STATE OF NEVADA
COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS
400 W. King Street, Suite 106
Carson City, Nevada 89703
(775) 684-7040 | Fax (775) 684-7052
http://minerals.nv.gov

Date Received_____
County_____
NDOM Permit Number_____
FOR DIVISION USE ONLY

DISSOLVED MINERAL RESOURCE EXPLORATION WELL PERMIT APPLICATION

Applicant/Operator Name: Origin Minerals Exploration, LLC
Street Address: 1900 McKinney Avenue, Suite 2002
City: Dallas State/Prov.: Texas
Country: USA Zip Code: 75201
hereby makes application for a dissolved mineral resource exploration well permit.

(if applicant is a corporation, show state and date of incorporation; if a partnership, list names of partners.)

Origin Minerals Exploration, LLC was formed on August 5, 2022 in Delaware.

Well Name BSV-R-01

This application is for a: ◉ New Exploration Well ○ Borehole to Well Conversion
○ Permit Extension (NDOM Permit #_____) (Indicate below any changes to original permit)
Permit Extension Reason:

Applicant is: ○ Land Owner ◉ Lease/Claim Holder

Land Status (choose one):

◉ Federal *(BLM, USFS, etc…)*
Mining Claim: NMC# 105277676
Project Name: Big Smoky Valley (BSV) Lithium Exploration Project NVN# 101873

○ Non Federal
APN#: Land Owner:
Bond Type: Issued by:
Amount: Number:

Groundwater Basin Name and Number: Big Smoky Valley/Northern Part, 137B
Area With Limitations? ○ Y ◉ N
(Well proposed to be drilled within areas with limitations may require Blowout Prevention Equipment, per NAC 534B)

Location of Well:
County: Nye

SE ¼ of the SW ¼ of 10 Sec., Township 13 ◉N ○S, Range 43 E

UTM East: 488059 or Longitude:
UTM North: 4316253 Latitude:
◉ NAD83 ○ WGS84 *M.D.B.& M.*

Drilling Contractor (if known): Layne

Address: 5810 E. 77th Ave

City, State Zip: Commerce City, CO 80022

Purpose of Well: Mineral Exploration

Drill Rig Type: Atlas Copco RD20

Surface Hole Diameter: 32 inches

Expected Total Depth: 2,995 feet

Casing Size/Length: 0-50 ft 26-in, 0-260 ft 18-in, 0-2975 8.8625-in

Casing Weight/Gauge: 85.8#/ft / 59.1#/ft / 27.7#/ft

Casing Schedule/Grade A53B and A606 Type 4, 0.312 wall

Blowout Prevention Equipment Rating: ☐ None ☉ 2000 psi ☐ 3000 psi ☐ 5000 psi

>1000 psi rotating diverter

Fluid Management Plan - NAC 534B.140(1)(C):

Please see attached Narrative, Section 4.0.

(Describe Here or Attach Additional Pages)

Contamination Prevention/Cementing Plan - NAC 534B.140(1)(D):

Please see attached Narrative, Section 5.0. See Attachment 4 for well schematic.

(Describe Here or Attach Additional Pages, must include Well Schematic)

Flow Monitoring and Plugging Plan - NAC 534B.140(1)(E) / NAC 534B.180:

Please see attached Narrative, Section 6.0.

(Describe Here or Attach Additional Pages)

Drilling will commence approximately on: August 1, 2023

Signature of Applicant/Agent: Matt Frey

Printed Name/Title: Garrett Frey / Project Hydrogeologist

Date: 6/1/2023

An application submitted without a signature and date will not be considered for approval

- - - - -Attach $1,000.00 Application Fee Per NAC 534B - - - - -

- - - - - TO BE COMPLETED BY DIVISION - - - - -

CONDITIONS OF PERMIT

1. **All permittees must comply with appropriate sections of the Dissolved Mineral Resource Regulations of the Division of Minerals and with applicable rules and regulations of state and federal agencies.**

2. **For a well located on non-federal land, a bond in an amount determined by the Division to be necessary to properly plug the well in accordance with NAC 534B must be included.**

3. **Well Permit Expires two (2) years from date of approval.**

4. **See attached Conditions of Approval.**

5.Send any required reports to: ..... …….. dholcomb@minerals.nv.gov

6. **Additional Conditions/Comments**

A.	
B.	
C.	

This permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal, and local agencies.

PERMIT APPROVAL

Approved _____ with the conditions noted above.
Date

Permit Number _____

_____
Administrator
Division of Minerals

Complete Drilling Plan of Origin Minerals Exploration, LLC Big Smoky Valley

1.0 Project Description:

Origin Minerals Exploration, LLC (OML) is proposing to conduct mineral exploration activities at the Big Smoky Valley Lithium Exploration Project (Project) located in portions of or all of Sections 6, 7, 8, 9, and 10, Township 13 North (T13N), Range 43 East (R43E), Mount Diablo Base and Meridian, Nye County, Nevada (Project Area). OML plans to conduct exploration drilling and groundwater chemistry characterization from one aquifer Exploration Test Well (ETW), which will be accessed from an existing road network and proposed access road as shown in the attached area map. The ETW is proposed to be drilled to a Total Depth (TD) of 3,000 feet. The total planned surface disturbance outlined in the Notice NVN-101873 will be 4.72 acres. The total proposed Reclamation Cost Estimate is $20,267.00 (Attachment 1).

2.0 Proposed Exploration Disturbance:

OML will utilize existing roads, approximately 6,630 feet of constructed roads, and approximately 9,181 feet of overland travel. The constructed drill pad will have the dimensions of 100 feet wide by 150 feet long and will be graveled depending on site conditions. Two sumps will be constructed in sequence with the individual dimensions (including the material piles) of 75 feet long by 50 feet wide with a total sump volume of 2,778 cubic yards. Each sump will be constructed next to the drill site to contain drill cuttings and manage drilling fluids. The location of the ETW, existing access, and planned surface disturbance are shown within the Notice in Attachment 1.

3.0 Description of Planned Operations:

OML will address the requirements detailed below per (NAC5348.1601.(a) through 2.(d) as applicable for the proposed ETW.

4.0 Fluid Management Plan (NAC 5348):

In order to isolate zones of varying water quality and prevent migration of formation fluids between disparate aquifers, OML will take a number of preventative measures including utilizing polymer-based drilling fluid. OML and its contractors will also consistently monitor the flow of fluid to ensure no remedial measures are required after drilling operations have begun to prevent unwanted vertical migration of formation fluid. OML proposes to drill using a closed-loop “mud” (drilling fluid) circulation system. Hydrological control of the borehole is maintained by controlling drilling fluid losses and gains with the use of specially selected drilling products and associated materials added to make-up water. Appropriate selection of drilling fluids provides a balance of wellbore pressures resulting in negligible comingling or migration of fluids to the surrounding formations. The drilling fluids are adjusted during drilling with depth and aquifer characteristics. This produces a drilling fluid with chemical and physical properties that build a filter cake that “seals” the borehole and adjacent formation from significant loss or gain of fluid in the borehole. The differential pressure created by the increase in fluid density in the borehole is controlled to be greater than the formation pressures. None of the proposed drilling fluid products are hazardous. All drilling fluid products will be stored in a manner consistent with the product manufacturer recommendations and that will not present hazards to wildlife or other animals and prevent any release to the environment. Bagged or dry bulk materials will be covered, and any liquid additives will be kept in secure, leak-proof container.

Drilling fluid products will be used as a circulating medium to lubricate and cool the bit and drill rods, control borehole fluid losses or gains, and remove cuttings or solids from the borehole during drilling operations. The drilling fluid will be continuously adjusted to ensure compatibility with the salinity, pH, and carbonate content of the formation fluids and the respective intervals to be bored. The proposed fluid mixes will ensure a near native-state boring can be recovered. All proposed drilling fluid products will be used as intended by the product manufacturer.

