



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

THREE KIDS MINE

RECORD OF DECISION



SEPTEMBER 2023

**Record of Decision
Three Kids Mine
Henderson, Nevada
September 2023**

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List of Acronyms and Abbreviations

ACM	Asbestos Containing Material
Act	Three Kids Mine Remediation and Reclamation Act
amsl	above mean sea level
ARARs	Applicable or Relevant and Appropriate Requirements
bgs	below ground surface
BISC	Bureau of Industrial Site Cleanup
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
BTV	background threshold value
C&D	concrete and debris
CEM	certified environmental manager
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminant of concern
COPEC	Constituents of potential ecological concern
COH	City of Henderson
DRO	diesel range organics
Eco-SSLs	Ecological Soil Screening Levels
EPA	U.S. Environmental Protection Agency
ESA	environmental site assessment
FAQ	frequently asked questions
FFS	focused feasibility study
HQ	hazard quotient
Lakemoor	Lakemoor Ventures LLC
MRRA	Mine Remediation and Reclamation Agreement
NCP	National Contingency Plan
NDEP	Nevada Division of Environmental Protection
NESHAP	National Emission Standard for Hazardous Air Pollutants
ng/kg	Nanograms per kilogram
NRHP	National Register of Historic Places
ORO	oil range organics
PAH	polycyclic aromatic hydrocarbon
Phase II SAP	Phase II Sampling and Analysis Plan
PRG	Preliminary Remediation Goal
RACM	Regulated Asbestos Containing Material
RAO	Remedial action objective
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RSL	U.S. Environmental Protection Agency Regional Screening Level
Site	Three Kids Mine Site
SNHD	Southern Nevada Health District
SVOC	semi-volatile organic compound
TMV	toxicity, mobility, or volume
TPH	total petroleum hydrocarbons
VOC	volatile organic compound

1.0 DECLARATION

1.1 SITE NAME AND LOCATION

The Three Kids Mine and Mill Site (Site) is a former manganese mine located approximately five miles northeast of central Henderson, Nevada, along East Lake Mead Parkway (State Road 564) in Clark County. The Site occupies most of Section 35 and parts of Sections 26, 34, and 36 of Township 21S, Range 63E of the Mount Diablo Meridian. The approximate center of the Site is at 36.083333°N and 114.913889°W. A Site Location Map is included as Figure 1.

1.2 STATEMENT OF BASIS AND PURPOSE

The State of Nevada, by and through its Department of Conservation and Natural Resources, Division of Environmental Protection (NDEP), serves as the lead agency overseeing cleanup of the Site. The Site is a mixture of public and private land. The public land is managed by the U.S. Department of the Interior, Bureau of Land Management (BLM) and Bureau of Reclamation (BOR). Private land portions of the Site are owned by Three Kids Enterprises and controlled by Lakemoor Ventures LLC (Lakemoor) under an option agreement¹. Pulte Homes of Nevada and Lakemoor are serving as the responsible parties for Site remediation and reclamation under the Mine Remediation and Reclamation Agreement and Administrative Order on Consent and as required by the Three Kids Mine Remediation and Reclamation Act, Public Law 113-35 (July 25, 2014).

This decision document presents and describes the selected alternative for the Site, which was chosen in accordance with state and federal law. This decision is based on the administrative record file for NDEP Facility ID H-001347.

The selected alternative authorized by this Record of Decision (ROD) includes interning mine waste (tailings and waste rock) within existing mining pits (Figure 2) and capping of these contaminated materials to prevent direct exposure to the environment and minimize potential migration of contaminants to other Site soils and surface water. Historical surface disposal of asbestos containing material (ACM) and municipal wastes will be consolidated and transported offsite for disposal at a licensed facility. The selected alternative allows for the Site to be remediated and reclaimed to standards that allow for residential development, with the caveat that residential areas will be covered with 10 feet of native soil and activities and use of these areas will be restricted by an environmental covenant that will prohibit excavation to no greater than 10 feet bgs without NDEP's prior written approval.

1.3 ASSESSMENT OF SITE

The selected alternative in this ROD is intended to remediate historical contaminant releases; treat the land to return it to a safe, stable condition that is protective of public health and the environment and is consistent with its established and intended productive post-response action use.

¹ Option Agreement for the Purchase of Real Estate and Joint Escrow Instructions, July 26, 2016

1.4 DESCRIPTION OF SELECTED ALTERNATIVE

The selected alternative for the Site is designed to remediate and reclaim the Site to standards that allow for development of a residential master-planned community.

The major baseline elements of the selected remediation alternative include:

1. Removing asbestos from the surface of the Site and taking it to an offsite landfill (asbestos currently in the pits will remain in place).
2. Taking inventory of other municipal solid waste from the surface and taking it to an offsite landfill (municipal solid waste currently in the pits will remain in place).
3. Demolishing former mine structures and placing concrete in the Hulin and A-B Pits.
4. Digging up tailings and placing them in the Hydro Pit. Some tailings may be placed deep in the A-B Pit if they do not all fit in the Hydro Pit.
5. Grading the Site.
6. Constructing a 2-foot cover across the Site using native soil from undisturbed areas to the east, south, and west of the Site, resulting in an industrial post-remediation land use level of protection.
7. Constructing a stormwater detention basin over the Hydro Pit (including an impermeable liner) to control peak stormwater flows.

The major baseline elements will be financially guaranteed to ensure the completion of the remedy to a minimum of an industrial end land use. The selected alternative will also include reclamation measures to return the land to a suitable condition to support residential use. NDEP will require that the Site meets residential cleanup standards that are CERCLA Protective before any residential development at the Site can begin.

Reclamation elements of the selected alternative include:

1. Digging up waste rock and impacted soil.
2. Placing a mixture of waste rock and impacted soil in the Hydro Pit, and placing waste rock in the Hulin Pit, A-B Pit, and Central Valley area. Some impacted soil may be placed deep in the A-B Pit if it does not all fit in the Hydro Pit.
3. Constructing an 8-foot cover across the Site in addition to the 2-foot cover using native soil from undisturbed areas to the east, south, and west of the Site, resulting in a residential post-reclamation land use level of protection.
4. Constructing a stormwater basin to the east of the A-B Pit to control stormwater.
5. Placing Institutional Controls on the Site that notify NDEP of activities that could impact soil deeper than 10 feet bgs and restrict such construction without prior NDEP approval.

The selected alternative will return the impacted areas to a safe, stable condition that is CERCLA Protective and suitable for its projected post-Remediation and Reclamation use. CERCLA Protective means the level of protectiveness of human health and the environment provided by a response action that is compliant with the applicable requirements of CERCLA and other Performance Standards as described herein, in the Remedial Design, and the Administrative order on Consent. CERCLA Protectiveness will not require remediation or reclamation work to reduce contaminants of concern below demonstrated background levels.

1.5 STATUTORY DETERMINATIONS

The selected alternative satisfies the requirements of Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and, to the extent practicable, the National Contingency Plan (NCP). Specifically, the selected alternative is protective of human health and the environment, complies with Federal and State requirements that are applicable to the remedial action, is cost-effective, and employs permanent solutions to the maximum extent possible.

Because the selected alternative will result in contaminants contained onsite, a statutory review will be conducted periodically after completion of the remedial action to ensure that the selected alternative continues to be CERCLA Protective, i.e., protective of human health and the environment. The statutory review will be conducted at the frequency specified in the Remedial Design and will include inspections for erosion of the 10-foot cover and administrative checks that the environmental covenants are functioning as intended.

1.6 ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD. Additional information can be found in NDEP’s administrative record for this Site. Key documents from the administrative record are publicly available on NDEP’s website: <https://bit.ly/3PVadvE>.

- Chemicals of concern and their respective concentrations (Section 2.5.5)
- A description of risk represented by the chemicals of potential concern (Section 2.7)
- Remedial Action Objectives (Section 2.8)
- How source material constituting principal threats is addressed (Section 2.11)
- Current and reasonably anticipated future land and resource use assumptions (Section 2.6)
- Potential land and groundwater use that will be available at the Site as a result of the selected alternative (Section 2.6)
- Estimated capital, annual operation and maintenance, and total present worth costs, discount rate, and the number of years over which the remediation and reclamation cost estimates are projected (Table 1)
- Key factors that led to selecting the alternative (Section 2.12.2)

1.7 AUTHORIZING SIGNATURE

Approved by:

Date:

Jennifer Carr Digitally signed by Jennifer Carr
Date: 2023.11.14 15:34:29 -08'00'

Jennifer L. Carr, Administrator
Nevada Division of Environmental Protection

“This decision of DOI is made pursuant to delegated authority.”

Approved by: **JOAN MOONEY** Digitally signed by JOAN
MOONEY
Date: 2023.11.14 15:26:39
-05'00'

Date:

Joan M. Mooney
Department of the Interior
Principal Deputy Assistant Secretary – Policy, Management and Budget

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND BRIEF DESCRIPTION

The Three Kids Mine Site (NDEP Facility ID H-001347) is located approximately five miles northeast of central Henderson, Nevada, along East Lake Mead Parkway (State Road 564). The Site occupies most of Section 35 and parts of Sections 26, 34, and 36 of Township 21S, Range 63E of the Mount Diablo Meridian. The approximate center of the Site is at 36.083333°N and 114.913889°W. A Site Location Map is included as Figure 1. NDEP is the lead agency overseeing the cleanup. Lakemoor and Pulte, as voluntary responsible parties, have agreed and been ordered to undertake the steps necessary to achieve closure of legacy contamination associated with former mining activities. The roles of Lakemoor and Pulte, as responsible parties, are further clarified in the Mine Remediation and Reclamation Agreement and Administrative Order on Consent and the Three Kids Mine Remediation and Reclamation Act, United States Public Law 113-135.

The former Three Kids Mine and Mill was used for the mining of manganese from 1917 to 1961. Site operations were permanently discontinued in 1961 when open pits were economically exhausted. Key features of the Site include three major open pits, waste rock, ore yard, mill, and three tailings ponds (Figure 2). The three major open pits are the combined A and B Pits (A-B Pit), Hydro Pit, and Hulin Pit. A smaller open pit, the original Three Kids Mine Pit, is located east of the A-B Pit. Overburden and waste rock generated from excavation during mining are left in piles near the pits. In the northeast of the Site are mill building foundations remaining in part or in whole, and remnants of eight circular flotation cells that were used in the manganese beneficiation process. Three tailings ponds are located in the west central portion of the Site and were used in the past for disposal of tailing slurry produced from the beneficiation process. Most areas of the Site are erosive and the mill site, mine pits, and waste piles are poorly vegetated, causing visible dust during moderate and high wind conditions. Despite numerous measures implemented, the Site is largely unprotected and allows for easy access, trespassing, and widespread illegal dumping. Abandoned boats and automobiles, lubricants, appliances, tires, construction debris, and trash are present at the Site.

2.2 SITE HISTORY AND ENFORCEMENT ACTIONS

Manganese ore was discovered at the Site in 1917 and was mined intermittently from 1942 to 1943 and 1953 to 1961. The mill operations at the Site utilized a process of acidulation, flotation, and sintering. Details of the Site history are described in the Phase I Environmental Site Assessment (ESA). The previous mine operations caused the Site to be contaminated with metals, especially arsenic, lead, and manganese, although these metals are also naturally occurring at the Site. After mill operations were terminated in the summer of 1961, mill equipment was auctioned off in January 1962 and secondary lead, a byproduct of the kilns was transported off the Site from 1961 to 1963. The following is a summary of the activities after mill closure.

