regarding the identification and treatment of historic properties and plaves of tribal significance.

The Boston Hill area is part of the Chloride Flat mining district, mining area that dates to early 1870s but was primarily worked between 1879 and the mid 1980s. The proposed closure project is designed to protect the public from dangers associated with historical mining features such as adits, shafts, subsidence features, and other mine openings. Proposed safeguarding activities generally include backfilling mine openings, building structural barriers, filling openings with foam plugs and fencing large open trenches where high walls are present. The Area of Potential Effect (APE) for these activities is defined as an approximately 603-acre semi-contiguous block that consists, for the most part, of private, municipal (Town of Silver City) State lands, and Bureau of Land Management (BLM) lands.

As part of their preliminary studies, the EMNRD retained Okun Consulting Solutions, LLC. (OCS), to perform a cultural resources inventory of the proposed project APE, and a full-coverage pedestrian survey was performed between June 2018 and January 2019 under the supervision of OCS archaeologists Adam Okun and Jeremy Davis. A total of 2,821 historic features, 12 historic artifact concentrations, 62 isolated historic artifacts, and seven prehistoric/aboriginal IOs were documented during pedestrian survey. As discussed throughout this document, all features and historic artifacts were documented as part of LA 130556, and no new archaeological sites were discovered. One structure Feature 1236) was also documented individually as a Historic Cultural Property (HCPI) (HCPI resource (HCPI 48254). Several features inadvertently documented just outside

the APE are included due to their spatial association with features within the project area. Features that do not seem to be associated with mining and could not be confirmed as historic in age were not documented; examples include check dams with a modern appearance, utility features such as water valves, and features that appear to be associated with remediation or public safety efforts such as fences and road block berms.

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Of the 62 IOs recorded seven prehistoric/aboriginal IOs were documented during pedestrian survey. All seven IOs consist of a single isolated artifact, including four pieces of lithic debitage (IOs 1, 4, 5, and 6), one early-stage biface (IO 3), one mano (IO 7), and one Mimbres bowl sherd fragment (IO 2) (Photographs 126 and 127). The IOs are unassociated with the Boston Hill Mining District and are not considered to be a part of LA 130556. They are not likely to increase our understanding of local or regional history. They are therefore recommended as ***not eligible*** for listing on the NRHP under any criteria. No further management considerations are warranted for these resources

The proposed project is designed to help protect the general public from the hazards associated with abandoned mines by safeguarding shafts, adits, open trench areas, and other physical openings associated with the mining landscape. In general, AML safeguards mine features that are eight (8) feet or more in depth or length, which descend into the ground surface. AML safeguarding activities include a variety proposed methods such as mechanically or manually filling mine openings with surrounding waste material or polyurethane foam (PUF) and building structural barriers that restrict human access such as locking gates, cupolas, or other wildlife compatible closures. In addition, the Boston Hill mining area contains numerous dangerous high walls bounding open mining pits and trenches. Some have already been fenced to exclude public access, however numerous dangerous highwalls remain and the AML proposes to erect fences more durable and less obtrusive than the existing chain-link fences previously erected. These safeguarding measures minimize exposure of hazardous abandoned mine openings to the general public, while also working to preserve cultural manifestations and wildlife habitat, if present.

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designated avoidance areas that extend up to 50 feet (15 meters) from cultural resources will be established prior to construction. When working near designated avoidance areas and where construction access routes pass next to these locations, high visibility barrier/indicators will be installed around the avoidance perimeter. The Contractor and AML Project Manager shall cooperate fully with avoidance practices to preserve archaeological and historic artifacts found within the project area. Moving, removal or collecting of archaeological or historic materials from the project area or vicinity is prohibited.

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AML has reviewed the attached documents and agreed with the eligibility recommendations offered OCS. Further, following the above protocol, AML has determined that the proposed project will have no adverse effect to the mining landscape or sites eligible for inclusion to the NRHP. In turn, AML seeks concurrence from the White Mountain Apache Tribe on eligibility and project effect determinations. Accordingly, notify us of the Tribe's interest in becoming a consulting party for the project by reviewing the attached report and providing comments.

Alternatively, if the tribe has no objections or proposed changes please return a signed copy of this correspondence to concur with AML determinations as presented. Along with tribal concurrence, the AML will forward copies of the final report and administrative documents to the SHPO for final review and concurrence.

If you would like additional information or have any questions, please feel free to contact me by email at richard.wessel@state.nm.us or by phone at 505-819-8856.

Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: _____

White Mountain Apache Tribe

Comments: _____

State of New Mexico
Energy, Minerals and Natural Resources Department

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Mining and Minerals Division

18 May 2021

Kurt Dongoske
Zuni Pueblo
Zuni PuebloP.O. Box 1149
Zuni, NM 87327

Dear Mr.Mr. Kurt Dongoske

The New Mexico Abandoned Mine Land Program (AML), in partnership with the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), is conducting preliminary environmental studies in the Boston Hill mine complex in Grant County, New Mexico, prior to planned mine closures. As a federally funded program this proposed AML undertaking is subject to Section 106 (54 U.S.C. 306108) of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.) and its implementing regulations (36 CFR Part 800: Protection of Historic Properties, as revised August 2004). In so doing, we are requesting input from the Zuni Pueblo regarding any concerns you might have with the project regarding the identification and treatment of historic properties and plaves of tribal significance.

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Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: _____

Zuni Pueblo

Comments: _____

White Mountain Apache Tribe

Office of Historic Preservation
PO Box 1032
Fort Apache, AZ 85926
Ph: (928) 338-3033 Fax: (928) 338-6055

To: Richard L. Wessel, AML Cultural Resources Manager

Date: June 04, 2021

Re: *New Mexico AML Program Preliminary Environmental Study in Boston Hill Mine*

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the project dated; February 3, 2021. In regards to this, please attend to the following statement below.

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to the above preliminary environmental studies in the Boston Hill Mine complex in grant County, New Mexico.

Please be advised, we reviewed the consultation letter and the information provided, and we've determined that the proposed project plans will ***"Not have an Adverse Effect"*** on the tribe's cultural heritage resources and/or traditional cultural properties.

Thank you for your continued collaborations in protecting and preserving places of cultural and historical importance.

Sincerely,

Mark T. Altaha

White Mountain Apache Tribe – THPO
Historic Preservation Office

If you would like additional information or have any questions, please feel free to contact me by email at richard.wessel@state.nm.us or by phone at 505-819-8856.

Thank you for your assistance in this project.

Sincerely,

Richard L. Wessel
AML Cultural Resources Manager

Concurrence: _____ Date: 5/19/2021
Navajo Nation

Comments: _____