The proposed drilling method assures OML will have the ability to collect geological samples to the targeted drill depths while maintaining hydrological control of the borehole during drilling operations with the smallest equipment footprint required. Safety Data Sheets will be kept on site for all materials used. Quantities of drilling fluid materials that are present on the project will be limited to those necessary to do the job, which may include hydraulically terminating artesian flow should it be necessary.

Drilling fluid density, pump pressure, and pump flow rates will be carefully monitored to prevent significant fluid losses to surrounding formations from the borehole. Increasing drilling fluid density increases the differential pressure accordingly and serves as the primary control for any fluid gains into the borehole that might also become artesian during drilling operations. The drilling fluid is continuously monitored, and the physical and chemical properties continuously adjusted by the addition of make-up water and drilling fluid products during drilling operations to maintain the desired properties to control borehole fluid loss or gain as drilling progresses.

In the event of significant observed lost circulation to the formation, the drilling team will consider appropriate action, which typically includes reducing the mud density (water dilution) and utilizing/adding lost circulation materials (LCM) such as Maxi-Seal / Multi-Seal to the drilling fluid to help cure/seal the loss zone. LCM is mixed in the drilling fluid, then pumped to the loss zone through the drill pipe. Repeated LCM treatments or a cement plug across the loss zone may be required depending on severity. Significant loss zones are not anticipated. The predicted intercepted lithology for the proposed well is primarily homogeneous sediments, with mostly very fine particle size, including clay and claystone, with low to no fracturing. None of the proposed LCM are hazardous.

In the event of a significant fluid gain, such as artesian flows, the drilling team will consider appropriate action which generally includes increasing the mud density to balance formation pressures. Appropriate weighting materials (e.g., Barite, Soda Ash) will be added to the mud system to obtain and maintain the appropriate mud density.

A qualified professional will be at the drill site at all times during drilling to record important hydrogeological information such as water table levels, water inflow rates, drilling fluid temperature, fracture/fault zones, voids, zones of lost circulation, and other useful information including monitoring for surface leaks, should they occur. Water flow amounts exceeding that used for establishing normal drilling circulation will be monitored for quantity and color. The qualified professional will help manage flow and recommend additives to control mud weight, filtrate, and other properties while drilling to minimize lost circulation and/or fluid flow.

OML will use a portable, fully-contained mud system with the capability to remove drill cuttings (solids) from the circulating drilling fluid to maintain the desired fluid density. The drilling fluid (mud) is captured at the surface drill collar, routed to the mud system where the combination of a shaking screen, centrifuge, and select polymers remove the fine (<200 microns) rock cuttings (drill solids) produced by the rotating

bit while advancing the borehole through the country bedrock. No uncontrolled flow of drilling fluids will be allowed. Processed drilling fluid is then reconditioned as needed with additional water and other drilling fluid products, then returned to the borehole to maintain circulation in a closed loop. Excess drilling fluids and drill cuttings will be discharged to the adjacent sumps.

Finally, OML is willing to abandon the well pursuant to Nevada Administrative Code (NAC) 534B.180 in an expediated fashion in the event that vertical migration of formation fluid between discrete zones ultimately does not warrant or allow for the well to be kept open longer than a brief period of time. OML is committed to working closely with the relevant regulatory authorities in all respects and will heed the advice of the authorities with respect to any corrective/remedial measures and/or expedited abandonment timelines ultimately required by the authorities before the ETW is drilled.

4.1 Description of Planned Operations:

- Rotating heads with pressure ratings of greater than 1,000 pounds per square inch will be used for blowout control while drilling the borehole. A valve will be used on the flow/discharge line to control flow and shut in low or high pressure boreholes. An API certified Washington Rotating™ diverter model 1358-C will be utilized during drilling of the borehole. The diverter specifications are included in Attachment 2.
- Temperature of the mud that is returned up the hole will be monitored continuously by the operator during the drilling of the well whenever temperatures of the drilling fluids at the surface reach 125 degrees Fahrenheit. The temperature of the mud will be recorded by the well driller after each string of drill rod is installed.

Water to be utilized for mixing drilling fluids will be purchased from a nearby water well or from the town of Fallon, NV. Drill cuttings and mud will be maintained within the mud system of the rig, with the excess contained in onsite mud sumps. Best Management Practices (BMPs) for sediment control will be utilized during construction, operation, and reclamation to minimize sedimentation from disturbed areas. Sediment control structures are outlined under Section 8 of the Notice (Attachment 1).

5.0 Contamination Prevention/Cementing Plan (NAC 5348.160.}:

The well will be drilled under the supervision of a Nevada licensed well driller. One (1) bucket auger drilling rig will set 26-inch diameter surface conductor casing in a 32-inch borehole to 50 ft below land surface (bls) and cement the conductor pipe to the surface with neat cement via tremie pipe. All pre-collared holes will be equipped with a secure cap to prevent anything falling in. An Atlas-Copco RD20 top head drive drilling rig will drill a 24-inch borehole from 50 to 260 ft bls using the flooded reverse drilling method, and set 18-inch diameter intermediate conductor casing, and cement the intermediate conductor pipe to the surface via tremie pipe with neat cement. The surface casing and intermediate casing will control formation fluids and protect groundwater. This casing plan ensures that casing will be set below all known or reasonably estimated levels of good quality water, protect such freshwater aquifers and prevent blowouts or uncontrolled flows. The proposed cased length was determined from a review of the depth to water and freshwater column data from the nearest wells and is included as a conservative measure. While no fresh water near the surface is indicated from magnetotelluric surveys, that show very low resistivity at the surface indicative of brackish water, as detailed in Attachment 3. Surface and intermediate casing lengths are placed to a minimum depth of 100 feet below the base of the brackish water to protect the upper aquifer. The cemented steel intermediate conductor casing prevents any fluids from entering

the brackish water aquifer while advancing drilling to the total depth. Additionally, OML completed a review of the nearest wells to the drilling site when planning to what depth to set the surface casing, and found that the nearest wells range from 220 to 320 ft bls and are over three miles from the proposed test well.

The RD20 drill rig will advance a 14.75-inch borehole to 2,995 ft bls using the flooded reverse drilling method, and will install 300 ft of 8.625-inch blank casing, 2,655 ft of 8.625-inch louvered well screen, and 20 ft of 8.625-inch blank casing with a bullnose bottom cap on the bottom. The well casing will be gravel packed via tremie pipe with #8 silica gravel from 275 ft to 2,995 ft. A five (5) ft #40 sand transitional seal will be installed from 270-275 ft, and the anulus of the borehole/intermediate conductor and well casing will be sealed with neat cement from 270 ft to surface via tremie pipe. The RD20 rotary drilling rig will set and fully cement surface casing, retrieve drill cutting samples, and set gravel pack and cement well casing. Well construction details are included in the attached Attachment 4.

6.0 Flow Monitoring and Plugging Plan (NAC 534B.180):

Water extracted during the drilling process will be managed in the sump; the volume will be estimated and recorded. After completion of the ETW, water volume will be recorded using a flow meter. Upon completion of the testing and analysis of dissolved mineral resource potential, the well may be converted to a groundwater monitoring well for use in baseline studies by installing a vibrating wire piezometer and grouting the entire well to the surface with neat cement. Most likely, however, the ETW will be promptly abandoned pursuant to NAC 534B.lBO. All necessary reports and documentation will be provided to the relevant regulatory authorities as soon as practicable and, in all cases, within the permissible timeline.

All holes drilled for the purpose of mineral exploration shall be plugged and sealed in a manner consistent with State of Nevada regulations and the stricter requirements described below. Project activities will be conducted in a manner that prevents adverse changes in groundwater quality and quantity. Abandonment of drill holes shall ensure the safety of people, livestock, wildlife, and machinery within the project area. A drill rig with appropriate support equipment will be used to abandon each well when it is no longer needed.