- 1959: Manganese nodules remaining from mining operations were stockpiled for government reserves beginning in 1959. In 2004, the last of the nodule reserves were moved from the west side of the ore yard to a portion of Tailings Pond 1.
- 1963 to present: Unpermitted salvage, dumping, and vandalism takes place.
- 1979 to 1984: Dumping activity near the Hulin Pit was permitted by Clark County as a landfill that received construction waste and friable asbestos.

- 1982: A portion of the privately held land at the Site was developed into a boat storage facility and a gas station/convenience store. Other privately owned parcels were assembled by an entity composed of three local businessmen under the name Three Kids Enterprises.
- 1999: Total petroleum hydrocarbons (TPH) were found exceeding NDEP reporting levels and Nevada soil action level in a portion of the tailings owned by Three Kids Enterprises. An NDEP case remains open at the time of this ROD.
- 2007: Lakemoor brings together the City of Henderson, NDEP, BLM, and BOR in a public-private partnership to remediate environmental contamination and reclaim the Site so that it may have a productive post-mining use.
- 2007: Lakemoor completes a comprehensive Phase I ESA and initial soils testing.
- 2009: The City of Henderson annexes the project area and establishes the Lakemoor Canyon Redevelopment Area. The property taxes created from the homes built in the Lakemoor Canyon Redevelopment Area will be used over 30 years to reimburse the cleanup costs.
- 2011: BLM demonstrates support and viability of the project by testifying in a U.S. House of Representatives hearing.
- 2014: The Three Kids Mine Remediation and Reclamation Act, Public Law 113-135 is signed into law.
- 2015: The reimbursement plan for the Lakemoor Canyon Redevelopment Area is extended from 30 to 45 years from the date of federal land transfer to make the project economically viable.
- 2021: Broadbent & Associates, Inc. prepares a *Phase II Sampling and Analysis Plan* (Phase II SAP) for the Site and conducts the Remedial Investigation (RI). A *Work Plan for Leaching Analysis of Hydro Pit Fill* and *Risk Assessment Work Plan* are also prepared. The 2007 Phase I Report is updated.
- 2022: Results of the RI are published in the *RI Report, Background Soil Report, and Asbestos Survey Report*. Analysis of remedial alternatives is presented in the *Focused Feasibility Study Report – Soil and Mine Wastes*. A *Screening Level Ecological Risk Assessment* is prepared. The *Proposed Plan and Corrective Action Plan – Soil and Mine Wastes* are prepared.
- 2023: The *Proposed Plan* is presented to the public.

2.3 COMMUNITY PARTICIPATION

NDEP prepared a Community Involvement and Participation Plan, published on June 20, 2022.

On June 30, 2022, NDEP, the City of Henderson (COH), BLM, BOR, and Lakemoor hosted an introductory public meeting for the Three Kids Mine in Henderson, Nevada. Prior to the meeting, NDEP made a Fact Sheet available to the public on its website and as a link on the meeting invitation sent to the community and stakeholders on June 20, 2022.

NDEP also made the Proposed Plan for the Three Kids Mine available to the public on its website on February 15, 2023. On March 9, 2023, NDEP, BLM, COH, and Lakemoor held a second public meeting to present the contents of the Proposed Plan and answer questions. The 30-day public comment period for the Proposed Plan started on February 23, 2023 and concluded on March 25, 2023. NDEP responses to public comments received during this period are included in Section 3.0 (Responsiveness Summary) of this ROD. Additionally, NDEP revised the Frequently Asked Questions (FAQ) Sheet available on the NDEP website to address specific questions that arose during the March 9, 2023 public meeting, and the revised FAQ Sheet was sent to community members who provided questions or comments.

The Fact Sheet, Proposed Plan, FAQ Sheet, and other project files are in the administrative record file for this Site. Key documents from the administrative record are publicly available on NDEP's website: <https://bit.ly/3PVadvE>.

2.4 SCOPE AND ROLE OF THE OPERABLE UNIT OR RESPONSE ACTION

The Three Kids Mine Site was not divided into Operable Units, and the selected alternative applies to the Site as a whole (including the Closure Units described in Section 2.12.1). This ROD addresses contamination in mine wastes (tailings and waste rock) and soil as well as ACM present at the Site. Exposure to these materials presents risks to human health and the environment.

2.5 SITE CHARACTERISTICS

The Three Kids Mine Site was used for mining manganese from 1917 to 1961, which caused the soil at the Site to be contaminated with metals, particularly arsenic, lead, and manganese. Site characteristics are described below, including a Site overview, surface and subsurface features, sampling strategy, sources of contamination, affected media, potential routes of migration, and a conceptual Site model.

2.5.1 Site Overview

The 1,165-acre Site, located on the eastern edge of the Las Vegas Valley, is a former open pit manganese mine and processing facility that sits on an alluvial fan sloping northward down from the River Mountains to the south and east. Precipitation at the Site is low, with an evapotranspiration rate approximately 17 times greater than precipitation, resulting in minimal infiltration. Winds blow predominantly from the south and west. Perennial and/or intermittent streams are not present onsite, but there is visual evidence of surface water flow following heavy storm events. There are three drainage areas with the potential to carry surface runoff to the north. The northern edge of the Site is on Lake Mead Parkway, and the Lake Las Vegas development lies to the north of Lake Mead Parkway, including Lake Las Vegas and the Las Vegas Wash. The Las Vegas Wash is the nearest surface water body, located 1.5 miles northwest of the Site. Available groundwater data suggest that the depth to first water bearing zones at the Three Kids Mine is in the range of 500 to 700 feet bgs. These features, along with surface and subsurface features described below in Section 2.5.2 are depicted in a conceptual Site model block diagram, see Figure 3.

2.5.2 Surface and Subsurface Features

Mining activities, primarily in the 1940s and 50s, changed the topography through the excavation of three large open pits (Hydro Pit, Hulin Pit, and A-B Pit), construction of three tailings ponds containing tailings adding up to 1.6 million cubic yards, and emplacement of upgradient dams to prevent drainages from emptying into pit operations. The Site also contains overburden and waste rock piles adding up to 7.7 million cubic yards and remains of several mill buildings and circular flotation cells. Elevations in proximity to the Site range from 1,550 feet above mean sea level (amsl) in the bottom of the Hydro Pit to 2,515 feet at a nearby peak in the River Mountains; however, large portions of the Site are near 1,800 feet amsl. Most of the surface area of the mill site, although modified by mill activities, is near pre-mining elevations of approximately 1,800 to 1,870 feet amsl.

Site geology consists of the River Mountain volcanics to the south (separated by the Lowney Fault) and east (separated by the Extension Fault). At the Site itself, disturbed material and quaternary alluvium cover the Muddy Creek Formation, which consists primarily of gypsiferous siltstone, sandstone, and

claystone. The Tsm unit, which consists of (often black) tuff, tuffaceous sandstone, and siltstone identified as the manganiferous sedimentary rocks of the Three Kids Mine, is present along the Lowney Fault zone separating the volcanics from the Muddy Creek Formation; the Tsm unit is visible in the three major pits. Another normal fault zone trends north, bisecting the Hydro Pit. To the north is an intrusive contact with dacite porphyry.

The former mine is recommended for inclusion in the National Register of Historic Places (NRHP) as Three Kids Mine Historic District. Two utility lines are also eligible for inclusion in the NRHP.

2.5.3 Sampling Strategy

Field activities were conducted in January, May, and September 2021, which were performed in general accordance with the Phase II SAP, with the purpose of investigating the nature and extent of contamination at the Site and supporting the focused feasibility study (FFS). After initial review of the data collected in September, data gaps in the subsurface investigation were identified, and a fourth mobilization was initiated in December 2021 and completed in January 2022. In total, 907 soil samples were collected as part of the RI from background soil/rock, tailings, overburden/waste rock, and soil. Strata sampled as part of the RI are depicted in Figure 4.

An asbestos survey was performed at the Site periodically from May 2021 through February 2022. A total of 390 bulk material samples were collected to evaluate the presence of asbestos at the Site.

2.5.4 Sources of Contamination

Sources of contamination include tailings, waste rock, and other Site soils. The metal constituents of concern (COCs) are arsenic, lead, and manganese, and to a lesser extent, cadmium and chromium VI. TPH and polycyclic aromatic hydrocarbons (PAHs) have also been identified above screening levels in certain locations of the Site, including diesel range organics (DRO), oil range organics (ORO), benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo (a,h) anthracene, indeno (1,2,3-cd) pyrene, and naphthalene. TPH and PAH impacts are limited to the tailings, chemical processing area, thermal processing area, fuel farm area, and the northeast drainage (Figure 4). Dioxins also exceeded screening levels in the thermal processing area.

Screening level exceedances of arsenic, lead, and manganese were widespread across the mine Site. Vertical delineation of arsenic, cadmium, lead, and manganese exceeding screening levels is not possible due to regional mineralized background concentrations in the mine Site. TPH and PAH impacts were typically surficial in the areas described in the paragraph above, with a maximum depth of impacts at 13 feet bgs. Dioxin and chromium VI impacts were surficial in small portions of the thermal processing area.

2.5.5 Types of Contaminants and Affected Media and Their Locations

COCs were identified by screening sample results from each stratum against the U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs; target cancer risk of 1×10^{-6} and target hazard quotient of 1.0) and the background threshold values (BTVs) associated with the sedimentary units (alluvium and Muddy Creek Formation). This method identifies samples and contaminants that exceed a human health-based risk level and are at concentrations above background. The COCs for each stratum are indicated in the table below.

Stratum	Contaminants of Concern (COCs) by Stratum													
	Arsenic	Cadmium	Lead	Manganese	Chromium VI	TPH	Naphthalene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Dioxins
Element 2: Tailings														
2.1.1 Tailings deposits in ponds	X		X	X		X	X		X	X				
2.1.2 Native soils/rocks beneath tailings ponds	X		X	X										
2.2 Overburden affected by tailings	X	X	X	X										
Element 3: Other Materials														
3.1.1 Overburden (including ore yard)	X	X	X	X										
3.1.1 Overburden (waste rock)	X	X	X	X										
3.1.1 Overburden (native soil/rock beneath waste rock)	X		X	X										
3.1.2 Disturbed soils – compacted roadways	X		X	X										
3.1.3 Disturbed soils – scale house area	X		X	X										
3.2.1 General mill site soils	X	X	X	X										
3.2.2 Downwind areas	X		X	X										
3.3.1 Chemical process area	X	X	X	X		X		X	X	X		X	X	
3.3.2 Thermal process area	X	X	X	X	X	X			X	X		X		X
3.3.3 Drainage sediment	X	X	X	X		X		X	X	X	X	X	X	
3.3.4 Mill site dumps	X	X	X	X		X								
3.3.5 Pit dumps and related soils														
3.3.6 Fuel farm soils and residues	X		X	X		X		X	X	X	X	X	X	
3.3.7 Transformer stands														
3.3.8 Wire burning sites			X											

Tailings

The total volume of tailings is approximately 1.6 million cubic yards based on a model comparing the 2007 (current) topographic map and a 1917 (pre-mining) topographic map. In the eight borings installed in the three tailings ponds located on the western half of the Site (Figure 2), tailings thickness ranged from eight to 45 feet.

