WestLand Resources

November 4, 2019

Mr. Michael Tompson
NEW MEXICO MINING AND MINERALS DIVISION
State of New Mexico Energy, Mineral and Natural Resources Department
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: PERMIT APPLICATION FOR MINIMAL IMPACT EXPLORATION OPERATION NEAR TYRONE IN GRANT COUNTY, NEW MEXICO WESTLAND PROJECT NO. 1883.18

Dear Mr. Tompson:

On behalf of BHP Mineral Resources Inc., please find enclosed the permit application for minimal impact exploration drilling on Bureau of Land Management (BLM) land in Grant County, New Mexico. The project is designed to locate economic mineral deposits at one drilling site located southeast of Tyrone, New Mexico. The attached includes seven (7) copies of the Part 3 permit application with associated attachments to facilitate your review of the application.

If you have any questions or require additional information, please do not hesitate to call.

Respectfully,
WestLand Resources, Inc.

Amanda Best
Senior Environmental Specialist

ALB:kd
Attachment: Part 3 Minimal Impact Exploration Operation Permit Application
1. BLM Mining Notice for Exploration Drilling
2. BLM Claims
3. Class III Cultural Resources Survey Report
4. Biological Evaluation
5. Directions to Site
6. Forms WD-08 and WR-07

Application fee – Check # 136610

cc: Meghan Chesal, BHP Mineral Resources Inc.
Santiago Gonzalez, BHP Mineral Resources Inc.

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PART 3
MINIMAL IMPACT EXPLORATION OPERATION

PERMIT APPLICATION

Accompanying instructions for this permit application are available from MMD, and on MMD webpage:
http://www.emnrd.state.nm.us/MMD/MARP/MARPApplicationandReportingForms.htm

Send 6 copies of the completed application to:

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
Director
Mining and Minerals Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505
Telephone: (505) 476-3400
Webpage: www.emnrd.state.nm.us/MMD/index.htm

CHECK OFF LIST TO DETERMINE YOUR PROJECT'S STATUS AS A MINIMAL IMPACT EXPLORATION OPERATION:

☐ Yes ☒ No My project **will exceed 1000 cubic yards of excavation**, per permit (drill pads, mud pits, and roads will not be counted in excavated materials).

☐ Yes ☒ No Surface disturbances for constructed roads, drill pads and mud pits **will exceed 5 acres** total for my project.

☐ Yes ☒ No My project is located in or is expected to have a direct surface impact on wetlands, springs, perennial or intermittent streams, lakes, rivers reservoirs or riparian areas.

☐ Yes ☒ No My project is located in designated critical habitat areas as determined in accordance with the federal Endangered Species Act of 1973 or in areas determined by the Department of Game and Fish likely to result in an adverse impact on an endangered species designated in accordance with the Wildlife Conservation Act, Sections 17-2-37 through 17-2-46 NMSA 1978 or by the State Forestry Division for the Endangered Plants Act, section 75-6-1 NMSA 1978.

☐ Yes ☒ No My project is located in an area designated as Federal Wilderness Area, Wilderness Study Area, Area of Critical Environmental Concern, or an area within the National Wild and Scenic River System.

☐ Yes ☒ No My project is located in a known cemetery or other burial ground.

☐ Yes ☒ No My project is located in an area with cultural resources listed on either the National Register of Historic Places or the State Register of Cultural Properties.

☐ Yes ☒ No My project will or is expected to have a direct impact on ground water that has a total dissolved solids concentration of less than 10,000 mg/L, except exploratory drilling intersecting ground water may be performed as a minimal impact operation.

☐ Yes ☒ No My project is expected to use or using cyanide, mercury amalgam, heap leaching or dump leaching in its operations.

☐ Yes ☒ No My project is expected to result in point or non-point source surface or subsurface releases of acid or other toxic substances from the permit area.

☐ Yes ☒ No My project requires a variance from any part of the Mining Act Rules as part of the permit application.

If you answer yes to any of the above questions, your project does not qualify as a minimal impact exploration operation.

Confidential Information

☒ Yes ☐ No Is any of the information submitted in this application considered by the applicant to be confidential in nature? If yes, please provide this information separately and marked as "confidential."

Timeline

- Exploration applications must be provided no less than 45 days prior to the anticipated date of operations desired by the applicant.
- Renewal applications shall be filed at least 30 days preceding expiration of the current permit. Permits are valid for one year.
- Approved permit is valid for one year from the date of approval.

SECTION 1 – OPERATOR INFORMATION (§304.D.1)

Project Name: Oak Grove Exploration Drilling

Nearest Town to Project: Tyrone, New Mexico

Applicant Name and Contact Information (entity obligated under the Mining Act):

Name: Meghan Chesal

Address: 180 West Magee Road, Ste. 134

Tucson, Arizona 85704

Office Phone: (520) 448-5880 Cell Phone:

Fax Number: Email: Meghan.Chesal@bhpbilliton.com

Name of On-Site Contact, Representative, or Consultant:

Name: Rod Michael

Address: National EWP Inc.

580 West Silver Street

Elko, NV 89801

Office Phone: +1 (480) 262-1828 Cell Phone:

Fax Number: Email: RMichael@nationalewp.com

SECTION 2 – RIGHT TO ENTER INFORMATION (§302.D.1)

A. Describe or attach copies of documents that give the applicant the right to enter the property to conduct the exploration and reclamation, include: lease agreements, access agreements, right of way agreements, surface owner agreements, and claim numbers, if applicable.

BHP (the applicant) has submitted a Notice to the BLM - Las Cruces office, to conduct exploration drilling on BLM land, which is being processed concurrently with this permit application. The BLM Notice is provided as **Attachment 1**.

The right of entry agreement with Gerald and Rhonda Billings to cross their private land to access BLM land is provided as **Appendix A of Attachment 1**.

Attachment 1

B. List the names and addresses of surface and mineral ownership within the proposed permit area. If the mineral is federal mineral, indicate as federal mineral, but provide the name of the claim holder or lease holder.

Surface Estate Owner(s):

Name	Address	Phone #
☒ U.S. BLM	Las Cruces Office 1800 Marquess St Las Cruces, NM 88005	(575) 525-4300
☐ U.S. Forest Service		
☐ State of NM		
☒ Private/Corporate Name:	Gerald and Rhonda Billings P.O. Box 695, Tyrone, NM 88065	(575) 313-2780
☐ Other Name:		

Lease Holder(s) of Surface Estate (if applicable):

Name	Address	Phone #

Mineral Estate Owner(s):

Name	Address	Phone #
☒ Bureau of Land Management	see above	
☐ US Forest Service		
☐ State of NM		
☒ Claim/Lease Holder	180 W. Magee Road, Ste. 134	(713) 961-8624
Name: BHP Mineral Resources Inc.	Tucson, Arizona 85704	

Claim Numbers: Oak Grove 16, 17,18; see **Attachment 2** and **Figure 3 in Attachment 1**

☐ Claim/Lease Holder		
Name:		

Claim Numbers:

☐ Other		
Name:		

C. Has a Cultural Resource Survey been performed on the site?

☒ Yes ☐ No If yes, please provide the author, title, date and report number, and include a copy of the survey with this application, if possible:

Bradford W. Stone, A Cultural Resources Inventory for Proposed Mineral Exploration Activities on U.S. Bureau of Land Management (Las Cruces District) Land South of Silver City, Grant County, New Mexico. September 26, 2019. Report No. 2019-51.

Attachment 3

D. Has a wildlife survey or vegetation survey been performed for the permit area?

☒ Yes ☐ No If yes, please provide the author, title, date and report number, and include a copy of the survey with this application, if possible:

WestLand Resources, Inc. Biological Evaluation for Oak Grove Exploration Drilling BLM Notice. October 25, 2019. Project No. 1883.13

Attachment 4

SECTION 3 – MAPS AND PROJECT LOCATION (§302.D.2)

A. Project Location:

Township 20 South Range 14 West Section 4, 9, 10, 15-18, 21

Township 20 South Range 14 West Section 13, 14, and 24

List the drill hole/exploration name and the GPS coordinates for each site.

I.D. Number	Northing / Latitude	Easting / Longitude
Oak01	3610145	753980

I.D. Number	Northing / Latitude	Easting / Longitude

Coordinate system used to collect GPS data points:

- ☐ NAD83 Geographic
- ☒ NAD83 UTM Zone 13 (or 12)
- ☐ WGS 1984
- ☐ NAD27 Geographic
- ☐ NAD27 UTM Zone 13 (or 12)
- ☐ Other: _____

Attachment n/a (for listing additional boreholes).

B. Maps (see application form instructions for examples of maps to be included):

Are topographic maps included with the application that show the following items:

☒ Yes – The boundary of the proposed exploration project Permit Area

☒ Yes – The proposed exploration locations (i.e., borehole locations)

☒ Yes – Existing roads, new roads and overland travel routes

☒ Yes ☐ N/A – Areas of proposed road improvement

Attachments 1, Figures 1-3

Are maps or figures included with the application showing the approximate dimensions and locations of drill pads and other disturbances:

☒ Yes – Drill pad dimensions and constructed drill pad locations

Attachments 1, Figures 4-5

C. Provide detailed driving directions to access the site:

From Tyrone, NM, drive south on Highway 90 for approximately 12 miles. Turn left onto White Water Road. Continue on east on White Water Road for approximately 4 miles. Turn left onto an existing unnamed access road on private land and travel in a generally northern direction for approximately 4 miles. Continue traveling generally northward for another 0.4 miles overland to access the proposed drillpad site.

See **Attachment 5** for driving directions with a map.

SECTION 4 – EXPLORATION DESCRIPTION (§302.D.3 & 4)

A. Anticipated exploration: Start Date: January 2, 2020 End Date: January 1, 2021

B. List the mineral(s)/element(s) to be explored for: Copper

C. Proposed method(s) of exploration:

☐ **Air drilling (air rotary, coring, etc.):**

_____# of holes _____Depth (ft.) _____Diameter (in.)

_____# of drill pads _____Length (ft.)_____Width (ft.)

Will drill pads be graded/bladed or overland: ☐ Graded/bladed ☐ Overland

Will drill pads need some mechanical leveling (grading/blading): ☐ Yes ☐ No

Approx. Weight of Drill Rig (lbs.)_____ Number of Axles: _____

Total length of drill stem that can be carried on the rig:_____

Is a support pipe truck anticipated? ☐ Yes ☐ No _____Weight (lbs.)

Weight of support compressor (lbs.):_____Trailer mounted?_____

Anticipated Drilling Contractor:_____ License No._____

☒ **Mud/fluid drilling:**

1 # of holes 5,000 Depth (ft.) Up to 4.625 Diameter (in.)

1 # of drill pads 100 Length (ft.) 100 Width (ft.)

Will drill pads be graded/bladed or overland: ☒ Graded/bladed ☐ Overland

Will drill pads need some mechanical leveling (grading/blading): ☒ Yes ☐ No

Will a closed loop system be used or will mud/fluid pits be used? Closed loop system

If mud/fluid pits are proposed:

_____# of pits _____Length (ft.) _____Width (ft.) _____Depth (ft.)

Anticipated excavating equipment: Cat 420 or similar

How will excavating equipment be transported to the site (i.e., driven, low-boy, etc.):

Equipment would be transported on highways and suitable roads (White Water Road) by truck. Equipment would be driven the remainder of the access route to the site (see **Figure 2 in Attachment 1**).

Will mud pits be lined?: ☐ Yes ☒ No

If yes, proposed material to line the mud pits: _____

Approx. Weight of Drill Rig (lbs.) 90,000 Number of Axles: Track-mounted rig

Anticipated Drilling Contractor: National Drilling License No. 4367298

☐ **Test pits / exploratory trenches:**

_____# of pits _____Length (ft.) _____Width (ft.) _____Depth (ft.)

Anticipated excavating equipment: _____

How will excavating equipment be transported to the site (i.e., driven, low-boy, etc.): _____

_____

_____

☐ **Other methods of exploration** (i.e., cuts, shafts, tunnels, adits, declines, blasting, etc.). Indicate method and details: _____

_____

_____

TOTAL ACREAGE TO BE DISTURBED DUE TO DRILL PADS = 0.23 acres
(to convert to acres, multiply total square footage of drill pads by 0.0000229)

D. Disposal of drill cuttings

If this exploration project is for uranium or other radioactive elements/minerals, applicant agrees to perform a gamma radiation survey at each drill site prior to, and after, exploration activities. Applicant/Owner/Operator agrees to restore gamma radiation levels at each drill site to pre-exploration levels. ☐ Yes ☐ No ☒ N/A

Will excess drill cuttings be buried at each drill site location or within a single disposal pit?
☒ At each drill pad location ☐ Within a single disposal pit

Drill cutting will be disposed of in the sump(s) located within the drill pad footprint (see **Figure 4 in Attachment 1**). The disposal pit disturbance area (0.007 acres) is included as part of the total drill pad disturbance area described on page 10 (0.23 acres).

If a single disposal pit is proposed, please provide the following:

Description or GPS coordinates of the proposed cuttings disposal pit location:

_____

_____

Dimensions of the single proposed cuttings disposal pit (length, width, and depth):

_____Length (ft.) _____Width (ft.) _____Depth (ft.)

TOTAL ACREAGE TO BE DISTURBED DUE TO DISPOSAL PIT = 0.007 acres
(to convert to acres, multiply total square footage of disposal pit by 0.0000229)

E. Other Supporting Equipment (check all that apply):

☒	4x4 Trucks/Vehicles	Quantity:	3
☒	Water Truck	Weight (lbs.):	115,000 (including 4,000 gallons of water at full capacity)
☒	Geophysical Truck	Weight (lbs.):	7,000
☒	Pipe Truck (rig support)	Weight (lbs.):	120,000 (including pipes)
☒	Bulldozer	Type:	D6 Dozer or similar
☒	Backhoe	Type:	Cat 420e with a hoe ram attachment
☐	Trackhoe	Type:	
☒	Scaper/Grader	Type:	Motor grader
☐	Trailers	Quantity/Type:	
☒	Portable Toilet	Quantity:	1
☒	Other	List:	Generators associated with drill rig
			Above ground tank for drilling fluids

F. Roads and Overland Travel:

List of new roads to be constructed for this exploration project:

Description of *NEW* Roads	Length (ft.)	Width (ft.)	Total Acres (length x width x 0.0000229)
New road on BLM land	1,140	12	0.3
New road on private land	5,870	12	1.6
TOTAL ACRES DISTURBED BY NEW ROAD CONSTRUCTION :			**1.9**

Describe how new roads will be constructed:

The road would be constructed using a grader and/or Dozer D6 or equivalent to grade the road. A grader and/or Dozer D6 or equivalent would be used to remove any unavoidable vegetation.

List for extension or widening of existing roads:

Description of Modification to *EXISTING* Roads	Length (ft.)	Width (ft.)	Total Acres (length x width x 0.0000229)
Improvements/widening of existing roads	14,780	4	1.36
TOTAL ACRES DISTURBED BY ROAD IMPROVEMENTS :			**1.36**

Describe how existing roads will be extended or widened:

Existing road would be widened by up to 4 feet so that they would be up to 12 feet wide. Road improvements would be conducted using a grader and/or Dozer D6 (or equivalent) to grade the road. Road improvements would include grading or smoothing as needed to enable equipment access.

List for routes of overland travel:

Description of *OVERLAND TRAVEL* Routes	Length (ft.)	Width (ft.)	Total Acres (length x width x 0.0000229)
TOTAL ACRES DISTURBED BY OVERLAND TRAVEL :			

G. Support Facilities

Describe (location and size) any support facility disturbances (equipment staging, equipment and material storage and/or lay down areas, vehicle parking, temporary housing and/or trailers) to be created or situated on the site during exploration operations.

The drill pad will consist of an approximately 100- by 100-foot area that will be cleared to hold the drilling collar and sumps for drill cuttings (wastewater and fluid), along with all drilling equipment and personnel during construction. One laydown yard approximately 40- by 60-foot would be placed adjacent to the drill pad to provide support to project activities (see **Figures 4 and 5** in **Attachment 1**).

H. **TOTAL ACREAGE TO BE DISTURBED BY PROJECT = 3.5 acres**
(include all disturbed acreage from drill pads, cuttings disposal pit, new roads, improved roads and overland travel routes)

SECTION 5 – CHEMICAL USE (§302.D.4)

A. Check any and all chemicals that will be used for this project.

☒	Drilling Mud (i.e., EZ Mud)	Type/Quantity:	EZ-Mud Plus, 60 gallons
☒	Diesel Fuel	Quantity:	Up to 6,750 gallons in total. One tank-full for the rig (75 gallons), re-filled 2x/day.
☒	Down-hole Lubricants	Type/Quantity:	NXS-LUBE, 40 gallons Z-50 Tool Joint Compound, 35 lbs
☒	Lost Circulation Materials	Type/Quantity:	N-SEAL, 240 lbs DIAMOND SEAL, 100 lbs
☒	Oils/Grease	Quantity:	One 1-gallon container
☒	Gasoline	Quantity:	One tank-full per light vehicle. Three light vehicles, with 25-gallon tanks, refilled as needed.
☐	Hydraulic Fluid	Quantity:	
☐	Ethylene Glycol	Quantity:	
☒	Cement	Type/Quantity:	Portland Type 1-11-V, 940 lbs
☒	Water	Source:	Purchased from local source
☒	Bentonite	Quantity:	Up to 58,400 lbs, depending on conditions
☐	Fertilizer	Type/Quantity:	
☒	Other	Type/Quantity:	Soda ash, 4,200 lbs
			Quik Trol Gold, 2,160 lbs
			EZ-Mud Gold, 720 lbs
			Abandonite, 3,000 lbs

B. Describe, in detail, a plan for the containment, use and disposal of all chemicals listed above:

Drilling muds, bentonite, and associated drilling materials listed above used during the drilling process would be placed in the mud mixers (see **Figure 4 in Attachment 1**), where they would then be circulated between the drill hole and mud mixers as part of the drilling process. Excess materials would be stored in the equipment storage area located within the drill pad (see **Figure 4 in Attachment 1**) until needed.

Small amounts of oils/grease (less than a gallon) would also be stored in the equipment storage area. No fuel sources (gasoline and diesel) would be stored on-site. The drill rig would be refueled with diesel twice a day via a 75-gallon truck-mounted fuel canister that

would be transported to the site by light vehicle.

No debris, silt, sand, bentonite, cement, oil, petroleum, organic material, or other drilling related fluids, material, or waste would be discharged to or stored such that it could be washed outside the drill site by rainfall or runoff. Plastic sheeting and absorbent materials placed under the drill rig to capture any potential leaks would be disposed of offsite in accordance with applicable laws and regulations.

Following the completion of all drilling, solids and desiccated drilling muds in the mud pits would be excavated (if sumps are used) and removed from the site. Alternatively, aboveground tanks would be used to store and dispose of drilling muds. The inert drilling mud materials would be disposed of in accordance with applicable state and federal regulations.

Drilling and drill hole abandonment would be conducted in accordance with New Mexico State Engineer Office's requirements for plugging and abandoning drill holes (per 19.27.4 NMAC).

C. Describe where equipment fueling/refueling will occur:

Gasoline refueling (applicable to light vehicles) would occur at commercial facilities off-site.

The 75-gallon diesel fuel canister would be refilled at commercial facilities off-site and transported to the drill pad by light vehicle twice a day.

D. Describe how hazardous material spills/leaks will be handled:

During drilling operations, plastic sheeting would be placed under the drill rigs and overlain by absorbent materials to capture any leaks and prevent leaching petroleum-based fluids (fuel, lubricants) into the soil. Plastic and absorbent materials would also be used under other gas or diesel motors, or other equipment with the potential to leak fuel or oil, as needed.

In the event that waste fluids were spilled, affected soil would be removed for appropriate disposal off BLM lands, and the BLM and State of New Mexico would be notified. Spills would be cleaned up and properly disposed of as soon as they occur in accordance with applicable State and Federal regulations.

E. Identify spill cleanup materials that will be kept on-site (check all that apply):

- ☒ Bentonite clay or cat litter
- ☒ Adsorbent pads, rolls, mats, socks, pillows, dikes, etc.

☐ Drum or barrel for containing contaminated soil/adsorbent materials

☐ Other/list: _____

☐ Other/list: _____

☐ Other/list: _____

F. Applicant/owner/representative agrees to immediately notify the State of New Mexico immediately of any spills of hazardous materials (see page 1 of this application for phone numbers to notify): ☒ Yes ☐ No

SECTION 6 – GROUNDWATER/SURFACE WATER INFORMATION (§302.D.5)

A. Provide an estimate of depth to ground water and the total dissolved solids (TDS) concentration.

Depth to groundwater (ft.): 167-732 TDS concentration (mg/L): _____

Describe the source of this information:

USGS well data located upgradient, downgradient, and crossgradient to the site report depths to groundwater ranging between approximately 300-550 ft. Records of TDS concentrations are not available.

B. Will dewatering activities be conducted: ☐ Yes ☒ No

If yes, please describe:

Dewatering activities are not anticipated as part of this exploration effort. In the event water is encountered while drilling, a thicker mud would be pumped into the drill to plug the water source.

C. Is groundwater anticipated to be encountered during exploration: ☒ Yes ☐ No

If YES:

Have you completed Form WR-07 (Application for permit to drill a well with no consumptive use of water) and mailed it to the District Office of the State Engineer? ☒ Yes

Have you completed Form WD-08 (Well plugging plan of operations) and mailed it to the District Office of the State Engineer? ☒ Yes

Attachment 6 (copies of the completed WR-07 and WD-08 forms)

D. Exploration Borehole Abandonment

Dry Boreholes

☐ Dry hole abandonment (option 1): 100% bentonite pellets/chips (i.e. HOLEPLUG® manufactured by Baroid Industrial Products), dropped from surface then hydrated in place according to the manufacturer's recommendations, emplaced from total depth to within 12 feet of the original ground surface, followed by 10 feet of neat cement, followed by 2 feet of topsoil/topdressing.

☐ Dry hole abandonment (option 2): Neat cement slurry, mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 2 feet of the original ground surface, followed by 2 feet of topsoil/topdressing.

☐ Dry hole abandonment (option 3): Cement + 6% bentonite slurry, mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 2 feet of the original ground surface, followed by 2 feet of topsoil/topdressing.

☐ Dry hole abandonment (option 4): High-density bentonite clay (≥ 20% active solids; i.e. QUIK-GROUT® manufactured by Baroid Industrial Products), mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 12 feet of the original ground surface, followed by 10 feet of neat cement, followed by 2 feet of topsoil/topdressing.

☐ Dry hole abandonment (option 5): Other materials / describe and justify use:

_____

_____

Wet Boreholes

☒ Wet hole abandonment (option 1): Neat cement slurry, mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 2 feet of the original ground surface, followed by 2 feet of topsoil/topdressing.

☐ Wet hole abandonment (option 2): High-density bentonite clay (≥ 20% active solids; i.e. QUIK-GROUT® manufactured by Baroid Industrial Products), mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 12 feet of the original ground surface, followed by 10 feet of neat cement, followed by 2 feet of topsoil/topdressing.

☐ Wet hole abandonment (option 3): Other sealing material approved by the Office of the State Engineer. Describe and include well plugging plan approval by the State Engineer:

_____

_____

_____

_____

_____

D. Applicant agrees to contain any water produced from the exploration borehole at the drill site and acknowledges that discharge of this water to a watercourse may be a violation of the Federal Clean Water Act: ☒ Yes ☐ No

E. Is any drilling proposed to occur within the channel of any perennial, intermittent, or ephemeral streams? ☐ Yes ☒ No

F. Is any drilling anticipated to occur within 100 feet of any perennial, intermittent, or ephemeral streams? ☐ Yes ☒ No

SECTION 7 – RECLAMATION & OPERATION PLAN (§302.D.6 AND 302.I.K)

A. Salvage/Preservation of Topsoil

Before any grading/blading or similar activities occur in relation to this project, operator agrees to salvage and preserve all topsoil and topdressing for use in future reclamation of this project ☒ Yes ☐ No

Describe how topsoil will be salvaged prior to initiation of exploration activities (check all that apply):

☐ N/A – no construction work will occur, therefore no soil salvage is needed.
☒ Excavated from drill pads and stored at each drill pad
☒ Excavated from road improvements/construction and stored adjacent to road
☐ Excavated from mud/fluid pits and storage at each pit
☐ Other, describe: _____

B. Erosion Control

Describe the best management practices that will be implemented to control erosion:

☐ Silt fencing Location:

☐ Straw wattles Location:

☐ Straw bales Location:

☒ Ditches/swales Location: A shallow and narrow channel (approximately 2 inches wide by 1 inch deep) will be dug beneath the pipeline between the drill rig and sumps to catch drips and control erosion.

☒ Berms/dikes/dams Location: The perimeter of the drill pad will be bermed with soil excavated during drill pad construction

☐ Sediment basins Location:

☐ Other or N/A Type/Location: _____

_____

C. Wildlife Protection / Noxious Weed Prevention

Will the perimeter of drill pits be fenced to prevent wildlife entrapment? ☐ Yes ☒ No

Proposed pit perimeter fence material:

Drilling operations will be conducted 24/7 until complete and will be closed immediately upon completion, and wildlife is not expected to approach the drill pad during drilling activities. However, fencing will be placed around all sumps and electrical equipment as a safety measure for both wildlife and operators.

Describe how the pit perimeter fencing will be installed and secured (i.e., T-posts, wooden stakes, etc.):

Safety fencing placed around the sumps would consist of a UV-protected 2-inch square orange mesh made of composite material. The 4-ft-tall fencing would be installed with wooden stakes or T-posts, as is suitable for the substrate.

Will at least one side of the interior of the drill pits be sloped at 3:1 as a ramp for wildlife escape? ☐ Yes ☒ No

If No, will another type of constructed escape ramp be installed? Describe:

The sumps will be the only deepened portions of the drill pad that could potentially trap wildlife, and the sumps will be fenced to prevent wildlife from accessing them.

Applicant/Owner/Operator commits to pressure-washing or steam-clean all equipment prior to entering the permit area: ☒ Yes ☐ No

D. Reclamation Details

Describe in general how re-contouring or re-establishment of the surface topography will be restored:

The drill site, the mud pits, and the outer berm would be returned to natural grade with a track hoe using rocks and soil set aside during site construction and mud pit excavation. The site would be mulched and reseeded in accordance with BLM standards.

Water bars and erosion-control features would be repaired and constructed as necessary. Waterlines, pumps, and any other items will be removed from the site.

Describe how the reclamation of portals, adits, drilling fluid/mud and/or waste pits, shafts, ponds, roads and other disturbances will be performed:

Aboveground tanks would be used to store and dispose of drilling muds. The inert drilling mud materials would be disposed of in accordance with applicable state and federal regulations.

Drilling and drill hole abandonment would be conducted in accordance with New Mexico State Engineer Office's requirements for plugging and abandoning drill holes (per 19.27.4 NMAC).

Is seeding of the reclaimed areas proposed: ☒ Yes ☐ No

If no, provide a justification as to why no revegetation is needed:

_____

_____

_____

Plant mix to be used in the re-establishment of vegetation:

☐ US Forest Service specified mix applied through broadcast at their recommended rate
☒ BLM specified mix applied through broadcast at their recommended rate
☐ Other:

Plant Name	Seeding Rate (lbs./acre)

Broadcast applied or drill-seeded: ☒ Broadcast ☐ Drill-seeded

Scarification Methods (check all that apply):

☐ Primary tillage to greater than 6-inches depth of all constructed drill pads and roads

☒ Secondary tillage of all constructed drill pads and roads, and/or overland travel routes
☐ Chain drag or tire drag over seeds in areas used for overland travel
☒ Light raking of soil over seeds in areas used for overland travel
☐ None
☐ Other/describe:_____

_____

Mulch Use:
☒ Certified weed-free straw mulch will be placed over areas that have been tilled/disced or ripped at a rate of 2 tons per acre, and will be crimped in place
☐ No mulch is proposed

E. Reclamation Timeline

Applicant/Owner/Operator commits to reclamation of the disturbed area as soon as possible following the completion or abandonment of the exploration operation, unless the disturbed area is included within a complete permit application for a new mining permit:
☒ Yes ☐ No

Anticipated Start of Reclamation:

☒ 0-30 days after completion of drilling
☐ 31-60 days after completion of drilling
☐ Other/specify: _____

SECTION 8 – PERMIT FEES AND FINANCIAL ASSURANCE (§302.I.2 AND 5)

A. Financial assurance must be posted with Mining and Minerals Division prior to approval of this application. The acceptable forms of financial assurance are surety bonds, letters of credit, and certificates of deposit. Provide an estimate of, and an instrument for, the proposed financial assurance required by Subpart 3.