Pursuant to Nevada Administrative Code 534B Section 35.1(a), perforated sections of the casing, as well as the portion of unperforated casing occurring below the uppermost perforations will be plugged by placing cement grout by tremie pipe in an upward direction from the bottom of the well to 100 feet above the uppermost perforated casing. Unperforated portions of the well 100 feet above the plug will be plugged pursuant to NAC 534B Sec 35.3 with uncontaminated fill to within 20 feet of the surface. The remaining 20 feet of casing will be plugged with cement grout.

During abandonment, a cement grout meeting the formulation standards required by Nevada Administrative Code (NAC) 534.060 will be mixed at the surface, pumped under pressure through the tremie pipe, and circulated from the bottom of the borehole through the annulus in a manner meeting the general plugging requirements of NAC 534.420 and NAC 534.426 for general or artesian conditions. The use of cement grout and tremie placement method will isolate the borehole from the local hydrogeological regime and prevent the vertical movement of any groundwater penetrated by the borehole. This will include the annular space surrounding any casing left down the hole.

After the rig has left the site and the cement grout has been allowed to stabilize in the borehole, a 20- foot cement surface plug extending from three (3) feet below the ground surface will be placed in the top of each borehole. Portland cement mixed with water and aggregates, or bagged cement mixed with water,

will be used for the surface plug. Any remaining surface casing will be removed below the ground surface to a sufficient depth that will not interfere with general reclamation requirements to eliminate physical hazards to humans and wild or domestic animals as well as to prevent ponding of water directly over the borehole, allow for placement of growth media, and allow for passage of earthmoving equipment required for reclamation operations.

A record of each borehole will be kept by OML in the BLM Borehole Abandonment Report as required by NAC 534.4369 to demonstrate:

- The dates on which the borehole is constructed and plugged;
- The location of the borehole as shown by the public land survey system;
- The depth and diameter of the borehole;
- The depth at which groundwater is encountered in the borehole; and,
- The methods and materials used to plug the borehole.

Driller and geological logs typically record this information and also contain information concerning significant changes in fluid losses or gains as drilling progresses in each borehole. The type and volume of materials used in zones of significant gain or loss indicate the hydrological conditions encountered as borehole drilling progresses. The depth to the first instance of groundwater is difficult to determine with certainty in a fluid drilled borehole and any such data reported may not reflect actual subsurface hydrological conditions.

7.0 Surface & Groundwater - Erosion Prevention and Control

OML will conduct exploration operations in a manner that minimizes soil erosion. Equipment will not be operated when ground conditions are such that excessive resource damage or increased sediment transport will occur. BMPs will be utilized to control erosion and sedimentation.

BMPs for sediment control will be employed as needed during construction, operation, and reclamation to minimize sedimentation of disturbed areas. Sediment control structures will include, but not be limited to, fabric and/or certified weed free straw bale filter fences, siltation or filter berms, mud sumps and down gradient drainage channels to prevent unnecessary or undue degradation to the environment. Sediment traps (sumps), constructed as necessary adjacent to drill sites, will be used to settle drill cuttings and prevent uncontrolled release of drill cuttings. To control erosion from roads and drill sites, and from the unlikely event of drill cuttings being released, weed-free straw bales and silt fences will be placed in drainages to capture sediment, where required.

8.0 Surface & Groundwater-Stormwater and Control

Sediment controls such as straw or hay bales, filter fences or other controls will be implemented as necessary. Where straw or hay bales are required, only certified, weed free product will be used.

While not anticipated due to the environment and generally flat terrain, stormwater controls will be constructed or installed where necessary to prevent or minimize erosion and sedimentation. Drainage structures will consist of, but not be limited to, water bars, borrow ditches, contour furrows and culverts sized to handle maximum seasonal water flows. Disturbed areas will be broadcast-seeded with an approved weed free seed mix to reduce erosion immediately after construction. Once an area has been revegetated, notices and/or signs may be posted to allow vegetation to establish while reducing or restricting vehicular traffic.

9.0 Drilling Effluent Management

Drilling fluid products used during drilling and abandonment operations will be contained and deposited in tanks with overflow to sumps to ensure environmental protection.

Overflow and mud sumps for drill water, fluids, and cuttings will be excavated within the limit of the drill site using a backhoe. Anticipated sump dimensions, including the material piles, will be up to 75 feet long by 50 feet wide with a total sump volume of 1,389 cubic yards. One end of each sump will be sloped to provide escape routes for wildlife and/or other animals.

Sumps will be backfilled after completion of drilling. lf mud tanks are cleaned at the site, the contents will be contained in the sump and covered with backfilled soil materials.

10.0 Solid & Hazardous Substances

Non-hazardous Project-related exploration refuse will be collected in approved trash bins and/or containers and hauled from the site by WLM or their contractors for disposal at an approved landfill on a regular basis. The bins and/or containers will be equipped with lids. Debris that may have a hazardous characteristic, residue, or fluids, will not be disposed of in the trash bins. To minimize impacts during precipitation events, trash bins will be regularly inspected for leaks and the lids will remain closed except when depositing debris. The trash bins will not contain materials that may attract wildlife (food items, etc.) and will be emptied on a regular basis.

Hazardous substances employed for the Project will include diesel fuel, gasoline, hydraulic fluid and lubricating grease. Approximately 300 gallons of diesel fuel and gasoline will be stored in fuel delivery systems on drill rigs and support vehicles. Approximately 50 pounds of lubricating grease and 35 gallons of hydraulic fluid will be stored on each drill rig or transported by drill trucks. Transportation of these materials will be conducted in accordance with applicable regulatory guidelines.

11.0 Schedule for the Project and Reclamation

Drilling success will determine the reclamation schedule. Disturbance will be reclaimed at the earliest opportunity unless economically viable resources are identified.

Earthwork and revegetation activities are limited by the time of year during which such activities can be effectively implemented. Site conditions and/or yearly climatic variations may require that this schedule be modified to achieve revegetation success. Reclamation activities will be coordinated with the BLM as necessary. Monitoring of revegetation success will be conducted annually for a minimum of three years or until revegetation standards have been met.

Attachment 1
Notice NVN-101873

Notice NVN-101873

Big Smoky Valley Lithium Exploration Project

Original Notice – April 21, 2023

Revised – May 31, 2023

Origin Minerals Exploration, LLC (Origin) plans to conduct exploration drilling activities at the Big Smoky Valley (BSV) Lithium Exploration Project (Project), located in portions of or all of Sections 6, 7, 8, 9, and 10, Township 13 North, Range 43 East, Mount Diablo Base Meridian, Nye County, Nevada (Project Area). This Notice has been revised to include a different access route.

Origin is submitting this Notice to drill one exploration well and construct sumps adjacent to the constructed drill pad. The planned surface disturbance totals approximately **4.72 acres**. The Project location and planned surface disturbance are shown on Figures 1 and 2. Origin files this Notice pursuant to the provisions of 43 Code of Federal Regulations (CFR) § 3809.21 and 3809.301.

1. Name of Operator: Origin Minerals Exploration, LLC

   Name of Corporate Contact: Kelly Jones

   Name of Project Manager: Kelly Jones

   Operator Email Address: kjones@originminerals.com

   Mailing Address: 1900 McKinney Avenue, Suite 2002
Dallas, TX 75201

   Operator Phone Number: 214-564-5111

   Consultant Phone Number: 775-771-7630 (preferred)

   Tax Identification Number: 88-3764041

   Owner of Mining Claims: Origin Minerals, LLC
1900 McKinney Avenue, Suite 2002
Dallas, TX 75201

2. Bureau of Land Management (BLM) Serial Numbers and Names of Claims on Which Disturbance Will Occur:

Claim Name	BLM Serial Number	Claim Name	BLM Serial Number
AF 07	NV105277603	AF 45	NV105277641
AF 09	NV105277686	AF 46	NV105277642
AF 10	NV105277606	AF 77	NV105277673
AF 12	NV105277608	AF 79	NV105277675
AF 43	NV105277639	FA 80*	NV105277676

*FA 80 appears to have been mislabeled but is consistent with the location parameters for the Project and the naming convention AF.