Maximum concentrations of COCs in tailings are as follows:

- Arsenic – up to 3,360 mg/kg
- Lead – up to 11,100 mg/kg
- Manganese – up to 151,000 mg/kg
- TPH-DRO – up to 12,400 mg/kg
- TPH-ORO – up to 604 mg/kg
- Naphthalene – up to 16.5 mg/kg
- Benzo(a)pyrene – up to 0.337 mg/kg
- Benzo(b)fluoranthene – up to 1.20 mg/kg

To evaluate leaching that occurred while the tailings ponds were in use and throughout the past approximately 70 years since the mine was operational, samples were collected from native material below the three tailings ponds. Results from native soil/rock below tailings showed no leaching of TPH, volatile organic compounds (VOCs), or semi-volatile organic compounds (SVOCs) in the eight borings. Metals results suggested leaching in one of eight borings to a maximum depth of 12 feet below the bottom of the tailings.

Waste Rock/Overburden

The total volume of waste rock/overburden is approximately 7.7 million cubic yards based on a model comparing the 2007 (current) topographic map and a 1917 (pre-mining) topographic map. Waste rock and overburden are present throughout the Site.

Maximum concentration of COCs in waste rock and overburden are as follows:

- Arsenic – up to 819 mg/kg
- Cadmium – up to 15.2 mg/kg
- Lead – up to 4,820 mg/kg
- Manganese – up to 95,300 mg/kg

No evidence of leaching below waste rock was found during the RI.

PAH-Impacted Soil

Based on results of the RI, the volume of PAH-impacted soil to be excavated is approximately 80,000 cubic yards. PAH-impacted soil includes surficial soil (zero to two feet bgs) in the chemical processing area, thermal processing area, and fuel farm. Soil in the northeast drainage (processing solution release area) and select areas of the fuel farm is impacted with PAHs to a maximum depth of nine feet bgs and 13 feet bgs, respectively.

Maximum concentration of COCs in mill site/drainage soil are as follows:

- Arsenic – 7,090 mg/kg (thermal process area)
- Cadmium – 16.1 mg/kg (thermal process area)
- Lead – 82,100 mg/kg (thermal process area)
- Manganese – 309,000 mg/kg (thermal process area)
- Chromium VI – 0.860 mg/kg (thermal process area)
- TPH-DRO – 144,000 mg/kg (fuel farm)
- TPH-ORO – 221,000 mg/kg (fuel farm)
- Benzo(a)anthracene – 93.8 mg/kg (northeast drainage)
- Benzo(a)pyrene – 28.5 mg/kg (fuel farm)
- Benzo(b)fluoranthene – 390 mg/kg (northeast drainage)
- Chrysene – 135 mg/kg (northeast drainage)
- Dibenzo(a,h)anthracene – 67.7 mg/kg (northeast drainage)
- Indeno(1,2,3-cd)pyrene – 250 mg/kg (northeast drainage)
- Dioxins – 280 nanograms per kilogram (ng/kg) (thermal process area)

Native Soil/Rock

Soil and rock in other locations was tested in the mill site, drainages, and beneath tailings ponds and waste rock to depths up to 100 feet bgs. Arsenic, cadmium, lead, and manganese concentrations that exceed screening levels at depth are not indicative of leaching but rather are naturally occurring (i.e., regional mineralized background concentrations) due to their proximity to the ore body.

Asbestos

The findings of the survey identified dumped asbestos in varying quantities in twelve of the sixteen sample areas established for the Site. The ACM was identified in sporadic volumes on the surface of the ground, in debris piles of various sizes, and in place on structures. Based on the condition of the material, it was classified as a Regulated Asbestos Containing Material (RACM) in accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAP). None of the asbestos found was naturally occurring material.

2.5.6 Potential Routes of Contaminant Migration

Three potential contaminant migration pathways were considered: leaching, wind transport, and surface water transport. Impacts from leaching below tailings ponds were observed from the deepest portion of Tailings Pond 1 to a maximum depth of 12 feet below the tailings. Elsewhere on Site, there is evidence of surficial impacts from mining processing, but not leaching. Concentrations of arsenic, lead, and manganese are elevated above screening levels at depth but are interpreted to be naturally occurring due to the proximity to the ore body, variability with depth, lack of reducing environment to mobilize manganese and lead, and manganese layering present in native rock. There is evidence that wind transport of tailings has occurred but impacts offsite are minimal as described in the *Screening Level Human Health Risk Assessment* for the downwind portion of the River Mountain volcanics dated July 11, 2022. Impacts for surface water flow in drainages also appear to be minimal: concentrations of metals in drainages are elevated above screening levels but are not elevated when compared to naturally occurring metals concentrations observed below the Site.

2.5.7 Conceptual Site Model

Because the Site is vacant, current human receptors are trespassers, who may visit the Site to investigate its features or ride all-terrain vehicles, and workers who visit the Site for investigation or maintenance activities. Current onsite receptors can have direct contact with source areas (tailings, waste rock, and contaminated soil) while onsite. Three potentially complete exposure pathways for mine waste and affected soil were identified for the human receptors identified:

- Incidental ingestion of soil
- Dermal contact with soil
- Inhalation of chemicals released to outdoor air from wind erosion

A conceptual Site model for current and future human health receptors is included as Figure 5. When the selected alternative as described in Section 2.12.1 is done, complete pathways for future human health receptors will be eliminated.

Ecological receptors of concern that could potentially occur at the disturbed area of the Site include plants, invertebrates, and wildlife (birds, mammals, and herptiles). Three potentially complete exposure pathways for mine waste and affected soil were identified for the ecological receptors identified:

- Incidental ingestion of soil
- Dermal contact with soil
- Inhalation of fugitive dust

A conceptual Site model for ecological receptors is included as Figure 6.

As stated in the Phase II SAP, groundwater at the Site is not used as a potable water supply, so no complete exposure pathways for contact with groundwater are identified. Additionally, no surface water is present at the Site, so no complete exposure pathways were identified for surface water.

2.6 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Mining operations at the Site ended in 1961. The Site is currently abandoned, except for two commercial businesses: a boat storage facility (currently known as Lake Mead Boat Storage) and a gas station/convenience store (currently known as Laker Plaza). Despite numerous measures implemented, the Site allows for easy access, trespassing, and widespread illegal dumping. To the north is Lake Las Vegas, a master-planned community. To the east, south, and west is publicly owned land managed by the BLM or BOR. Future land use includes residential development. A master-planned community will be built that includes residential homes, community parks and recreation spaces, and open space.

Groundwater is located at significant depths below the Site, approximately 500 to 700 feet below ground surface. Additionally, regional groundwater tends to be high in total dissolved solids and arsenic. As a result, groundwater beneath the Site is not a source of drinking water.

2.7 SUMMARY OF SITE RISKS

RI sampling found elevated concentrations of certain metals, TPH, and PAHs in tailings and soil. Elevated metals were also found in waste rock, and elevated dioxins were found in a limited quantity of soil at the thermal process area. The mine waste and soil at the Site pose direct exposure risks for human health and ecological receptors. The soil-to-groundwater pathway is incomplete partially because leaching of the contaminants in the soil to the groundwater is limited by low infiltration due to the regional climate and because groundwater is located at significant depth below the Site. Asbestos also poses a risk for human health. Physical hazards are present at the Site, including open pits and remaining mill site structures.

Human Health Risk

COCs are chemicals that pose a carcinogenic risk to human health greater than one in one million (1×10^{-6}) or have a non-carcinogenic hazard index greater than 1.0. The COCs of the Site soil and mine wastes were identified by screening sample results against the RSLs (calculated with a target risk of 1×10^{-6} and target hazard quotient of 1.0) and the BTVs associated with the sedimentary units (alluvium and Muddy Creek Formation) west of the Site. Results that exceeded the RSL and the BTV are considered COCs. Additionally, TPH concentrations were compared to a threshold of 100 milligrams per kilogram (mg/kg), the concentration set by NDEP as generally posing an acceptable level of risk for all exposure scenarios. The Site COCs primarily include arsenic, lead, and manganese. Other COCs include cadmium, chromium VI, TPH, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo (a,h) anthracene, indeno (1,2,3-cd)pyrene, naphthalene, and dioxins. Maximum detected concentrations of COCs are included above in Section 2.5.5.

Three exposure routes are possible at the Site: ingestion of soil, dermal contact with soil, and inhalation of dust. A human health conceptual Site model is included as Figure 5, depicting the potentially currently complete exposure routes. Comparison of maximum detected concentrations of COCs to applicable screening levels combined with an evaluation of potentially complete exposure pathways demonstrates that contaminants on Site pose threats to human health.

Ecological Risk

Based on the potential for species to use the disturbed area of the Site, five general populations of ecological receptors were conservatively selected for evaluation in the screening level ecological risk assessment, including terrestrial invertebrate, plant, reptile, mammal, and bird populations. Complete exposure pathways are depicted in Figure 6. Ingestion/uptake of soil for plants, invertebrates, birds, and mammals are considered. Other pathways, such as inhalation of fugitive dust and dermal contact, are considered complete but insignificant.

In general, the toxicity of constituents is related to their bioavailability. Toxicological benchmarks such as Ecological Soil Screening Levels (Eco-SSLs), established by EPA, were developed based on moderately bioavailable forms of metals. Use of the maximum exposure point concentrations for assessment of most wildlife is conservative and is likely to overestimate risks because it assumes that individual organisms spend 100% of their time inhabiting and feeding from the area with the highest concentration. As such, both maximum and arithmetic average concentrations are used as exposure point concentrations.

Constituents of Potential Ecological Concern (COPECs) are selected by comparing exposure point concentrations to ecological screening values, representative of threshold level effects. Hazard quotients (HQs) were calculated as the ratio of the concentration to the screening value. There are no potential risks to fossorial animals exposed to VOCs in burrows via inhalation. Overall, potential risks are identified for all other receptor groups in all strata from manganese, arsenic, and lead.

Basis for Action

The selected alternative in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of pollutants or contaminants from this Site which may present risks to public health or welfare. A risk assessment based on the May 2021 background study of the borrow areas for the 10-foot cover will be completed post-remediation.

2.8 REMEDIAL ACTION OBJECTIVES

The Remedial Action Objectives (RAOs) were developed for mine waste and contaminated soil to address unacceptable risks and protect human health and the environment. The future land use, which does not include ecological habitat, and contaminant exposure pathways were included in the RAO development. The following describes the RAOs for the Site soil.

- Prevent human exposure to mining wastes and soil that pose an unacceptable risk to human health and the environment.
- Minimize leaching and transport of soil and waste into groundwater, surface water, and other Site soil.
- Prevent direct human exposure to asbestos.
- Restore the Site to beneficial use as appropriate.

2.9 DESCRIPTION OF ALTERNATIVES

Four remedial alternatives were analyzed to address the Site waste and contaminated soil. The remedial alternatives were presented to the public in the *Proposed Plan* and include:

Alternative S-1	No action
Alternative S-2	Consolidation, 2-foot cover, and ACM offsite disposal
Alternative S-3	Consolidation, 10-foot cover, and ACM onsite disposal
Alternative S-4	Consolidation, 10-foot cover, and ACM offsite disposal

Cost estimates described below reflect the costs included in the FFS for comparison purposes and do not include Site characterization costs. The cost estimate in Table 1 includes characterization costs as well as additional changes as the preferred alternative was refined.