☒ Surety Bond
☐ Letter of Credit
☐ Cash Account / Certificate of Deposit

☒ Estimated amount of financial assurance: $46,150.00

Or

☐ Applicant will provide the amount of financial assurance calculated by MMD.

B. Attach the permit fees as determined pursuant to Subpart 2. The application fee for a minimal impact exploration permit is $500.00.

☐ Money Order/Cashier's Check
☒ Check

Check Number : 136610

Financial Institution: Compass Bank

SECTION 9 – CERTIFICATION REQUIREMENT (§302.I.3 & 4)

I certify that I have personally examined and am familiar with the information submitted herein, and based on my inquiry of those individuals responsible for obtaining the information; I believe the submitted information is true, accurate, and complete. I agree to comply with the reclamation requirements set forth in this permit application and related correspondence, the New Mexico Mining Act and the Rules. Further, I certify that I am not in violation of any other obligation under the New Mexico Mining Act or the Rules adopted pursuant to that Act and I allow the Director to enter the permit area, without delay, for the purposes of conducting inspections during exploration and reclamation.

Signature of Permittee or Authorized Agent: 

Name (type or print): Meghan Chesal

Title/Position: Operations Specialist

Date: 11/04/2019

Attachment 1

BHP MINERAL RESOURCES INC.
BLM NOTICE FOR ACTIVITIES WITHIN PORTIONS OF SECTION 4, RANGE 20 SOUTH, RANGES 14 AND 15 WEST OAK GROVE EXPLORATION DRILLING

Prepared for: Bureau of Land Management

Prepared by: WestLand Resources, Inc.

On Behalf of: BHP Mineral Resources Inc.

Date: October 29, 2019

Project No.: 1883.18 01 01

TABLE OF CONTENTS

TABLES

FIGURES

(follow text)

APPENDICES

1. CLAIMANT AND OPERATOR INFORMATION

Operator:
BHP Mineral Resources Inc.
Santiago Gonzalez
180 Magee Road, Ste. 134
Tucson, Arizona 85704
P: (520) 500-7791
Drilling Contractor:
To be determined

2. ACTIVITIES

2.1. DESCRIPTION OF ACTIVITIES

BHP Mineral Resources Inc. (BHP; the Applicant) proposes exploration drilling at one site located on lands managed by the Bureau of Land Management (BLM) as part of ongoing mineral exploration activities south of Tyrone, New Mexico. Project activities are located within BLM lands managed under the Las Cruces District Office, within portions of Section 4 of Township 20 South, Range 14 West (**Figures 1 and 2**).

2.2. SCHEDULE OF ACTIVITIES

The operation is proposed to begin as early as January 2020 and would be completed within 6 months to 1 year of initiation. An addendum to this notice would be filed, if needed, prior to the permit expiration/renewal date.

2.3. ACCESS

Project activities are proposed on BLM land within Section 4 of Township 20 South, Range 14 West, and would be accessed via a combination of existing roads and new roads on both private and BLM land located on Sections 4, 9, 10, 15-18, and 21 of Township 20 South, Range 14 West, and Sections 13, 14, and 24 of Township 20 South, Range 15 West (**Figures 1 and 2**). BHP proposes exploration drilling at one site, which would be accessed via a new temporary road that connects to an existing unnamed access road on private land and ultimately to White Water Road.

The new temporary access road would be up to 12 feet wide and extend for approximately 2,140 feet (0.41 miles) on BLM land and 4,860 feet (0.92 miles) on private land. The existing unnamed road is a two-track road that extends for approximately 15,090 feet (2.86 miles) and is located entirely on private land. The Applicant has gained permission from the land owners (**Appendix A**) to conduct road improvements and construct the new access road within the areas indicated in **Figure 2**.

Road improvements and construction would be conducted using a grader and/or Dozer D6 (or equivalent) to grade the road. Vegetation disturbance would be avoided to the maximum extent possible. Where vegetation removal cannot be avoided, a Dozer D6 (or equivalent) would be used to clear vegetation. No ongoing maintenance is planned for the new road, as it is a temporary road that will only be used for approximately 30 to 45 days during active drilling and then will be reclaimed, as described in **Section 3**.

2.4. VEHICLES AND EQUIPMENT

The proposed activities would be conducted using the following equipment (or similar):

- CT14 – Atlas Copco drill rig or similar
- Pipe truck (size = 10 by 35 ft)
- CAT® bulldozer (size = D-6) or similar
- Track hoe
- Hoe ram
- Water truck (diesel)
- Generators associated with drill rig
- Support vehicles
- Grader

2.5. SCOPE OF OPERATION

The project consists of the use of existing access roads, the improvement of portions of the existing road (as described in **Section 2.3**), the construction of a temporary access road (1,140 feet of which would be on BLM land), and the construction of one drill pad with an associated laydown yard (**Figures 2 and 3**). The operator would access the drill pad from the existing road by constructing a temporary new road that would be 12 feet wide and approximately 7,000 feet long (1,140 feet of which would occur on BLM land). The temporary new road construction would occur across approximately 0.3 acres of BLM land.

The access route would be used by a tracked drill rig and support vehicles to access the drill pad. The drill pad will consist of an approximately 100- by 100-foot area that will be cleared to hold the drilling collar and sumps for drilling mud (wastewater and fluid), along with all drilling equipment and personnel during construction (**Figure 4**). One laydown yard, approximately 40- by 60-feet, would be placed adjacent to the drill pad (outside of the wash) to provide support to project activities (**Figure 5**).

Clearing activities would be conducted with a bulldozer, a track hoe, and a hoe ram. The total surface disturbance for the proposed activities will not exceed 0.6 acres on BLM lands (**Table 1**).

Table 1. Estimated Disturbance Area on BLM Lands

Activity Area	Location	Claims (Figure 3)	Description of Activity within BLM Lands	Estimated Acres of Impact
Drill Pad	T20S, R14W, portions of Sec. 4	Oak Grove 16	Exploration drilling to be conducted within a 100-by-100-ft drill site	0.2
Laydown Yard			Laydown yard located adjacent to drill pad; approximately 40 by 60 feet	0.1
Temporary New Access Road		Oak Grove 16, 17, 18	Road clearing and grading across approximately 1,140 ft; estimated 12-ft width of disturbance	0.3
			Total Estimated Disturbance	**0.6**

2.6. AFFECTED LAND

The proposed exploration activity is located in Grant County, approximately 7.5 miles south of Tyrone, New Mexico, within private land and land administered by the BLM (**Figures 1 and 2**). The landscape is dominated by rolling terrain of the foothills of surrounding mountains; associated landforms include intervening drainage systems. Surrounding land uses consist of rural residences, ranching operations, grazing, and recreation, with mine activities (predominantly from the Tyrone Mine) located within a few miles of the project area.

Vegetation within the project area is primarily Semidesert Grassland (velvet mesquite [*Prosopis velutina*], catclaw acacia [*Senegalia greggii*], sotol [*Dasylirion wheeleri*], beargrass [*Nolina microcarpa*], and grama species).[1] Small patches of denser vegetation cover occur along ephemeral drainages within the project area, and desert willow (*Chilopsis linearis*) was observed along portions of the Cherry Creek drainage, but in general, vegetation cover is relatively open.

The drill pad and laydown yard would be located within a relatively flat area outside of the drainage systems in the vicinity. The temporary new road would be approximately 12 feet wide and would be positioned to avoid vegetation to the maximum extent possible. The road would be constructed using a grader and/or Dozer D6 or equivalent to grade the road. A grader and/or Dozer D6 or equivalent would be used to remove any unavoidable vegetation. No maintenance is planned for this road, as it is a temporary road that will only be used for approximately 30 to 45 days during active drilling and then will be reclaimed, as described in **Section 3**.

2.7. DRILLING ACTIVITY

The anticipated depth for the boring is approximately 5,000 feet. The boring will be advanced using the open-hole technique (i.e., reverse circulation or diamond drilling). Drilling would be accomplished

[1] Brown, D.E., and C. Lowe. 1994. *Biotic Communities – Southwestern United States and Northwestern Mexico. General Technical Report RM-78, Rocky Mountain Forest and Range Experiment Station, U.S. Forest Service*. Salt Lake City, Utah: University of Utah Press.

with a track-mounted rig. If water is encountered while drilling, it would be funneled into sumps and may need to be pumped and hauled away in order to keep the sump from overflowing. As an alternative to the use of sumps, aboveground tanks may be used to store and remove drilling muds.

A small driller's shed consisting of a temporary structure approximately 4 by 6 feet may be used by drillers for shelter onsite. The drill site requires an approximately 100-by-100-foot drill pad (**Figure 4**) that will encompass approximately 0.23 acres of disturbed area with a 40- by 60-foot laydown yard (**Figure 5**) that will encompass approximately 0.05 acres of disturbed area.

Project activities, including road and drill pad construction and drilling operations, is anticipated to occur over an approximately 4- to 5-week period. Road improvements would be completed within approximately 4 days and would require a 2- to 3-person crew plus the BHP site specialist. Each drill rig would be operated by a 3-person crew on a 24-hour-per-day schedule (12 hours per shift) plus supervisor for 30 to 45 days. Once drilling is completed, the drillers would abandon the hole. Drilling activities would be completed within 6 months to 1 year of the authorization of this notice. The anticipated authorization date is on or before January 1, 2020.

No hazardous substances would be used in the drilling program. Fuel and lubricants would be stored offsite and drilling mud would be stored onsite. During drilling operations, the drill rig would be parked on top of plastic sheeting overlain by absorbent materials. Refuse containers designated for the disposal of the absorbent materials would be located on-site. At the end of the drilling program, this material would be disposed offsite in accordance with applicable laws and regulations.

2.8. WATER USE

Water would be needed during the drilling process, and the drill hole may discharge water during the drilling process. Water for drilling would be provided by the drilling company via a water truck.

Water would come into contact with bentonite drilling mud and ground rock at depth. It would be treated after it is pumped back out of the hole by evaporation and by allowing solids to settle out in excavated mud pits or sumps at the drill site. As an alternative to the use of sumps, aboveground tanks may be used to store and remove drilling muds. Drilling muds would be removed from the site and disposed of upon completion of the drilling operations. There would be no discharges to surface tributaries, and no pollutants would be discharged in accordance with Clean Water Act requirements. Activities would be in compliance with applicable state and federal laws and would meet New Mexico surface water quality standards.

2.9. CULTURAL AND BIOLOGICAL RESOURCES

A cultural resources survey was conducted within the planned project area in June 2019, the results of which are provided in the Class III Cultural Resources Survey Report (submitted under separate

cover). The archaeological survey area defined for this project is larger than the project area footprint. A 250- by 250-foot area (approximately 76 by 76 meters) was surveyed at each drill site location. A 20-meter-wide corridor, 10 meters on either side of the centerline, was surveyed along the planned new access road and road improvements. Project activities would avoid known archaeological sites and/or archaeological features.

A Biological Evaluation was conducted within the planned project area (submitted under separate cover). Analyses detailed in the Biological Evaluation determined there are two species listed under the Endangered Species Act have any potential to occur within the project area, and seven species listed as sensitive by the BLM have some potential to occur within the project area. Project activities are not anticipated to affect these species, as is detailed in the Biological Evaluation.

3. RECLAMATION PLAN

Following the completion of all drilling, solids and desiccated drilling muds in the mud pits would be excavated (if sumps are used) and removed from the site. Alternatively, aboveground tanks would be used to store and dispose of drilling muds. The inert drilling mud materials would be disposed of in accordance with applicable state and federal regulations. The drill site, the mud pits, and the outer berm would then be returned to natural grade with a track hoe using rocks and soil set aside during site construction and mud pit excavation. The site would be mulched and reseeded in accordance with BLM standards.

Water bars and erosion-control features would be repaired and constructed as necessary. Waterlines, pumps, and any other items will be removed from BLM lands.

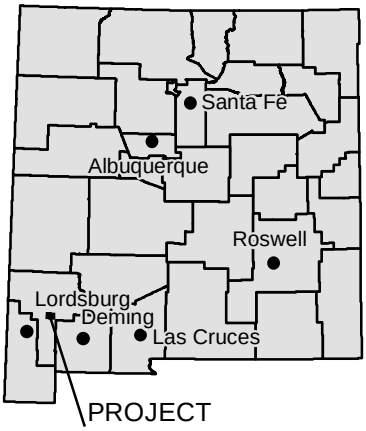
Drilling and drill hole abandonment would be conducted in accordance with New Mexico State Engineer Office's requirements for plugging and abandoning drill holes (per 19.27.4 NMAC).

4. RECLAMATION BONDING

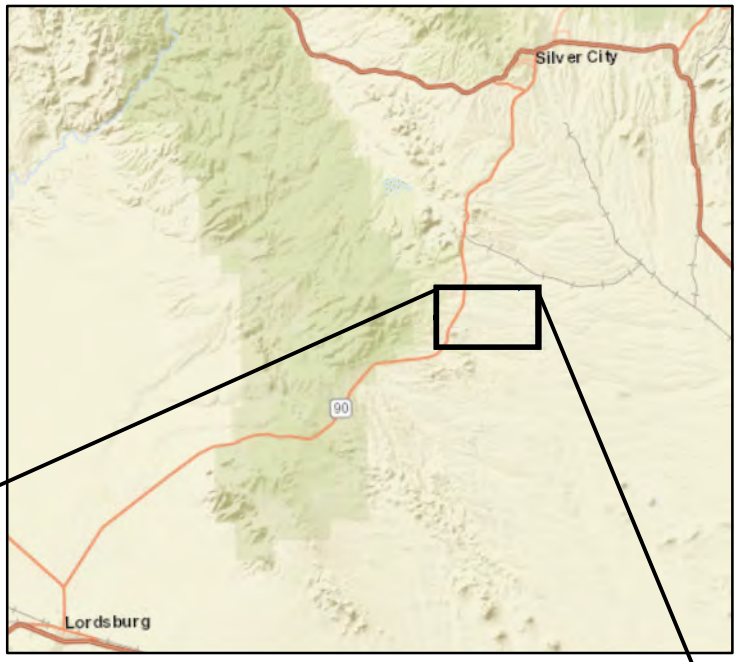
Per the existing agreement between the BLM and State of New Mexico, financial assurances are managed by the State of New Mexico Energy, Minerals and Natural Resources Department (EMNRD) under the New Mexico Mining Act of 1993 (19.10.3§302.I.2 and 5). Reclamation cost estimates and bonding will be submitted to EMNRD with the Minimal Impact Exploration Permit Application. A copy of the EMNRD submittal is provided in **Appendix B**.

FIGURES

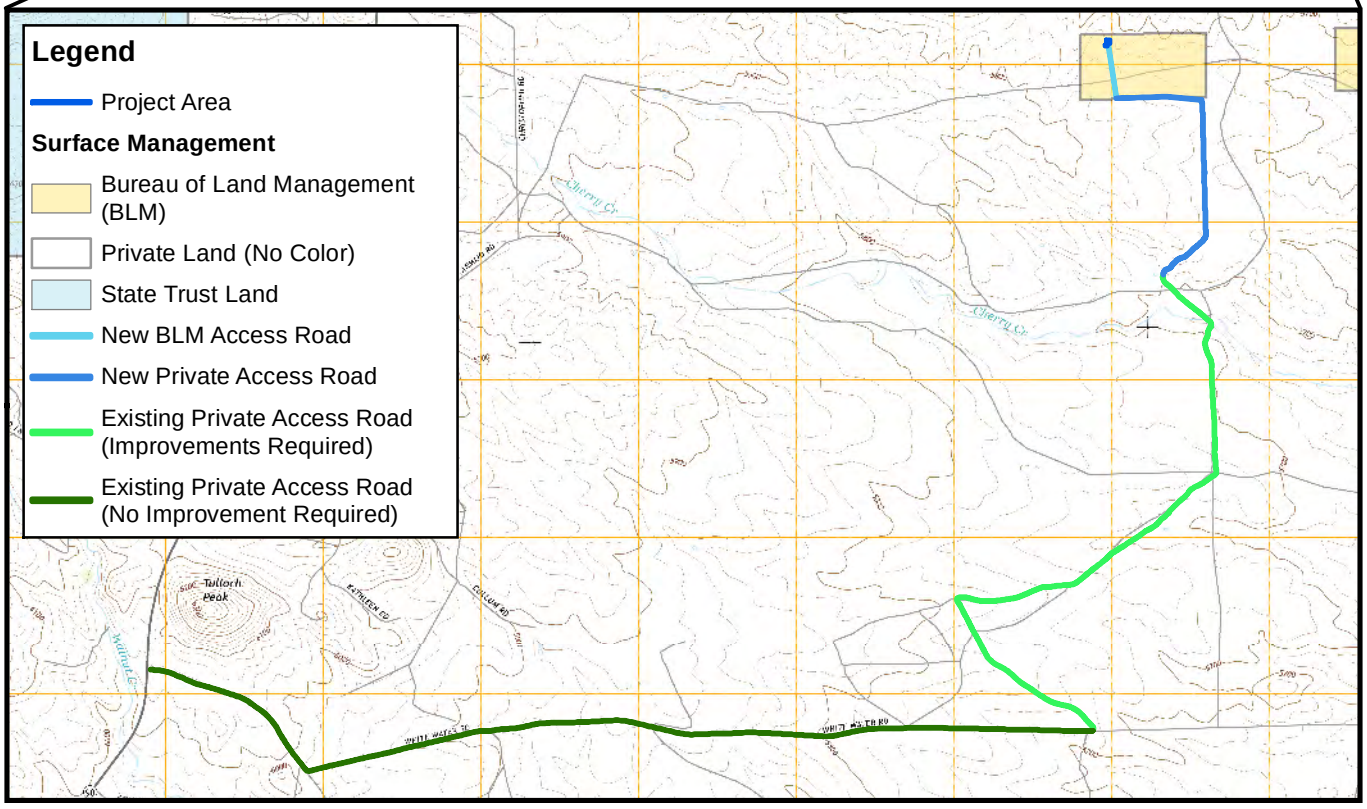
NEW MEXICO



PROJECT VICINITY



Approximate Scale 1 Inch = 10 Miles



T20S, R14W, Portions of Sections 4, 9, 10, 15-18 and 21,
T20S, R15W, Portions of Sections 13, 14 and 24,
Grant County, New Mexico
White Signal USGS 7.5' Quadrangle
Data Source: BHP
Surface Management: BLM 2014
Image Source: ArcGIS Online, World Street Map

BHP MINERAL RESOURCES INC.

BLM Notice for Oak Grove Exploration Drilling
Grant County, New Mexico

VICINITY MAP

Figure 1

WestLand Resources

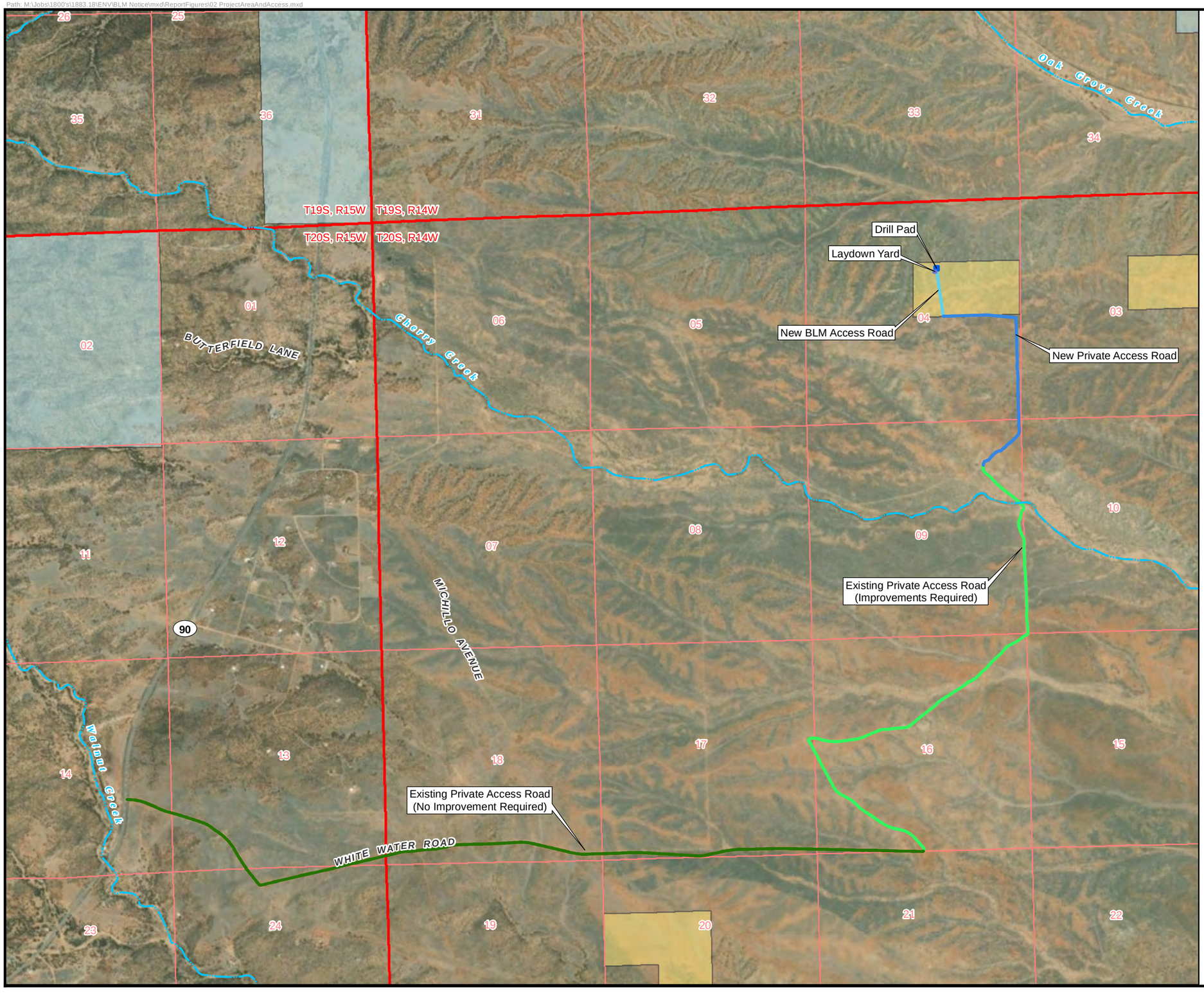
N

0 2,000 4,000 Feet

0 600 1,200 Meters

Path: M:\Jobs\1800's\1883.18\ENV\BLM Notice\mxd\ReportFigures\02 ProjectAreaAndAccess.mxd

Date: 10/29/2019 User: evinson



T20S, R14W, Portions of Sections 4, 9, 10, 15-18 and 21,
T20S, R15W, Portions of Sections 13, 14 and 24,
Grant County, New Mexico
Data Source: BHP, National Hydrography Dataset
Image Source: ArcGIS Online, World Imagery 04/27/2018

Legend

- Drill Pad
- Laydown Yard
- New BLM Access Road
- New Private Access Road
- Existing Private Access Road (Improvements Required)
- Existing Private Access Road (No Improvement Required)

Surface Management

- Bureau of Land Management (BLM)
- Private Land (No Color)
- State Trust Land

N

0 1,250 2,500 Feet

0 400 800 Meters

WestLand Resources

BHP MINERAL RESOURCES INC.

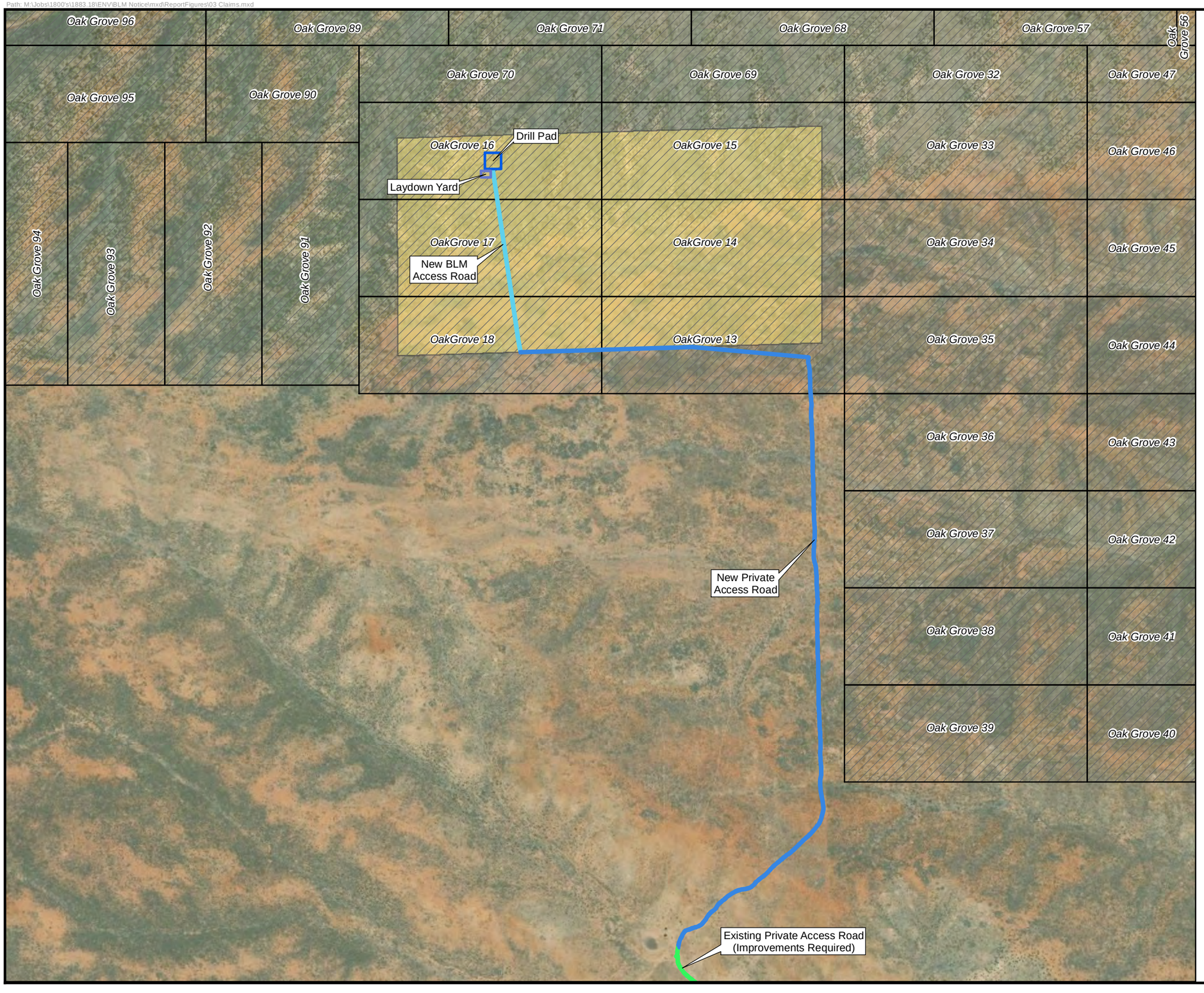
BLM Notice for Oak Grove Exploration Drilling
Grant County, New Mexico

PROJECT AREA AND ACCESS

Figure 2

Path: M:\Jobs\1800's\1883.18\ENV\BLM Notice\mxd\ReportFigures\03 Claims.mxd

Date: 10/29/2019 User: evinson



T20S, R14W, Portions of Sections 4, 9, 10, 15-18 and 21,
T20S, R15W, Portions of Sections 13, 14 and 24,
Grant County, New Mexico
Data Source: BHP,
Surface Management: BLM 2014
Image Source: ArcGIS Online, World Imagery 04/27/2018

Legend

- Drill Pad
- Laydown Yard
- New BLM Access Road
- New Private Access Road
- Existing Private Access Road (Improvements Required)
- Claim Boundary

Surface Management

- Bureau of Land Management (BLM)
- Private Land (No Color)

N

0 300 600 Feet

0 100 200 Meters

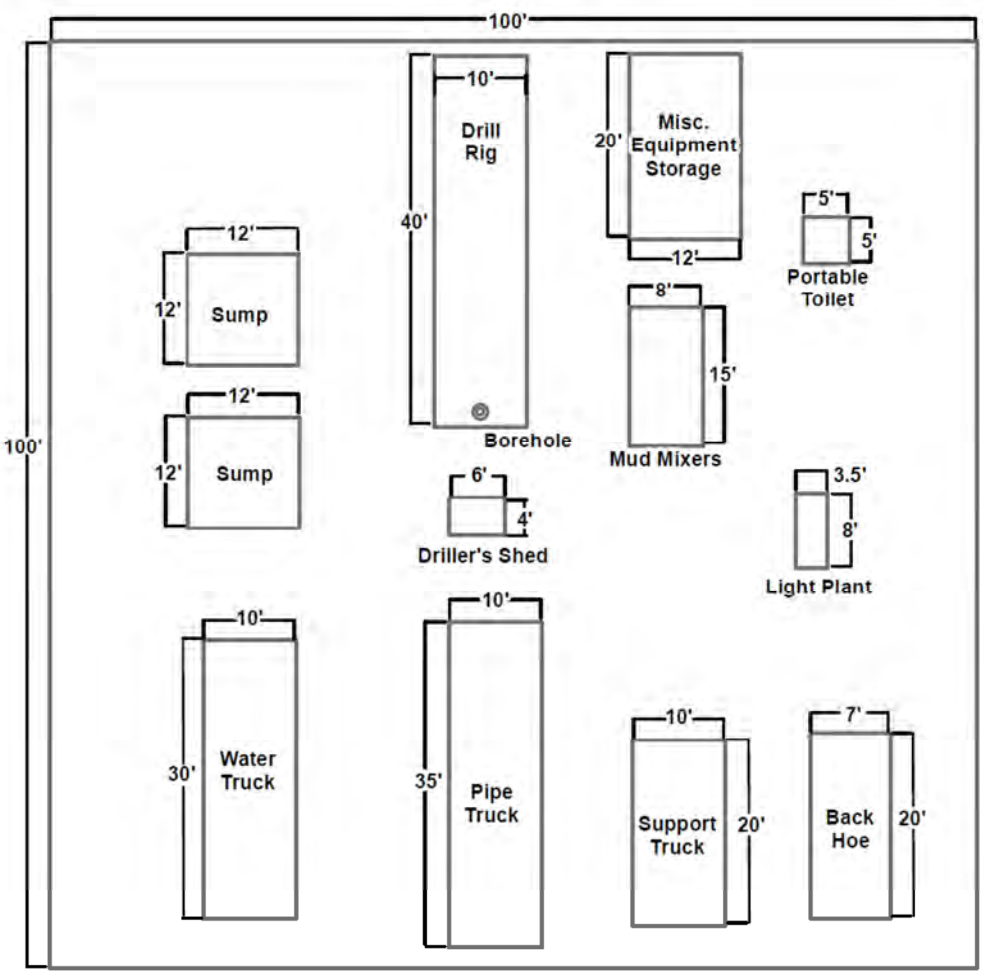
WestLand Resources

BHP MINERAL RESOURCES INC.