3. Location of Proposed Activities: The Project is accessed from the Town of Austin. Drive southeast on US Highway 50, turn right (south) onto US Highway 376 for approximately 30 miles - turn left onto an access road just before Park Canyon Road - turn right at the end of the access road onto another access road for approximately 0.6 mile to arrive at the BSV Lithium Exploration Project (Figure 1).

4. Existing Disturbance in the Project Area: The existing surface disturbance in the Project Area consists of trails and roads from previous recreational activities.

5. Project Description: Origin will utilize existing roads, approximately 6,630 feet of constructed roads, and approximately 9,181 feet of overland travel. Existing roads may need to be maintained depending on site conditions. The constructed drill site will have the dimensions of 100 feet wide by 150 feet long. The roads and drill site will be graveled depending on site conditions. BLM range improvement in the form of fences will need to be cut to gain access to the drill site. Temporary gates will be installed to prevent ingress and egress of livestock and the fences will be repaired to original condition upon Project completion. Two constructed sumps adjacent to the constructed drill site will have average dimensions of 75 feet long by 50 feet wide by 10 feet deep to contain cuttings and manage drilling fluids. All earthwork will be completed with a backhoe, excavator, water truck, and support vehicles or equivalent equipment. Water will be obtained from a nearby ranch. Figure 2 shows the Project disturbance. Total depth of the drill hole will be approximately 3,000 feet and borehole diameter at the surface will be 14.75 inches. The drill hole has the following coordinates:

   BSV-P1_alt_2: 488,059 E/ 4,316,253 N

   Hole abandonment assumptions have been included to an approximate depth of 3,000 feet. The approximate depth of the water table is estimated to be five to 10 feet below ground surface, therefore the entire depth is considered wet for bonding purposes.

6. Approximate Project Surface Disturbance: The following specifics apply to the Project:

   Planned Disturbance

   - Approximately 9,181 feet of overland travel = 1.26 acres;
   - Approximately 6,630 feet of constructed road = 2.69 acres;
   - One constructed drill site bonded as 10 sites to achieve needed size = 0.61 acre; and
   - Two sumps bonded as 10 sites to achieve needed size = 0.16 acre

   Planned Total Surface Disturbance = 4.72 acres

7. Schedule of Activities: Activities are expected to last for two years after commencement. Reclamation activities will likely be completed in the fall season. Seeding activities will be conducted at the end of the fall season in an effort to maximize the success of seeding and potential precipitation events. Revegetation activities are limited by the time of year during which they can be effectively implemented. Site conditions or yearly climatic variations may require that this schedule be modified to achieve revegetation success. Once a site is no longer needed for exploration or access to disturbance, the site will be reclaimed.

8. Measures Taken to Prevent Unnecessary or Undue Degradation:

- Operations will be conducted consistent with 43 CFR 3809.415 and 3809.420.

- Existing access routes, constructed segments, and overland travel will be used.

- Origin will not knowingly disturb, alter, injure, or destroy any scientifically important paleontological deposits; or any historical or archaeological site, structure, building, or object. If Origin discovers any cultural or paleontological resource that might be altered or destroyed by operations, the discovery will be left intact and reported to the authorized BLM officer.

- Any survey monuments, witness corners, or reference monuments will be protected to the extent economically and technically feasible.

- All fences will be returned to their original condition at the end of the drilling project.

- Public safety will be maintained throughout the life of the Project. All equipment will be maintained in a safe and orderly manner.

- All solid wastes will be removed from the Project Area and disposed of in a state, federal, or local designated site.

- Hazardous substances utilized at the Project will include diesel fuel, gasoline, and lubricating grease. Approximately 100 gallons of diesel fuel and gasoline will be stored in fuel delivery systems on the drill rig and support vehicles. Approximately 50 pounds of lubricating grease will be stored on the drill rig or transported by drill trucks. In the event that hazardous or regulated materials were spilled, measures will be taken to control the spill and the BLM and the Nevada Division of Environmental Protection (NDEP) will be notified as required. Any hazardous substance spills will be cleaned immediately, and any resulting waste will be transferred off site in accordance with all applicable local, state, and federal regulations. Contract drillers will maintain spill kits on site for use in case of a spill.

- Origin will comply with all applicable state and federal fire laws and regulations, and all reasonable measures will be taken to prevent and suppress fires in the Project Area.

- Best Management Practices (BMPs) for sediment control will be utilized during construction, operation, and reclamation to minimize sedimentation from disturbed areas. Sediment control structures could include, but not be limited to, fabric or certified weed-free straw bale filter fences, siltation or filter berms, and downgradient drainage channels in order to prevent unnecessary or undue degradation to the environment.

- All drill holes will be plugged in accordance with NAC 543.4369 and 534.4371. If ground water is encountered, the hole will be plugged pursuant to NAC 534.420.

- All reasonable steps will be taken to minimize the introduction of noxious weeds and to limit the spread of any existing infestations.

9. Reclamation: Reclamation will be completed to the standards described in 43 CFR 3809.420. Existing roads will remain open. All earthwork will be completed with a D6 or D7 bulldozer, or equivalent

equipment. The reclaimed areas will then be seeded with a BLM-approved weed-free seed mix, at the appropriate time of year for optimum seed sprouting and plant growth. The seeding will be completed with a manual broadcaster and raked. The reclaimed surfaces will be left in a textured or rough condition (small humps, pits, etc.). The broadcast seed application rate will vary based on the shrub, forb, and grass species selected. Native seed will be used when available. Only certified weed-free seed will be used for reclamation seeding. Post-reclamation maintenance will consist of remedial dirt work and reseeding, if required.

Site monitoring for stability and revegetation success will be conducted once a year for at least three years, during the spring or fall, or until attainment of the revegetation standards established in the Nevada Guidelines for Successful Revegetation for the NDEP, the BLM, and the United States Department of Agriculture (USDA) Forest Service (Instruction Memorandum #NV 99-013).

10. Reclamation Cost Estimate: The reclamation cost estimate (Attachment 2), as required by 43 CFR 3809.552, is attached to this Notice. The Notice Level Exploration Reclamation Model, using Standardized Reclamation Cost Estimate 2022 Cost Data Version 3.2, was used to calculate the reclamation costs for the Project.

The following assumptions have been made in calculating the reclamation cost estimate:

- Approximately 9,181 feet of overland travel routes assuming tire track widths equaling six feet will be ripped and seeded. Seeding will cover a width of 12 feet.

- Approximately 6,630 feet of constructed road 14 feet wide.

- One constructed drill site with the approximate dimensions of 100 feet long by 150 feet wide will be recontoured (including the gravel within the soil surface) and seeded. A 100- by 150-foot pad size is needed; therefore, to get the correct acreage, 10 pads were used for bonding purposes in the SRCE.

- Two sumps with the approximate dimensions of 75 feet long by 50 feet wide by 10 feet deep will be recontoured and seeded. 10 sumps were used for bonding purposes in the SRCE.

- A D6 or D7 dozer, excavator, or equivalent equipment may be used for all reclamation earthwork including ripping disturbance. The disturbed area will be seeded by a manual broadcast method and raked.