Alternative S-1: No action

Estimated capital cost: \$0

Estimated time to construct: No construction

Estimated time to meet RAOs: Not applicable

- No cleanup action would be taken, and the Site would remain in its present state.
- A no-action alternative is required by EPA guidance to serve as a baseline for comparison with other alternatives.

Alternative S-2: Consolidation, 2-Foot Cover, and ACM Offsite Disposal

Estimated capital cost: \$129,884,000

Estimated time to construct: 1.5 years

Estimated time to meet RAOs: 1.5 years

- Asbestos, municipal solid waste, and concrete would be removed from the Site and taken to a landfill.
- Tailings, waste rock, and impacted soil would be placed into the open pits.
- The Hulin and A-B Pits would be covered with 2 feet of native soil, and the Hydro Pit would be covered by an impermeable liner, 2 feet of native soil, and a detention basin to control peak stormwater flows.
- Other disturbed areas of the Site would also be covered with 2 feet of native soil.
- Control measures would be used to protect construction workers and the public from the covered waste materials that could potentially be exposed during construction activities deeper than 2 feet.
- Limited Site development (i.e., commercial rather than residential development) would not produce enough property taxes to pay for the cleanup.

Alternative S-3: Consolidation, 10-Foot Cover, and ACM Onsite Disposal

Estimated capital cost: \$184,924,000

Estimated time to construct: 5 years

Estimated time to meet RAOs: 5 years

- Tailings, waste rock, and impacted soil would be placed into the open pits.
- Asbestos, municipal solid waste, and concrete would also be buried in the pits.
- The Hulin and A-B Pits would be covered with 10 feet of native soil, and the Hydro Pit would be covered by an impermeable liner, a minimum of 2 feet of native soil, and a detention basin to control peak stormwater flows.
- Other disturbed areas of the Site would also be covered with 10 feet of native soil.
- Digging below 10 feet would require NDEP approval.
- The Site would be converted to full residential use, and the property taxes from development in the Lakemoor Canyon Redevelopment Area would be used to pay for the cleanup.

Alternative S-4: Consolidation, 10-Foot Cover, and ACM Offsite Disposal

Estimated capital cost: \$185,559,000

Estimated time to construct: Slightly less than 5 years

Estimated time to meet RAO: Slightly less than 5 years

- Asbestos, municipal solid waste, and concrete would be removed from the Site and taken to a landfill.
- Tailings, waste rock, and impacted soil would be placed into the open pits.
- The Hulin and A-B Pits would be covered with 10 feet of native soil, and the Hydro Pit would be covered by an impermeable liner, a minimum of 2 feet of native soil, and a detention basin to control peak stormwater flows.
- Other disturbed areas of the Site would also be covered with 10 feet of native soil.
- Digging below 10 feet would require NDEP approval.
- The Site would be converted to full residential use, and the property taxes from development in the Lakemoor Canyon Redevelopment Area would be used to pay for the cleanup.

Common Elements and Distinguishing Features of Each Alternative

All the alternatives, except for Alternative S-1 (No Action), address direct exposure to contaminated mine waste and soil. Alternative S-2, with a two-foot cover rather than a 10-foot cover, does not protect construction workers working two to 10 feet bgs, nor does it protect ecological receptors such as tree roots that extend deeper than two feet bgs. Alternatives S-3 and S-4 both include a 10-foot cover but differ in the approach to disposal of ACM and C&D: in Alternative S-3 both are disposed onsite while in Alternative S-4 both are disposed offsite. Alternatives S-2, S-3, and S-4 all include institutional controls below the native soil cover and a liner over the Hydro Pit.

2.10 COMPARATIVE ANALYSIS OF ALTERNATIVES

In keeping with the intent to substantially follow the CERCLA process, nine criteria were used to evaluate the remedial alternatives following the EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*. These nine criteria are categorized into three groups: threshold, balancing, and modifying.

The threshold criteria must be met for an alternative to be eligible for selection:

- Overall protection of human health and the environment
- Compliance with Applicable, Relevant and Appropriate Requirements (ARARs)

The balancing criteria are used to weigh major tradeoffs among alternatives:

- Long term effectiveness and permanence
- Reduction of toxicity, mobility, or volume (TMV) through treatment
- Short-term effectiveness
- Implementability
- Cost

The modifying criteria are evaluated through the completion of this ROD and a public comment period.

- State acceptance
- Community acceptance

A comparative analysis broken down based on the criteria listed above is presented below.

Overall Protection of Human Health and the Environment

This criterion assesses whether each alternative provides adequate protection of human health and the environment. The evaluation of protection focuses on the reduction or elimination of Site risks by the remedial alternative. For the purpose of this evaluation, an alternative is either protective or not protective.

All alternatives, except Alternative S-1 (No Action), provide overall protection of human health and environment. Alternative S-2 requires institutional controls that would be difficult or impossible to implement to restrict earth moving activities, i.e., drilling and excavation deeper than two feet unless protection measures are installed to protect residents, workers, and the public from being exposed to the contaminants.

Alternative S-3 ranks the most satisfactory among the four alternatives regarding protection of human health and environment because the short-term traffic risk stemming from hauling ACM and C&D waste over public highways is not required. Deep burial of ACM eliminates potential human exposure.

Compliance with ARARs

This criterion is used to evaluate whether each alternative will meet the local, state, and federal ARARs. For the purpose of this evaluation, an alternative either complies with ARARs or does not comply with ARARs.

ARARs are substantive local, state, and federal environmental laws and regulations that specify remediation levels or performance standards. An ARAR may be either “applicable” or “relevant and appropriate,” but not both. The NCP in 40 Code of Federal Regulations §300 defines ARARs. Section 121(d) of CERCLA, as amended by the Superfund Amendments and Reauthorization Act, states that remedial actions must attain ARARs.

Table 2 includes a list of ARARs for the Site. With the exception of S-1, all alternatives would comply with ARARs.

Long-Term Effectiveness and Permanence

This criterion is used to assess the residual risks at the Site after RAOs have been met and considers the magnitude of the residual risks after remedial activities and the adequacy and reliability of controls to mitigate the remaining risks after the remedial activities. All alternatives, except for Alternative S-1, provide long-term effectiveness and permanence, but to different extents. Alternatives S-3 and S-4 would provide the best long-term effectiveness and permanence because contaminated materials are excavated, contained, and covered in a 10-foot cap. Alternative S-2 would leave the contaminated materials covered with only two feet of native soil that requires maintenance to ensure the cover is well protected from erosion and the contaminated materials are not exposed and is therefore less effective in the long term.

Reduction of TMV through Treatment

This evaluation criterion addresses the CERCLA statutory preference for treatment options that permanently and significantly reduce the TMV of the contaminants. The preference is satisfied when treatment reduces the principal threats through the following:

- Destruction of toxic contaminants
- Reduction in contaminant mobility
- Reduction in total mass of toxic contaminants
- Reduction in total volume of contaminated media

For the purpose of this evaluation, an alternative may be considered to have: (1) no reduction on TMV, (2) moderate reduction on TMV over time, or (3) complete reduction on TMV over time.

All alternatives except Alternative S-1 reduce the mobility of the contaminated materials, but no alternatives would reduce the toxicity and volume of the contaminated soil and waste. Alternative S-4 is the best in reducing the mobility of the contaminants by using a thicker cap and offsite disposal of ACM and C&D waste from the surface.

Short-Term Effectiveness

This criterion addresses the effects of the alternatives during the construction and implementation phase until the RAOs are met. Under this criterion, alternatives are evaluated for their effects on human health and the environment during implementation of the remedial action. The following factors will be considered:

- Exposure of the community during implementation
- Exposure of workers during construction
- Environmental impacts
- Time to achieve RAOs

All alternatives, except Alternative S-1, pose short-term impacts during the remediation on workers, communities, and the environment. Proper personal protective equipment and best practice management will be used to alleviate the impacts. Alternative S-3 would require a longer time to implement than Alternative S-2, and a slightly longer time than Alternative S-4, because this alternative would require onsite placement and proper compaction of ACM and C&D waste for disposal versus loading and hauling offsite. The longer construction periods for Alternative S-3 and Alternative S-4 due to greater volume of material handling for placing the 10-foot cover would potentially generate more environmental impacts, i.e., air pollution, noise, and dust. Therefore, Alternative S-2 ranks the most satisfactory in terms of short-term effectiveness.

Implementability

This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials that may be required during its implementation. The following factors were considered:

- Ability to construct the technology
- Monitoring requirements
- Availability of equipment and specialists

For the purpose of this evaluation, an alternative may be either highly implementable or less implementable.

All alternatives involve mature technologies and typical construction methods and equipment. Thus, they are readily implementable. However, Alternative S-3 requires more processes, i.e., requesting a waiver for an onsite landfill, and Alternatives S-3 and S-4 require more materials for a 10-foot cover than Alternative S-2; therefore, Alternative S-2 ranks the most satisfactory regarding implementability with regards to earthwork. Institutional controls for Alternative S-2, however, would be less implementable.

Cost

Capital cost is estimated under each alternative. Cost estimates are expected to be accurate within a range of +50 to -30 percent. Alternative S-4 is highest in total cost, followed by Alternative S-3, then S-2.

Alternative S-1	\$0
Alternative S-2	\$129,884,000
Alternative S-3	\$184,924,000
Alternative S-4	\$185,559,000

State Acceptance

The State of Nevada, represented by NDEP, recommends the selected alternative as outlined in this ROD. Therefore, the state acceptance criterion is met.

Community Acceptance

Comments received from the community on the Proposed Plan during the public comment period mostly suggest support for the selected alternative. The most common concern identified by the community is fugitive dust originating from the Site. Additional details are provided in Section 3.0 (Responsiveness Summary).

2.11 PRINCIPAL THREAT WASTES

A principal threat waste is source material that is highly toxic or highly mobile and contains hazardous substances, pollutants, or contaminants that migrate to groundwater, surface water, or air, or serve as a source for direct exposure. Tailings, waste rock, and contaminated soil at the Site currently act as a source for direct exposure but based on the results of the RI, do not appear to be highly mobile and therefore do not constitute principal threat wastes. The selected alternative eliminates the potential for exposure and further migration by covering the mine wastes with 10 feet of native soil. Tailings in the Hydro Pit will be covered with a liner and a minimum of two feet of native soil.

2.12 SELECTED ALTERNATIVE

The selected alternative for the Site is a combination of Alternatives S-3 and S-4 that includes consolidation of mine waste, select soil, and concrete; placement of a 10-foot cover; and ACM/C&D in deep pits remains in place while ACM/municipal waste from the surface of the mine Site is disposed offsite.