BLM Notice for Oak Grove Exploration Drilling
Grant County, New Mexico

CLAIMS

Figure 3

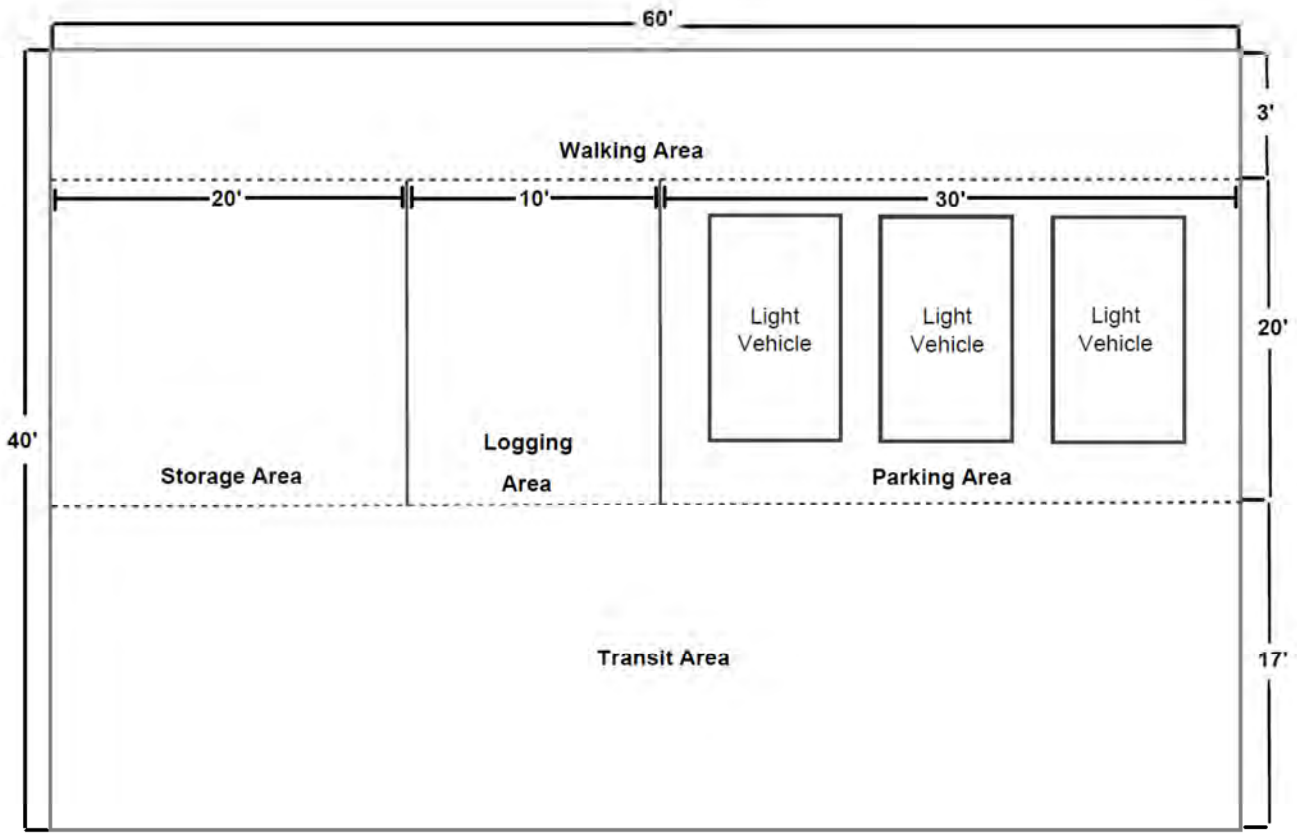


Note: Layout will vary depending on site conditions

BHP MINERAL RESOURCES INC.
BLM Notice for Oak Grove Exploration Drilling
Grant County, New Mexico

CONCEPTUAL DRILL SITE LAYOUT
Figure 4

WestLand Resources



Note: Layout will vary depending on site conditions

BHP MINERAL RESOURCES INC.
BLM Notice for Oak Grove Exploration Drilling
Grant County, New Mexico

CONCEPTUAL LAYDOWN YARD LAYOUT
Figure 5

WestLand Resources

APPENDIX A

Roadway Access Agreement

ROADWAY ACCESS AGREEMENT

BY THIS ROADWAY ACCESS AGREEMENT (the "Agreement"), entered into effective April 4, 2019, by and between:

Gerald W. Billings Jr. and Rhonda J. Billings, husband and wife ("Owners"), whose address is P O Box 695, Tyrone, NM 88065 (the "Grantor" herein),

and

BHP Mineral Resources Inc, a corporation, whose address is 180 W Magee Rd Suite 134, Tucson, Arizona 85737 ("Grantee" herein),

Grantor has granted certain rights to Grantee under the terms and conditions set forth herein:

1. Purpose.

The purpose of this Agreement is to provide Grantee, its agents, employees and subcontractors with access over a "Roadway" owned and controlled by Grantor further described in Exhibit A and B attached hereto and incorporated herein by this reference (the "Roadway" herein). All or parts of the Roadway may have to be constructed by the Grantee and shall be deemed the primary access on Grantors land.

2. Grant.

Grantor hereby grants to Grantee, its agents, employees and subcontractors the right to use the Roadway. The parties expressly acknowledge that this Agreement does not, and specifically excludes, Grantee's use of any water rights owned, leased or possessed by Grantor.

3. Term of Agreement.

This Agreement shall be for a primary term of five (5) years from the date hereof. Any extension options will be negotiated through a separate agreement.

4. Compensation to Grantor.

As consideration for the use of the Roadway, Grantee shall pay Grantor, the sum of ($50,000.00) FIFTY THOUSAND AND 00/100 DOLLARS. Payment shall be made to Grantor within sixty (60) days after the execution of this Agreement and before the commencement of Roadway construction.

5. Obligations of Grantee.

Grantee shall conduct all of its activities on the Roadway exclusively in accordance with the restrictions of the grant of Section 2 hereof and all applicable law, and consistent with good industry practices as reflected by the practices normally required for lands managed by the United States Bureau of Land Management and State Trust Lands of New Mexico. Grantee operations shall include the following specific obligations:

(1) Grantee shall lock all gates and control, to the specifications of Grantor, the number of keys and locks that are provided to personnel.

(2) Grantee to the best of their ability shall keep the Roadway clear so as not to interfere with Grantor's operations.

(3) Grantee's motorized vehicle(s) shall stay on the existing Roadway except to enter U.S. Bureau of Land Management lands that have been properly acquired or permitted.

(4) If deemed necessary by Grantee, Grantee may widen the existing roadway up to Fourteen (14) feet at Grantee's expense. Road construction standards will be agreed upon between the parties, while limiting disturbance to a reasonable minimum.

(5) Grantee shall construct a suitable metal gate where the road exits Grantor's Northern boundary. Grantor shall take ownership of said gate after the termination of this agreement and from that time forward shall maintain the gate.

(6) Grantee shall not allow trash or debris from its operations to accumulate on the Roadway or surrounding property and shall in any case, remove any trash and debris from its operations within thirty (30) days of Grantor's written request. If Grantee does not timely comply with Grantor's request, Grantor shall have the option of removing the trash and debris at Grantee's cost.

6. Obligation of Grantor

Grantor shall not interfere with the use of the Roadway by Grantee. Grantor shall not erect, construct, nor permit the erection or construction of any houses, structures, lakes, ponds, dams or other obstructions on, over, across or within said Roadway that will interfere with any of the rights granted herein. If Grantor unreasonably interferes with the enjoyment of the rights and easements herein granted, Grantee shall have the right to immediately remove the violation at Grantor's sole expense.

7. Liability.

Each of Grantor and Grantee agree to defend, indemnify and hold each other, and each other's employees, agents, contractors, invitees and licensees, harmless from and against any claims, losses, damages and liabilities (including, but not limited to, reasonable attorney's fees and court costs, but excluding consequential damages) on account of any claim by a third party for bodily injury or property damage resulting from its or its employees, agents, contractors, invitees and licensees negligent act or omission, or willful misconduct arising from or related to this Agreement.

8. Default.

If Grantee fails to perform any of its obligations hereunder Grantor shall give Grantee written notice of such failure and specify the nature of the asserted default. If the default is not cured within thirty (30) days of receipt of the notice or during such time Grantee does not initiate appropriate action to cure such default and thereafter diligently proceed to cure, this Agreement shall automatically terminate.

9. Notices.

All notices provided for herein shall be properly given if sent by certified mail to the addresses of the parties hereto as specified in the recitations of the parties.

10. Assignment.

Grantee shall not assign its rights under this Agreement without the consent of Grantor.

11. Interpretation and Disputes.

a. This Agreement shall be interpreted by the internal laws of the State of New Mexico without reference to choice of law rules.

b. If either party seeks to enforce any of the provisions of this Agreement in a court of law, the prevailing party shall be entitled to its attorneys' fees and costs.

12. Counterparts.

This Agreement may be signed in counterparts, signed effective the date set forth above.

GRANTOR

Rhonda J. Billings

Rhonda J. Billings

Gerald W. Billings Jr.

Gerald W. Billings Jr.

ACKNOWLEDGMENT

STATE OF NEW MEXICO §

COUNTY OF UNITED STATES OF AMERICA § Grant

This instrument was acknowledged before me on the 4 day of April, 2019, by Rhonda J + Gerald Billings, to me known to be the person described in and who executed the foregoing instrument, and acknowledged that he/she executed the same as his/her free act and deed.

Mary J. Davis

Notary Public

OFFICIAL SEAL
Mary [illegible]
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: May 10, 2019

GRANTEE

Dave Bertuch
Head of Exploration
BHP

ACKNOWLEDGMENT

STATE OF ARIZONA §

COUNTY OF ~~UNITED STATES OF AMERICA~~ PIMA §

This instrument was acknowledged before me on the 9th day of April, 2019, by David Bertuch, to me known to be the person described in and who executed the foregoing instrument, and acknowledged that he/she executed the same as his/her free act and deed.

Notary Public

KRISTI CATON
Notary Public, State of Arizona
Pima County
My Commission Expires
May 22, 2019

EXHIBIT "A"
The "Roadway" Defined

The "Roadway" consists of that existing roadway starting from Whitewater Road going northerly to a point established on the map attached as defined by the Grantor, at which point the Grantee shall construct an additional roadway in a general Northerly direction, to standards agreed upon between the parties, while limiting disturbance to a reasonable minimum.

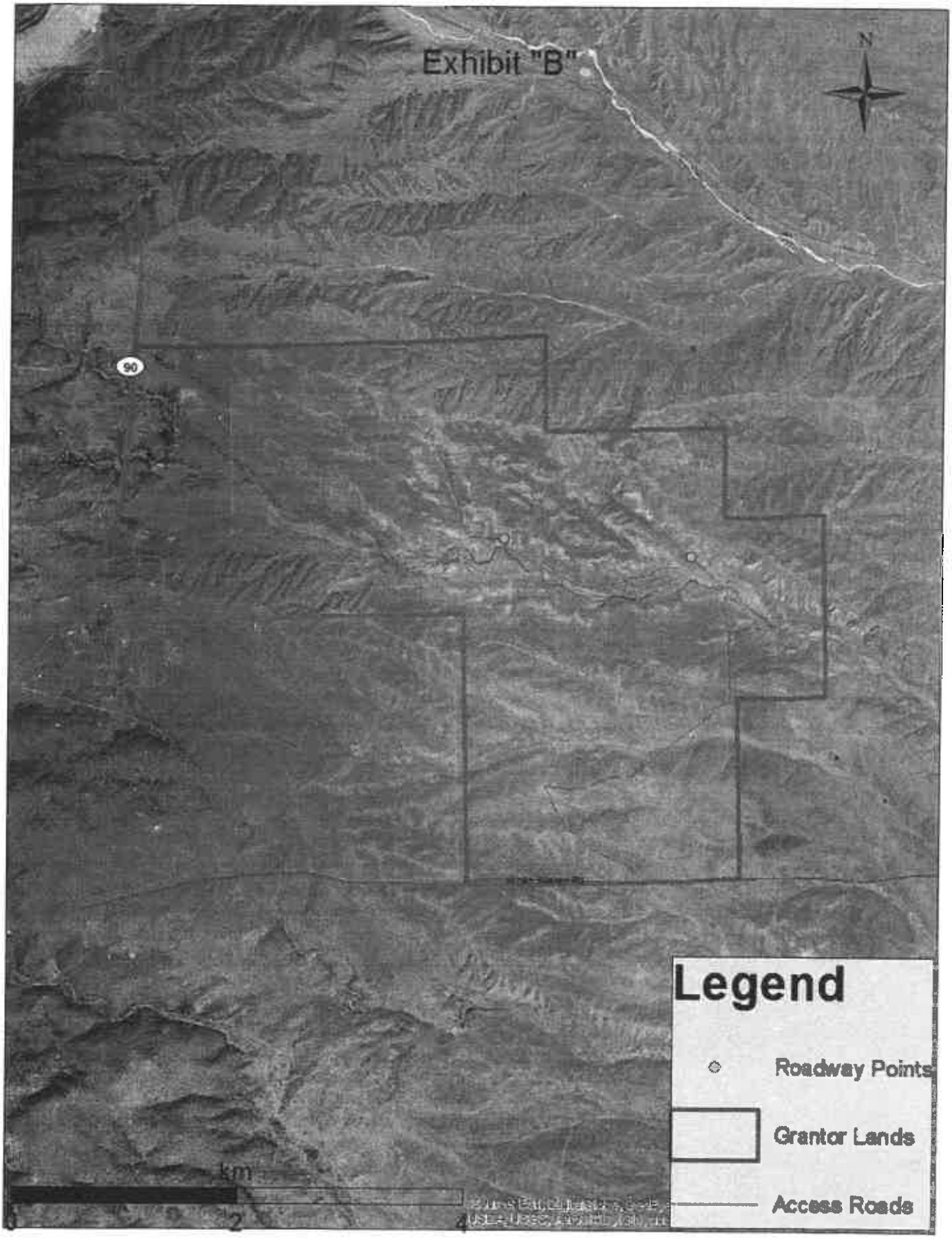


Exhibit "B"
N
90
Legend
Roadway Points
Grantor Lands
Access Roads
km
2
4

Attachment 2

When recorded return to:
Attn: David Bertuch
BHP Mineral Resources Inc.
P.O. Box M
San Manuel, AZ 85631

NMMC 201597

LOCATION NOTICE FOR LODE MINING CLAIM

BLM, NMSO
SANTA FE
RECEIVED
JUL 12 2019
PAID
RECEIPT #_____

NOTICE IS HEREBY GIVEN that the OAK GROVE 16 lode mining claim has been located by BHP Mineral Resources Inc. whose current mailing address is P.O. Box M San Manuel, AZ 85631.

The general course of this claim is east/west and it is situated in Grant County, New Mexico. This claim is 1500 feet in length and 600 feet in width. This claim runs from the location monument on which this location notice is posted approximately 10 feet in a easterly direction to the east end line and 1490 feet in a westerly direction to the west end line. This claim is marked by six monuments, one at each corner and one at the center of each end line of the claim.

The location monument on which this notice is posted is situated within Section 4, Township 20 South, Range 14 West, New Mexico Base and Meridian, New Mexico and this claim encompasses portions of the following quarter section (s), section (s), Township (s) and Range (s) SW 1/4 and NW 1/4 of the NE 1/4, and NE 1/4 and SE 1/4 of the NW 1/4 of Section 4, Township 20 South, Range 14 West, New Mexico Base and Meridian, Grant County, New Mexico, White Signal Mining District.

The locality of this claim with reference to some natural object or permanent monument and additional information (if any) concerning its locality are as follows: 4252 feet north and 3894 feet east of the southeast corner of Section 5, Township 20 South, Range 14 West, to the northeast corner of the claim.

DATED AND POSTED on the ground this 22nd day of April, 2019.

LOCATOR (s) BHP Mineral Resources Inc. AGENT: T. Robert Breen /
P.O. Box M
San Manuel, AZ 85631

201903167 B: 281 P: 3167 Pgs: 2 Mining
This instrument was recorded on 07/24/2019 02:38:50 PM
Marisa Castrillo, County Clerk, Grant County NM
Deputy - rzamarripa

When recorded return to:
Attn: David Bertuch
BHP Mineral Resources Inc.
P.O. Box M
San Manuel, AZ 85631

NMMC 201598

LOCATION NOTICE FOR LODE MINING CLAIM

BLM, NMSO
SANTA FE
RECEIVED
JUL 12 2019
PAID
RECEIPT #

NOTICE IS HEREBY GIVEN that the OAK GROVE 17 lode mining claim has been located by BHP Mineral Resources Inc. whose current mailing address is P.O. Box M San Manuel, AZ 85631.

The general course of this claim is east/west and it is situated in Grant County, New Mexico. This claim is 1500 feet in length and 600 feet in width. This claim runs from the location monument on which this location notice is posted approximately 10 feet in a easterly direction to the east end line and 1490 feet in a westerly direction to the west end line. This claim is marked by six monuments, one at each corner and one at the center of each end line of the claim.

The location monument on which this notice is posted is situated within Section 4, Township 20 South, Range 14 West, New Mexico Base and Meridian, New Mexico and this claim encompasses portions of the following quarter section (s), section (s), Township (s) and Range (s) SW 1/4 of the NE 1/4 and SE 1/4 of the NW 1/4 of Section 4, Township 20 South, Range 14 West, New Mexico Base and Meridian, Grant County, New Mexico, White Signal Mining District.

The locality of this claim with reference to some natural object or permanent monument and additional information (if any) concerning its locality are as follows: 3652 feet north and 3894 feet east of the southeast corner of Section 5, Township 20 South, Range 14 West, to the northeast corner of the claim.

DATED AND POSTED on the ground this 22nd day of April, 2019

LOCATOR (s) BHP Mineral Resources Inc. AGENT: T. Robert Breen /
P.O. Box M
San Manuel, AZ 85631

201903168 B: 281 P: 3188 Pgs: 2 Mining
This instrument was recorded on 07/24/2019 02:38:50 PM
Marisa Castrillo, County Clerk, Grant County NM
Deputy - rzamarripa

When recorded return to:
Attn: David Bertuch
BHP Mineral Resources Inc.
P.O. Box M
San Manuel, AZ 85631

NMMC 201599

LOCATION NOTICE FOR LODE MINING CLAIM

BLM, NMSO
SANTA FE
RECEIVED
JUL 12 2019
PAID
RECEIPT #

NOTICE IS HEREBY GIVEN that the OAK GROVE 18 lode mining claim has been located by BHP Mineral Resources Inc. whose current mailing address is P.O. Box M San Manuel, AZ 85631

The general course of this claim is east/west and it is situated in Grant County, New Mexico. This claim is 1500 feet in length and 600 feet in width. This claim runs from the location monument on which this location notice is posted approximately 10 feet in a easterly direction to the east end line and 1490 feet in a westerly direction to the west end line. This claim is marked by six monuments, one at each corner and one at the center of each end line of the claim.

The location monument on which this notice is posted is situated within Section 4, Township 20 South, Range 14 West, New Mexico Base and Meridian, New Mexico and this claim encompasses portions of the following quarter section (s), section (s), Township (s) and Range (s) NW 1/4 of the SE 1/4, SW 1/4 of the NE 1/4, SE 1/4 of the NW 1/4 and NE 1/4 of the SW 1/4 of Section 4, Township 20 South, Range 14 West, New Mexico Base and Meridian, Grant County, New Mexico, White Signal Mining District.

The locality of this claim with reference to some natural object or permanent monument and additional information (if any) concerning its locality are as follows: 3052 feet north and 3894 feet east of the southeast corner of Section 5, Township 20 South, Range 14 West, to the northeast corner of the claim.

DATED AND POSTED on the ground this 22nd day of April 2019

LOCATOR (s) BHP Mineral Resources Inc. AGENT: T. Robert Breen
P.O. Box M
San Manuel, AZ 85631

201903169 B: 281 P: 3182 Pgs: 2 Mining
This instrument was recorded on 07/24/2019 02:38:50 PM
Marisa Castrillo, County Clerk, Grant County NM
Deputy - rzamarripa

Attachment 3 has been removed for confidential purposes.

Attachment 4

BIOLOGICAL EVALUATION FOR OAK GROVE EXPLORATION DRILLING
BLM NOTICE

BHP Mineral Resources Inc.

Prepared for:

BLM Las Cruces District
1800 Marquess St, Las Cruces, New Mexico 88005

Prepared on behalf of:

BHP Mineral Resources Inc.
180 Magee Road, Ste 134, Tucson, Arizona 85704

Project Number: 1883.18

October 29, 2019

WestLand Resources

WestLand Resources, Inc. • 4001 E. Paradise Falls Drive • Tucson, Arizona 85712 • 520•206•9585

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FIGURES

(follow text)

APPENDICES

1. INTRODUCTION

BHP Mineral Resources Inc. (BHP) is proposing exploration drilling at one drill site, and the construction of new access road and a lay down yard (the Project) on approximately 0.6 acres of lands administered by the Bureau of Land Management (BLM; the Project Area; **Figure 1**). WestLand Resources, Inc. (WestLand), was retained by BHP to conduct a Biological Evaluation (BE) to document: 1) the potential for special-status species to occur within the Project Area and 2) the potential effects of the Project on biological resources.

In this BE, special-status species are defined as species designated by the U.S. Fish and Wildlife Service (USFWS) as Endangered, Threatened, Proposed for listing or Candidate for listing under the Endangered Species Act (ESA) of 1973 and their critical habitat (**Appendix A**), those species designated as sensitive by the BLM Las Cruces District (**Appendix B**), and species protected under the Bald and Golden Eagle Protection Act.

The sections that follow provide a description of the Project (**Section 2**), identify and describe the current conditions of the Project Area (**Section 3**), and describe the methods used to analyze the potential for special-status species to occur within the Project Area and the potential effects of the Project on special-status species (**Section 4**). Literature cited in the analysis is provided in **Section 5**.

2. PROJECT DESCRIPTION

The Project Area is located in Grant County, southeast of Tyrone, New Mexico within portions of Sections 4 of Township 20 South North, Range 14 West of the Gila and Salt River Baseline and Meridian (**Figure 1**). The Project Area occupies approximately 0.6 acres of BLM-administered land (**Figure 2**) and would occur on lands previously disturbed by grazing, mine exploration and off-road use, and an existing access road.

2.1. ACCESS AND SURFACE DISTURBANCE

BHP proposes exploration drilling at one site which would include the construction of a drill pad on BLM lands, use of an existing access road on privately owned lands, improvements along portions of the existing access road on privately owned lands, and construction of a new access road on BLM lands (**Figure 2**). Existing access roads would be used to the extent possible. Within BLM land, portions of approximately 0.20 miles of temporary new road would be required to access the drill pad from the existing road from privately owned lands. The width of temporary new road construction would be up to 12 feet (ft) to support drilling equipment, resulting in up to 0.3 acres of disturbance on BLM land. Permission to access along private roads has been granted from the appropriate land owners.

The drill pad would be approximately 100 by 100 ft in area and would be cleared to hold the drilling collar and sumps for drilling mud (waste water and fluid), along with all drilling equipment and

personnel during construction. An approximately 40- by 60-ft laydown yard would be constructed adjacent to the drill pad. Disturbance from the drill pad and laydown yard would total up to 0.3 acres of disturbance.

The total surface disturbance for the proposed activities would not exceed 0.6 acres on BLM lands (**Table 1**).

Table 1. Estimated Disturbance Area on BLM Land

Activity Area	Land Management	Location	Claims (Figure 3)	Description of Activity within BLM Lands	Estimated Acres of Impact
Drill Pad	BLM	T20S, R14W, portions of Sec. 4	Oak Grove 16	Exploration drilling to be conducted within a 100-by-100-ft drill site	0.2
Laydown Yard	BLM			Laydown yard located adjacent to drill pad; approximately 40 by 60 ft	0.1
Temporary New Access Road	BLM		Oak Grove 16, 17, 18	Road clearing and grading across approximately 2,100 ft; estimated 12-ft width of disturbance	0.3
				Total Estimated Disturbance	**0.6**

2.2. DRILLING OPERATIONS

The anticipated depth for the boring is approximately 5,000 ft. The borings would be advanced using the open-hole technique (i.e., reverse circulation or diamond drilling). New Mexico regulations require the construction of a small concrete pad around the monitoring well surface casing. The concrete pad would be approximately 3 by 3 ft.

Drilling would be accomplished with a track-mounted rig. If water is encountered while drilling, it would be funneled into sumps and may need to be pumped and hauled away in order to keep the sumps from overflowing. As an alternative to the use of sumps, aboveground tanks may be used to store and remove drilling muds.

A small driller's shed consisting of a temporary structure approximately 4 by 6 ft would be used by drillers for shelter onsite. No hazardous substances would be used in the drilling program. Fuel and lubricants would be stored offsite and drilling mud would be stored onsite. During drilling operations, the drill rig would be parked on top of plastic sheeting overlain by absorbent materials. Refuse containers designated for disposal of the absorbent materials would be located on site. At the end of the drilling program this material would be disposed offsite in accordance with applicable laws and regulations.

The drill rig would operate on a 24-hour-per-day schedule (12 hours per shift) for 30 to 45 days. Once drilling is completed, the drillers would abandon the hole per New Mexico regulations.