- The total estimated reclamation cost for the planned disturbance contained in this Notice is **$20,267.00.**

11. Signature Page

By: Kelly Jones

(Manager of Origin Minerals Exploration, LLC)

Date: June 1, 2023

Attachment 1
Figures

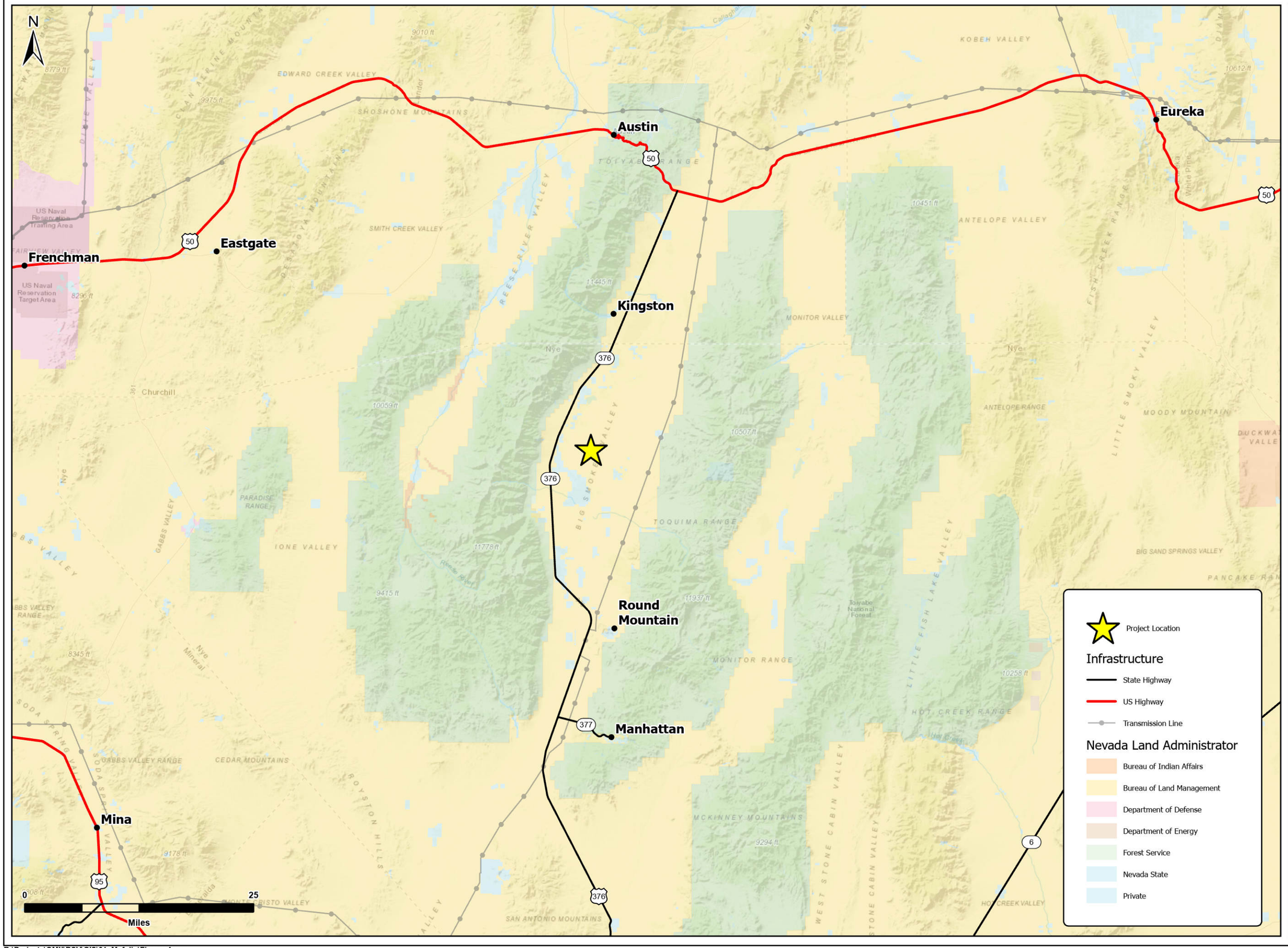

FIGURE 1

TITLE:

SITE MAP
-SHOWING-
PROJECT LOCATION
BIG SMOKY VALLEY
NYE COUNTY

JOB NO.:

OMX001

DATE:

4/13/2023

FILE:

Figure 1 Project Location

COORDINATE SYSTEM:

NAD 1983 UTM Zone 11N US Feet

REF:

DESIGNED	**TT**
DRAWN	**TT**
CHECKED	**NB**
APPROVED	**-**

REVISION:

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McGinley & Associates
A Universal Engineering Sciences Company

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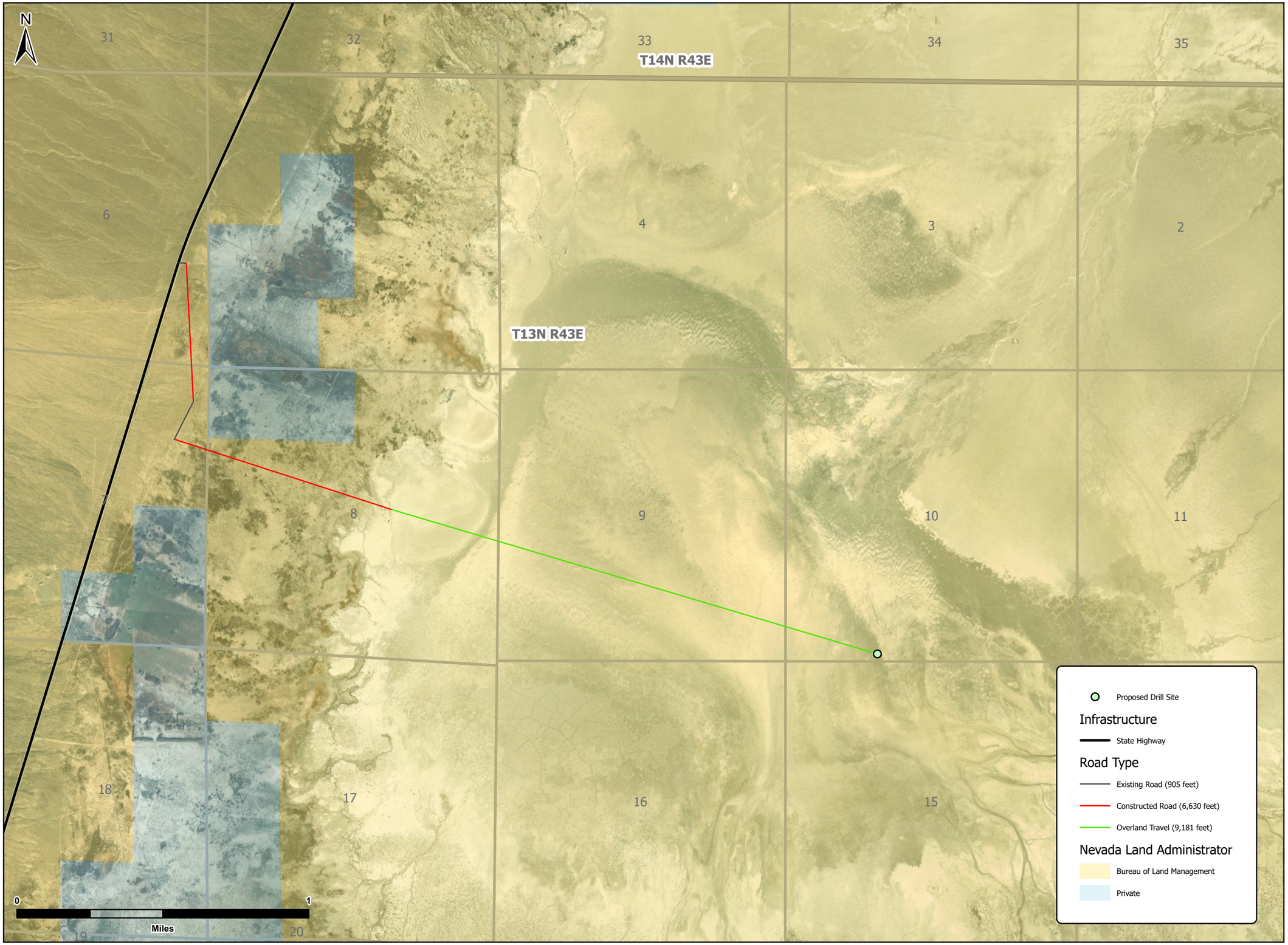

FIGURE 2

TITLE:

SITE MAP
-SHOWING-
PROPOSED DISTURBANCE
BIG SMOKY VALLEY
NYE COUNTY

JOB NO.:

OMX001

DATE:

5/31/2023

FILE:

Figure 2 Proposed Disturbance

COORDINATE SYSTEM:

NAD 1983 UTM Zone 11N US Feet

REF.