2.12.1 Description of the Selected Alternative

The major baseline elements of the selected remediation alternative include:

1. Removing asbestos from the surface of the Site and taking it to an offsite landfill (asbestos currently in the pits will remain in place).
2. Taking inventory of other municipal solid waste from the surface and taking it to an offsite landfill (municipal solid waste currently in the pits will remain in place).
3. Demolishing former mine structures and placing concrete in the Hulin and A-B Pits.
4. Digging up tailings and placing them in the Hydro Pit. Some tailings may be placed deep in the A-B Pit if they do not all fit in the Hydro Pit.
5. Grading the Site.
6. Constructing a 2-foot cover across the Site using native soil from undisturbed areas to the east, south, and west of the Site, resulting in an industrial post-remediation land use level of protection.
7. Constructing a stormwater detention basin over the Hydro Pit (including an impermeable liner) to control peak stormwater flows.

The major baseline elements will be financially guaranteed to ensure the completion of the remedy to a minimum of an industrial end land use. The selected alternative will also include reclamation measures to return the land to a suitable condition to support residential use. NDEP will require that the Site meets residential cleanup standards that are CERCLA Protective before any residential development at the Site can begin.

Reclamation elements of the selected alternative include:

1. Digging up waste rock and impacted soil.
2. Placing a mixture of waste rock and impacted soil in the Hydro Pit, and placing waste rock in the Hulin Pit, A-B Pit, and Central Valley area. Some impacted soil may be placed deep in the A-B Pit if it does not all fit in the Hydro Pit.
3. Constructing an 8-foot cover across the Site in addition to the 2-foot cover using native soil from undisturbed areas to the east, south, and west of the Site, resulting in a residential post-reclamation land use level of protection.
4. Constructing a stormwater basin to the east of the A-B Pit to control stormwater.
5. Placing Institutional Controls on the Site that notify NDEP of and restrict construction activities that will impact soil deeper than 10 feet bgs without NDEP prior approval.

The selected alternative will return the impacted areas to a safe, stable condition that is CERCLA Protective and suitable for its projected post-Remediation and Reclamation use. CERCLA Protective means the level of protectiveness of human health and the environment provided by a response action that is compliant with the applicable requirements of CERCLA and other Performance Standards as described herein, in the Remedial Design, and the Administrative order on Consent. CERCLA Protectiveness will not require remediation or reclamation work to reduce contaminants of concern below demonstrated background levels.

Additional details on excavation, placement of excavated material, construction of the 10-foot cover, construction of stormwater basins, and environmental covenants are provided below.

The three tailings ponds, as well as the portion of tailings to the east of Tailings Pond 3 and the tailings stockpile area, will be excavated to the maximum extent of tailings. The total estimated volume of tailings is 1.6 million cubic yards. Waste rock piles will be excavated to the pre-mining surface as interpreted by a 1917 topographic map, except for waste rock falling within the bounds of the Central Valley (deep fill) area (see Figure 7). The total estimated volume of waste rock is 7.7 million cubic yards. The fuel farm, chemical processing, and thermal processing areas (depicted in Figure 4) will receive a two-foot scrape to remove impacted soil. Additionally, PAH-impacted soil below each sump containing bunker fuel in the fuel farm area will be excavated to 13 feet bgs. A release of processing solution in the northeast drainage (approximately 200 feet long by 100 feet wide) will be excavated to a maximum depth based on visual observations by a certified environmental manager (CEM). Additional soil will be excavated to allow for the placement of 10 feet of cover below the planned development final grade.

The types of waste and their designated disposal area are listed in the table below. A mixture of tailings and waste rock will be placed in the Hydro Pit. The ratio may be up to 90 percent tailings with 10 percent waste rock but will ultimately depend on achieving compaction requirements. Materials will be moved over the side of Hydro Pit over a dump slope, then rehandled, mixed, and placed in the bottom of the pits during a separate shift. Loose material will be placed in approximately 12-inch lifts and compacted. Waste rock will also be placed into the Hulin Pit over a dump slope. Waste rock and concrete pieces will be driven into the A-B Pit on the improved access road and placed in approximately 12-inch lifts and compacted. Tailings and petroleum-contaminated soil may also be placed deep in the A-B Pit, as a contingency if the volume of tailings and petroleum-contaminated soil does not fit in the Hydro Pit. An area of the Site north of the Hulin Pit extending to Lake Mead Parkway will require a significant amount of fill to be brought to the final grade. Waste rock will be placed in this Central Valley area up to ten feet below final grade, allowing space for placement of the native soil cover for final reclamation.

Type of Waste	Hydro Pit	Hulin Pit	A-B Pit	Central Valley
Tailings	X		X*	
Waste rock and overburden	X	X	X	X
Concrete		X	X	
PAH-impacted soil (including associated COCs, see Section 2.5.5)	X		X*	
Process solution release from northeast drainage	X		X*	
Soil excavated to facilitate 10-foot cover	X	X	X	X
Solid waste presently in deep pits	X	X	X	

*Only as contingency if tailings and petroleum-contaminated soil do not fit in Hydro Pit as anticipated

For final Reclamation to result in a residential land use, mine Site wastes will be capped with 10-foot cover, except where a liner will be placed over the Hydro Pit. A minimum of two feet of native soil cover will be placed over the Hydro Pit liner. The cover soil and rock will be imported from borrow sources located to the east, south, and west of the Site that were evaluated during the background study. The cover material will be placed in loose lifts consisting of a maximum thickness of 12 inches. The fill material will be placed and compacted to design requirements across the area prior to placement of next lift. The area will be graded to meet the designed elevations. The location of the 10-foot cover is shown in Figure 8. Ten feet

of native soil will be placed over Closure Units 1, 2, 3, 5, and 6, as shown in Figure 9. These Closure Units include all areas to be developed as residential except for Closure Unit 11. Closure Unit 11, a small sliver directly adjacent to Laker Plaza and Lake Mead Boat Storage, will receive the maximum amount of fill possible based on following OSHA safe work practices for slope stability. The environmental covenant will be adjusted accordingly to be protective of human health and the environment. Additional details by Closure Unit are provided below.

Stormwater detention basins will be constructed to 1) control stormwater runoff and direct stormwater away from closed areas of the Site (i.e., soil below native soil cover), 2) reduce infiltration of precipitation into the covered and protected mine Site wastes, and 3) facilitate Site development. Two stormwater detention basins are currently planned as part of the overall Site grading plan: one covering the northeast corner of the Hydro Pit and a second east of the A-B Pit next to the original Three Kids Mine Pit. Stormwater channels and drainage areas will be sloped to maintain drainage such that surface water is not ponded or retained.

An environmental covenant will be placed on soil below 10 feet bgs to protect construction workers who may encounter soil at depths greater than 10 feet bgs. The covenant will work through the development's homeowner's association and City of Henderson permitting. If a resident requests a permit for construction deeper than 10 feet bgs, this will require NDEP approval, and an approved Soil Management Plan shall be in place before work begins. In locations where native soil cover is greater than 10 feet to accommodate deep (greater than 10 feet bgs) utility inverts, the environmental covenant will be placed on soil below the total depth of the native soil cover. As a result, a Soil Management Plan would not be needed for utility work unless soil would be disturbed below the native soil cover.

Closure Units were developed to allow for a phased approach to closure at the Site and to account for differences in the selected alternative by geographic area. The following list specifies components of the selected alternative required for closure by each Closure Unit.

Closure Units 1, 3a (south), and 3b (north)

- Excavation of tailings and containment in the Hydro Pit (and A-B Pit, if additional space is needed)
- Excavation of waste rock outside of the Central Valley area to 1917 topography and containment in the Hydro, Hulin, or A-B pits
- Placement of 10-foot cover
- Demonstration that fill placement and compaction standards have been met, to full depth of fill
- Enact environmental covenant that requires NDEP approval prior to disturbance of soil below 10 feet bgs and prohibits installation of water supply wells for potable use

Closure Unit 2

- Containment of waste rock and concrete in Hulin Pit
- Demonstration that fill placement and compaction standards have been met, to full depth of fill
- Placement of 10-foot cover
- Enact environmental covenant that requires NDEP approval prior to disturbance of soil below 10 feet bgs, prohibits construction of residential homes, and prohibits installation of water supply wells for potable use

Closure Unit 4

- Containment of tailings, waste rock, and contaminated soil in Hydro Pit

- Demonstration that fill placement and compaction standards have been met, to full depth of fill
- Installation and quality control testing of liner covering tailings footprint and allowing for drainage away from Hydro Pit
- Placement of a minimum of two feet of native soil cover to protect liner
- Enact environmental covenant that prohibits disturbance of liner, prohibits construction of residential homes, and prohibits installation of water supply wells for potable use

Closure Unit 5a (park area)

- Containment of waste rock and concrete in A-B Pit
- Demonstration that fill placement and compaction standards have been met, to full depth of fill
- Placement of 10-foot cover
- Enact environmental covenant that requires NDEP approval prior to disturbance of soil below 10 feet bgs, prohibits construction of residential homes, and prohibits installation of water supply wells for potable use

Closure Unit 5b (residential area)

- Containment of waste rock and concrete in A-B Pit
- Demonstration that fill placement and compaction standards have been met, to full depth of fill
- Placement of 10-foot cover
- Enact environmental covenant that requires NDEP approval prior to disturbance of soil below 10 feet bgs and prohibits installation of water supply wells for potable use

Closure Unit 6

- Excavation of PAH-impacted soil (including associated COCs, see Section 2.5.5) and processing solution release in the Northeast Drainage followed by containment in the Hydro Pit (and A-B Pit, if needed)
- Excavation of waste rock to 1917 topography and containment in the Hydro, Hulin, or A-B pits
- Placement of 10-foot cover
- Demonstration that fill placement and compaction standards have been met, to full depth of fill
- Enact environmental covenant that requires NDEP approval prior to disturbance of soil below 10 feet bgs and prohibits installation of water supply wells for potable use

Closure Unit 7

- NDEP granted a No Further Action Determination on August 22, 2022 based on the *Screening Level Human Health Risk Assessment* for the downwind portion of the River Mountain volcanics dated July 11, 2022

Closure Unit 8

- Not covered under this ROD

Closure Unit 9

- Not covered under this ROD

Closure Unit 10 (utility corridor)

- Construction of stormwater infrastructure that will restrict infiltration through contaminated soil
- Access to remaining contaminated soil will be reduced via placement of 2-foot cover, riprap, fencing, or other methods

- Enact environmental covenant that requires NDEP approval prior to disturbance of soil, prohibits construction of residential homes, and prohibits installation of water supply wells for potable use

Closure Unit 11 (property boundary with LMBS and Laker Plaza)

- Excavation of tailings and containment in the Hydro Pit (and A-B Pit, if needed)
- Excavation of waste rock outside of the Central Valley area to 1917 topography and containment in the Hydro, Hulin, or A-B pits
- Placement of 10-foot cover or the maximum amount of fill possible with a minimum of six feet based on following OSHA safe work practices for slope stability
- Demonstration that fill placement and compaction standards have been met, to full depth of fill
- Enact environmental covenant that requires NDEP approval prior to disturbance of soil below six feet bgs, prohibits construction of residential homes, and prohibits installation of water supply wells for potable use

Completion of the selected alternative will be documented in Closure Unit Work Completion Reports, requesting a No Further Action Determination for a given Closure Unit.

2.12.2 Summary of the Rationale for the Selected Alternative

The selected alternative for remediation and reclamation was chosen because it is protective of human health to residential standards, intended to be CERCLA Protective, via consolidating and capping mine waste and contaminated soil. Cleaning up the Site to residential standards makes the project economically viable because the future development can bring in sufficient property taxes to cover the cost of the cleanup.