2.3. RECLAMATION

Following the completion of all drilling, solids and desiccated drilling muds in the mud pits would be excavated (if sumps are used) and removed from the site. Alternatively, aboveground tanks would be used to store and dispose of drilling muds. The inert drilling mud materials would be disposed of in accordance with applicable state and federal regulations. The drill site, mud pits, and outer berm would then be returned to natural grade with a track hoe using rocks and soil set aside during site construction and mud pit excavation. The site would be mulched and reseeded in accordance with BLM standards.

Water bars and erosion-control features would be repaired and constructed as necessary. Waterlines, pumps, and any other items will be removed from BLM lands.

3. PROJECT AREA DESCRIPTION

3.1. LAND USE

Land uses within the Project Area include an unimproved road (White Water Road), dispersed public recreation, off-road vehicle use, ranching, and mining. The Project Area falls within BLM grazing allotment 7XV Ranch Lease NM04598 (BLM 2019)[1].

3.2. PHYSIOGRAPHY AND TOPOGRAPHY

The Project Area is surrounded by hills and rocky and rugged terrain. Previous uses have included mining activities and livestock grazing. Cattle grazing is the primary source of land disturbance within the immediate vicinity of the Project Area. The access road associated with the proposed drilling pad site and general land-clearing activities have impacted some portions as well.

Elevation within the Project Area ranges from approximately 5,730 to 5,929 ft above mean sea level (amsl). Surficial geology within the Project Area consists entirely of the Gila Group formation and Piedmont alluvial deposits. The Gila Group formation consists of basin-filling sedimentary rocks which include volcaniclastic conglomerate, sandstone, siltstone, as well as interlayered basaltic to dacitic lava flows and associated intrusions. The Piedmont alluvial deposits are of the Holocene Geologic Age to lower Pleistocene and includes deposits of higher gradient tributaries bordering major stream valleys, alluvial veneers of the piedmont slope, and alluvial fans (**Figure 3**).

[1] ArcGIS Online accessed October 10, 2019.

The landscape is dominated by rolling terrain of the foothills of surrounding mountains; associated landforms include intervening drainage systems.

3.3. VEGETATION

Based on the broad scale biotic community mapping of Brown and Lowe (1980), the majority of the Project Area occurs within the Semidesert Grassland biotic communities (**Figure 4**). Although small patches of denser vegetation cover occur along ephemeral drainages within the Project Area, vegetation cover is generally open.

The majority of the Project Area is characterized by open grassland with scattered yucca. Field observations aligned with the Brown and Lowe (1980) mapping, with elements of Semidesert Grassland detected throughout the Project Area. Dominant plant species observed include thornscrub species, such as velvet mesquite (*Prosopis velutina*), catclaw acacia (*Senegalia greggii*), and catclaw mimosa (*Mimosa aculeaticarpa*), intermixed with yucca (*Yucca elata*), beargrass (*Nolina microcarpa*), turpentine bush (*Ericameria laricifolia*), cholla (*Cylindropuntia* spp.), and several species of grama (*Bouteloua* spp.). Desert willow (*Chilopsis linearis*) was observed along portions of the Cherry Creek drainage.

Representative photographs of the Project Area are provided in **Appendix C**.

3.4. AQUATIC RESOURCES

There are no natural or artificial surface waters within the Project Area. Several cattle tanks occur adjacent to the Project Area. No special status species were observed within these cattle tanks during survey and the tanks would not be impacted by Project activities.

4. SCREENING ANALYSIS

4.1. SPECIAL-STATUS SPECIES IDENTIFICATION

Special-status species for the purpose of this report include:

1) Species listed by the USFWS under the ESA that have been identified by the USFWS New Mexico Ecological Service Field Office as having potential to occur within the Project Area through the Information, Planning, and Conservation System (IPaC)[2] (**Appendix A**),
2) species considered sensitive by the BLM Las Cruces District that are not listed under the ESA (**Appendix B**), and
3) species protected by the Bald and Golden Eagle Protection Act.

[2] The IPaC list identifies special-status species and designated and proposed critical habitat that *may* occur within one or more delineated U.S. Geological Survey 7.5-minute quadrangles that the Project Area intersects (**Appendix A**).

4.2. SPECIAL-STATUS SPECIES SCREENING

Based on the results of the special-status species identification, a screening analysis to evaluate the special status species and proposed or designated critical habitats that have some potential to occur within the Project Area or vicinity (**Appendix A**). Determinations of the potential for special-status species or critical habitat to occur in the Project Area were based on:

- Review of the natural history and known geographical and elevational ranges of special-status species;
- Review of other occurrence records in published or grey literature;[3]
- The USFWS Critical Habitat Portal online mapping tool (USFWS 2019a)[4]; and
- Comparisons of this information with field survey observations and habitat assessments of the Project Area.

Field reconnaissance was conducted by WestLand biologists on May 18, 2019. The surveyors identified major biotic communities and associated vegetation and took representative photographs of the Project Area. These field efforts were used to provide supplemental information relevant to the special status screening analysis and identification of natural resources present in the area.

The criteria used to determine the potential of occurrence of each species included in this screening analysis are defined as follows:

> **Present**: The species has been observed to occur in the Project Area based on known records, the Project Area is within the known range of the species, and habitat characteristics required by the species are known to be present.
>
> **Possible**: The species has not been observed in the Project Area based on known records, but the known, current distribution of the species includes the Project Area and the required habitat characteristics of the species appear to be present in the Project Area.
>
> **Unlikely**: The known, current distribution of the species does not include the Project Area, but the distribution of the species is close enough such that the Project Area may be within the dispersal or foraging distance of the species. The habitat characteristics required by the species may be present in the Project Area.

[3] Grey literature includes documents that are not controlled by commercial publishers such as technical reports produced by government agencies, academic institutions, scientific research groups, or private industry (e.g., AGFD unpublished species abstracts and maps).

[4] Critical Habitat Portal accessed October 10, 2019.

None: The Project Area is outside of the known distribution of the species, and/or the habitat characteristics required by the species are not present.

4.3. SPECIAL STATUS SPECIES EFFECTS ANALYSIS METHODS

An effects analysis for the direct and indirect impacts to special-status species from project activities was conducted at the project location provided in **Section 2**. Impacts to species were assessed based on the appropriate regulatory and statutory designation (ESA, BLM sensitive species, and the Bald and Golden Eagle Protection Act [BGEPA]) under which the species is covered. The purpose of the effects analysis is to determine if take is likely to occur with implementation of the Project.

Effects to species listed under the ESA were analyzed per the Region 3 guidance for ESA consultation which includes four potential effects determinations:

- **No effect**
- **May affect, not likely to adversely affect**
- **May affect, likely to adversely affect**
- **May affect, beneficial affect**

Effects to BLM sensitive species were analyzed per the following four potential effects determinations:

- **No effect**
- **Beneficial effect**
- **May impact individuals but is not likely to result in a trend toward listing or loss of viability**
- **May effect, and is likely to cause a trend to listing or loss of viability**

The BGEPA prohibits unpermitted activities to "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or in any manner any bald eagle commonly known as the American eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof of the foregoing eagles…". Under the BGEPA, "take" is defined as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 U.S.C. § 668c). Disturb is further defined as "…to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." Permits may be granted for eagle takes that are "associated with, but not the purpose of, the activity; and cannot practicably be avoided" (50 C.F.R. § 22.26).

Effects to BGEPA-listed species were analyzed to determine whether take, as defined above, would occur due to Project activities. The three potential effects determinations include:

- **No effect**
- **No potential to result in take**
- **Potential to result in take**

4.4. SCREENING ANALYSIS RESULTS

4.4.1. Screening Analysis Results for ESA Listed Species

Results from the IPaC query (**Appendix A**) yielded 17 ESA-listed species with some potential to occur in the Project Area or its vicinity. There is no designated or proposed critical habitat within the Project Area (USFWS 2019a). Based on WestLand's field reconnaissance and screening analysis, the two species of the 17 special-status ESA species with some potential to occur within the Project Area include:

- Northern aplomado falcon (*Falco femoralis septentrionalis*) – Unlikely, No Effect
- Mexican wolf (*Canis lupus baileyi*) – Possible, No Effect

The basis of determination of each species' potential to occur within the Project Area and potential effects from Project activities is provided in **Table 2**.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
A M P H I B I A N S			
Chiricahua leopard frog (*Rana chiricahuensis*) Threatened	**Range:** At the time of listing, the frog was likely extant at an estimated 31 to 41 localities in New Mexico and 87 localities in Arizona. Historically occurred in west-central New Mexico, into central and east-central Arizona, in the mountains and high valleys of southwestern New Mexico, southeastern Arizona, and south through western Chihuahua and northeastern Sonora, Mexico. Critical habitat includes a total of 10,346 acres in Catron, Grant, Hidalgo, Sierra, and Socorro counties, New Mexico; and Apache, Cochise, Gila, Graham, Greenlee, Pima, Santa Cruz, and Yavapai counties, Arizona. **Habitat:** Requires perennial or near-perennial water in a wide variety of habitats including cienegas, springs, creeks, streams, reservoirs, and above-ground and earthen livestock tanks. The species is known to disperse up to approximately one mile overland, three miles along intermittent drainages, and five miles along permanent water courses. Found at elevations between 3,300 and 8,900 ft. **References:** (AGFD 2006a, Southwest Endangered Species Act Team 2008, USFWS 2002, 2007, 2012b)	**None** Project Area is located more than 25 miles from the nearest critical habitat and known populations (USFWS 2012b, 2019a) outside the species' known dispersal distances. Although stock tanks are located adjacent to the Project Area, surveyors did not observe any Chiricahua leopard frogs in them, none are known to support the species nor are they connected to tributaries that could serve as dispersal corridors (USFWS 2012b).	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
B I R D S			
Mexican Spotted Owl (*Strix occidentalis lucida*) Threatened	**Range:** Historically ranged from the southern Rocky Mountains in Colorado and Colorado Plateau in southern Utah in the northern portion of its range then southward through Arizona, New Mexico, and western Texas, to the Sierra Madre Occidental and Oriental mountains and to the southern end of the Mexican Plateau in the southern portion. In New Mexico, distribution is patchy, with the species and designated critical habitat occurring in locations with suitable habitat across much of the state. **Habitat**: Occurs in mature montane forests and woodlands of mixed conifer dominated by Douglas fir, pine, or true fir, or in ponderosa pine/Gambel oak. Also, found in narrow canyons dominated by vertical-walled rocky cliffs within complex watersheds. Nesting typically occurs near a water source. Winters at lower elevations in pinyon-juniper woodlands, in open mountain-shrub, or higher-elevation conifer forests. Found at elevations between 4,000 to 9,000 ft. **References**: (Gutiérrez, Franklin, and Lahaye 1995, USFWS 2004, 2012c).	**None** The Project Area occurs more than 20 miles from Mexican spotted owl critical habitat (USFWS 2019a) and the Projects Area does not support mixed conifer or pine/oak forest habitat, nor the narrow canyons suitable for breeding habitat. The minimal overstory in the Project Area vicinity limits the potential for use beyond breeding. In addition, the level of industrial, residential, and transportation development in the vicinity of the Project Area substantially reduces the potential use of the Project Area by this species.	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Northern Aplomado falcon (*Falco femoralis septentrionalis*) Experimental Population, Non-Essential	**Range:** Occurs from southwestern U.S. through mainly eastern and southern Mexico to Argentina and Chile. Historic records indicate the species was primarily found in New Mexico in the southern lowlands, mainly in the Deming Plains to Animas region and in the Jornada del Muerto. Considered expatriated for a time, but population increases among solitary falcons have been seen the along Mexican/New Mexican border in the 1990s, although reintroduction efforts have been considered generally unsuccessful. Listed as experimental population, non-essential within Arizona and New Mexico. **Habitat**: This species is associated with grassy plains interspersed with mesquite, cactus, and yucca. Nest in yuccas, honey mesquite (*Prosopis glandulosa*), and acacias trees. Found at elevations between 3,000 and 6,000 ft. Home ranges in the northern reach of their range average approximately 15 mi^2 (40 km^2) per pair. **References**: (BISON-M 2017a, USFWS 2006, 2014c)	**Unlikely** Although suitable habitat is found within the Project Area (grassy plains with mesquite, cactus, and yucca), reintroduction attempts have been reported as generally unsuccessful in southern New Mexico. The nearest detections were observed in 2009 through 2011 and are located more than 15 miles south of the Project Area (USFWS 2014c).	**None** The species is unlikely to occur within the Project Area, the Project would occur outside of the breeding season, and the Project would occur for a limited period of time (less than one month). Although the Project may impact potential perch sites (yucca), it would be within a very limited area (0.28 acres), with other perch sites available immediately adjacent to the site. Furthermore, these impacts would comprise less than 0.0001 percent of a pair's home range.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Southwestern willow flycatcher (*Empidonax traillii extimus*) Endangered	**Range:** In New Mexico, this species breeds very locally along dynamic riparian systems within the Chama, Rio Grande, Zuni, San Francisco, Gila, and probably the Hondo basins and in the San Juan and western Sangre de Cristo mountains. Key breeding areas are in Zuni (McKinley Co.), Corrales (Sandoval Co.) to upper Elephant Butte L. (Sierra Co.), Glenwood-Pleasanton (Catron Co.), and Cliff-Redrock (Grant Co.). **Habitat:** Dependent on cottonwood/willow and/or tamarisk riparian communities along rivers and streams. Suitable habitat includes riparian areas with complex habitats, dense under- and mid-story vegetation that is ≥ 10 ft in height, with or without canopy cover, and in close proximity to surface water. **References:** (AGFD 2002d, BISON-M 2018u, USFWS 2013)	**None** Project Area does not provide breeding or foraging habitat for Southwestern willow flycatchers (riparian galleries with dense under- and mid-story vegetation).	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.
Yellow-billed cuckoo (*Coccyzus americanus*), western DPS Threatened	**Range:** Nests west of the Rocky Mountains in North America south to southern Baja California. Winters in South America to central Argentina and Uruguay. In New Mexico, species is known to breed along the Gila and middle Rio Grande rivers and portions of the Pecos River. **Habitat:** In New Mexico, most commonly found in mature riparian woodlands with cottonwood and other native species, although it has also been detected in tamarisk stands along the Pecos River. Also uses mesquite bosques and smaller stands of isolated cottonwoods mixed with mesquite, and areas of upland-associated vegetation along drainages dominated by oaks and junipers. Dense understory foliage is an important factor for nesting. **References:** (AGFD 2011d, BISON-M 2018z, Halterman et al 2016, WestLand 2015)	**None** Project Area does not provide foraging and/or breeding habitat for the yellow-billed cuckoo.	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
		F I S H E S	
Beautiful shiner (*Cyprinella formosa*) Threatened	**Range:** Historical range of the species includes drainages in Sonora and Chihuahua, Mexico (primarily the Rio Yaqui), with headwaters in the San Bernardino Valley of southeastern Arizona. Species has been extirpated from New Mexico, where it formerly occurred in the Mimbres drainage. **Habitat**: Species occurs within pools of small to medium streams and along shorelines in larger streams. This fish will remain near, but rarely within beds of aquatic vegetation or other cover. Found at elevations between 2,600 and 5,600 ft. **References**: (AGFD 2001a, BISON-M 2018b)	**None** Project Area does not contain suitable habitat for this species (small to large streams).	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.
Chihuahua Chub (*Gila nigrescens*) Threatened	**Range:** Occurs primarily in Mexico. In the US, this species is found only within an 11-km stretch in the Mimbres basin of New Mexico. **Habitat**: Found in deep pools with undercut banks or under solid objects in small to medium-sized streams. **References**: (BISON-M 2018e, USFWS 1983)	**None** Project Area does not contain suitable habitat for this species (deep pools in small to medium streams)	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.
Gila Chub (*Gila intermedia*) Endangered	**Range**: Endemic to the Gila River basin in southwestern New Mexico and central and southeastern Arizona. **Habitat:** The species typically occurs in pools of small streams or cienegas. However, this species can also be found in larger streams. It is often found near undercut banks, overhanging vegetation, and various types of cover within the aquatic habitat. **References:** (AGFD 2002b, BISON-M 2018h, USFWS 2015c)	**None** Project Area does not contain suitable habitat for this species (small to large streams or cienegas).	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Gila topminnow (*Poeciliopsis occidentalis*) Endangered	**Range:** Reintroduced and natural locations within historic distribution in the Gila River drainage and one locality in the Bill Williams River drainage. This species appears to have been extirpated from the state (lower San Francisco and probably Gila rivers), but it has recently been reintroduced (Redrock area in Grant County). **Habitat:** Occurs in springs, cienegas, permanent and intermittent streams and the margins of large rivers. Prefers warm, shallow and slow-moving water but can occur in lentic habitats or lotic habitats with moderate current. Additionally, favors areas with algal mats or debris along stream margins. Occurs at elevations between 1,320 and 7,510 ft amsl with the majority of records occurring below 5,000 ft. **References**: (AGFD 2001d, BISON-M 2018i, USFWS 1998)	**None** Project Area does not contain suitable habitat for this species (small to large streams or cienegas) and is outside the species known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.
Gila Trout (*Oncorhynchus gilae*) Threatened	**Range:** Historically found throughout the Gila River system. In New Mexico, populations persist in Main Diamond, South Diamond, Iron and McKenna creeks in the Gila River system and Spruce Creek in the San Francisco River drainage. **Habitat**: Occurs within small, cool, clear mountain streams with dense riparian cover and generally low base flows. Found at elevations between 5,000 and 10,000 ft. **References**: (BISON-M 2018j, USFWS 2003)	**None** Project is does not contain suitable habitat (mountain streams with dense riparian cover).	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Loach Minnow (*Tiaroga cobitis*) Endangered	**Range:** Species occurs in Catron, Grant, and Hidalgo counties in New Mexico, and Apache, Cochise, Gila, Graham, Greenlee, Pinal, and Yavapai counties, Arizona, and with a total of approximately 610 miles of designated critical habitat. **Habitat:** Turbulent, rocky riffles of mainstream rivers and tributaries. They prefer moderate to swift current velocity and gravel or cobble substrates. Sometimes associated with dense, filamentous green algae. It is restricted almost exclusively to a bottom dwelling habitat because of a reduced gas bladder. Found at elevations up to about 8,240 ft. **References**: (USFWS BISON-M 2019f, 1990, 2012a)	**None** Project Area does not contain suitable habitat for this species (turbulent rivers).	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.
Spikedace (*Meda fulgida*) Endangered	**Range:** Currently only known to occur in the upper Verde River and Aravaipa Creek in Arizona and portions of the Gila River in New Mexico, specifically the Cliff-Gila Valley reach of the Gila River and lowermost West Fork Gila River. The species has been extirpated from the San Francisco River drainage and much reduced in the Gila River drainage. **Habitat:** Prefers moving in water less than 1.0 meters (m) (3.3 ft.) deep and 0.3-0.6 m per second (1-2 ft per second). They concentrate in the downstream ends of riffles and eddies although many have been collected in the upstream portions of shear zones less than 0.33 m (1.1 ft.) deep. Young inhabit backwaters over silt and sand. Found at elevations between 1,620 and 4,500 ft. **References**: (AGFD 2013d, BISON-M 2017n, USFWS 2012a)	**None** No suitable habitat for this species (moving water with riffles and eddies) occurs within the Project Area and the Project Area is outside the species current distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
M A M M A L S			
Gray wolf (*Canis lupus*) Proposed Endangered	**Range:** Species historically found across much of North American and Mexico. Endangered population found in portions of Arizona, north of the centerline of Interstate Highway 40. **Habitat:** The wide range of habitats in which wolves can thrive reflects their adaptability as a species, and includes temperate forests, mountains, tundra, taiga, and grasslands, but likely excludes desert habitats. This species is found at a wide range of elevations across their habitat. **References**: (USFWS BISON-M 2017k, 2016)	**None** The Project Area is approximately 175 miles south of the species' known distribution range.	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Mexican Wolf (*Canis lupus baileyi*) Experimental Population, Non-Essential	**Range:** The Mexican Wolf Experimental Population Area extends from eastern New Mexico to western Arizona, and from I-40 south to the US-Mexican border. The Dispersal and Occupancy Zone is located east of State Highway 87, and extends from I-40 to the US-Arizona Border. The known Occupied Range extends from Sevilleta National Wildlife Refuge west to the Fort Apache and San Carlos Reservations in Arizona. The Occupied Range extends as far south as approximately 10 miles north of Silver City, New Mexico. A small portion of the Occupied Range also occurs within the Chiricahua Mountains. **Habitat:** Species is generally a habitat generalist, although habitat selection is associated with availability of sufficient prey populations, such as elk and deer. In New Mexico, this species is known to inhabit evergreen pine-oak woodlands (i.e., Madrean woodlands), pinyon-juniper woodlands (i.e., Great Basin conifer forests), and mixed-conifer montane forests (i.e., Rocky Mountain, or Petran forests), but are unlikely to occur in desert habitats. Wolves in this non-essential experimental population have established home ranges of approximately 50 to 400 square miles. **References**: (BISON-M 2017k, USFWS 2015a, 2017, 2019b)	**Possible** Project Area occurs within approximately 15 miles of the species current Occupied Range. Although the Project Area does not appear to contain prey species, it is possible that wolves may pass through the Project Area.	**No Effect** Although the species has the potential to occur within the Project Area, the Project Area occupies a very small portion (less than 0.0001 percent) of the species average range. Suitable habitat and prey are not present and impacts to individuals would be de minimis.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Mexican Long-nosed Bat (*Leptonycteris nivalis*) Endangered	**Range:** Occurs primarily from the southern Trans-Pecos region of Texas to Guatemala. In New Mexico, found in Guadalupe Canyon in the southernmost Peloncillo Mountains and in Hidalgo County. **Habitat**: Occupies caves in mountainous pine-oak country as well as agave and desertscrub lowlands. In New Mexico, these bats inhabit upper desertscrub-pine oak woodlands in or near mountainous areas. Characteristic vegetation in these areas includes agaves (*Agave* spp.), junipers (*Juniperus* spp.), oaks (*Quercus* spp.), and Mexican pinyon (*Pinus cembroides*). Found at elevations between 5,000 and 7,500 ft. **References**: (BISON-M 2018m, USFWS 1994)	**None** Project Area is outside the known range of this species in New Mexico, there are no known occurrence records within Grant County, New Mexico.	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.
R E P T I L E S			
Narrow-headed gartersnake (*Thamnophis rufipunctatus*) Threatened	**Range**: Historically, species occurs from central Arizona and southwestern New Mexico southward to Durango, with the range in the U.S. being disjunct from that in Mexico. The species may still persist in the subbasins of Tonto Creek and the Upper Gila, Middle Gila, San Francisco, Salt, and Verde rivers and. **Habitat**: Strongly associated with perennial water due to their specialization on fish as prey. Associated with pools and riffles in clear rocky streams in Petran Montane Conifer Forest, Great Basin Conifer Woodland, Interior Chaparral and the Arizona Upland subdivision of Sonoran desertscrub. May occasionally use lake shoreline habitats. This species occurs at elevations between 2,300 and 8,000 ft amsl. **References**: (AGFD 2012a, USFWS 2014b)	**None** The Project Area does not contain the perennial aquatic habitat required for this species. Drainages within the dispersal range of this species are all ephemeral and could not support this species. There are no records of the species in the Project Area, nor are there extant populations that are considered viable by the USFWS (2014a) in the vicinity of the Project Area.	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.

Table 2. Screening Analysis of ESA Listed Species within the Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Northern Mexican gartersnake (*Thamnophis eques megalops*) Threatened	**Range:** Fragmented populations within the middle/upper Verde River drainage (including Oak Creek and the Verde River), middle/lower Tonto Creek, and the Cienega Creek drainage. This species is known in New Mexico from two sites in Grant and one in Hidalgo counties, where recent surveys have not yielded records. **Habitat:** Depends on water for its primarily aquatic prey base and is heavily dependent on fish species. Occurs near or in ponds, cienegas, lowland river riparian forests and woodlands, and upland stream gallery forests. Avoids steep mountain canyons. Most abundant in densely vegetated habitat. Species is highly aquatic but may also be found up to one mile (or more) away from water, using terrestrial habitat for brumation, or for thermoregulatory needs such as developing young or digestion (Jeff Servoss, USFWS, pers. comm. to D. Cerasale, WestLand, April 18, 2016). **References**: (AGFD 2012b, Rosen and Schwalbe 1988, USFWS 2014b)	**None** Project Area does not contain suitable habitat (densely vegetated perennial aquatic habitat), there are no known records of the species within the vicinity of the Project Area, and there are no current populations of the species within New Mexico that the USFWS considers extant and viable (USFWS 2014a).	**No Effect** The species does not have the potential to occur within the Project Area and would therefore not be impacted by Project activities.

4.4.2. Screening Analysis for BLM Sensitive Species

The BLM Las Cruces District, where the Project Area occurs, contains 70 species the BLM considers to be sensitive (**Table 3**). Of these 70 species, the screening analysis identified six BLM sensitive species with a possible potential to occur in the Project Area or its vicinity. The six BLM sensitive species with the potential to occur within the Project Area are as follows:

- Chestnut-collared longspur (*Calcarius ornatus*)
- Bendire's thrasher (*Toxostoma bendirei*)
- Desert massasauga (*Sistrurus tergeminus*)
- Sprague's pipit (*Anthus spragueii*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Western burrowing owl (*Athene cunicularia*)

The basis of determination for the above species' potential to occur is discussed in **Table 3**. Based on WestLand's field reconnaissance and screening analysis, the potential for occurrence of the remaining 64 sensitive BLM species is unlikely to none; the basis for these determinations are also discussed in **Table 3**.

Although these species have the potential to occur within the Project Area, it is not likely that the Project would adversely impact these highly mobile avian and bat species or foraging opportunities. The desert massasauga is also not expected to be impacted by Project activities, as the species would not be active during proposed Project activities. If individuals of these species were impacted, the Analysis is not likely to result in a trend toward federal listing or loss of viability.