DESIGNED	**TT**
DRAWN	**TT**
CHECKED	**NB**
APPROVED	**-**

REVISION:

--

McGinley & Associates
A Universal Engineering Sciences Company

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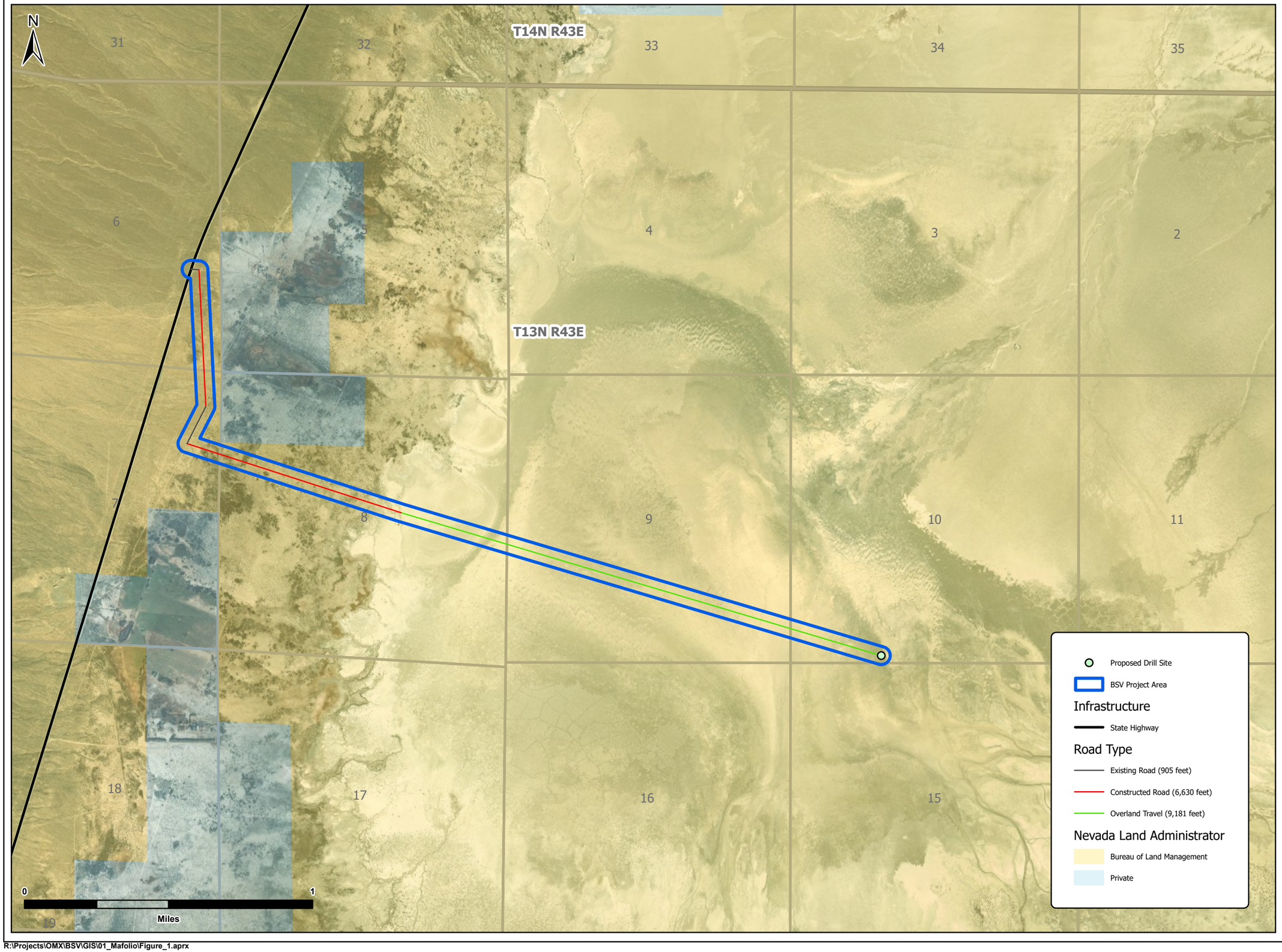

FIGURE 3

TITLE:

SITE MAP
-SHOWING-
PROJECT AREA
BIG SMOKY VALLEY
NYE COUNTY

JOB NO.:

OMX001

DATE:

5/31/2023

FILE:

Figure 3 Project Area

COORDINATE SYSTEM:

NAD 1983 UTM Zone 11N US Feet

REF.

DESIGNED	TT
DRAWN	TT
CHECKED	NB
APPROVED	-

REVISION:

--

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A Universal Engineering Sciences Company

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Attachment 2
Reclamation Cost Estimate

May 31, 2023	Notice Level Exploration Reclamation Cost Model							
	From SRCE Cost Data with Acreage Calculators					SRCE 2022 Cost Data Version 3.2		
	Big Smoky Valley							
Linear Feet of Road	**Linear**							
On a Side Slope	**Feet**		Labor Cost	Manpower	Equipment	Materials	Cost/Linear Foot	Road Reclamation
<30%	6,630	Recontouring Cost <30%	$719	$0.11	$0.19	$0.00	$0.30	$1,959
>30%		Recontouring Cost >30%	$0	$0.43	$0.75	$0.00	$1.18	$0
								Pad& Sump
Drill Sites and Sumps	**Number**			Manpower	Equipment	Materials	Cost each	Reclamation
Drill Sites < 30% slopes	10	Recontouring Cost	$290	$29.00	$50.00	$0.00	$79.00	$790
Drill Sites > 30% slopes		Recontouring Cost	$0	$173.40	$299.40	$0.00	$472.80	$0
Drill Sites Cross Country		Ripping Cost	$0	$14.20	$33.80	$0.00	$48.00	$0
Sumps	10	Recontouring Cost	$193	$19.27	$33.27	$0.00	$52.53	$525
	Linear Feet			Manpower	Equipment	Materials	Cost/Linear Foot	
Trenches	0	Recontouring Cost	$0	$1.19	$2.50	$0.00	$3.69	$0
Cross Country Travel	9,181	Ripping Cost	$130	$0.01	$0.03	$0.00	$0.05	$441
	Slope Acres			Manpower	Equipment	Materials	Cost/Acre	
Total Revegetation Acres	4.79	Revegetation Cost	$838	$175.00	$100.00	$332.75	$607.75	$2,911
				Manpower	Equipment		Mob+Demob	
150 miles Mobilization		Mobilization Cost-excavator	$806	$806.38	$946.62		$1,753	$1,753
150 miles Mobilization		Mobilization Cost-dozer	$549	$549.36	$758.64		$1,308	$1,308
Drill Holes Open	**#/Feet**			Manpower	Equipment	Materials	Cost/Foot	Drill Hole Plugging
Feet of Open Holes - Wet	3000	Plugging Cost - Wet	$1,911	$0.64	$0.66	$0.43	$1.72	$5,169
Feet of Open Holes - Dry		Plugging Cost - Dry	$0	$0.73	$0.30	$0.01	$1.05	$0
Feet of Casing to Pull		Pulling Casing	$0	$0.86	$0.92	$0.00	$1.78	$0
				Manpower	Equipment		Mob+Demob	
150 miles Mobilization		Mobilization Cost - Wet	$600	$600.48	$1,067.52		$1,668	$1,668
150 miles Mobilization		Mobilization Cost - Dry	$0	$880.75	$474.25		$1,355	$0

Disturbance Type	**Total Acres**	**Total Linear Feet**	**Slope Acres**	
Roads	2.69	6,630	2.74	Total Reclamation Cost
Drill Sites	0.61		0.62	$16,524
Sumps	0.16		0.16	
Trenches	0.00	0	0.00	
Cross Country	1.26	9,181	1.26	Total Labor
total Notice acres	**4.72**	**total slope acres**	4.79	$6,038

green cells with blue font is for user input	Contingency*	10% Total Reclamation Cost	$0
yellow cells are unit costs	Insurance	1.5% Labor Cost	$91
black font cannot be changed	Perf. And Payment Bonds*	3% Total Reclamation Cost	$0
red font are calculated values with formulas	Contractor Profit	10% Total Reclamation Cost	$1,652
that can not be changed	Contract Administration	10% Total Reclamation Cost	$1,652
	Indirect Costs	21% of Contract Administration Cost	$347

* Contingency and Performance and payment Bonds required only if total reclamation cost > $100,000

Total Administration Cost: $3,742

Cost per acre	**Financial Guarantee**	
$4,290	**Amount**	**$20,267**

Notes:

Add notes associated with input values, if needed.