With respect to balancing criteria, the selected alternative is more effective long term than Alternative S-2 because a two-foot cover would require constant ongoing maintenance. The selected alternative is additionally more implementable than Alternative S-2 which requires institutional controls on soil below two feet bgs which would be more difficult to implement. Although the selected alternative is higher in cost than Alternative S-2, only Alternatives S-3 and S-4 have feasible funding mechanisms.

With respect to modifying criteria, only a 10-foot cover is acceptable to NDEP and the community for the intended future land use. Onsite disposal of solid waste and asbestos from the surface of the Site was not acceptable to the Southern Nevada Health District (SNHD) without a landfill permit and associated requirements, so offsite disposal of both materials was selected in a combination of Alternatives S-3 and S-4.

2.12.3 Summary of Estimated Remediation and Reclamation Costs

Early cost estimates completed prior to the RI estimated between \$350 million for onsite disposal of mine waste to \$1.2 billion for offsite disposal of mine waste. The current cost estimate for the selected alternative is included in Table 1. It is based on the costs presented in the *Focused Feasibility Study Report – Soil and Mine Wastes* and is expected to be within +50% to -30% of actual project costs as specified in the EPA guidance on feasibility studies and refined based on updates in the *Basis of Estimate for Site Reclamation* document prepared for the BLM to facilitate the federal land transfer.

2.12.4 Expected Outcomes of Selected Alternative

The selected alternative will address the RAOs by capping the contaminated materials to prevent the direct exposure to the environment and minimizing potential migration of contaminants to the other Site soil and surface water. The lined stormwater detention basin will reduce the infiltration, therefore addressing leaching of contaminants into the groundwater. ACM and municipal wastes from the surface of the Site will be consolidated and disposed offsite at an appropriately regulated landfill facility permitted to receive the materials.

Upon completion of reclamation, the Site will be converted to full residential use, under the stipulation that wastes are covered with 10 feet of native soil and an environmental covenant is enacted on soil below 10 feet. Certain areas will be reserved for parks and open space, such as the areas on top of the Hydro Pit and Hulin Pit as well as the area adjacent to the fault scarp in the A-B Pit. A risk assessment based on the background study of the borrow areas for the 10-foot cover will be included in the Closure Unit Work Completion Report for each area.

It is anticipated that the selected alternative will take approximately seven to eight years to complete, done in a phased approach working from west to east at the Site. The selected alternative will have a positive impact in the community by cleaning up an area with long-standing soil contamination and physical hazards.

2.13 STATUTORY DETERMINATIONS

Under CERCLA Section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost effective, and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as a principal element and a bias against offsite disposal of untreated wastes. The following sections discuss how the selected alternative meets these statutory requirements.

2.13.1 Protection of human health and the environment

The selected alternative removes risk to human health and the environment by eliminating the three possible exposure pathways for mine waste and soil from zero to 10 feet bgs (ingestion of soil, dermal contact with soil, and inhalation of fugitive dust) via consolidation of mine waste and placement of 10 feet of native soil cover. A risk assessment will be completed based on the May 2021 background study for the borrow sources used as native soil cover. Additionally, institutional controls will be enacted for soil below 10 feet.

Although the Site currently poses risks for ecological receptors, the Site will not provide ecological habitat in the future, so this pathway is incomplete.

2.13.2 Compliance with ARARs

Section 121(d) of CERCLA, 42 United States Code Section 9621(d) requires that remedial actions at CERCLA sites attain (or justify the waiver of) any federal or state environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate. Table 2 includes a list of ARARs for the Site, which are being met.

2.13.3 Cost Effectiveness

According to NCP, a remedy is cost effective if “costs are proportional to its overall effectiveness.” The overall effectiveness of the selected alternative rates high with both threshold criteria (overall protection of human health and the environment and compliance with ARARs). Furthermore, it is cost effective because it allows the Site to be cleaned up to residential standards which increases the value of the property and allows the voluntary responsible party to be reimbursed for the cleanup via property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area.

2.13.4 Use of Permanent Solutions and Alternative Treatment Technologies to Maximum Extent Practicable

NDEP has determined that the selected alternative represents the maximum extent to which permanent solutions can be used in a practical manner at the Site. The selected alternative meets the threshold criteria and presents the best balance of trade-offs among the alternatives with respect to the five balancing criteria and two modifying criteria.

Between the thickness of native soil cover (10 feet) and environmental covenants to be enacted, the selected alternative is designed for long-term stability. Although the cost is not lowest, the selected alternative was among two options that can be feasibly funded, thus making it more implementable. Although a two-foot cover would be more effective in the short-term, the benefits of increased long-term effectiveness outweigh the short-term effectiveness. None of the alternatives include treatment of the mine waste and contaminated soil, as it is impractical for the volume of contaminated material. Finally, the selected alternative is acceptable to the state, and comments received from the community on the Proposed Plan during the public comment period mostly suggest community support for the selected alternative.

2.13.5 Preference for Treatment as Principal Element

The selected alternative does not satisfy the preference for treatment. Treatment of the large volume of mine waste (over nine million cubic yards) is not practical. However, mobility of contaminants will be greatly reduced via containment and placement of a 10-foot cover.

2.13.6 Periodic Review Requirements

Because the selected alternative will result in contaminants contained onsite, a statutory review will be conducted periodically after the completion of remedial action to ensure that the selected alternative continues to be CERCLA Protective, i.e., protective of human health and the environment. The statutory review will be conducted at the frequency specified in the Remedial Design and will include inspections for erosion of the 10-foot cover and administrative checks that the environmental covenants are functioning as intended.

2.14 DOCUMENTATION OF SIGNIFICANT CHANGES FROM PREFERRED ALTERNATIVE OF PROPOSED PLAN

No significant changes have been made in this ROD to the preferred alternative presented in the Proposed Plan.

3.0 RESPONSIVENESS SUMMARY

3.1 STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES

A 30-day public comment period for the Proposed Plan was held from February 23, 2023 to March 25, 2023 to provide community members with the opportunity to participate in the remedy selection process. Comments received and their responses are included in Table 3. Key public concerns include air quality and dust control, cleanup standards and sources of funding, and water resources. Information regarding these topics is summarized below.

Air Quality and Dust Control

Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the Site, dust that is generated by Site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.

Cleanup Standards

NDEP is the lead agency overseeing the remediation of historical contamination at the Three Kids Mine in Henderson, Nevada. The Site will be remediated to meet federal, state, and local cleanup standards. NDEP will require that the Site meets residential cleanup standards before residential development at the Site can begin. Although the Three Kids Mine is not a Superfund site, the Superfund process is being followed to protect public health and the environment.

Acceptable cleanup alternatives must comply with Applicable, Relevant and Appropriate Requirements (ARARs). ARARs are local, state, and federal environmental regulations that deal with site cleanups. Remedial action must comply with ARARs. Table 2 provides a description of federal, state, and local ARARs for the selected alternative.

Sources of Funding

So far, funding for the investigative work, Site planning, and cleanup planning has been provided by private investors. After the federal land is transferred, land sale money will be used to complete the cleanup and infrastructure work. Additional cleanup costs will be reimbursed from property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area over a 45-year period. Property taxes from homes outside of the redevelopment area will not be used to fund the cleanup.

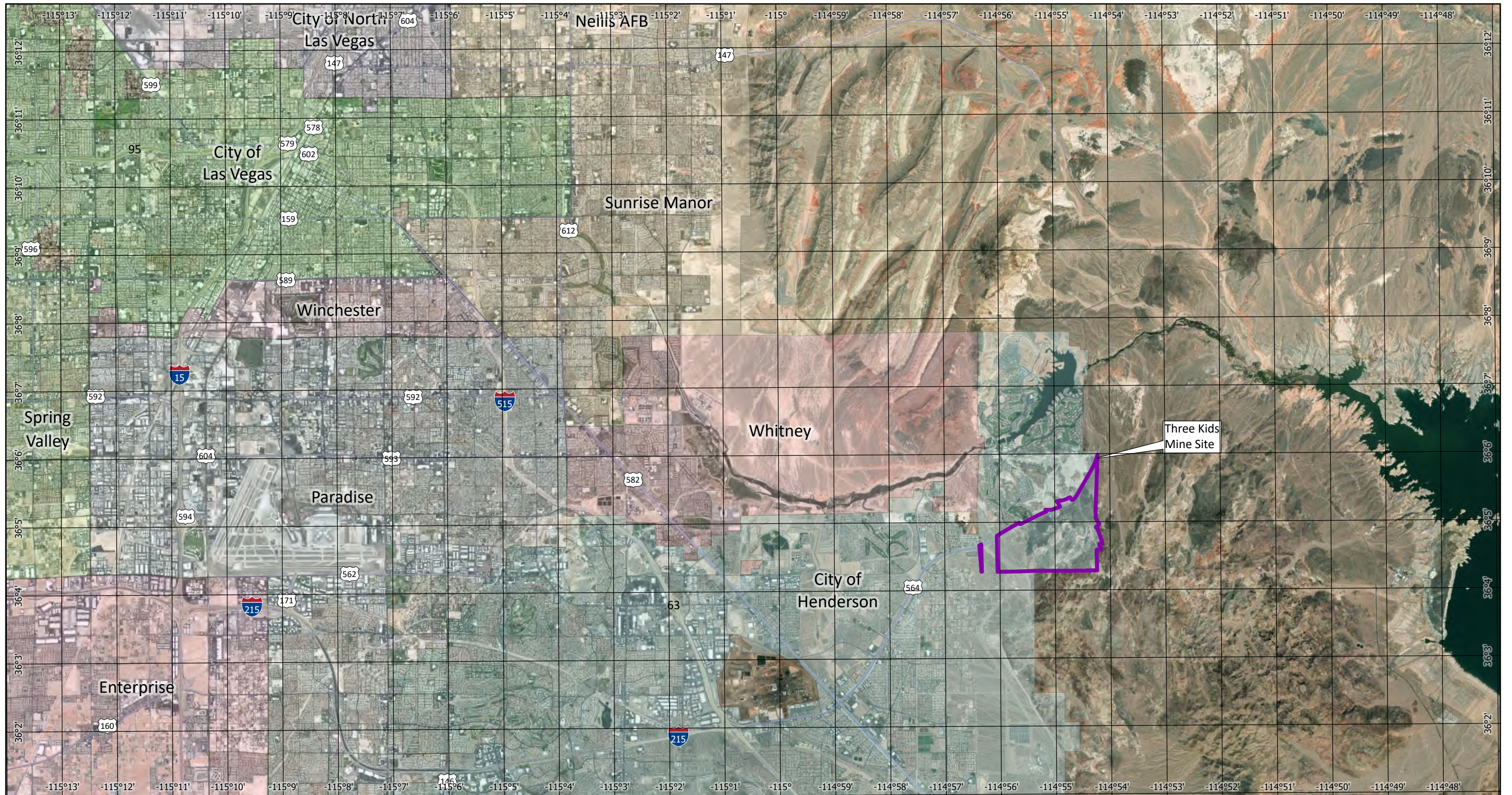
The cleanup will be financially guaranteed via a master developer performance bond and via a binding agreement between NDEP and the responsible party to ensure the completion of the remedy to a minimum of an industrial end land use.