4.4.3. Screening Analysis Results for BGEPA Listed Species

The screening analysis determine that both species protected under the BGEPA have some potential to occur within the Project Area. The basis of determination of each species' potential to occur within the Project Area is provided in **Table 4**.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
PLANTS			
Organ Mountains giant hyssop (*Agastache pringlei* var. *verticillata*)	**Range:** Species is only known from the Organ Mountains in Doña Ana County, New Mexico. **Habitat:** Humus-covered igneous talus and boulders at protected bases of steep cliffs in woodlands of Douglas fir, yellow pine, and Gambel oak; 1,800-2,300 m (5,900-7,500 ft). **References:** (New Mexico Rare Plants Technical Council [NMRPTC] 1999i)	**None** Project Area occurs outside of the species' known distribution and does not contain suitable habitat (igneous talus and boulder in woodlands).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Howard's gyp ringstem (*Anulocaulis leiosolenus* var. *howardii*)	**Range:** Within the U.S., this species is only known to occur on the west slope of the Guadalupe Mountains in Otero County, New Mexico. **Habitat:** Open gypsum outcrop of the Yeso Formation, with limestone cobble, at approximately 1,350-1,450 m (4,425-4,750 ft). **References:** (NMRPTC 1999f)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Chaplin's columbine (*Aquilegia chrysantha* var. *chaplinei*)	**Range:** Within the U.S., species is found in New Mexico and Texas. In New Mexico, the species is found in New Mexico, Eddy and Otero counties, in the Guadalupe and southern Sacramento mountains. **Habitat:** Occurs in limestone seeps and springs in the montane scrub or riparian canyon bottoms at 1,400-1,700 m (4,700-5,500 ft). **References:** (NMRPTC 2007)	**None** Project Area occurs outside of the species' known distribution and does not contain suitable habitat (limestone seeps and springs in montane scrub).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Coppermine milkvetch (*Astragalus cobrensis* var. *maguirei*)	**Range:** Species occurs within the southwestern-most corner of New Mexico and southeastern-most corner of Arizona, in the Chiricahua and Peloncillo mountains. **Habitat:** Creek beds and canyon bottoms and slopes. Vegetation associations include oak, pine, juniper, and fir. Elevation: 5,080-7,450 ft (known range); potentially found up to 9,000 ft. **References:** (AGFD 1999b, NMRPTC 1999g)	**None** Project Area occurs outside of the species' known distribution and does not contain suitable habitat (creek beds and canyon bottoms in oak-pine woodlands).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Wind mountain rockcress (*Boechera zephyra*)	**Range:** In New Mexico, found in Doña Ana, Eddy, and Otero counties. In Texas, found in Hudspeth County. Occurs in the Guadalupe, Cornudas, and Hueco mountains, and Sierra de las Uvas. **Habitat:** Found on rocky slopes of varying geology (either syenite, limestone, or basaltic scoria), primarily in the upper margins of Chihuahuan desertscrub, occasionally in juniper savannah or oak-juniper woodlands. **References:** (NMRPTC 2016b)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Organ Mountains paintbrush (*Castilleja organorum*)	**Range:** Known from the Organ Mountain in Doña Ana, New Mexico. **Habitat:** Open to partly shady montane slopes and rocky canyons in pinyon-juniper woodland or lower montane coniferous forest; 2,000-2,400 m (7,000-8,000 ft) **References:** (NMRPTC 1999j)	**None** Project Area occurs outside of the species' known distribution and does not contain suitable habitat (pinyon-juniper woodlands or lower montane coniferous forests).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Wright's marsh thistle (*Cirsium wrightii*)	**Range:** New Mexico, Eddy, Chaves, Guadalupe, Otero, Sierra, and Socorro counties, extant in Sacramento Mountains, lower Pecos River valley, and Alamosa Springs in Socorro County; adjacent Texas; Mexico, Chihuahua. **Habitat:** Wet, alkaline soils in spring seeps and marshy edges of streams and ponds; 1,130-2,600 m (3,450-8,500 ft). **References:** (NMRPTC 2017b)	**None** Project Area does not contain suitable habitat (spring seeps, etc., with wet, alkaline soils).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Scheer's beehive cactus (*Coryphantha robustispina* ssp. *scheeri*)	**Range:** New Mexico, Chaves and Eddy counties; adjacent western Texas, Brewster, Crockett, Loving, Pecos, Reeves, Terrell, Ward, and possibly (but doubtfully) Maverick counties. Limited to the Pecos River drainage in western Texas and southeastern New Mexico. **Habitat:** Favors nearly level areas in desert grassland and Chihuahuan desertscrub, usually on gravelly or silty soils, occasionally on rocky benches or bajadas on limestone or gypsum; 1,000-1,100 m (3,300-3,600 ft) **References:** (NMRPTC 2014a)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Guadalupe mescal bean (*Dermatophyllum guadalupense*)	**Range:** New Mexico, Otero and Eddy counties; Brokeoff Mountains and Upper Dog Canyon area of the Guadalupe Mountains in New Mexico and adjacent Culberson County, Texas. **Habitat:** Outcrops of pink, limy, fine-grained sandstone that is 1-2-percent gypsum (by analysis) in Chihuahuan desertscrub and juniper savanna; 1,720-2,180 m (5,260-6,650 ft). **References:** (NMRPTC 2012)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Duncan's pincushion cactus (*Escobaria duncanii*)	**Range:** Known to occur in Texas (Brewster and Presidio counties) and in adjacent Mexico (Coahuila and Chihuahua). In New Mexico, only a small population of the species in known to occur in central Sierra County; and is considered geographically isolated from southern representatives of the species. **Habitat:** Cracks in limestone and limy shale in broken terrain in Chihuahuan desertscrub; 1,550 m (5,100 ft) in New Mexico. **References:** (NMRPTC 1998a)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Villard's pincushion cactus (*Escobaria villardii*)	**Range:** New Mexico, Otero and Doña Ana counties; west slope of the Sacramento Mountains and northern Franklin Mountains. **Habitat:** Loamy soils of desert grassland with Chihuahuan desertscrub on broad limestone benches in mountainous terrain; 1,370-2,000 m (4,500-6,500 ft). **References:** (NMRPTC 2006)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
New Mexico bitterweed (*Hymenoxys ambigens* var. *neomexicana*)	**Range:** In New Mexico, the species is only know from the Peloncillo and Animas mountains in Hidalgo County. **Habitat:** 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; 1,640-2,200 m (5,400-7,250 ft). **References:** (NMRPTC 2000)	**None** Project Area occurs outside of the species' known distribution and does not contain suitable habitat (oak woodlands, pine forests, or streamsides).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Gypsum scalebroom (*Lepidospartum burgessii*)	**Range:** A very narrow endemic of the Alkali Lakes area west of the Guadalupe Mountains. Found in the Alkali Lakes, Otero County, New Mexico, and in adjacent Hudspeth County, Texas. **Habitat:** Stabilized gypsum dunes with Chihuahuan desertscrub and arid grassland; 1,050-1,110 m (3,500-3,700 ft). **References:** (NMRPTC 1999e)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Guadalupe stickleaf (*Mentzelia humilis* var. *guadalupensis*)	**Range:** Occurs across approximately 12 km on the west slope of the Guadalupe Mountains in southeastern Otero County, New Mexico. Species is locally abundant within its restricted range. **Habitat:** Open gypsum outcrops of the Yeso Formation, with limestone cobble, at about 1,350-1,550 m (4,425-5,080 ft). **References:** (NMRPTC 1999d)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Crow Flats fan-mustard (*Nerisyrenia hypercorax*)	**Range:** Species occurs along the western base of the Guadalupe Mountains, from Pup Canyon to immediately north of the Chaves/Otero county line, New Mexico. **Habitat:** Found only on sparsely vegetated exposures of gypseous clay of the Yeso Formation, usually most abundant in and along the edges of deeply-incised ravines. **References:** (NMRPTC 2015)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Sand pricklypear (*Opuntia arenaria*)	**Range:** Species occurs near the New Mexico/Texas/Mexico border. In New Mexico, has been recorded in southern Doña Ana and Luna counties; in Texas, has been recorded in the adjacent El Paso County; in Mexico, has been recorded in Chihuahua, south to near Samalayuca. There are also unconfirmed records of the species in Socorro County, New Mexico. **Habitat:** Sandy areas, particularly semi-stabilized sand dunes among open Chihuahuan desertscrub, often with honey mesquite and a sparse cover of grasses; 1,160-1,300 m (3,800-4,300 ft). **References:** (NMRPTC 1998b)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Wilkinson's nailwort (*Paronychia wilkinsonii*)	**Range:** New Mexico: Otero County. Texas: Brewster County; Mexico: Chihuahua (near Ciudad Chihuahua, Sierra de Hechiceros, and Sierra de los Organos) and northern Coahuila (Serranías del Burro and near El Tule). **Habitat:** In New Mexico, *P. wilkinsonii* has only one known population, located approximately. 400 m east to west, on the gravelly limestone bajada of the Guadalupe Mountains. **References:** (NMRPTC 2014b)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Chihuahua scurfpea (*Pediomelum pentaphyllum*)	**Range:** Known locally in the U.S. from small populations in Cochise County, Arizona and Hidalgo County, New Mexico. May be present in Graham County, Arizona and Presidio County, New Mexico. **Habitat:** Desert grasslands and scrublands with sandy or gravelly loam soils. Vegetation associations include mesquite, creosote bush, and burrograss. **References:** (AGFD 2001b, NMRPTC 1999b, Sartor and Gori 2012, WildEarth Guardians 2008)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Night-blooming cereus (*Peniocereus greggii* var *greggii*)	**Range:** Found in Doña Ana, Grant, Hidalgo, and Luna counties in New Mexico and portions of western Texas. **Habitat:** Desert grasslands and scrublands with sandy or silty gravel soils. Vegetation associations include mesquite and creosote bush. **References:** (NMRPTC 1998c)	**None** Although the Project Area occurs within the species range and contains suitable habitat (desert grasslands with silty gravel soils), the species was not observed during focused biological survey of the Project Area.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Alamo beardtongue (*Penstemon alamosensis*)	**Range:** New Mexico, Doña Ana, Lincoln, and Otero counties, west escarpment of the Sacramento Mountains and east side of San Andres Mountains; Texas, El Paso County, Hueco Mountains. **Habitat:** Sheltered rocky areas, canyon sides and bottoms, on limestone; 1,300-1,620 m (4,300-5,300 ft). **References:** (NMRPTC 1999a)	**None** Project Area occurs outside of the species' known distribution and does not contain suitable habitat (sheltered rocky areas).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Nodding cliff daisy (*Perityle cernua*)	**Range:** Species is a narrow endemic of the Organ Mountains in Doña Ana County, New Mexico. **Habitat:** Igneous cliffs, primarily on rhyolite, occasionally on andesite; 1,520-2,680 m (5,000-8,800 ft). **References:** (NMRPTC 1999h)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Parish's alkaligrass (*Puccinellia parishii*)	**Range:** Species range extends for ~600 miles east/west from Sandoval County, New Mexico, to San Bernardino County, California, and ~370 miles north/south from San Miguel County, Colorado, to Hidalgo County, New Mexico. Species distribution within its range is described as highly disjunct with a limited number of known collection sites. In New Mexico, has been recorded in Catron, Cibola, Grant, Hidalgo, McKinley, Sandoval, and San Juan counties. **Habitat:** Drainages or slopes with alkaline seeps or springs that allow for perennially damp to wet alkaline soils. Vegetation associations include rushes, sedges, sacaton, and salt grass. Can persist in springs that have been severely impacted by livestock grazing and trampling, but cannot survive if its springs or seeps dry up. **References:** (AGFD 2015a, NMRPTC 1999k)	**None** Although the Project Area occurs within the species range, the Project Area does not contain suitable habitat (alkaline seeps or springs with wet alkaline soil), and the species was not observed during focused biological survey of the Project Area.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Organ Mountain figwort (*Scrophularia laevis*)	**Range:** New Mexico, Doña Ana County, Organ Mountains. **Habitat:** Moist canyons on quartz monzonite substrate in pinyon-juniper woodland and Rocky Mountain montane coniferous forest; 2,100-2,600 m (6,900-8,500 ft). **References:** (NMRPTC 1999l)	**None** Project Area occurs outside of the species' known distribution and does not contain suitable habitat (moist canyons in pinyon-juniper woodlands or montane coniferous forests).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Mimbres figwort (*Scrophularia macrantha*)	**Range:** Known from Kneeling Nun and Cook's Peak within the Mimbres Mountains in Grant and Luna counties, New Mexico. **Habitat:** Steep, rocky, usually north-facing igneous cliffs and talus slopes, occasionally in canyon bottoms; pinyon-juniper woodland and lower montane coniferous forest; 2,000-2,500 m (6,500-8,200 ft). **References:** (NMRPTC 2016a)	**None** Although the Project Area occurs within the species range, the Project Area does not contain suitable habitat (igneous cliffs and talus slopes within pinyon-juniper woodlands and montane coniferous forests), and the species was not observed during focused biological survey of the Project Area.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Gray sibara (*Sibara grisea*)	**Range:** Occurs in Chaves, Eddy, and Otero counties in New Mexico, as well as in adjacent counties in Texas. **Habitat:** In crevices and at the bases of limestone cliffs in interior chaparral and pinyon-juniper woodland communities at 1,350-1,800 m (4,500-6,000 ft). **References:** (NMRPTC 1999c)	**None** Project Area occurs outside of the species' known distribution and does not contain suitable habitat (crevices and cliffs in interior chaparral and pinyon-juniper woodlands).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Organ Mountains scaleseed (*Spermolepis organensis*)	**Range:** Occurs on the northeastern bajada of the Organ Mountains in Doña Ana County, New Mexico. **Habitat:** In sandy and gravelly soils derived from quartz monzonite at elevations of 1400 to 1650 m (4600 to 5400 ft). Recorded near a spring at the lower edge of Madrean chaparral. **References:** (NMRPTC 2017a)	**None** Project Area occurs outside of the species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
A M P H I B I A N S			
Southwestern (Arizona) toad (*Anaxyrus [Bufo] microscaphus*)	**Range:** Historically known to occur in Arizona, California, New Mexico, Nevada, Utah, and Mexico. In New Mexico, recorded in Catron, Grant, Hidalgo, Luna, Sierra, Socorro, and New Mexico counties. **Habitat:** Found in closed chaparral, mixed broadleaf riparian, cottonwood-willow riparian, and mesquite bosque habitats. Require slow-flowing, shallow streams for breeding. **References:** (BISON-M 2018a)	**None** Project Area does not contain suitable habitat (riparian, chaparral, or mesquite bosque habitats) for this species.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
B I R D S			
Botteri's sparrow (*Aimophila boteri*)	**Range:** Known to occur in New Mexico, Arizona, Texas, and Mexico. Most records in New Mexico are incidental and occur within the Animas Valley in Hidalgo County. **Habitat:** Desert grassland, coastal prairie. Found in Sonoran desertscrub, open to dense vegetation dominated by paloverde, prickly pear, and saguaro. Preferred habitat is sacaton grassland in New Mexico. Found in drier grasslands with relatively tall grass and scattered taller shrubs. **References:** (BISON-M 2017c, Webb and Bock 2012)	**None** Project Area is outside the species known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Baird's sparrow (*Ammodramus bairdii*)	**Range:** Breeding range in the U.S. includes Minnesota, Montana, North Dakota and South Dakota. Winter range in the U.S. includes southeastern Arizona and southern New Mexico and Texas. Considered generally rare in New Mexico, this species is found along the southern border, on Otero Mesa and in the Animas Valley. **Habitat:** Occurs in grassy plains and shortgrass prairies with scattered low shrubs and matted vegetation. In the winter they have been observed in desert, desert grasslands, prairie, and mountain meadow habitats. **References:** (AGFD 2013a, BISON-M 2019b, Green et al. 2002)	**Unlikely** The species has been recorded in Grant County (BISON-M 2019b) and potentially suitable habitat (semidesert grasslands) is present within the Project Area. However, the record in Grant County is considered incidental (a transient), and is not part of the species' winter range (Green et al. 2002).	**May impact individuals but is not likely to results in a trend toward listing or loss of viability.** The species has a limited (unlikely) potential to occur within the vicinity of the Project Area and a limited number of individuals may pass through or forage within the Project Area. However, the Project would occur for a short period of time (less than one month) and the majority of disturbance would occur within the previous disturbance of the existing road. The species does not breed in New Mexico, so no breeding habitat would be impacted. Only 0.6 acres of potential foraging habitat would be impacted by Project activities, and additional foraging habitat is available immediately adjacent to the Project Area. Effects to the species would be limited.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Arizona grasshopper sparrow (*Ammodramus savannarum ammolegus*)	**Range:** Found in California, Arizona, New Mexico, and northern Sonora, Mexico. The species' main populations are found in southeastern Arizona (in the San Rafael and Sonoita valleys) and southwestern New Mexico (in the Animas Valley). **Habitat:** Grassland and prairie habitats with increasing usage of shrub cover in western portions of the species range. **References:** (AGFD 2010a, BISON-M 2019a, Ruth 2015, Vickery 1996)	**None** Project Area is outside the species known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Western burrowing owl (*Athene cunicularia*)	**Range:** Found throughout most of western North America, from British Columbia to Baja California. Species winter range extends from the southern United State border south as far south as Ecuador. Found throughout most of New Mexico during the breeding season, and intermittently along the southern border during the winter season. **Habitat:** Grasslands, prairies, desertscrub, and open areas including agricultural lands and vacant lots. Vegetation associations in New Mexico include sagebrush, creosote bush, yucca, and select grass species. **References:** (AGFD 2001e, BISON-M 2018d, Poulin et al. 2011)	**Possible** Project Area occurs within the species known range and contains suitable habitat (grasslands with yucca).	**No Effect** Project activities are planned for the winter months, when the species is not anticipated to occur within the Project Area. Project would occur for a short period of time (less than one month) and the majority of disturbance would occur within the previous disturbance of the existing road. Limited potential foraging and breeding habitat (up to 0.6 acres) would be impacted when the species would not be present. No impacts to this species are anticipated to occur from Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Sprague's pipit (*Anthus spragueii*)	**Range:** The species breeds in the north central U.S. in Montana, North Dakota and South Dakota. The species winters in the southern U.S. including southern Arizona and New Mexico. In New Mexico, occurs sporadically in southern desert grasslands, primarily in lower Pecos River Valley, Otero Mesa and the Animas Valley **Habitat:** Short- and mixed-grass prairies with mid-height vegetation, little shrub cover and moderate to low grazing intensities. Also found in alkaline and wet meadows near freshwater lakes. **References:** (AGFD 2010b, BISON-M 2018v, Davis, Robbins, and Dale 2014)	**Possible** Species has been recorded within Grant County and Project Area contains suitable habitat (desert grasslands).	**May impact individuals but is not likely to results in a trend toward listing or loss of viability.** A limited number of individuals may pass through or forage within the Project Area. However, the Project would occur for a short period of time (less than one month) and the majority of disturbance would occur within the previous disturbance of the existing road. The species does not breed in New Mexico, so no breeding habitat would be impacted. Only 0.6 acres of potential foraging habitat would be impacted by Project activities, and additional foraging habitat is available immediately adjacent to the Project Area. Effects to the species would be limited.
Mexican whip-poor-will (*Antrostomus arizonae*)	**Range:** Known to breed in Arizona, New Mexico, and Texas. Primarily winters south of the U.S.-Mexico border. In New Mexico, species occurs from south of the Mogollon and Sacramento highlands north to the Manzano Mountains, and have been recorded in the Gallina, White, San Francisco, Datil, Magdalena, Sacramento, Guadalupe and Sandia mountains. Breeding has been recorded in Bernalillo, Catron, Hidalgo, Otero, and New Mexico counties. **Habitat:** Can be found in woodland, forest, and desertscrub habitats. Specific habitat associations include ponderosa pine forests, desert riparian woodlands, pinon-juniper woodlands, mixed conifer forests, marshes, and Sonoran desertscrub. Found in open to dense vegetation of shrubs, low trees, and succulents dominated by paloverde and pricklypear. **References:** (BISON-M 2018o, Cink, Pyle, and Patten 2017)	**None** Project Area does not contain suitable habitat of woodlands, forest, or desertscrub habitats.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
McCown's longspur (*Calcarius mccownii*)	**Range:** Extends from northern Mexico north through New Mexico, Texas, Colorado, Wyoming, Montana, and southern Canada. In New Mexico, is more common in the southern two-thirds of the state, particularly on the eastern plains and the Animas Valley. Has been recorded in Eddy, Hidalgo, Lea, Otero, Roosevelt, San Miguel, Socorro, and New Mexico counties. **Habitat:** Inhabit in grasslands at lower elevations (2800-5500 ft), found in Sonoran desertscrub, Chihuahuan desertscrub, Annual Grasslands, and Mountain and Alpine Meadows habitats; breed in shortgrass prairies and stubble fields. **References:** (BISON-M 2017i, With 2010)	**Unlikely** Project Area occurs within species range and contains suitable habitat (semi-desert grasslands), but no detections have been recorded within Grant County.	**May impact individuals but is not likely to results in a trend toward listing or loss of viability.** A limited number of individuals may pass through or forage within the Project Area. However, the Project would occur for a short period of time (less than one month) and the majority of disturbance would occur within the previous disturbance of the existing road. The species does not breed in New Mexico, so no breeding habitat would be impacted. Only 0.6 acres of potential foraging habitat would be impacted by Project activities, and additional foraging habitat is available immediately adjacent to the Project Area. Effects to the species would be limited.
Chestnut-collared longspur (*Calcarius ornatus*)	**Range:** The breeding range in the U.S. includes Montana, North Dakota and South Dakota, and limited areas in Colorado, Minnesota, Nebraska, and Wyoming. The species can be found wintering in the U.S. states of Arizona, Colorado, Kansas, New Mexico, Oklahoma and Texas. **Habitat:** The preferred habitat for the species includes short grass prairies and desert grasslands. Has been found to be strongly negatively associated with shrub cover amounts. **References:** (BISON-M 2017d, Bleho et al. 2015)	**Possible** Project Area occurs within the species known range and includes suitable habitat (semidesert grasslands).	**May impact individuals but is not likely to results in a trend toward listing or loss of viability.** A limited number of individuals may pass through or forage within the Project Area. However, the Project would occur for a short period of time (less than one month) and the majority of disturbance would occur within the previous disturbance of the existing road. The species does not breed in New Mexico, so no breeding habitat would be impacted. Only 0.6 acres of potential foraging habitat would be impacted by Project activities, and additional foraging habitat is available immediately adjacent to the Project Area. Effects to the species would be limited.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Pinyon jay (*Gymnorhinus cyanocephalus*)	**Range:** The species can be found within the central-western U.S. including central to northwestern New Mexico. **Habitat:** The species is strongly associated within pinyon-juniper woodlands. Can also be found in fir-spruce, chaparral, sagebrush, scrub oak, and select desertscrub (Sonoran, Chihuahuan, and Mojave), Great Plains shortgrass prairie, and Great Basin shrub-steppe communities. **References:** (Balda 2002, BISON-M 2018p)	**None** Project Area occurs at the edge of the species range and does not contain suitable habitat.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Bendire's thrasher (*Toxostoma bendirei*)	**Range:** In the U.S., the breeding range for the species encompasses parts of Arizona, California, Colorado, New Mexico, and Utah. The species winters is or is a year-round resident in parts of southern Arizona, California, and New Mexico. **Habitat:** Semidesert grasslands and desertscrub habitat. Vegetation associations include; mesquite, juniper, creosote, acacia, and select succulent species. **References:** (BISON-M 2019d, England and Laundehslayer 1993)	**Possible**. Project Area occurs within species range and contains suitable habitat (semidesert grasslands).	**May impact individuals but is not likely to results in a trend toward listing or loss of viability.** A limited number of individuals may pass through or forage within the Project Area. However, the Project would occur for a short period of time (less than one month) and the majority of disturbance would occur within the previous disturbance of the existing road. The species does not breed in New Mexico, so no breeding habitat would be impacted. Only 0.6 acres of potential foraging habitat would be impacted by Project activities, and additional foraging habitat is available immediately adjacent to the Project Area. Effects to the species would be limited.
Bell's vireo (*Vireo bellii arizonae*)	**Range:** The current range of the species includes the central and southwestern U.S. In New Mexico the species can be found in the Gila, Pecos, Rio Grande and San Francisco river valleys. **Habitat:** Prefers riparian and lowland woodland habitats along stream edges. Found at elevations below 3,500 ft. **References:** (BISON-M 2019c, Kus et al. 2010)	**None** Project Area occurs within the species' range but does not contain suitable habitat (riparian and lowland woodland habitats along stream edges).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Virginia's warbler (*Vermivora virginiae*)	**Range:** Known to occur throughout the Intermountain West and southern Rocky Mountains. Found in New Mexico, Arizona, Colorado, Texas, Utah, Nevada, Wyoming, Idaho, and Mexico. In New Mexico, species breeds in all mountain ranges throughout the western two-thirds of the state. Winters along the Pacific side of southern Mexico. **Habitat:** Said to be common, and breeding, in the summer and commonly transient in areas of pinon/juniper woodlands, ponderosa/oak forests, and mixed confer forests in ponderosa pine forest with oak understory and spruce/fir forests; For breeding habitat, it shows a strong association for steep draws, drainages, or slopes with oak or other shrubby vegetation; Found in Ponderosa Pine, Chaparral, and Pinyon-Juniper habitats **References:** (BISON-M 2018x, Olson and Martin 1999)	**None** Project Area does not occur within the mountain ranges in the species distribution and does no contain suitable habitat (ponderosa pine woodlands, pinyon juniper woodlands, or chaparral).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
F I S H			
Desert sucker (*Catostomus clarkii*)	**Range:** The lower Colorado River basin including the Bill Williams, Gila, Virgin, and White river drainages. **Habitat:** Riffle and pool complexes along small to medium sized rivers with gravel or sandy-silt substrates. **References:** (AGFD 2002a, BISON-M 2018f)	**None** Project Area is outside known geographic range and lacks appropriate aquatic habitat.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Sonora sucker (*Catostomus insignis*)	**Range:** The known range for the species is currently limited to the Bill Williams, Gila, and San Francisco River basins. **Habitat:** Warm to cool water streams of small to medium size. Can be found in pools during the daytime hours and moves to runs and riffles at night. Found at elevations between 985 and 8,737 ft. **References:** (AGFD 2002c, BISON-M 2018t)	**None** Project Area is outside known geographic range and lacks appropriate aquatic habitat.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Rio Grande sucker (*Catostomus plebeius*)	**Range:** Known to occur in Arizona, Colorado, and New Mexico. **Habitat:** Small to large streams usually over gravel, can also be found in backwaters/pools below riffles; middle elevation (2000-2600 m). **References:** (BISON-M 2018s)	**None** Project Area is outside known geographic range and lacks appropriate aquatic habitat.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Rio Grande chub (*Gila pandora*)	**Range:** Known to occur in Colorado, Texas, and New Mexico. **Habitat:** Found in pools of small to moderate streams, frequently associated with aquatic vegetation; perennial streams at higher elevations. **References:** (BISON-M 2018r)	**None** Project Area is outside known geographic range and lacks appropriate aquatic habitat.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Roundtail chub (*Gila robusta*)	**Range:** Limited to select drainages in the Lower Colorado River Basin and include tributaries to the Gila, Little Colorado, Bill Williams, Salt, Verde, and San Pedro rivers. **Habitat:** Occupy cool to warm middle elevation streams and rivers where typical pools are 6.6 ft deep adjacent to swifter riffles and runs. Cover is usually present consisting of larger boulders, tree root wads, submerged large trees, branches, undercut cliff walls, or deep water. Found at elevations of 1,210 to 7,200 ft. More common between 2,000 and 5,000 ft. **References:** (AGFD 2015b, USFWS 2015b)	**None** Project Area is outside known geographic range and lacks appropriate aquatic habitat.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
I N V E R T E B R A T E S			
Hacheta grande woodlandsnail (*Ashmunella hebardi*)	**Range:** Known range is limited to the vicinity of Chaney Canyon in the Big Hatchet Mountains in New Mexico. **Habitat:** Rock piles and limestone outcrops along cliff slopes and bottoms. Vegetation association includes pinyon pines. Found at elevations between 6,600 and 7,300 ft. **References:** (BISON-M 2017h, NatureServe 2019a)	**None** Project Area occurs outside of species' known range and does not contain suitable habitat (limestone outcrops along cliffs in pinyon pine woodlands).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Cooke's Peak woodlandsnail (*Ashmunella macromphala*)	**Range:** Only known to occur in New Mexico in the Cooke's Mountain Range. Species is known from two rockslides, 400 m apart, on Cooke's Peak in Luna County, New Mexico and in a single, isolated population located in OK Canyon. **Habitat:** Occurs between 6,900 and 7,000 ft in montane habitat (evergreen forest, ponderosa pine-Gambel oak woodlands). Found under rock and debris within rock slides bordered by oaks. **References:** (BISON-M 2017e)	**None** Project Area occurs outside of species' known range and does not contain suitable habitat (evergreen forest, pine-oak woodlands).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Monarch butterfly (*Danaus plexippus plexippus*)	**Range:** Species occurs across most of the U.S. In New Mexico, species breeds in the spring and summer in the southern half of the state and breeds in the summer only in the northern half of the state. No overwintering or non-migratory populations occur in New Mexico **Habitat:** Presence of milkweed (*Asclepias* spp.) is critical for breeding habitat. Species is a habitat generalist; found in rangelands, agricultural areas, riparian areas, wetlands, deserts, prairies, meadows, open forests, woodlands, and roadsides where milkweed is present. **References:** (BISON-M 2015c, Jepsen et al. 2015)	**Unlikely** Project Area occurs within the species distribution range. However, the presence of milkweed was not noted within the Project Area during the field visit.	**No Effect** Project activities are planned for winter, outside of the species breeding season, so the species would not be present within the Project Area and would not be impacted by Project activities.
Shortneck snaggletooth snail (*Gastrocopta dalliana*)	**Range:** Known to occur in Arizona, New Mexico, and Mexico. In New Mexico, the species is only known from Indian Creek Canyon on the northern slope of Animas Peak. **Habitat:** Found at 5,900 ft. in leaf litter within a wooded canyon. **References:** (BISON-M 2019g)	**None** Project Area occurs outside of species' known range.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Cross holospira snail (*Holospira crossei*)	**Range:** Only known to occur in the Big Hatchet Mountains of New Mexico. **Habitat:** Wooded slopes and exposed areas in Big Hatchet Mountains. **References:** (BISON-M 2015b)	**None** Project Area occurs outside of species' known range.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Metcalf holospira snail (*Holospira metcalfi*)	**Range:** Endemic to Howells Ridge in the Little Hatchet Mountains of New Mexico. **Habitat:** Found at the base of the cliffs in Little Hatchet Mountains. **References:** (BISON-M 2017j)	**None** Project Area occurs outside of species' known range.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Anthony blister beetle (*Lytta mirifica*)	**Range:** Only known to occur in New Mexico. Species has been recorded in Doña Ana and New Mexico counties. **Habitat:** Chihuahuan desert, agricultural land, occur on flowers and foliage of various plant species. **References:** (BISON-M 2009)	**None** Project Area occurs outside of species' known range.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Sublette's fairy shrimp (*Phallocryptus sublettei*)	**Range:** Known to occur in New Mexico, Texas, and Utah. Species has been recorded in Otero County at Crow Flats, New Mexico. **Habitat:** Shallow water, temporary pools, shallow saline playa lakes that are dry during summer and fill in response to rain events. **References:** (BISON-M 2018w, NatureServe 2019b)	**None** Project Area occurs outside of species' known range and does not contain suitable habitat (shallow, temporary pools or lakes).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Fringed mountain snail (*Radiocentrum ferrissi*)	**Range:** Only known to occur in the Big Hatchet Mountains of New Mexico. **Habitat:** Cliffs at lower elevations in the southern Big Hatchet Mountains. **References:** (BISON-M 2018g)	**None** Project Area occurs outside of species' known range.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
A New Mexico talussnail (*Sonorella hachitana*)	**Range:** Only known to occur in the Big Hatchet Mountains of New Mexico. **Habitat:** Found within large groups of pines in the Big Hatchet Mountains, 7,400-7,500 ft. **References:** (BISON-M 2016a)	**None** Project Area occurs outside of species' known range.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
A New Mexico talussnail (*Sonorella hachitana flora*)	**Range:** Only known to occur in the Florida Mountains of New Mexico. **Habitat:** Pinyon juniper habitat in the Florida Mountains. **References:** (BISON-M 2016b)	**None** Project Area occurs outside of species' known range and does not contain suitable habitat (pinyon juniper woodlands).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Doña Ana talussnail (*Sonorella todseni*)	**Range:** Only known to occur in the Doña Ana Mountains of New Mexico. **Habitat:** Found on north-facing slope of Doña Ana Mountains in an area of igneous rock with sparse oak and xeric-adapted shrubs. **References:** (BISON-M 2017g)	**None** Project Area occurs outside of species' known range and does not contain suitable habitat (igneous rocks in oak woodlands).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Moore's fairy shrimp (*Streptocephalus moorei*)	**Range:** Known to occur in New Mexico and Mexico. In New Mexico, species is known from three pools in Luna County. **Habitat:** Found in freshwater temporary pools. Uses human made ephemeral catchments (stock tanks and road drains). **References:** (BISON-M 2017l, NatureServe 2019b)	**None** Project Area occurs outside of species' known range.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Bowman's fairy shrimp (*Streptocephalus thomasbowmani*)	**Range:** Known from two localities, an artificial impoundment in Socorro County New Mexico and a temporary pool in an Alkali Playa west of Lordsburg New Mexico. **Habitat:** Temporary warm water pools. **References:** (BISON-M 2015a)	**None** Project Area occurs outside of species' known distribution and does not contain suitable habitat (temporary warm water pools).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
M A M M A L S			
Mexican long-tongued bat (*Choeronycteris mexicana*)	**Range:** The current U.S. range for the species includes southern California, Arizona, Texas, and southwestern New Mexico. In New Mexico, species is known from the Animas, Guadalupe, and Peloncillo mountains. **Habitat:** Roosts in caves, abandoned mines, and rock shelves. The species is found in a variety of habitats from desertscrub up to oak and pinyon woodlands. Typically found in canyons within oak evergreen woodlands, semidesert grasslands, or transitional zones. Associated vegetation includes ocotillo, yucca, agave, manzanita, evergreen oak, and juniper. **References:** (AGFD 2006b, Arroyo-Cabrales, Hollander, and J. Knox Jones 1987, BISON-M 2018n, Hoffmeister 1986)	**None** Project Area contains suitable habitat (semidesert grasslands with yucca), but the current known range occurs south of the Project Area and no roosting habitat is present.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Townsend's big-eared bat (*Corynorhinus townsendii*)	**Range:** Can be found throughout the western U.S. **Habitat:** Known from a wide variety of habitats, with preference shown for desertscrub, oak woodland, pinyon-juniper and coniferous forests. Vegetation does not appear limiting to the species as opposed to hibernacula. Hibernacula are almost exclusively caves and abandoned mines with a considerable amount of air movement. Roost sites have open ceilings that this species prefers to hang from. Does not use cracks or crevices for roosts. Forages on small moths found on leaves in trees along forested edges. May forage up to 8 km (approximately 5 miles) from roost sites. Although individuals may be active during the winter, bats located in areas with temperatures predominantly below freezing rarely leave their hibernation roost, as forage options are scarce during winter months. Found at elevations between 550 and 7,570 ft but occurs mostly above 3,000 ft. **References:** (AGFD 2003a, BISON-M 2017m, Gruver and Keinath 2006, Hoffmeister 1986, Kunz 1982, Sullivan 2009)	**Possible** Suitable roosting and wintering habitat are not present within the Project Area, and the nearest abandoned mine shaft is approximately 3 miles southeast the Project Area (USGS 7.5 Quad White Signal). However, the Project Area is within the species range and contains suitable foraging habitat.	**No Effect.** There are no roost sites in the Project Area. Individuals are unlikely to forage during the time period when Project activities are planned (between January to early March), and so foraging would not be impacted. In the unlikely chance bats were to forage during Project activities, night-time activities would occur over a small area (100- x 100-ft drill pad), there is additional foraging habitat in the vicinity of the Project Area, and drilling activities would be limited to 30-45 days in total. Thus, given the presence of nearby alternative foraging areas, combined with the anticipated timing of Project activities during the winter when forage would be scarce and the limited period of Project operations, the disturbance associated with the Project is not expected to interfere with or disturb feeding or breeding activities for the species.
Black-tailed prairie dog (*Cynomys ludovicianus*)	**Range:** Arizona, Colorado, Kansas, Montana, North Dakota, Nevada, New Mexico, Oklahoma, South Dakota, Texas, Wyoming. In New Mexico, occurs in Chaves, Colfax, Curry, De Baca, Harding, Lea, Lincoln, More, Otero, Quay, Roosevelt, San Miguel, Sierra, Socorro, and Union counties. As of the 1990s, it was considered extirpated from the southwestern portion of New Mexico, thanks for eradication efforts. **Habitat:** Short and midgrass plains. Additional habitat associations include sacaton grasslands, sycamore and cottonwood stands, and rabbitbrush. Prefers areas with moderate to heavy amounts of herbaceous cover and is negatively associated with areas containing vegetation height in excess of 25 cm. **References:** (AGFD 2013b, BISON-M 2019e, Hoffmeister 1986)	**Unlikely.** No evidence of a prairie dog colony were noted during survey. The Project Area contains suitable habitat (semidesert grasslands), but also occurs at the edge the species' mapped range, where the species may be extirpated.	**May impact individuals but is not likely to results in a trend toward listing or loss of viability.** A limited number of individuals may pass through or forage within the Project Area. The Project would occur for a short period of time (less than one month) and the majority of disturbance would occur within the previous disturbance of the existing road. Only 0.6 acres of potential habitat would be impacted by Project activities. Individuals that may be hibernating within the disturbance area have the potential to be impacted by Project activities, but overall effects to the species would be limited.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Spotted bat (*Euderma maculatum*)	**Range:** Widespread but patchy distribution. In Canada: southern British Columbia. In the U.S.: central and eastern Washington, Idaho, south-central Montana, eastern Oregon, western Wyoming, western Colorado, western and southern Nevada, California, Arizona, western and central New Mexico, and western Texas. In Mexico: from adjacent populations in the U.S. south to Durango and Queretaro. **Habitat:** Species associated with low to high elevation desertscrub where they apparently roost singly in cracks and crevices on rocky cliffs near surface water. Also occupies riparian, pinyon-juniper woodlands, and coniferous forests in northwestern Arizona. It is considered an elevational migrant and occurs at elevations between 110 and 8,670 ft amsl. Bat activity has been recorded during winter months in areas with climates that support year-round insect populations and open water. **References:** (AGFD 2003b, BISON-M 2017o, Luce, Chambers, and Herder 2005, Lutch 2000, NatureServe 2019b)	**Unlikely** Project Area is within the known geographic range but outside the recorded distribution within New Mexico. The nearest recorded occurrences are in Lake Roberts and along the Gila River in Grant County, New Mexico (NMDGF 2018).	**No Effect.** There are no roost sites in the Project Area. Individuals are unlikely to forage during the time period when Project activities are planned (between January to early March), and so foraging would not be impacted. In the unlikely chance bats were to forage during Project activities night-time Project activities would occur over a small area (100-x 100-ft drill pad), there is additional foraging habitat in the vicinity of the Project Area, and drilling activities would be limited to 30-45 days in total. Thus, given the presence of nearby alternative foraging areas, combined with the anticipated timing of Project activities during the winter when forage would be scarce and the limited period of Project operations, the disturbance associated with the Project is not expected to interfere with or disturb feeding or breeding activities for the species.
Western yellow bat (*Lasiurus xanthinus*)	**Range:** Within the U.S. the species is known from the southern portions of the states of Arizona, California, Nevada, New Mexico, and Texas. In New Mexico the species is known from Guadalupe Canyon and two locations in the Animas Mountains. **Habitat:** The species is associated with fan palms in urban and suburban areas. The species is also associated with the riparian woodlands particularly those with broadleaf deciduous vegetation including sycamore and cottonwood. In New Mexico the species is associated with riparian woodlands populated with sycamore, cottonwood, and Arizona oak. **References:** (AGFD 2011c, BISON-M 2019h, Hoffmeister 1986)	**None** Project Area is outside of the species known range and does not contain suitable habitat (riparian woodlands).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Lesser long-nosed bat (*Leptonycteris yerbabuenae*)	**Range:** A summer migrant that winters in Central America, lesser long-nosed bats are found locally in the U.S. only in southern Arizona and extreme southwestern New Mexico from April to late September. **Habitat:** Desert grassland and shrubland through oak transition where columnar cacti and agaves grow. Roosts in caves, abandoned mines, and occasionally old buildings. Forages at night on nectar, pollen, and possibly the fruit of columnar cacti and agaves. Found at elevations generally below 3,500 ft April to July, expanding up to about 5,500 ft late summer; records from 1,190 to 7,320 ft **References:** (AGFD 2011b, BISON-M 2018l, Hoffmeister 1986, USFWS 2005)	**None** Project Area is outside of the species known range.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
White-sided jack rabbit (*Lepus callotis*)	**Range:** Within the U.S. the species is currently only found in southwestern New Mexico within the extreme southern portion of Hidalgo County in the Animas and Playa Valleys. **Habitat:** Well developed grasslands with minimal shrub density. **References:** (BISON-M 2018y)	**None** Project Area is outside of the species known range.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Arizona shrew (*Sorex arizonae*)	**Range:** The known range for this species is limited to the Chiricahua, Huachuca, and Santa Rita mountains in Arizona and the Animas Mountains in New Mexico. **Habitat:** Mesic montane woodlands. Found at elevations between 5,168 and 9,187 ft **References:** (AGFD 1999a, BISON-M 2017b)	**None** Project Area is outside of the species known range and does not contain suitable habitat (mesic montane woodlands).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
R E P T I L E S			
Gray-checkered whiptail (*Aspidoscelis dixoni*)	**Range:** Known range limited to two localities one in Hidalgo County, New Mexico and one in Presidio County Texas. Known range in New Mexico limited to a 3- x 5-mile area known as Antelope Pass in the foothills of the Peloncillo Mountains. **Habitat:** Desert shrublands and degraded grasslands with vegetation associations including; creosotebush, mesquite, acacia, and tarbush. Found at elevations between 900 and 4,265 ft. **References:** (BISON-M 2018k)	**None** Project Area occurs outside of species' known distribution.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 3. Screening Analysis of Potential for BLM Las Cruces District Sensitive Species to Occur within Project Area