A 100 by 150 ft pad and two 50 by 75 ft sumps are needed. Therefore, to get the correct acreage, we included 10 pads. This also includes 10 sumps, however it is unlikely the entire 0.16 acres will be utilized.

Bureau of Land Management Notice Level Reclamation Cost Estimation Worksheet

Costs for this Notice Level Reclamation Cost Estimator are based on values and assumptions used in the Standardized Reclamation Cost Estimator (SRCE) Version 1.4.1.
Cost Data are from August 1, 2022. This worksheet is simpler than the SRCE and does not allow the flexibility of entering project specific information in some situations.
The model will generate approximately the same reclamation costs as the SRCE model if the same inputs and assumptions are applied.
Below are the methods and assumptions used by this model to generate a Financial Guarantee Amount.

1. There are two side hill slope categories used for all calculations in this worksheet. All slopes under 30%(**<30%**) are assumed to have a slope of 20%.
   All slopes over 30% (**>30%**) are assumed to have a slope of 40% and include an additional 50% of volume for double-handling.
2. All **Roads** in this worksheet are assumed to have a 14 foot wide dimension across the flat "driveable" part of the road without any safety berms.
3. All **Drill Sites** in this worksheet are assumed to be 30 feet wide. For **Drill Sites** on slopes <30% they are 70 feet long. For **Drill Sites** on slopes >30% they are 83 feet long
4. All **Road** and **Drill Sites** cut banks are assumed to have a 60 degree slope.
5. All **Road** and **Drill Sites** fill slopes are assumed to have an angle of repose of 1.4H:1V or about 70% slope equal to a 35 degree angle.
6. **Roads** are linear features and the units required for input to this worksheet are in linear feet.
7. **Recontouring** for reclamation of **Roads, Drill Sites, and Sumps** is done with a track excavator of a Cat 320C size with a 1.57 CY bucket and productivity of 167 CY per hour.
8. Equipment operator **Manpower** cost is based on Davis-Bacon wage rates for Northern Nevada.
   Area pay= $0.00 per hour, FICA = 7.65%, Unemployment = 3% and Workmen's Comp= 12.0%
9. Laborer cost is based on Davis-Bacon wage rates for Northern Nevada with FICA = 7.65%, Unemployment = 3% and Workmen's Comp= 12.0%
10. **Revegetation** cost is based on the cost of use of a quad/ATV which spreads and drags the seed in on one pass.
11. **Revegetation** costs are based on a per acre basis for slope acres.
12. **Drill Sites** recontouring cost is based on a standard pad width and length.
    Drill Sites on slopes <30%and **Cross Country Drill Sites** are 30 feet wide by 70 feet long.
    Drill Sites on slopes >30% are 30 feet wide by 83 feet long.
    On **Cross Country Drill Sites**, the disturbed area is ripped by a Cat D7 size dozer.
13. One **Sump** is assumed for each **Drill Site**. The assumed dimensions are 10 feet wide, 20 feet long and 6.75 feet deep. (50 CY)
    On **Drill Sites <30%** slopes they are assumed to be outside the **Drill Site**.
    On **Drill Sites >30%** slopes sumps are assumed to lie within the 30 foot * 83 foot dimension of the **Drill Site.**
14. **Trenches** are assumed to be 14 feet wide by 5 feet deep with 10 feet extra width for the spoils pile. A D6 is used for recontour at 208 CY/ hour productivity.
15. **Recontouring** earthwork for **Roads Drill Sites** and **Sumps** has an assumed swell factor of 20%. **Trenches** swell factor is 30%.
16. **Cross Country** travel is assumed to have a disturbance of 6 feet wide by the linear feet of travel on slopes under 10%.
    Revegetation costs for all **Cross Country** disturbance is based on a 12 foot wide seeding width on one pass.
17. Mobilization and Demobilization are based on 150 miles one way to project and are based on the 2022 Mob/DeMob worksheet.
    Travel times are assumed to be 2.73 hours one way to the project.
18. **Mobilization** for a Cat 320C excavator will be charged for regrading of **Roads, Drill Sites** only.
    If there are any **Trenches or Cross Country disturbance;** a D6 dozer will be mobilized also.
19. All projects that propose drilling will require a minimum **Drill Holes Open** abandonment cost.
    If a drill hole will not penetrate the static water level it may be abandoned as an **Open Hole - Dry**.
    If a drill hole is drilled deeper than the static water level it is considered a wet hole and must be abandoned as an **Open Hole - Wet**.
20. **Mobilization** for **Drill Holes - Open** for **Open Hole - Wet** will include one drill rig plus crew and support equipment.
21. **Mobilization** for **Drill Holes - Open** for **Open Hole - Dry** will include one backhoe and operator, and one general laborer.

Nevada BLM, August 1, 2022

Attachment 2

WASHINGTON ROTATING

A head above the rest.

Made in USA

SERIES 1358-1358-C

NON-ROTATING DIVERTER

The Washington Series 1358-1358-C Non-Rotating Diverter is ideal for use on Top Drive Rigs or Work Over Rigs where drill pipe is to be rotated inside stripper. Whether drilling oil, gas, water or monitor wells, the 1358 bolt down style or the 1358-C clamp down style is a low profile diverter that is lightweight, compact and easy to install. Using air / water or mud as a circulating medium, it is a cost effective solution to safely diverting all drill cuttings away from the rig and personnel or into a container for disposal, keeping clean up cost to a minimum.

The diverter can be manufactured with any desired inlet or outlet flange, or can be manu - fac tured to thread onto casing. To be used with 4010 Rubbers. Will handle from 2" to 8"drill pipe.

Illustration shown is 7"-8RD Female

Nominal Flange Size	A	B	C	D	Ring Gasket	Outlet*
7 1/16"-3000	18 11/16"	10 1/4"	8 1/2"	7 1/16"	R-45	7"- 8RD Female
7 1/16"-5000	19 1/8"	10 1/4"	8 7/8"	7 1/16"	R-46	7"- 8RD Female
9"-3000	18 5/16"	9"	8 1/2"	9"	R-49	7"- 8RD Female
9"-5000	18 7/16"	9"	8 5/8"	9"	R-50	7"- 8RD Female
11"-3000	16 7/16"	9"	7 1/8"	11 1/8"	R-53	7"- 8RD Female
11"-5000	16 11/16"	9"	7 3/8"	11 1/8"	R-54	7"- 8RD Female
13 5/8"-3000	16 9/16"	9 1/4"	7 1/4"	12 3/8"	R-57	7"- 8RD Female
13 5/8"-5000	16 9/16"	9 1/4"	7 1/4"	12 3/8"	BX-160	7"- 8RD Female

*Can be fitted with larger coupled outlet or flanged outlet.