Water Resources

NDEP is the agency providing environmental oversight for the project. NDEP is not the entity charged with community development planning with respect to water resource allocation. The Nevada Division of Water Resources is responsible for reviewing water availability for new subdivisions.

3.2 TECHNICAL AND LEGAL ISSUES

No technical or legal issues were identified during the public comment period.



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Job # 14-01-156 Date: 1/12/2023

Legend:

- Three Kids Mine Site
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County
- Enterprise
- Nellis AFB
- Paradise
- Spring Valley
- Sunrise Manor
- Whitney
- Winchester

Notes:

1. Imagery Source: Esri World Imagery (Earthstar Geographics)
2. Datum: NAD 1983 StatePlane Nevada East FIPS 2701 Feet
3. Political Boundary Source: Clark County GIS Management Office.
4. Parcel Boundary Source: Clark County Assessor.
5. Roads Source: Nevada DOT GeoHub.

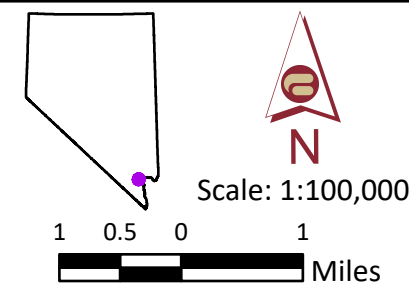
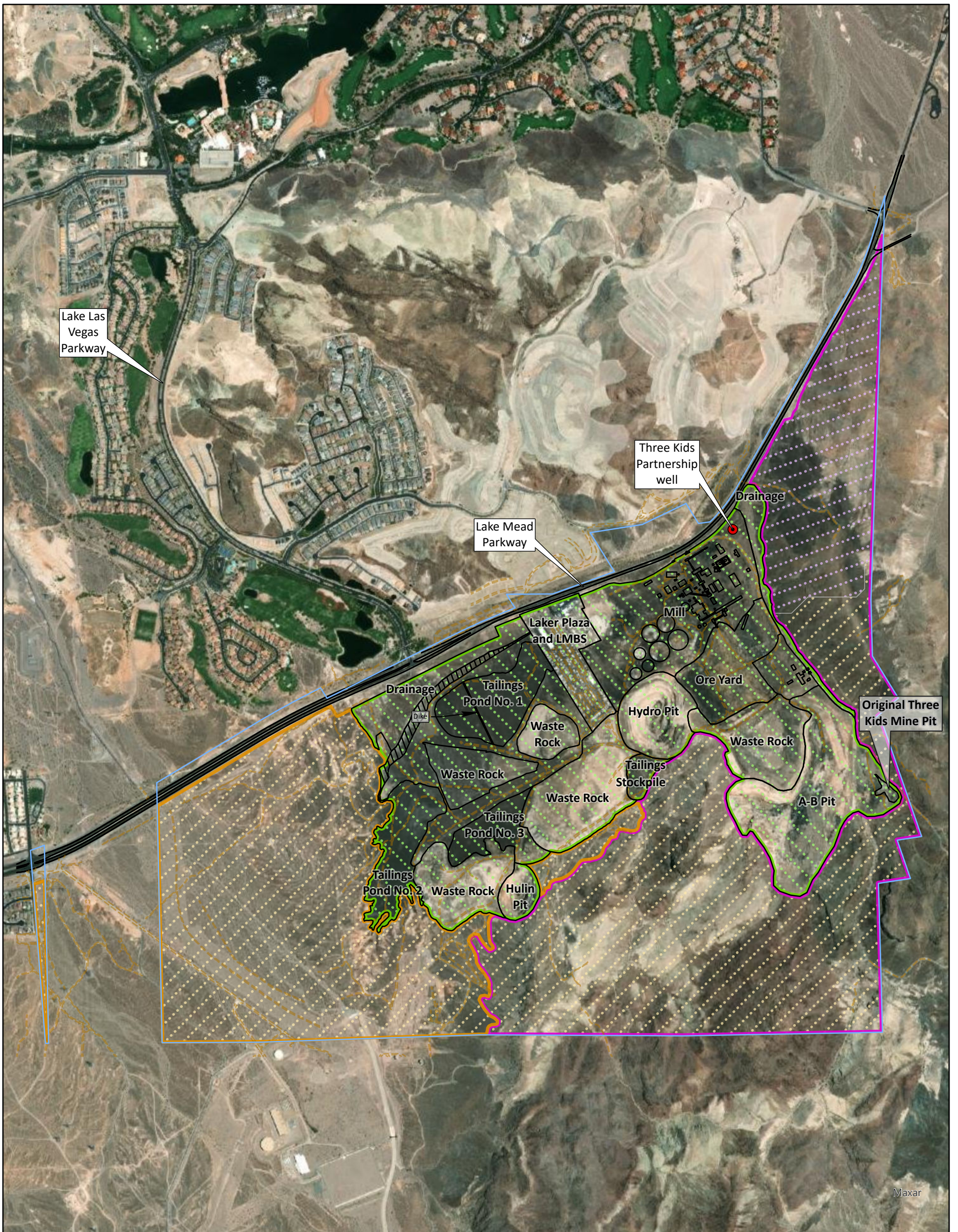


Figure 1

Site Location

Three Kids Mine

Designed	
Drawn	JCM
Approved	



Legend:	
	Site Feature
	Three Kids Partnership well
	Unimproved Road
	Tailings Dam
	Project Area
	Mine Site
	Sedimentary Units (alluvium and Muddy Creek Formation)
	River Mountain Volcanics
	Disturbed former mine site
	Area evaluated for impacts by windblown sediment, receiving a no further action determination from NDEP
	Undisturbed/background

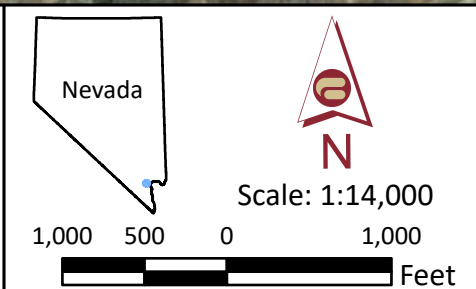


Figure 2

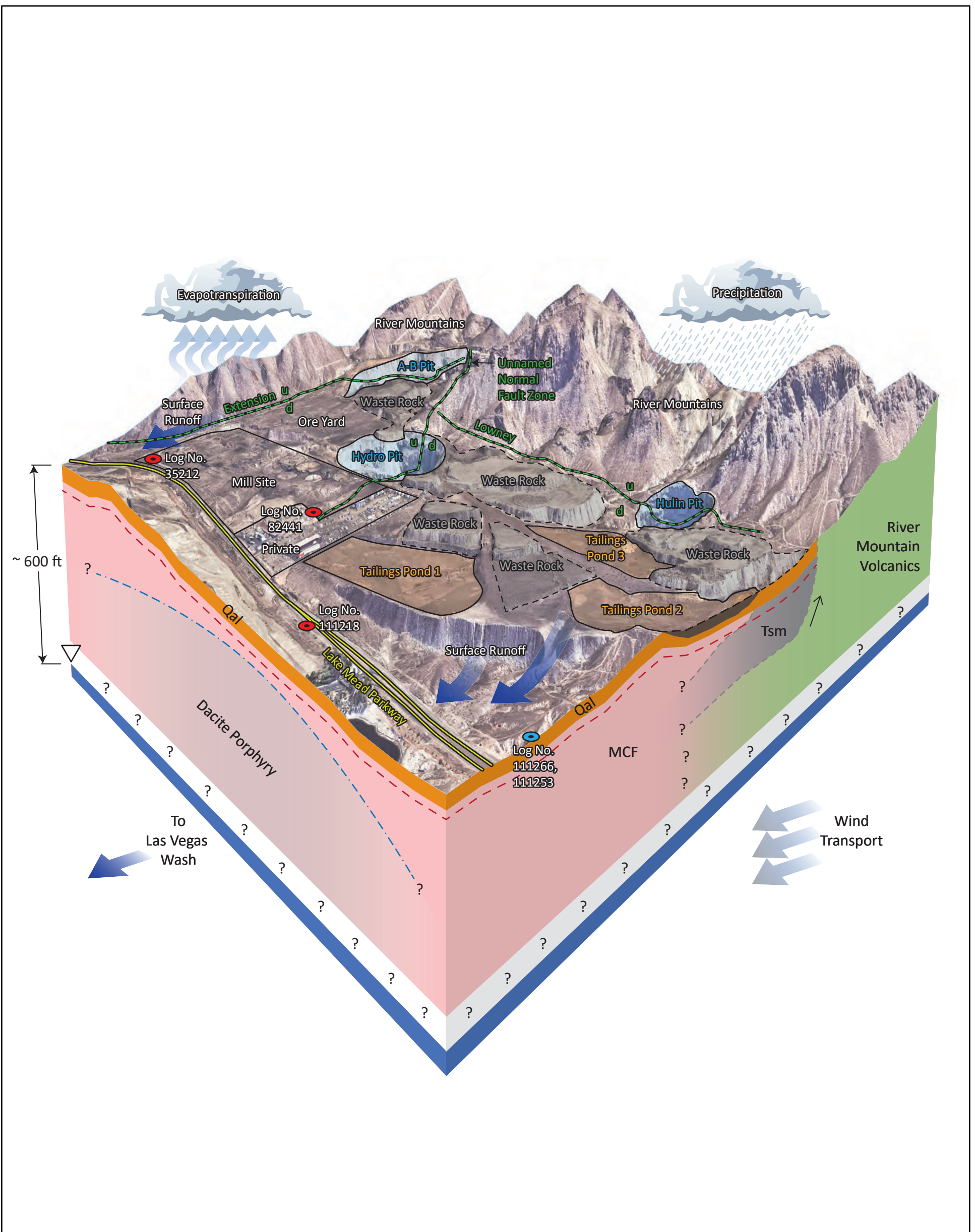
Mine Site Layout

Three Kids Mine

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 Job # 14-01-156 Date: 9/19/2022

Notes:
 1. Imagery Source: Esri World Imagery
 2. Datum: NAD 1983 StatePlane Nevada East FIPS 2701 Feet
 3. Not a survey. Derived from aerial imagery.