Species	Range and Habitat	Potential to Occur	Effects Determination
Gila monster (*Heloderma suspectum*)	**Range:** The known range for the species includes portions of Arizona, California, Nevada, New Mexico and Utah. In New Mexico the species is found in the southwestern portions of the state including the Gila Valley, Peloncillo Mountains and around Lordsburg. **Habitat:** Mountains and canyons along with associated adjacent plains and arroyos. Vegetation associations include; mesquite grasslands and bosques, desertscrub, and riparian areas. Species is active from March-November, although it spends 96 percent of its time in sub-surface refugia. **References:** (AGFD 2013c, BISON-M 2018q, NMDGF 2018)	**None** Project Area occurs at the eastern edge of the species known range, with only a couple isolated records occurring in Grant County, and the Project Area does not provide suitable sub-surface refugia habitat.	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.
Desert massasauga (*Sistrurus tergeminus*)	**Range:** Known to occur in Arizona, Colorado, New Mexico, Oklahoma, Texas, and Mexico. **Habitat:** Desert grasslands between 925 and 2100 m; most abundant on prairie wetlands. Populations in New Mexico tend to avoid rocky habitat. **References:** (AGFD 2001c, BISON-M 2017f)	**Possible** Project Area is within the species known range and contains suitable habitat (semidesert grasslands).	**May impact individuals but is not likely to results in a trend toward listing or loss of viability.** Individuals are not expected to pass through or forage within the Project Area during Project activities, as the Project would occur during hibernation. The Project would occur for a short period of time (less than one month) and the majority of disturbance would occur within the previous disturbance of the existing road. Only 0.6 acres of potential habitat would be impacted by Project activities. Individuals that may be hibernating within the disturbance area have the potential to be impacted by Project activities, but overall effects to the species would be limited.
Big Bend slider (*Trachemys gaigeae*)	**Range:** Known to occur in New Mexico, Texas, and Mexico. Occurs within the Rio Grande and Rio Conchos drainage systems. **Habitat:** Found in ponds and streams along rivers, prefers permanent bodies of water; 1,280-1,410 m **References:** (BISON-M 2018c)	**None** Project Area occurs outside the species known range and does not contain suitable habitat (ponds and streams along rivers).	**No Effect** The species does not have the potential to occur within the Project Area and would not be impacted by Project activities.

Table 4. Screening Analysis of BGEPA Species within the Project Area

Species	Habitat and Range	Potential to Occur	Effects Analysis
Bald Eagle (*Haliaeetus leucocephalus*) BLM - S; BGEPA*	**Range:** Known from southern Arizona in Aravaipa Creek, and the Santa Catalina, Galiuro, Sierra Ancha, and Superstition mountains, and in Eagle Creek near Morenci. **Habitat:** Occurs in shady riparian canyon bottoms, near streams within oak woodlands or deciduous riparian woodlands near permanent water. Substrates include alluvium comprised of gravel, sand, and silt at elevations between 1,500 and 5,000 ft amsl. **References:** (AGFD 2011a, ARPC 2001)	**None** The Project Area does not contain any suitable foraging or nesting habitat, as the Project Area is flat and open, and does not occur in a riparian canyon bottom or near a perennial stream with oak woodlands or riparian vegetation.	**No Effect** The species has no potential to occur within the Project Area and would not be impacted by project activities.
Golden eagle (*Aquila chrysaetos*) BGEPA	**Range:** In Arizona, the species is described as a fairly common resident in suitable habitat throughout the state. **Habitat:** Breeds in pinyon pine-juniper woodlands, Sonoran desertscrub, Madrean evergreen oak woodlands, semiarid grasslands, chaparral, and landscapes dominated by big sagebrush. It is known to construct its nest in areas with little to no human activity, in tall trees, cliffs, canyons, or rock ledges, near large open areas where they forage for prey. Golden eagles are known to forage within 4.4 miles of the nest, generally in open habitats where prey is available. **References:** (Corman and Wise-Gervais 2005, Kochert et al. 2002, Tesky 1994)	**Possible** The Project Area is within the species' geographic range and contains appropriate foraging habitat for the species (open habitats where rabbits and small rodents are available). No suitable nesting habitat (tall trees, cliffs, canyons, or rock ledges with little to no human activity) is present within the Project Area. However, this species has been reported from within 3 miles of the Project Area (**Appendix E**) and the area is likely used for foraging.	**No Potential to Result in Take** **May temporarily impact individuals but is not likely to result in a trend toward listing or loss of viability.** The footprint of disturbance associated with the Project is small relative to the species' territory size, and additional foraging habitat is immediately adjacent to the Project Area. Thus, given nearby alternative foraging areas and the ability of the eagles to forage widely across the landscape, the disturbance associated with the Project is not expected to interfere with or disturb feeding to the extent of reducing the productivity of an eagle.

* Bald and Golden Eagle Protection Act

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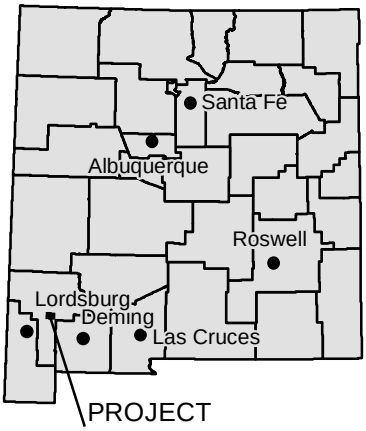
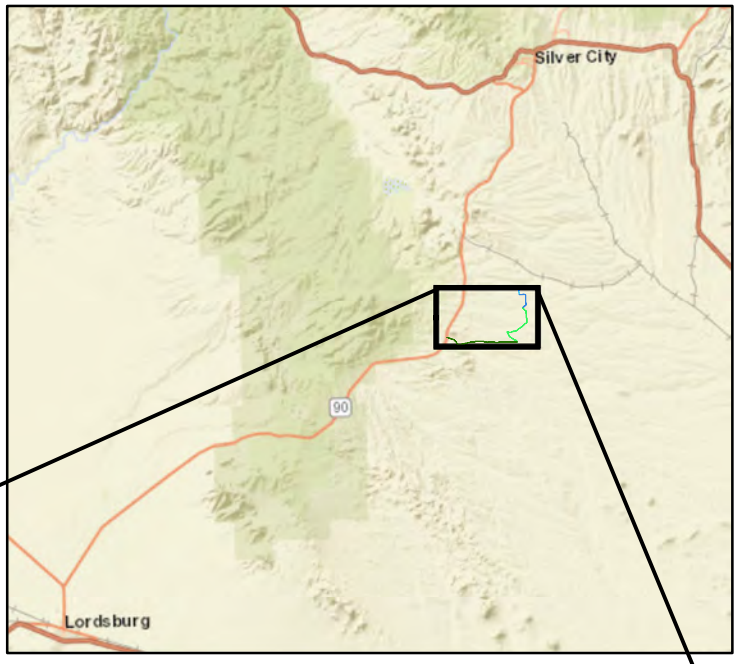
FIGURES

NEW MEXICO



PROJECT VICINITY



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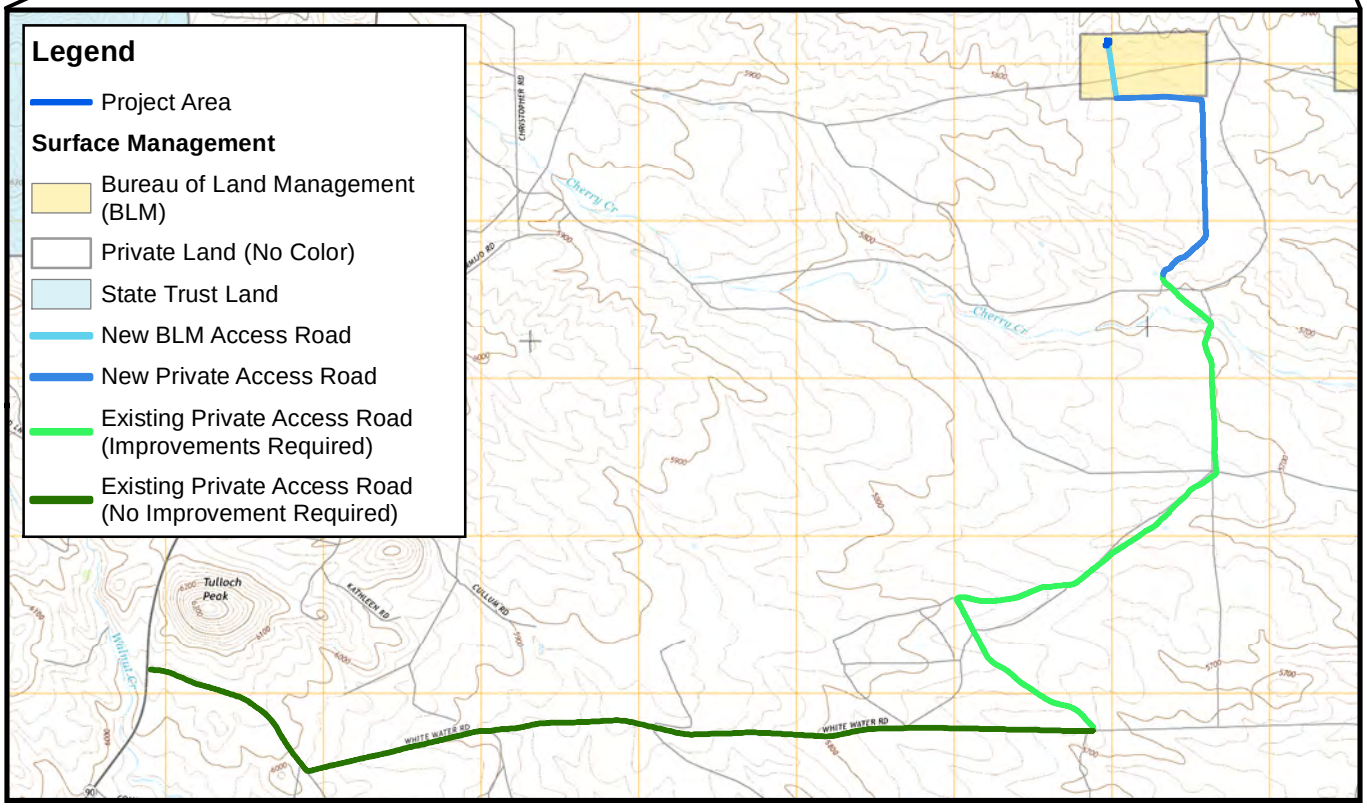


T20S, R14W, Portions of Sections 4, 9, 10, 15-18 and 21,
T20S, R15W, Portions of Sections 13, 14 and 24,
Grant County, New Mexico
White Signal USGS 7.5' Quadrangle
Data Source: BHP
Surface Management: BLM 2014
Image Source: ArcGIS Online, World Street Map

WestLand Resources

N

0 2,000 4,000 Feet

0 600 1,200 Meters

BHP MINERAL RESOURCES INC.

Biological Evaluation for Oak Grove
BLM Notice for Exploration Drilling
Grant County, New Mexico

VICINITY MAP

Figure 1

Path: M:\Jobs\1800's\1883.18\ENV\BE\mxd\ReportFigures\02 ProjectAreaAndAccess.mxd

Date: 10/29/2019 User: evinson

T20S, R14W, Portions of Sections 4, 9, 10, 15-18 and 21,
T20S, R15W, Portions of Sections 13, 14 and 24,
Grant County, New Mexico
Data Source: BHP, National Hydrography Dataset
Surface Management: BLM 2014
Image Source: ArcGIS Online, World Imagery 04/27/2018

Legend

- Drill Pad
- Laydown Yard
- New BLM Access Road
- New Private Access Road
- Existing Private Access Road (Improvements Required)
- Existing Private Access Road (No Improvement Required)

Surface Management

- Bureau of Land Management (BLM)
- Private Land (No Color)
- State Trust Land

N

0 1,250 2,500 Feet

0 400 800 Meters

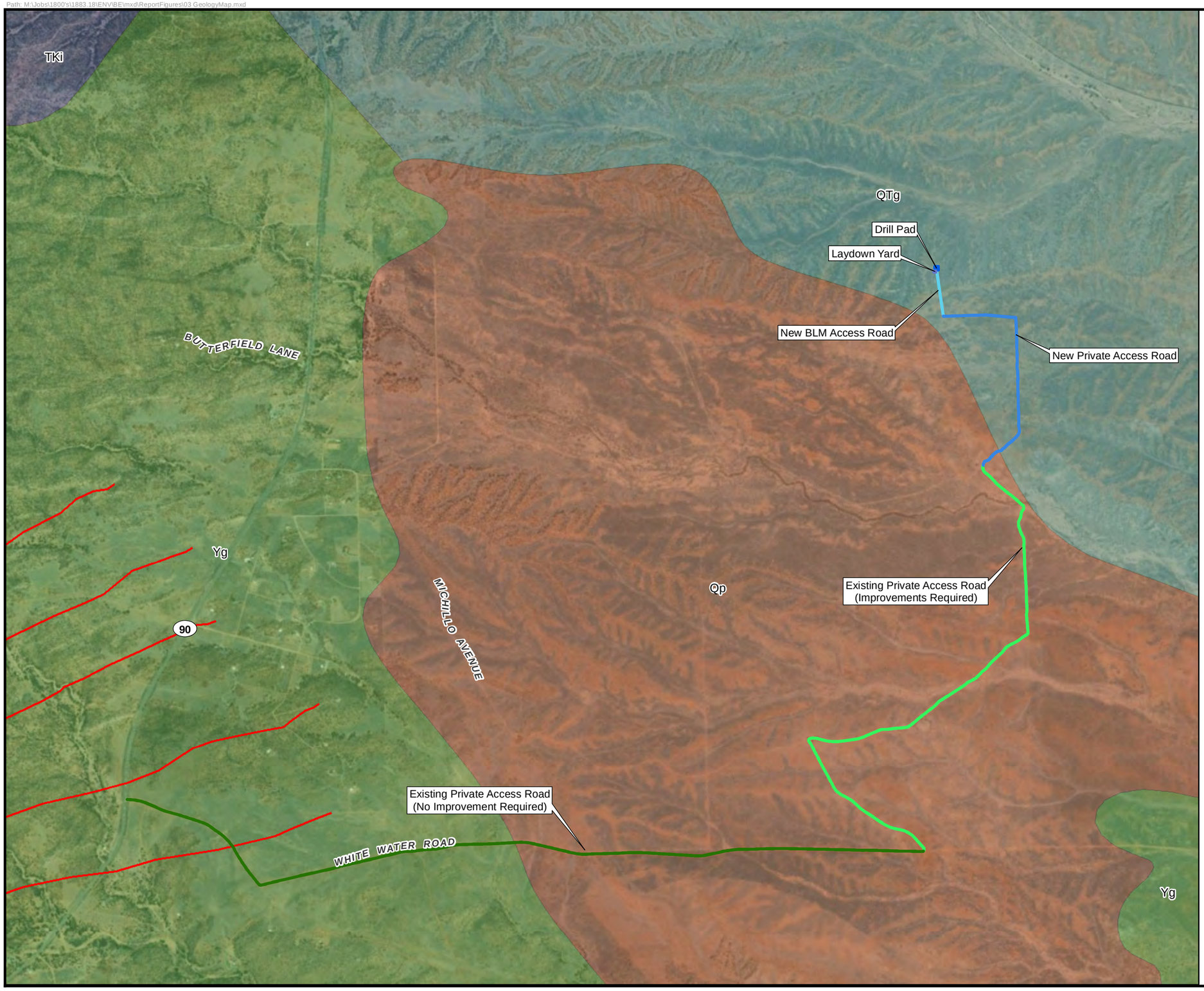
WestLand Resources

BHP MINERAL RESOURCES INC.

Biological Evaluation for Oak Grove
BLM Notice for Exploration Drilling
Grant County, New Mexico

PROJECT AREA AND ACCESS

Figure 2



T20S, R14W, Portions of Sections 4, 9, 10, 15-18 and 21,
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Grant County, New Mexico
Data Source: BHP,
New Mexico Bureau of Geology and Mineral Resources, 2003,
Geologic Map of New Mexico
Image Source: ArcGIS Online, World Imagery 04/27/2018

Legend

- Drill Pad
- Laydown Yard
- New BLM Access
- New Private Access
- Existing Private Access Road (Improvements Required)
- Existing Private Access Road (No Improvement Required)

New Mexico Bureau of Geology and Mineral Resources

- Dike
- QTg - Gila Group, Formation, or Conglomerate
- Qp - Piedmont alluvial deposits
- TKi - Tertiary-Cretaceous intrusive rocks
- Yg - Mesoproterozoic granitic plutonic rocks

N

0 1,250 2,500 Feet

0 400 800 Meters

WestLand Resources

BHP MINERAL RESOURCES INC.