WHEN ORDERING, PLEASE SPECIFY:

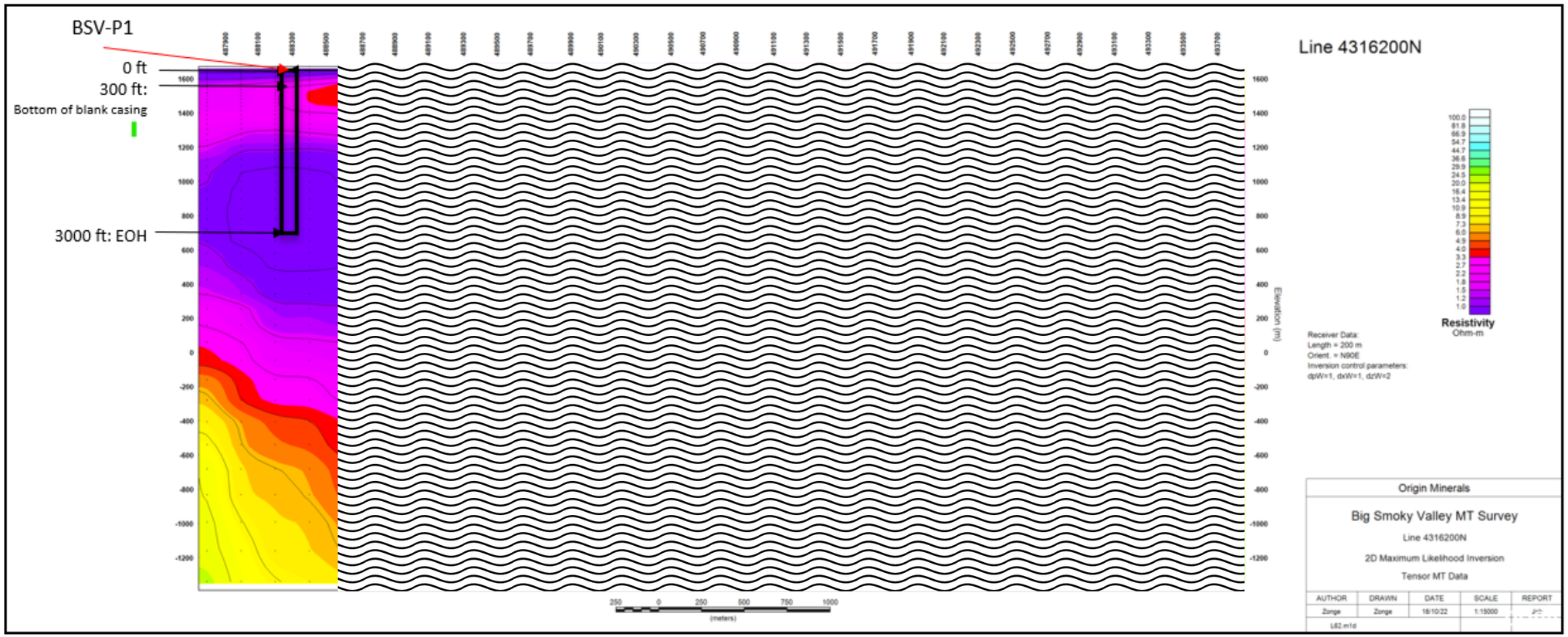
1. model number **2.** lower flange size **3.** outlet flange size **4.** Kelly size and shape **5.** drill pipe size **6.** drilling environment **7.** high temperature, if applicable.

All air bowls can be fitted with female collared or flanged outlets at your request. All air bowls can be double drilled at your request.

REV 8/17

Washington Rotating Control Heads, Inc.
P: 724.228.8889 | F: 724.228.8912
63 Springfield Avenue | P.O Box 261
Washington, PA 15301
www.washingtonrotating.com

Attachment 3



TITLE:

CROSS SECTION
-SHOWING-
MT Line 4316200N
Big Smoky Valley
MT Resistivity
Origin Minerals, LLC
Nye County, NV

JOB NO.:

OMX001

DATE:

4/20/2023

FILE:

Figure 4 Big Smoky Valley MT Line

COORDINATE SYSTEM:

N/A

REF.

DESIGNED	**GF**
DRAWN	**GF**
CHECKED	**GF**
APPROVED	**GF**

REVISION:

--

McGinley & Associates
A Universal Engineering Sciences Company

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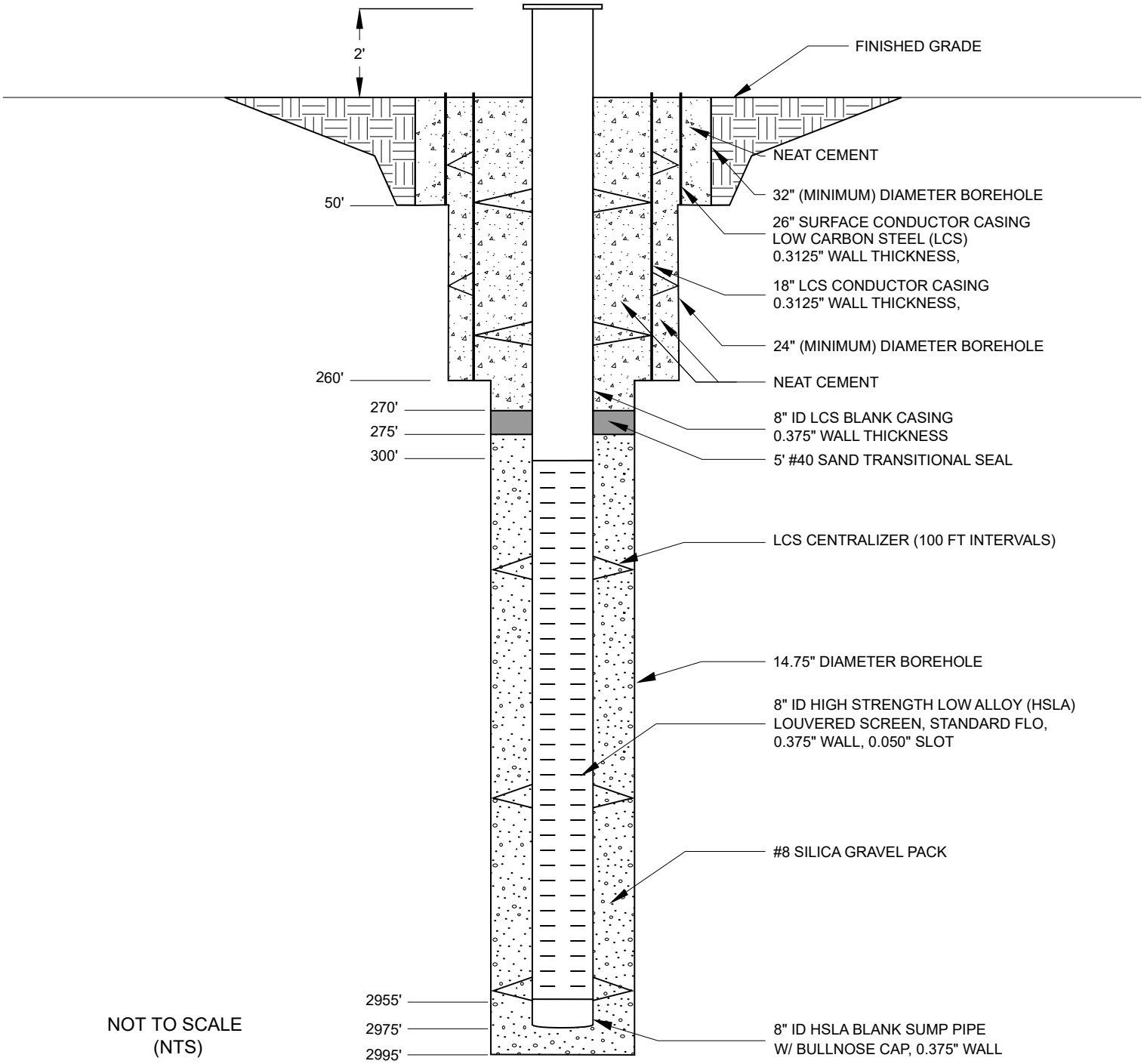
Attachment 4

PRELIMINARY



NOT TO SCALE
(NTS)

McGinley & Associates
A Universal Engineering Sciences Company

Title: **Origin Minerals Big Smoky Valley Test Well Construction Schematic**

Project Name:	Project Number:	Figure:
Origin Minerals Lithium Exploration	**OMX001**	**3**
Client Name: **Origin Minerals**	Date: **4/12/2023**	