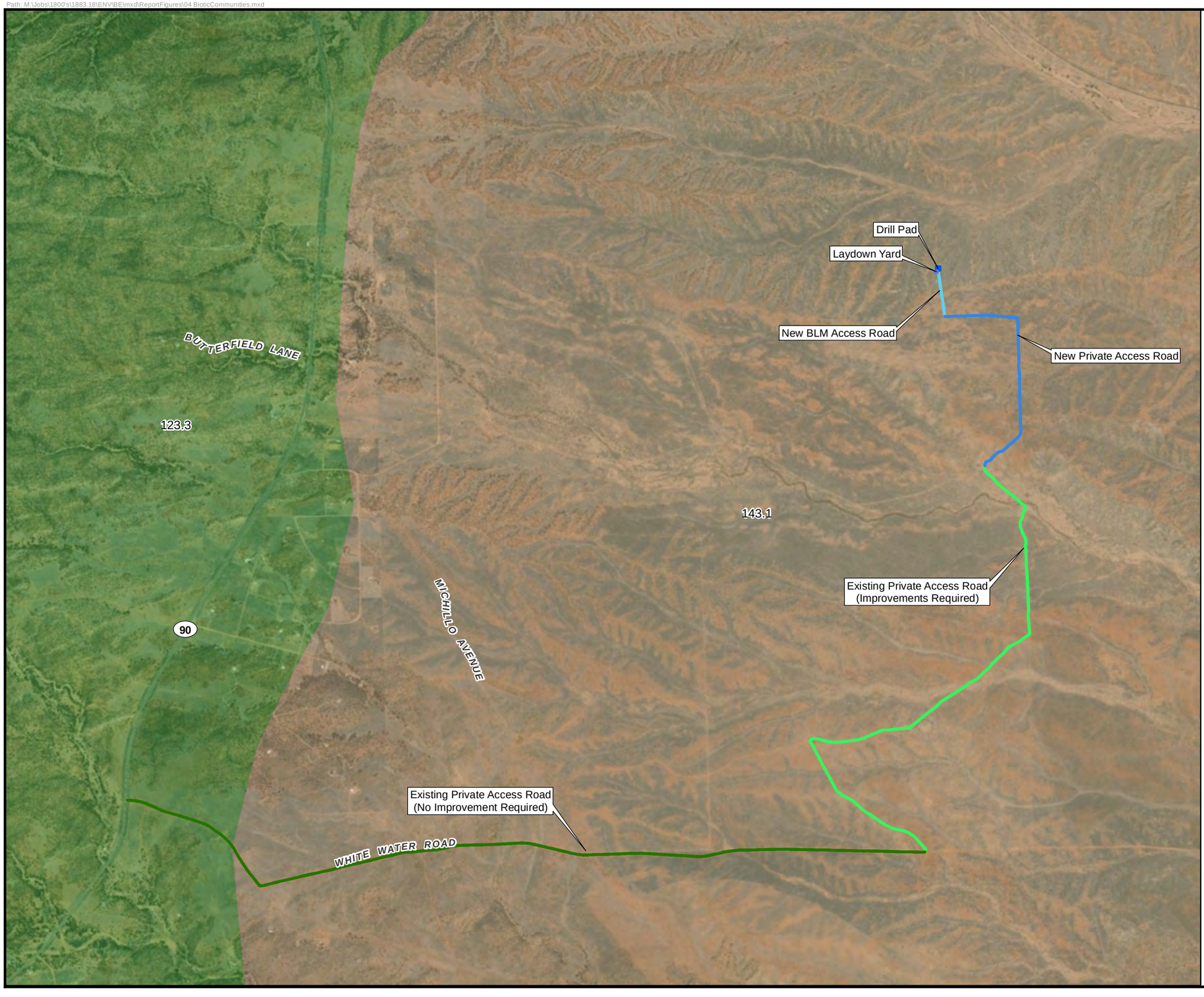
Biological Evaluation for Oak Grove
BLM Notice for Exploration Drilling
Grant County, New Mexico

GEOLOGY MAP

Figure 3

Path: M:\Jobs\1800's\1883.18\ENV\BE\mxd\ReportFigures\04 BioticCommunities.mxd

Date: 10/29/2019 User: evinson



T20S, R14W, Portions of Sections 4, 9, 10, 15-18 and 21,
T20S, R15W, Portions of Sections 13, 14 and 24,
Grant County, New Mexico
Data Source: BHP,
Brown and Lowe's Biotic Communities of the Southwest (1980),
developed by The Nature Conservancy in Arizona (2004)
Image Source: ArcGIS Online, World Imagery 04/27/2018

Legend

- Drill Pad
- Laydown Yard
- New BLM Access Road
- New Private Access Road
- Existing Private Access Road (Improvements Required)
- Existing Private Access Road (No Improvement Required)

Biotic Community

- 123.3 Madrean Evergreen Woodland
- 143.1 Semidesert Grassland

N

0 1,250 2,500 Feet

0 400 800 Meters

WestLand Resources

BHP MINERAL RESOURCES INC.

Biological Evaluation for Oak Grove
BLM Notice for Exploration Drilling
Grant County, New Mexico

BIOTIC COMMUNITIES

Figure 4

APPENDIX A

USFWS IPaC Report

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: October 24, 2019
Consultation Code: 02ENNM00-2020-SLI-0099
Event Code: 02ENNM00-2020-E-00215
Project Name: Oak Grove

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: 02ENNM00-2020-SLI-0099

Event Code: 02ENNM00-2020-E-00215

Project Name: Oak Grove

Project Type: MINING

Project Description: One drill hole for exploration drilling south of Tyrone, NM in January, 2020.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/32.58044985143583N108.28695834673397W

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
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

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:

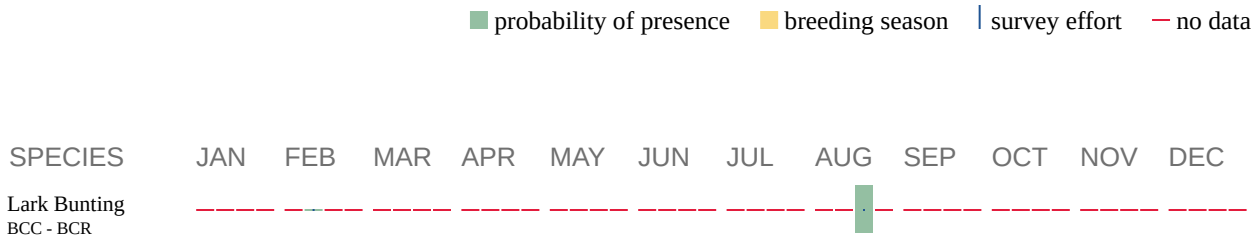
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability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

APPENDIX B

New Mexico BLM Sensitive Species List

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Amphibians													
Anaxyrus (Bufo) microscaphus	Southwestern (Arizona) toad	None	None	Potential	Verified	Verified	None	None	G3G4	S3	Under Review	SGCN	**BLM Sensitive**
Lithobates (Rana) pipiens	Northern leopard frog	Verified	Verified	Verified	Verified	None	None	None	G5	S3	None	SGCN	**BLM Sensitive**
Amphibians - Watch													
Craugastor (Eleutherodactylus) augusti latrans	Eastern barking frog	None	None	None	None	Verified	Verified	Verified	G5T4	S2S3	None	SGCN	**Watch**
Gastrophryne olivacea	Western narrowmouth toad	None	Potential	None	None	Verified	None	Verified	G5	S1	None	Endangered, SGCN	**Watch**
Lithobates (Rana) blairi	Plains leopard frog	Verified	Verified	None	None	Verified	Verified	Verified	G5	S4	Former FWS Species	SGCN	**Watch**
Lithobates yavapaiensis	Lowland Leopard Frog	None	None	None	Potential	Potential	None	None	G4	S1	None	SCGN	**Watch *New***
Arthropods													
Danaus plexippus plexippus	Monarch Butterfly	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	SNR	Under Review	None	**BLM Sensitive *New***
Lytta mirifica	Anthony Blister Beetle	None	None	None	None	Verified	None	None	G2	SH	Former Category 2	Former (2006)	**BLM Sensitive**
Ochlodes yuma anasazi	Yuma Skipper	None	Verified	None	None	None	None	None	G5	SNR	None	None	**BLM Sensitive**
Arthropods - Watch													
Bombus occidentalis	Western Bumble Bee	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	SNR	None	None	**Watch *New***
Deronectes (Stictotarsus)	Bonita Diving Beetle	None	None	None	None	None	Potential	None	G2	SNR	Former Category 2	Former (2006)	**Watch *New***
Birds													
Aimophila boterii	Botteri's Sparrow	None	None	None	None	Verified	None	None	G4	S1B,S1N	None	SGCN	**BLM Sensitive *New***
Ammodramus bairdii	Baird's Sparrow	None	None	None	None	Verified	None	None	G4	S1N	None	Threatened	**BLM Sensitive**
Ammodramus savannarum	Arizona Grasshopper	None	None	None	None	Verified	None	None	G5TU	S1B,S1N	None	Endangered	**BLM Sensitive**
Athene cunicularia	Western Burrowing Owl	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4T4	S3	None	SGCN	**BLM Sensitive**
Anthus spragueii	Sprague's Pipit	None	None	None	Potential	Verified	Verified	Verified	G3G4	S2N	None	SGCN	**BLM Sensitive**
Antrostomus arizonae	Mexican Whip-poor-will	Potential	Verified	Verified	Verified	Verified	Potential	Potential	GNR	SNR	None	SGCN	**BLM Sensitive *New***
Calcarius mccownii	McCown's Longspur	None	Potential	None	Potential	Verified	Verified	Verified	G4	S3N	None	SGCN	**BLM Sensitive *New***
Calcarius ornatus	Chestnut-collared Longspur	Potential	Verified	None	Verified	Verified	Verified	Verified	G5	S3N	None	SGCN	**BLM Sensitive**
Gymnorhinus	Pinyon Jay	Verified	Verified	Verified	Verified	Verified	Verified	Potential	G3	S2S3	None	SGCN	**BLM Sensitive**
Toxostoma bendirei	Bendire's Thrasher	Verified	Potential	Verified	Verified	Verified	Potential	None	G4	S3B,S3N	None	SGCN	**BLM Sensitive**

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Tympanuchus pallidicinctus	Lesser Prairie-chicken	None	None	None	None	None	Verified	Verified	G3	S2B,S2N	Under Review	SGCN	**BLM Sensitive**
Vireo bellii arizonae	Bell's Vireo	None	Verified	None	Verified	Verified	Verified	Verified	G5	S2B,S3N	None	Threatened SGCN	**BLM Sensitive**
Vermivora virginiae	Virginia's Warbler	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S3B,S4N	None	SGCN	**BLM Sensitive *New***
Birds - Watch													
Aphelocoma woodhouseii	Woodhouse's Scrub- Jay	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S5B, S5N	None	None	**Watch *New***
Aquila chrysaetos	Golden Eagle	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	SB3, S4N	None	None	**Watch**
Baeolophus ridgwayi	Juniper Titmouse	Verified	Verified	Verified	Verified	Verified	Potential	Potential	G5	S4B	None	SGCN	**Watch *New***
Botaurus lentiginosus	American Bittern	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	S2	None	SGCN	**Watch**
Buteogallus anthracinus	Common Black-Hawk	Potential	Potential	Verified	Verified	Verified	Verified	Verified	G4G5	S2B,S3N	None	Threatened SGCN	**Watch**
Callipepla squamata	Scaled Quail	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S3	None	None	**Watch *New***
Camptostoma imberbe	Northern Beardless-	None	None	None	None	Verified	None	None	G5	S1B,S1N	None	Endangered	**Watch**
Carpodacus cassinii	Cassin's Finch	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S3B,S5N	None	SGCN	**Watch**
Charadrius montanus	Mountain Plover	Verified	Verified	Verified	Verified	None	None	None	G3	S2B,S4N	None	SGCN	**Watch**
Columbina passerina	Common Ground Dove	None	None	None	Potential	Verified	Potential	Verified	G5	S1B,S1N	None	Endangered	**Watch**
Falco peregrinus	Peregrine Falcon								G4T4	S2B, S3N	Delisted in 1999	SGCN	**Watch *New***
Lanius ludovicianus	Loggerhead Shrike	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	S3	None	SGCN	**Watch**
Melanerpes lewis	Lewis's Woodpecker	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	S3B,S3N	None	SGCN	**Watch *New***
Meleagris gallopavo mexicana	Gould's Wild Turkey	None	None	None	None	Verified	None	None	G5T3	S2B S2N	None	Threatened SGCN	**Watch**
Micrathene whitneyi	Elf Owl	None	None	Verified	Verified	Verified	None	None	G5	S3B,S3N	None	SGCN	**Watch**
Numenius americanus	Long- billed Curlew	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	SB3, S4N	None	SGCN	**Watch**
Oreoscoptes montanus	Sage Thrasher	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	S3B,S4N	None	None	**Watch**
Passerina ciris	Painted Bunting	None	None	None	None	Verified	Potential	Verified	G5	S4B,S4N	None	None	**Watch**
Psiloscops flammeolus	Flammulated Owl								G4	S3B, S3N	None	SGCN	**Watch *New***
Setophaga graciae	Grace's Warbler	Verified	Verified	Verified	Verified	Verified	Verified	None	G5	S3B, S4N	None	SGCN	**Watch *New***
Setophaga nigrescens	Black-throated Gray	Verified	Verified	Verified	Verified	Verified	Verified	None	G5	S3B,S4N	None	SGCN	**Watch *New***
Spizella atrogularis evura	Black-chinned Sparrow	None	None	Verified	Verified	Verified	Verified	Verified	G5	S3B,S3N	None	SGCN	**Watch**

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Vermivora luciae	Lucy's Warbler	None	None	None	Verified	Verified	None	None	G5	S3B,S4N	None	SGCN	**Watch**
Vireo vicinior	Gray Vireo	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S4B S3N	None	Threatened SGCN	**Watch**
Crustaceans													
Eulimnadia follisimilis	Clam Shrimp	None	None	None	Verified	None	Verified	None	GNR	SNR	None	SGCN	**BLM Sensitive**
Phallocryptus sublettei	Salt Playa (Sublette's) Fairy Shrimp	None	None	None	None	Verified	None	None	G2	SNR	None	SGCN	**BLM Sensitive**
Streptocephalus moorei	Moore's Fairy Shrimp	None	None	None	None	Verified	None	None	G1	SNR	None	SGCN	**BLM Sensitive**
Streptocephalus	Bowman's Fairy Shrimp	None	None	None	None	Verified	None	None	G1	SNR	None	SGCN	**BLM Sensitive**
Crustaceans - Watch													
Eocyzicus concavus	Sway-backed Clam Shrimp	None	None	None	None	None	Potential	None	G1G3Q	SNR	None	SGCN	**Watch *New***
Lepidurus lemmoni	Lynch's Tadpole	None	None	None	None	Verified	None	None	G4	SNR	None	SGCN	**Watch *New***
Thamnocephalus mexicanus	Mexican Beavertail	None	None	None	None	Potential	None	None	G3	SNR	None	SGCN	**Watch *New***
Fish													
Astyanax mexicanus	Mexican Tetra	None	None	None	None	None	Verified	Verified	G5	S2	None	SGCN	**BLM Sensitive**
Catostomus clarkii	Desert Sucker	None	None	None	Potential	Verified	None	None	G3G4	S2	Former species of consern	SGCN	**BLM Sensitive**
Catostomus insignis	Sonora Sucker	None	None	None	Potential	Verified	None	None	G3G4	S2	Former species of consern	SGCN	**BLM Sensitive**
Catostomus plebeius	Rio Grande Sucker	None	Verified	Potential	Potential	Verified	Potential	Potential	G3G4	S2	None	SGCN	**BLM Sensitive**
Cycleptus elongatus	Blue Sucker	None	None	None	None	None	Potential	Verified	G3G4	S1	None	Endangered SGCN	**BLM Sensitive**
Cyprinodon pecosensis	Pecos Pupfish	None	None	None	None	None	Verified	Verified	G2	S1	Former species of consern	SGCN	**BLM Sensitive**
Etheostoma lepidum	Greenthroat Darter	None	None	None	None	None	Verified	Verified	G3G4	S2	Former species of consern	Threatened SGCN	**BLM Sensitive**
Gila pandora	Rio Grande Chub	None	Verified	Potential	Potential	Potential	Verified	Verified	G3	S3	None	SGCN	**BLM Sensitive**
Gila robusta	Roundtail Chub	Potential	Potential	Potential	Potential	Verified	None	None	G3	S2	None	Endangered SGCN	**BLM Sensitive**
Macrhybopsis tetranema	Peppered Chub	None	Potential	None	None	None	None	None	G1	S1	Former species of consern	SGCN	**BLM Sensitive**
Moxostoma congestum	Gray Redhorse	None	None	None	None	None	None	Verified	G4	S1	Former species of consern	Endangered SGCN	**BLM Sensitive**
Percina macrolepida	Bigscale Logperch	None	Introduced	None	None	None	Verified	Verified	G5	S2	None	Threatened SGCN	**BLM Sensitive**
Phenacobius mirabilis	Suckermouth Minnow	None	Verified	None	None	None	Verified	None	G5	S2	None	SGCN	**BLM Sensitive**

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Fish - Watch													
Agosia chrysogaster	Longfin Dace	None	None	None	Potential	Verified	Verified	None	G4	S3S4	Former FWS Species of Concern	None	**Watch *New***
Ictiobus bubalus	Smallmouth Buffalo	None	None	None	Potential	Verified	Verified	Verified	G5	S3S4	None	None	**Watch *New***
Catostomus discobolus discobolus	Bluehead Sucker	Verified	None	None	None	None	None	None	G4T4	S2	None	None	**Watch *New***
Catostomus latipinnis	Flannelmouth Sucker	Verified	Potential	None	None	Potential	None	None	G3G4	S1	Former Category 2 Candidate	None	**Watch *New***
Ictalurus lupus	Headwater Catfish	None	None	None	None	None	Verified	Verified	G3	S1	Former species of consern	None	**Watch *New***
Macrhybopsis aestivalis	Speckled Chub	None	Potential	None	None	None	Verified	Verified	G3G4	S2	None	None	**Watch *New***
Notropis jemezanus	Rio Grande Shiner	None	None	None	Potential	None	Verified	Verified	G3	S2	Former species of consern	None	**Watch *New***
Oncorhynchus clarki virginalis	Rio Grande Cutthroat Trout	None	Potential	Potential	Potential	Potential	Potential	None	G5	S2	Former Candidate	None	**Watch *New***
Mammals													
Choeronycteris mexicana	Mexican long-tongued bat	None	None	None	None	Verified	None	Potential	G3G4	S2S3	None	SGCN	**BLM Sensitive**
Corynorhinus townsendii	Townsend's big-eared bat	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G3G4T3T4	S3S4	None	SGCN	**BLM Sensitive**
Cynomys gunnisoni	Gunnison's prairie dog	Verified	Verified	Verified	Verified	None	None	None	G5	S2	None	SGCN	**BLM Sensitive**
Cynomys ludovicianus	Black-tailed prairie dog	None	Verified	Potential	Potential	Verified	Verified	Verified	G4	S2	None	SGCN	**BLM Sensitive**
Euderma maculatum	Spotted bat	Verified	Verified	Verified	Verified	Verified	Verified	Potential	G4	S3	None	Threatened, SGCN	**BLM Sensitive**
Lasiurus xanthinus	Western yellow bat	None	None	None	None	Verified	None	None	G5	S1	None	Threatened, SGCN	**BLM Sensitive**
Leptonycteris yerbabuenae	Lesser long-nosed bat	None	None	None	None	Verified	None	None	G3	S3	Delisted 2018	Threatened, SGCN	**BLM Sensitive**
Lepus callotis	White-sided jack rabbit	None	None	None	None	Verified	None	None	G4T3	S1	None	Threatened,	**BLM Sensitive**
Sorex arizonae	Arizona shrew	None	None	None	None	Verified	None	None	G3	S1	None	Endangered	**BLM Sensitive *New***
Mammals - Watch													
Cratogeomys castanops	Yellow-faced pocket	None	Verified	Verified	Verified	Verified	Verified	Verified	G5	S2	None	None	**Watch**
Cryptotis parva	Least shrew	None	Potential	None	None	None	Verified	Verified	G5	S2	None	Threatened,	**Watch *New***
Idionycteris phyllotis	Allen's lappet-browed	None	None	Potential	Verified	Verified	None	None	G4	S3	None	None	**Watch *New***
Lasiurus blossevillii	Western red bat	None	None	None	Verified	Verified	Potential	None	G4	S3	None	None	**Watch *New***

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Lepus townsendii	White-tailed jack rabbit	Potential	Verified	None	None	None	None	None	G5	S3	None	None	**Watch**
Nasua narica	White-nosed coati	None	None	None	Verified	Verified	None	None	G5	S2	None	None	**Watch *New***
Nyctinomops femorosaccus	Pocketed free-tailed	None	None	None	None	Verified	None	Verified	G4	S1	None	None	**Watch**
Ovis canadensis mexicana	Desert bighorn sheep	None	None	None	Verified	Verified	None	None	G3	S1	None	Threatened	**Watch**
Reithrodontomys fulvescens canus	Fulvous harvest mouse	None	None	None	None	Verified	None	None	G5	S1	None	None	**Watch**
Sigmodon ochrognathus	Yellow-nosed cotton rat	None	None	None	None	Verified	None	None	G4	S2	None	None	**Watch**
Thomomys umbrinus	Southern pocket	None	None	None	Potential	Verified	None	None	G5T2	S2	None	Threatened,	**Watch *New***
Mollusks													
Ashmunella hebardi	Hacheta Grande Woodlandsnail	None	None	None	None	Verified	None	None	G1	S1	None	SGCN	**BLM Sensitive *New***
Ashmunella macromphala	Cooke's Peak	None	None	None	None	Verified	None	None	G1	S1	None	SGCN	**BLM Sensitive *New***
Gastrocopta dalliana dalliana	Shortneck Snaggletooth Snail	None	None	None	None	Potential	None	None	G2G4	S3S4	None	SGCN	**BLM Sensitive *New***
Holospira crossei	Cross Holospira Snail	None	None	None	None	Verified	None	None	G2	S1	None	SGCN	**BLM Sensitive *New***
Holospira metcalfi	Metcalf Holospira Snail	None	None	None	None	Verified	None	None	G1	S1	None	SGCN	**BLM Sensitive *New***
Pyrgulopsis pecosensis	Pecos Springsnail	None	None	None	None	None	None	Potential	G1	S1	None	SGCN	**BLM Sensitive *New***
Radiocentrum ferrissi	Fringed Mountainsnail	None	None	None	None	Potential	None	None	G1	S1	None	SGCN	**BLM Sensitive *New***
Sonorella hachitana	New Mexico Talussnail	None	None	None	None	Verified	None	None	G2	S2	None	SGCN	**BLM Sensitive *New***
Sonorella hachitana flora	New Mexico Talussnail	None	None	None	None	Verified	None	None	G2T1	S1	None	SGCN	**BLM Sensitive *New***
Sonorella todseni	Doña Ana Talussnail	None	None	None	None	Verified	None	None	G1	S1	Former Category 2	SGCN	**BLM Sensitive *New***
Mollusks -Watch													
Ashmunella amblya cornudasensis	Woodlandsnail	None	None	None	None	Potential	None	None	G3T3	S3	None	SGCN	**Watch *New***
Holospira animasensis	Animas Mountains Holospira Snail	None	None	None	None	Potential	None	None	G1G2	S1	None	SGCN	**Watch *New***
Reptiles													
Aspidoscelis dixoni	Gray-checkered Whiptail	None	None	None	None	Verified	None	None	G3G4	S1	None	Endangered SGCN	**BLM Sensitive**

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Heloderma suspectum	Gila Monster	None	None	None	None	Verified	None	None	G4	S2	None	Endangered, SGCN	**BLM Sensitive**
Pseudemys gorzugi	Western River (Rio Grande) Cooter	None	None	None	None	None	Verified	Verified	G3G4	S2	Under Review	Threatened, SGCN	**BLM Sensitive**
Sceloporus arenicolus	Dunes Sagebrush Lizard	None	None	None	None	None	Verified	Verified	G2G3	S2	Formerly proposed, withdrawn following	Endangered SGCN	**BLM Sensitive**
Sistrurus tergeminus	Desert massasauga	None	None	Verified	Verified	Verified	Verified	Verified	G3G4T3T4	S3	Under Review	SGCN	**BLM Sensitive *New***
Trachemys gaigeae	Big Bend Slider	None	None	None	Verified	Verified	None	None	G3	S2	None	SGCN	**BLM Sensitive**
Reptiles - Watch													
Aspidoscelis stictogramma	Giant Spotted Whiptail	None	None	None	None	Verified	None	None	G4	S1	None	Threatened, SGCN	**Watch**
Crotalus cerberus	Arizona black rattlesnake	None	None	None	Verified	Verified	None	None	G5	SNR	None	SGCN	**Watch *New***
Crotalus lepidus lepidus	Mottled Rock Rattlesnake	None	None	None	None	Verified	Potential	Verified	G5T4T5	S2	None	Threatened, SGCN	**Watch**
Lampropeltis alterna	Gray-banded Kingsnake	None	None	None	None	None	None	Verified	G5	S1	None	Endangered, SGCN	**Watch**
Sceloporus slevini	Slevin's Bunchgrass Lizard	None	None	None	None	Verified	None	None	G4	S1	None	Threatened, SGCN	**Watch**

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Plants													
Abronia bigelovii	Sand verbena, Galisteo		Potential	Verified					G3	S2	None	Species of Concern	BLM SENSITIVE
Acarospora clauzadeana	Lichen, acarospora clauzadeana						Verified		G1G2	S1	Petitioned/ negative 90 day finding	None	BLM SENSITIVE
Agastache pringlei var. *verticillata*	Giant hyssop, Organ Mountains					Verified			G3G4T2	S2	None	Species of Concern	BLM SENSITIVE *New*
Aliciella formosa	Gilia, Aztec	Verified							G2	S2	Petitioned/ negative 90 day finding	Endangered	BLM SENSITIVE
Amsonia fugatei	Amsonia, Fugate's				Verified				G2	S2	None	Species of Concern	BLM SENSITIVE
Amsonia tharpii	Bluestar, Tharp's							Verified	G1	S1	Petitioned/ positive 90 day finding	Endangered	BLM SENSITIVE
Anulocaulis leiosolenus var. *howardii*	Ringstem, Howard's gyp					Verified			G2T1	S1	None	Species of Concern	BLM SENSITIVE
Aquilegia chrysantha var.*chaplinei*	Columbine, Chapline's					Verified		Verified	G4T2	S2	None	Species of Concern	BLM SENSITIVE

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Asclepias sanjuanensis	Milkweed, San Juan	Verified							G2G3	S2S3	None	Species of Concern	BLM SENSITIVE
Astragalus cobrensis var. *maguirei*	Milkvetch, coppermine					Verified			G4T1	S1	None	Species of Concern	BLM SENSITIVE
Astragalus Gypsodes	Milkvetch, Gypsum							Verified	G2	S2	None	Species of Concern	BLM SENSITIVE
Astragalus Knightii	Milkvetch, Knight's			Verified					G2	S2	None	Species of Concern	BLM SENSITIVE
Astragalus Ripleyi	Milkvetch, Ripley		Verified	Potential					G3	S3?	None	Species of Concern	BLM SENSITIVE
Boechera zephyra	Wind Mountain Rockcress					Verified		Potential	G1	S1	None	None	BLM SENSITIVE *New*
Castilleja organorum	Paintbrush, Organ Mountains					Verified			G2	S2	None	Species of Concern	BLM SENSITIVE *New*
Cirsium wrightii	Thistle, wright's Marsh				Potential	Potential	Potential	Potential	G2	S2	Candidate	Endangered	BLM SENSITIVE
Coryphantha robustispina ssp.*scheeri*	Cactus, scheer's beehive					Verified		Verified	G4T3	S2	None	Endangered	BLM SENSITIVE *New*
Cymopterus spellenbergii	Taos springparsley		Verified						G2	S2	None	Species of Concern	BLM SENSITIVE

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Dermatophyllum guadalupense	Mescalbean, Guadalupe					Verified		Verified	G1T1	S1	Petitioned/ negative 90 day finding	Species of Concern	BLM SENSITIVE
Erigeron acomanus	Fleabane, Acoma	Potential		Verified					G1G2	S1S2	None	Species of Concern	BLM SENSITIVE
Eriogonum lachnogynum var.colobum	Wildbuckwheat, clipped	Potential	Verified	Potential					G4?T2	S2	None	Species of Concern	BLM SENSITIVE
Escobaria duncanii	Cactus, Duncan's Pincushion					Verified			G3T1T2	S1	None	Endangered	BLM SENSITIVE
Escobaria villardii	Cactus, Villard's Pincushion					Verified			G2Q	S2	None	Endangered	BLM SENSITIVE
Hymenoxys ambigens var. Neomexicana	Bitterweed, New Mexico					Verified			G3?T2	S2	None	Species of Concern	BLM SENSITIVE *New*
Justicia wrightii	Water- Willow, Wright's							Verified	G2	S1	None	Species of Concern	BLM SENSITIVE *New*
Lepidospartum burgessii	Scalebroom, gypsum					Verified			G2	S1	None	Endangered	BLM SENSITIVE
Linum allredii	Flax, Allred's							Verified	G1G2	S1S2	None	Species of Concern	BLM SENSITIVE
Mentzelia conspicua	Blazingstar, Rio Chama		Verified						G2	S2	None	Species of Concern	BLM SENSITIVE *New*

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Mentzelia humilus var. *Guadalupensis*	Stickleaf, Guadalupe					Verified			G4T1T2	S1S2	None	Species of Concern	BLM SENSITIVE
Mentzelia sivinskii	Sivinski's BlazingstaR	Verified							G3	S3	None	Species of Concern	BLM SENSITIVE *New*
Mentzelia todiltoensis	Stickleaf,Todilito		Potential	Verified	Potential				G1?Q	S3	None	Species of Concern	BLM SENSITIVE *New*
Nerisyrenia hypercorax	Greggia, Crow Flat					Verified			G1G2	S1S2	None	Species of Concern	BLM SENSITIVE
Opuntia Arenaria	Pricklypear, Sand					Verified			G2	S2	None	Endangered	BLM SENSITIVE
Opuntia x viridiflora	Cholla, Santa Fe		Verified						G1Q	S1	None	Endangered	BLM SENSITIVE
Paronychia wilkinsonii	Nailwort, Wilkinson's					Verified			G2	S1	None	Species of Concern	BLM SENSITIVE *New*
Pediomelum pentaphyllum	Scurfpea, Chihuahua					Verified			G1G2	S1	Petitioned/ positive 90 day finding	Endangered	BLM SENSITIVE
Peniocereus greggii var *greggii*	Cereus, Night-Blooming					Verified			G3G4T2	S3	None	Endangered	BLM SENSITIVE
Penstemon alamosensis	Beardtongue, Alamo					Verified			G3	S3	None	Species of Concern	BLM SENSITIVE

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Penstemon cardinalis ssp. *regalis*	Penstemon, Guadalupe							Verified	G3T2T3	S2	None	Species of Concern	BLM SENSITIVE
Perityle Cernua	Cliff Daisy, Nodding					Verified			G2	S2	None	Species of Concern	BLM SENSITIVE
Physaria newberryi var. *yesicola*	Twinpod, Yeso			Verified	Potential				G3G4T2	S2	None	Species of Concern	BLM SENSITIVE *New*
Proatriple x pleiantha	Saltbush, Mancos	Verified							G3	S3?	None	Species of Concern	BLM SENSITIVE
Puccinellia Parishii	Alkaligrass, Parish's	Potential		Verified	Potential	Verified			G2G3	S1	None	Endangered	BLM SENSITIVE
Sclerocactus cloverae	Cactus, Clover's	Verified		Potential					G3T3	S3	None	None	BLM SENSITIVE *New*
Sclerocactus cloverae ssp. *brackii*	Cactus, Brack's Hardwall	Verified		Potential					G3T1	S2	None	Endangered	BLM SENSITIVE
Scrophularia laevis	Figwort, Organ Mountain					Verified			G2	S2	None	Species of Concern	BLM SENSITIVE *New*
Scrophularia macrantha	Figwort, Mimbres					Verified			G2	S2	None	Species of Concern	BLM SENSITIVE
Sibara grisea	Sibara, Gray; Thelypody, Texas					Verified			G3	S3?	None	Species of Concern	BLM SENSITIVE

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Spermolepis organensis	Scaleseed, Organ Mountains					Verified			G1	S1	None	Species of Concern	BLM SENSITIVE *New*
Streptanthus sparsiflorus	Jewelflower, Sparseflower							Verified	G2Q	S2	Petitioned/ negative 90 day finding	Species of Concern	BLM SENSITIVE
Townsendia gypsophila	Townsend Daisy, Gypsum			Verified					G2	S2	None	Species of Concern	BLM SENSITIVE
Plants - Watch													
Adenophyllum wrightii var. *Wrightii*	Dogweed, Wright's					Verified			G1?	SNR,S1	Petitioned/ negative 90 day finding	None	WATCH
Agalinis calycina	False Foxglove, Leoncita						Potential	Potential	G1	S1	Petitioned/ negative 90 day finding	None	WATCH
Agastache cana	Giant Hyssop, Grayish-White					Verified			G4	S3	None	Species of Concern	WATCH
Anulocaulis leiosolenus var. *gypsogenus*	Ringstem, Pecos Gyp						Verified	Verified	G4	S4	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Arida blepharophylla	Aster, Gypsum Hotspring					Potential			G1	SH	Petitioned/ negative 90 day finding	Species of Concern	WATCH
Asclepias uncialis ssp. *ruthiae*	Milkweed, Ruth's	Potential							GNR	S1	None	None	WATCH
Astragalus accumbens	Milkvetch, Zuni			Verified					G3	S3	None	Species of Concern	WATCH
Astragalus castetteri	Milkvetch, Castetter's					Verified			G3	S3	None	Species of Concern	WATCH
Astragalus cliffordii	Milkvetch, Clifford's	Potential							GNR	S1	None	Species of Concern	WATCH
Astragalus cyaneus	Milkvetch, Cyanic		Verified	Potential					G4	S4	None	Species of Concern	WATCH
Astragalus feensis	Milkvetch, Santa Fe			Verified		Verified			G3	S3	None	Species of Concern	WATCH
Astragalus heilii	Milkvetch, Heil's	Potential							G1?	S1	None	Species of Concern	WATCH
Astragalus humistratus var. *crispulus*	Milkvetch, Villous Groundcover				Potential				G4G5T3?	S2	None	None	WATCH
Astragalus kerrii	Milkvetch, Kerr's						Potential		G2	S2	None	Species of Concern	WATCH
Astragalus micromerius	Milkvetch, Chaco	Potential		Potential					G3	S2S3	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Astragalus missouriensis var. *humistratus*	Milkvetch, Pagosa	Potential	Potential						G5T1	S1	None	None	WATCH
Astragalus monumentalis var. *cottamii*	Milkvetch, Cottam's	Verified							G4T4	S3	None	Species of Concern	WATCH
Astragalus naturitensis	Milkvetch, Naturita	Potential							G2G3	S2	None	Species of Concern	WATCH
Astragalus neomexicanus	Milkvetch, New Mexico						Potential		G3	S3	None	Species of Concern	WATCH
Astragalus nutriosensis	Milkvetch, Apache				Verified				G3?	SNR	None	None	WATCH *New*
Astragalus oocalycis	Milkvetch, Arboles	Verified							G4	S3	None	Species of Concern	WATCH
Astragalus puniceus var. *gertrudis*	Milkvetch, Taos	Potential	Verified						G4T3?Q	S3?	None	Species of Concern	WATCH
Astragalus siliceus	Milkvetch, Flint Mountains		Verified						G3	S3	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Astragalus waterfallii	Milkvetch, Waterfall's					Verified		Verified	G3?	S2	None	None	WATCH *New*
Astragalus wittmannii	Milkvetch, One-Flowered		Potential						G3	S3	None	Species of Concern	WATCH
Atriplex griffithsii	Saltbush, Griffith's					Verified			G2G3	S2	None	Species of Concern	WATCH
Castilleja ornata	Paintbrush, Swale					Potential			G1	S1	Petitioned/ positive 90 day finding	Species of Concern	WATCH
Castilleja tomentosa	Hairy Indian Paintbrush					Potential			G1Q	S1	None	None	WATCH *New*
Chaetopappa hersheyi	Leastdaisy, Guadalupe							Verified	G3	S3	None	Species of Concern	WATCH
Cleome multicaulis	Spiderflower, Slender		Potential			Potential			G2G3	SH	None	Endangered	WATCH
Cuscuta warneri	Dodder, Warner's					Potential	Potential		GH	S1	None	Species of Concern	WATCH
Dalea scariosa	Prairie Clover, La Jolla			Potential	Potential				G4	S3	None	Species of Concern	WATCH
Delphinium robustum	Larkspur, Robust		Potential						G2G3	S2	None	Species of Concern	WATCH
Draba smithii	Whitlowgrass, Smith's		Potential						G2	S1	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Ericameria nauseosa ssp. *nauseosa* var. *texensis*	Rabbitbrush, Guadalupe					Verified		Potential	G5T2	S2	None	Species of Concern	WATCH
Erigeron bistiensis	Fleabane, Bisti	Verified							G1	S1	Petitioned/ negative 90 day finding	None	WATCH
Eriogonum aliquantum	Wild Buckwheat, Cimarron		Potential						G3	S3	None	Species of Concern	WATCH
Eriogonum lachnogynum var.*sarhiae*	Buckwheat, Sarah's	Potential							G4?T1	S1	None	Species of Concern	WATCH
Escobaria guadalupensis	Cactus, Guadalupe Pincushion							Potential	G1	S1	Petitioned/ negative 90 day finding	Species of Concern	WATCH
Escobaria organensis	Cactus, Organ Mountains Pincushion					Verified			G2	S2	None	Endangered	WATCH
Euphorbia rayturneri	Spurge, Ray Turner's					Verified			G1	S1	None	None	WATCH
Fissidens littlei	Fissidens Moss, Little's					Potential			G1?	S1	Petitioned/ negative 90 day finding	None	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Grindelia arizonica var. *neomexicana*	Gumweed, New Mexico					Potential			G4T3?	SNR	None	Species of Concern	WATCH
Hedeoma apiculata	Pennyroyal, Mckittrick							Verified	G3	S3	None	Species of Concern	WATCH
Helianthus arizonensis	Sunflower, Arizona				Potential				G2G4	SNR	None	Species of Concern	WATCH
Helianthus neglectus	Sunflower, Neglected							Potential	G2Q	SNR	None	None	WATCH
Hexalectris nitida	Coralroot, Shining					Potential		Potential	G3	S1	None	Endangered	WATCH
Hexalectris revoluta	Coralroot, Chisos Mtn					Potential		Potential	G1	S1	Petitioned/ positive 90 day finding	None	WATCH
Hexalectris spicata var. *arizonica*	Coralroot, Arizona					Potential		Potential	G5T2T4	S2	None	Endangered	WATCH
Hymenoxys vaseyi	Bitterweed, Vasey's					Verified			G2	S2	None	Species of Concern	WATCH
Limosella pubiflora	Mudwort, Chiricahua					Potential			G1Q	S1	None	Species of Concern	WATCH
Mentzelia filifolia	Threadleaf Blazingstar	Potential							G3	S1?	None	Species of Concern	WATCH *New*

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Mentzelia springeri	Blazingstar, Springer's		Potential	Potential					G3	S3	None	Species of Concern	WATCH
Nama xylopodum	Nama, Cliff					Verified		Verified	G4?	S4?	None	Species of Concern	WATCH
Oenothera organensis	Evening Primrose, Organ Mountains					Verified			G2	S2	None	Species of Concern	WATCH
Packera spellenbergii	Groundsel, Spellenberg's		Potential						G2	S2	None	Species of Concern	WATCH
Panicum mohavense	Panicum, Mohave				Potential	Potential			G1	S1	Petitioned/ negative 90 day finding	Species of Concern	WATCH
Perityle quinqueflora	Rockdaisy, Five-Flowered					Potential		Potential	G4	S3	None	Species of Concern	WATCH
Perityle staurophylla var. *staurophylla*	Rockdaisy, New Mexico					Verified			G4T3T4	S3	None	Species of Concern	WATCH
Phacelia cloudcroftensis	Cloudcroft Phacelia					Potential			G1	S1	None	Species of Concern	WATCH *New*
Phacelia serrata	Phacelia, Cinder			Potential					G3	S2	None	Species of Concern	WATCH
Phacelia sivinskii	Scorpionweed, Sivinski's			Verified	Verified	Verified			G3	S3	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Phemeranthus humilis	Flameflower, Pinos Altos					Potential			G2	S2	None	Species of Concern	WATCH
Phlox caryophylla	Phlox, Pagosa	Potential	Potential						G4	S2	None	Species of Concern	WATCH
Physaria navajoensis	Bladderpod, Navajo	Potential							G2	S1	Petitioned/ positive 90 day finding	Species of Concern	WATCH
Physaria pruinosa	Bladderpod, Pagosa Springs	Potential	Potential						G2	S1	None	Species of Concern	WATCH
Polygala rimulicola var. *Rimulicola*	Milkwort, Guadalupe							Verified	G3T3	S2	None	Species of Concern	WATCH
Sclerocactus papyracanthus	Cactus, Grama Grass	Potential	Verified	Verified	Potential	Verified	Potential		G4	S4	None	None	WATCH (downlisted)
Senecio Cliffordii	Groundsel, Clifford's	Potential							GNR	S2	None	Species of Concern	WATCH
Senecio Warnockii	Ragwort, Warnock's					Verified		Verified	G3Q	S2	Species of Concern	Species of Concern	WATCH *New*
Sicyos glaber	Cucumber, Smooth Bur					Verified			G3	S1S2	None	Species of Concern	WATCH *New*
Silene Plankii	Catchfly, Plank's				Verified	Potential			G2	S2	None	Species of Concern	WATCH
Silene Thurberi	Campion, Thurber's					Potential			G4	S3?	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
Silene Wrightii	Catchfly, Wright's				Potential	Verified			G3	S2	None	Species of Concern	WATCH
Stellaria porsildii	Starwort, Porsild's					Potential			G1	S1	Petitioned/ negative 90 day finding	Species of Concern	WATCH
Talinum brachypodum	Fameflower, Laguna			Potential	Potential				GNRQ	S1	None	Species of Concern	WATCH
Valeriana texana	Valerian, Guadalupe							Verified	G3	S3	None	Species of Concern	WATCH
Viola calcicola	Limestone Violet					Potential		Verified	G3	S3	None	Species of Concern	WATCH *New*

APPENDIX C

Representative Photographs

Photo 1.
The majority of the Project Area is characterized by open grassland with scattered yucca and thornscrub species.

Photo 2.
Several cattle tanks occur adjacent to the existing access road that will be improved to support equipment and vehicle access.

Photo 3.
The cattle tanks are the only source of surface water within the immediate vicinity of the Project Area. No special status species were observed within these cattle tanks during survey.

Photo 4.
Small patches of denser vegetation cover occur along ephemeral drainages within the Project Area.

Photo 5.
White Water Road, an unimproved road, is part of the access route to the Project Area. In addition to the existing roads, cattle grazing is the primary source of land disturbance within the immediate vicinity of the Project Area.

Photo 6.
Vegetation cover within the Project Area is generally open.

Photo 7.
Dominant plant species observed include thornscrub species, such as velvet mesquite (*Prosopis velutina*), catclaw acacia (*Senegalia greggii*), and catclaw mimosa (*Mimosa aculeaticarpa*), intermixed with yucca (*Yucca elata*), beargrass (*Nolina microcarpa*), turpentine bush (*Ericameria laricifolia*), cholla (*Cylindropuntia* spp.), and several species of grama (*Bouteloua* spp.).

Photo 8.
Although the Project Area is mapped entirely as semidesert grasslands, occasional species associated with the Chihuahuan desert, such as the creosote bush (*Larrea tridentata*) shown here, were also observed within the Project Area.

Photo 9.
The landscape is dominated by rolling terrain of the foothills of surrounding mountains; associated landforms include intervening drainage systems.

Attachment 5


ex: Restaurants
Get Directions History
NM-90 W
15.8 miles, 20 min
A Tyrone
1. Head east on Chalcocite St toward Chrysocolla Ave
253 ft
2. Turn left at the 1st cross street onto Chrysocolla Ave
0.1 mi
3. Turn right onto Copper Dr
0.3 mi
4. Turn right onto NM-90 W
11.5 mi
5. Turn left onto White Water Rd
0.8 mi
6. Turn left to stay on White Water Rd
3.1 mi
B White Water Rd
Places
Tyrone
Head east on Chalcocite St toward Chrysocolla Ave
POAK-01
90
Turn left onto White Water Rd
White Water Road turn off point
White Signal
Turn left to stay on White Water Rd

Attachment 6

WELL PLUGGING PLAN OF OPERATIONS

NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging. This form may be used to plug a single well, or if you are plugging multiple monitoring wells on the same site using the same plugging methodology.

Alert! Your well may be eligible to participate in the Aquifer Mapping Program (AMP)-NM Bureau of Geology geoinfo.nmt.edu/resources/water/cgmu/ if within an area of interest and meets the minimum construction requirements, such as there is still water in your well, and the well construction reflected in a well record and log is not compromised, contact AMP at 575-835-5038 or -6951, or by email nmbg-waterlevels@nmt.edu, prior to completing this prior form. Showing proof to the OSE that your well was accepted in this program, may delay the plugging of your well until a later date.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP: ☐ Check here if proposing one plan for multiple monitoring wells on the same site and attaching WD-08m

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: _____

Name of well owner: BHP Mineral Resources Inc.

Mailing address: 180 W Magee Road, Ste. 134 County: Pima

City: Tucson State: Arizona Zip code: 85704

Phone number: (520) 448-5880 E-mail: Meghan.Chesal@bhpbilliton.com

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: National EWP Inc.

New Mexico Well Driller License No.: 4367298 Expiration Date: _____

IV. WELL INFORMATION: ☐ **Check here if this plan describes method for plugging multiple monitoring wells on the same site and attach supplemental form WD-08m and skip to #2 in this section.**

Note: A copy of the existing Well Record for the well(s) to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 32 deg, 35 min, 58.92 sec
Longitude: 108 deg, 17 min, 37.58 sec, NAD 83

2) Reason(s) for plugging well(s):

BHP is preparing to conduct exploration drilling at one borehole in Grant County, New Mexico. BHP has identified the potential to encounter groundwater during drilling activities and has prepared this well plugging plan of operations in accordance with Office of the State Engineer regulations 19.27.4.30.C NMAC.

3) Was well used for any type of monitoring program? No If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detail, including analytical results and/or laboratory report(s):

5) Static water level: ~150-750 feet (below land surface) / feet above land surface (circle one)

6) Depth of the well: 5000 feet

7) Inside diameter of innermost casing: 4.625 inches.

8) Casing material: Steel

9) The well was constructed with:

☐ an open-hole production interval, state the open interval: NA

☐ a well screen or perforated pipe, state the screened interval(s): NA

10) What annular interval surrounding the artesian casing of this well is cement-grouted? NA

11) Was the well built with surface casing? Yes If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? No If yes, please describe:

12) Has all pumping equipment and associated piping been removed from the well? See Section VII If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING:

☐ **If plugging method differs between multiple wells on same site, a separate form must be completed for each method.**

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal. Attach a copy of any signed OSE variance to this plugging plan.

Also, if this planned plugging plan requires a variance to 19.27.4 NMAC, attach a detailed variance request signed by the applicant.

1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well:

Wet borehole abandonment option 1 (per NM MMD Part 3 minimial impact exploration operation guidance) will be employed, which includes a neat cement slurry, mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 2 feet of the original ground surface, followed by 2 feet of topsoil/dressing.

2) Will well head be cut-off below land surface after plugging? Yes

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant. Attach a copy of the batch mix recipe from the cement company and/or product description for specialty cement mixes or any sealant that deviates from the list of OSE approved sealants.

1) For plugging intervals that employ cement grout, complete and attach Table A.

2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.

3) Theoretical volume of grout required to plug the well to land surface: 18,780 gallons

4) Type of Cement proposed: Portland Type 1-11-V 47

5) Proposed cement grout mix: 42 gallons of water per 94 pound sack of Portland cement.

6) Will the grout be: _____ batch-mixed and delivered to the site

x mixed on site

7) Grout additives requested, and percent by dry weight relative to cement:

The grout will be comprised of Abandonite, which is approximately 30% bentonite. No additives will be made to the Abandonite.

8) Additional notes and calculations:

The Operator will use Abandonite from the bottom of the hole to 12 feet below the surface. The next 10 feet will then be cemented with Portland cement. The remaining two feet will be comprised of topsoil/topdressing. No additives will be made to the Portland cement or Abandonite.

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s):

BHP Mineral Resources Inc. proposes exploration drilling at one site located on BLM land as part of ongoing mineral exploration activities south of Tyrone, New Mexico. Drilling activities would be conducted for approximately 30 to 45 days on a 24-hours-per-day schedule. Once drilling is completed, the drillers would abandon the hole and begin reclamation activities. Waterlines, pumps, and any other items will be removed upon completion of drilling activities.

The proposed exploration drilling targets mineral resources, but groundwater may be encountered during drilling activities. This well plugging plan of operations has been prepared in response to the potential to encounter groundwater, per NM Mining and Mineral Division guidance requiring well plugging plan approval prior to commencing exploration activities. Because drilling has not yet commenced, calculations such as the depth to static water level are estimates.

Information provided in Table A follows borehole abandonment schematics provided in the Guidance Document for Part 3 Permitting Under the New Mexico Mining Act.

VIII. SIGNATURE:

I, _____, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

_____ _____

Signature of Applicant Date

IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

_____ Approved subject to the attached conditions.
_____ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this _____ day of _____, _____

John R. D'Antonio Jr. P.E., New Mexico State Engineer

By: _____

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			2 feet bgl
Bottom of proposed interval of grout placement (ft bgl)			12 ft bgl
Theoretical volume of grout required per interval (gallons)			18,780 gallons
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			42 gallons
Mixed on-site or batch-mixed and delivered?			Mixed on-site
Grout additive 1 requested			Grout will be composed entirely of Abandonite (approx. 30% bentonite). No additives are requested.
Additive 1 percent by dry weight relative to cement			
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

File No.

NEW MEXICO OFFICE OF THE STATE ENGINEER

WR-07 APPLICATION FOR PERMIT TO DRILL

A WELL WITH NO WATER RIGHT

(check applicable box):

For fees, see State Engineer website: http://www.ose.state.nm.us/

Purpose:	☐ Pollution Control And/Or Recovery	☐ Ground Source Heat Pump
☐ Exploratory Well (Pump test)	☐ Construction Site/Public Works Dewatering	☒ Other(Describe): Wet borehole
☐ Monitoring Well	☐ Mine Dewatering	

A separate permit will be required to apply water to beneficial use **regardless** if use is consumptive or nonconsumptive.

☒ Temporary Request - Requested Start Date: January 02, 2020 Requested End Date: January 01, 2021

Plugging Plan of Operations Submitted? ☒ Yes ☐ No

1. APPLICANT(S)

Name: BHP Mineral Resources Inc.	Name:
Contact or Agent: check here if Agent ☐ Meghan Chesal	Contact or Agent: check here if Agent ☐
Mailing Address: 180 W Magee Road, Ste. 134	Mailing Address:
City: Tucson	City:
State: Zip Code: Arizona 85704	State: Zip Code:
Phone: (520) 448-5880 ☐ Home ☐ Cell Phone (Work):	Phone: ☐ Home ☐ Cell Phone (Work):
E-mail (optional): Meghan.Chesal@bhpbilliton.com	E-mail (optional):

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File No.:	Trn. No.:	Receipt No.:
Trans Description (optional):		
Sub-Basin:	PCW/LOG Due Date:	

2. WELL(S) Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
District II (Roswell) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

☐ NM State Plane (NAD83) (Feet)
☐ NM West Zone
☐ NM East Zone
☐ NM Central Zone

■ UTM (NAD83) (Meters)
■ Zone 12N
☐ Zone 13N

☐ Lat/Long (WGS84) (to the nearest 1/10th of second)

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (*Quarters or Halves , Section, Township, Range*) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
	753980	3610145	Township 20 South, Range 14 West, Section 4, Northeast 1/4

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)
Additional well descriptions are attached: ☐ **Yes** ■ **No** **If yes, how many**_____

Other description relating well to common landmarks, streets, or other:

Well is on land owned by: Bureau of Land Management

Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? ☐ **Yes** ■ **No**
If yes, how many_____

Approximate depth of well (feet): 5000	Outside diameter of well casing (inches): Up to 10 inches
Driller Name: National EWP Inc.	Driller License Number: 4367298

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

BHP Mineral Resources Inc. (BHP) plans to conduct exploration drilling at one site located on lands managed by the Bureau of Land Management (BLM) south of Tyrone, New Mexico, as part of ongoing mineral exploration activities. BHP has determined there is the potential for groundwater to be encountered during drilling operations and is submitting this form and a well plugging plan of operations in addition to the Minimal Impact Exploration Operation Permit Application submitted to the New Mexico Mining and Minerals Division in support of the proposed exploration activities. Exploration drilling activities will be conducted for a total of 30 to 45 days, after which the drill hole will be abandoned and the disturbance area will reclaimed in accordance with BLM standards.

Drilling and drill hole abandonment will be conducted in accordance with New Mexico State Engineer Office's requirements for plugging and abandoning drill holes (per 19.27.4 NMAC).

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4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory:	**Pollution Control and/or Recovery:**	**Construction De-Watering:**	**Mine De-Watering:**
☐ Include a description of any proposed pump test, if applicable.	☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for the pollution control or recovery operation. ☐ The estimated maximum period of time for completion of the operation. ☐ The annual diversion amount. ☐ The annual consumptive use amount. ☐ The maximum amount of water to be diverted and injected for the duration of the operation. ☐ The method and place of discharge.	☐ Include a description of the proposed dewatering operation, ☐ The estimated duration of the operation, ☐ The maximum amount of water to be diverted, ☐ A description of the need for the dewatering operation, and, ☐ A description of how the diverted water will be disposed of.	☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for mine dewatering. ☐ The estimated maximum period of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The geohydrologic characteristics of the aquifer(s). ☐ The maximum amount of water to be diverted per annum. ☐ The maximum amount of water to be diverted for the duration of the operation. ☐ The quality of the water. ☐ The method of measurement of water diverted. ☐ The recharge of water to the aquifer. ☐ Description of the estimated area of hydrologic effect of the project. ☐ The method and place of discharge. ☐ An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. ☐ A description of the methods employed to estimate effects on surface water rights and underground water rights. ☐ Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.
Monitoring: ☐ Include the reason for the monitoring well, and, ☐ The duration of the planned monitoring.	☐ The method of measurement of water produced and discharged. ☐ The source of water to be injected. ☐ The method of measurement of water injected. ☐ The characteristics of the aquifer. ☐ The method of determining the resulting annual consumptive use of water and depletion from any related stream system. ☐ Proof of any permit required from the New Mexico Environment Department. ☐ An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	**Ground Source Heat Pump:** ☐ Include a description of the geothermal heat exchange project, ☐ The number of boreholes for the completed project and required depths. ☐ The time frame for constructing the geothermal heat exchange project, and, ☐ The duration of the project. ☐ Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	

ACKNOWLEDGEMENT

I, We (name of applicant(s)), _____
Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

_____ _____
Applicant Signature Applicant Signature

ACTION OF THE STATE ENGINEER

This application is:

☐ approved ☐ partially approved ☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this _____ day of _____ 20 _____ , for the State Engineer,

_____, State Engineer

By: _____ _____
Signature Print

Title: _____
Print

FOR OSE INTERNAL USE Application for Permit, Form WR-07

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