Designed	
Drawn	JCM
Approved	



Qal - Quaternary alluvium	Active Well
Depths explored showing elevated arsenic up to 100 ft bgs	Plugged Well
Muddy Creek Formation (MCF)	Fault
River Mountain Volcanics	Groundwater
Tsm - Manganiferous sedimentary rocks of the Three Kids Mine	

Nevada

Not to Scale

Figure 3

Conceptual Site Model

Three Kids Mine

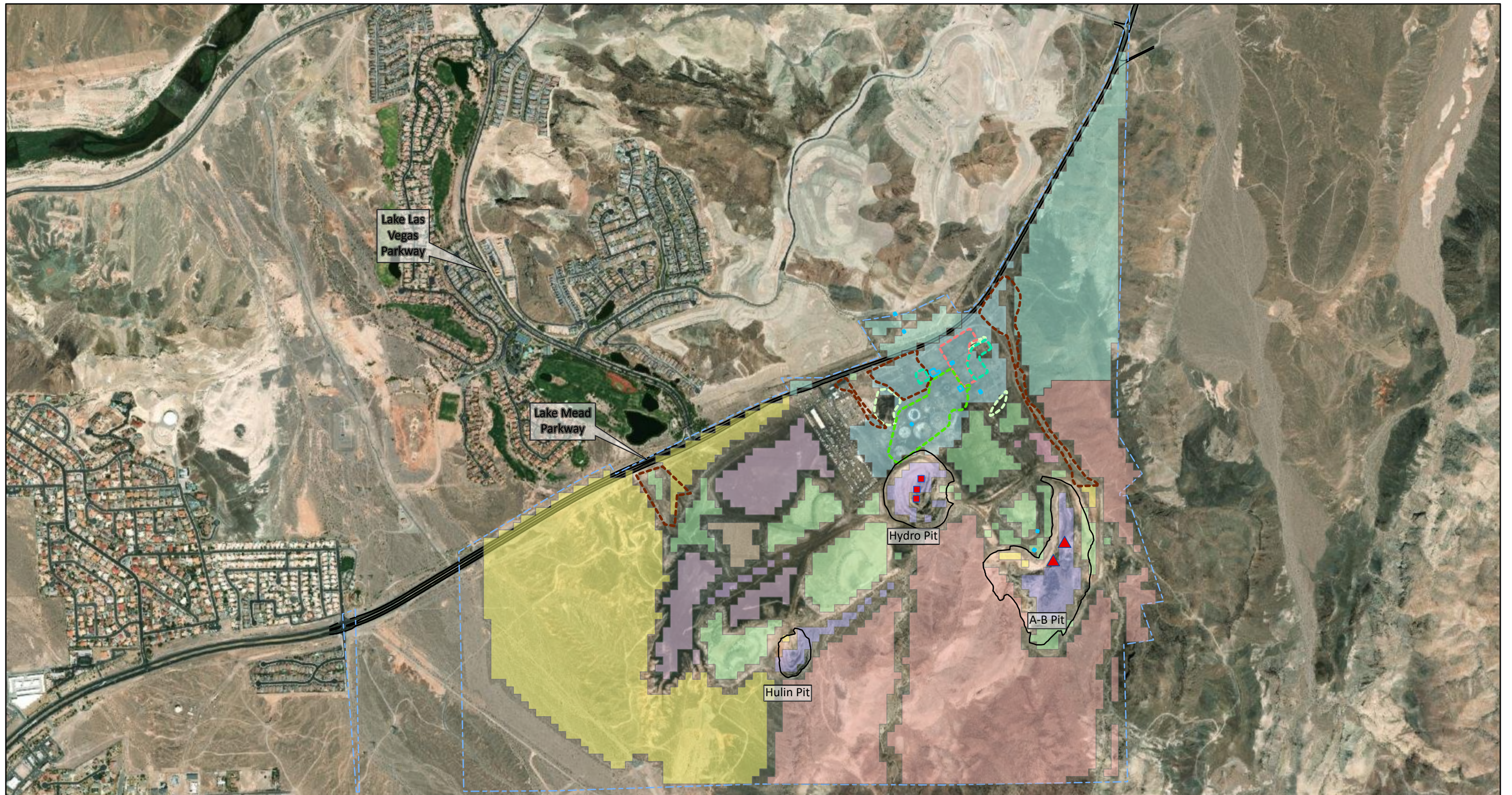
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Job # 14-01-156 Date: 3/28/2022

Notes:
Groundwater elevation estimated at 200 feet below Hydro Pit bottom.
Vertical exaggeration is approximately 3X.
u = upthrown block
d = downthrown block

Designed	
Drawn	EC
Approved	



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Job # 14-01-156 Date: 4/21/2023

Legend:

- | | | | | |
|--|--|--|--|--|
| Stratum 3.3.1 Chemical processing area | Stratum 3.3.7 Transformer stands | Stratum 1.2.1 River Mountain Volcanics | Stratum 2.2 Overburden affected by tailings | Stratum 3.1.3 Disturbed soils - Scale House area |
| Stratum 3.3.2 Thermal processing area | Stratum 3.3.5 Pit dump locations (typical) | Stratum 3.2.2 Downwind areas | Stratum 3.1.1 Overburden | Stratum 3.2.1 General mill impacts |
| Stratum 3.3.3 Drainages | Stratum 3.3.8 Wire burn locations | Stratum 1.3 Rocks of the Three Kids Mine | Stratum 3.1.2 Disturbed soils - compacted roadways | Site Features |
| Stratum 3.3.4 Mill site dumps | Stratum 1.1.1 Muddy Creek formation background sediments | Strata 2.1.1 and 2.1.2 Tailings and native soil beneath tailings | Project Area | |
| Stratum 3.3.6 Fuel farm | | | | |

Notes:

1. Imagery Source: Esri World Imagery (Maxar)
2. Datum: NAD 1983 StatePlane Nevada East FIPS 2701 Feet
3. Not a survey.

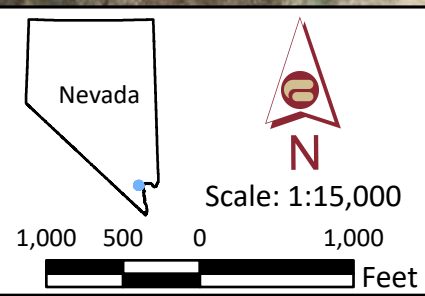
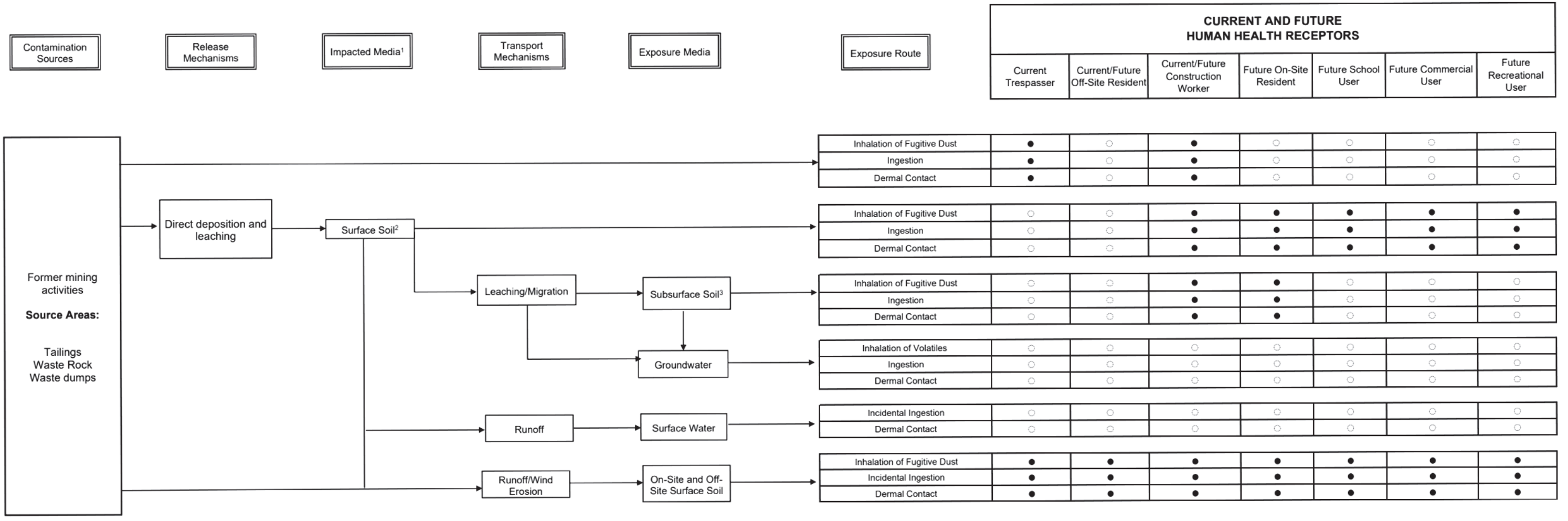


Figure 4	
Locations of Sample Strata	
Three Kids Mine	
Designed	
Drawn	JCM
Approved	



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Job # 14-01-156 Date: 10/29/2021

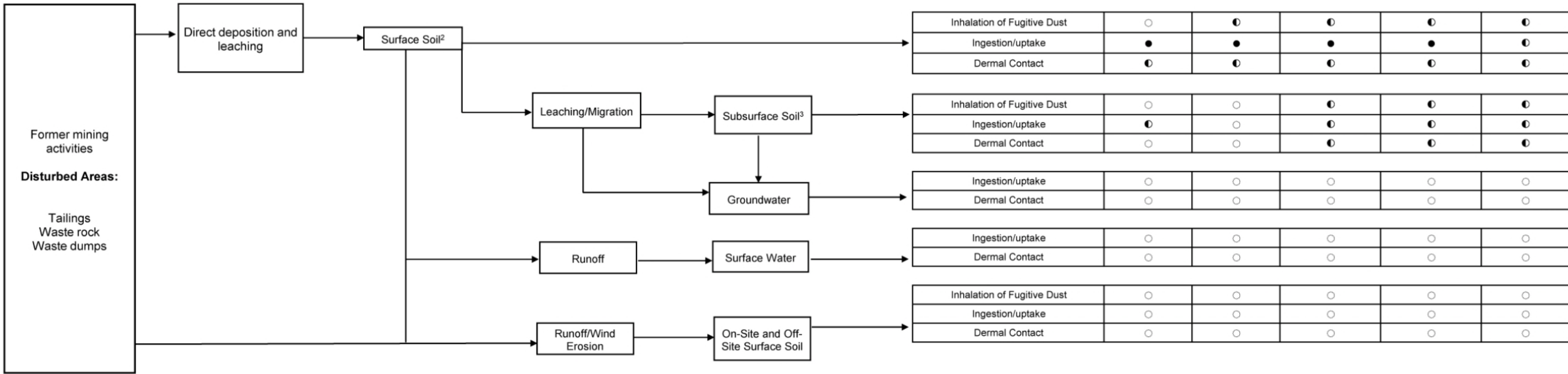
Legend:
 ● Complete Pathway
 ○ Incomplete Exposure Pathway (no expected exposure)

Notes:
 1. Impacted media are also exposure media.
 2. Surface soil is considered native soil 0 to 2 feet below tailings, waste rock, or other waste/debris.
 3. Subsurface soil is considered native soil deeper than 2 feet below tailings, waste rock, or waste/debris.

Figure 5
 Current and Future Human Health Receptors
 Former Three Kids Mine
 Designed
 Drawn JCM
 Approved



ECOLOGICAL RECEPTORS				
Plants	Invertebrates	Birds	Mammals	Herptiles



Inhalation of Fugitive Dust	○	●	●	●	●
Ingestion/uptake	●	●	●	●	●
Dermal Contact	●	●	●	●	●

Inhalation of Fugitive Dust	○	○	●	●	●
Ingestion/uptake	●	○	●	●	●
Dermal Contact	○	○	●	●	●

Ingestion/uptake	○	○	○	○	○
Dermal Contact	○	○	○	○	○

Ingestion/uptake	○	○	○	○	○
Dermal Contact	○	○	○	○	○

Inhalation of Fugitive Dust	○	○	○	○	○
Ingestion/uptake	○	○	○	○	○
Dermal Contact	○	○	○	○	○

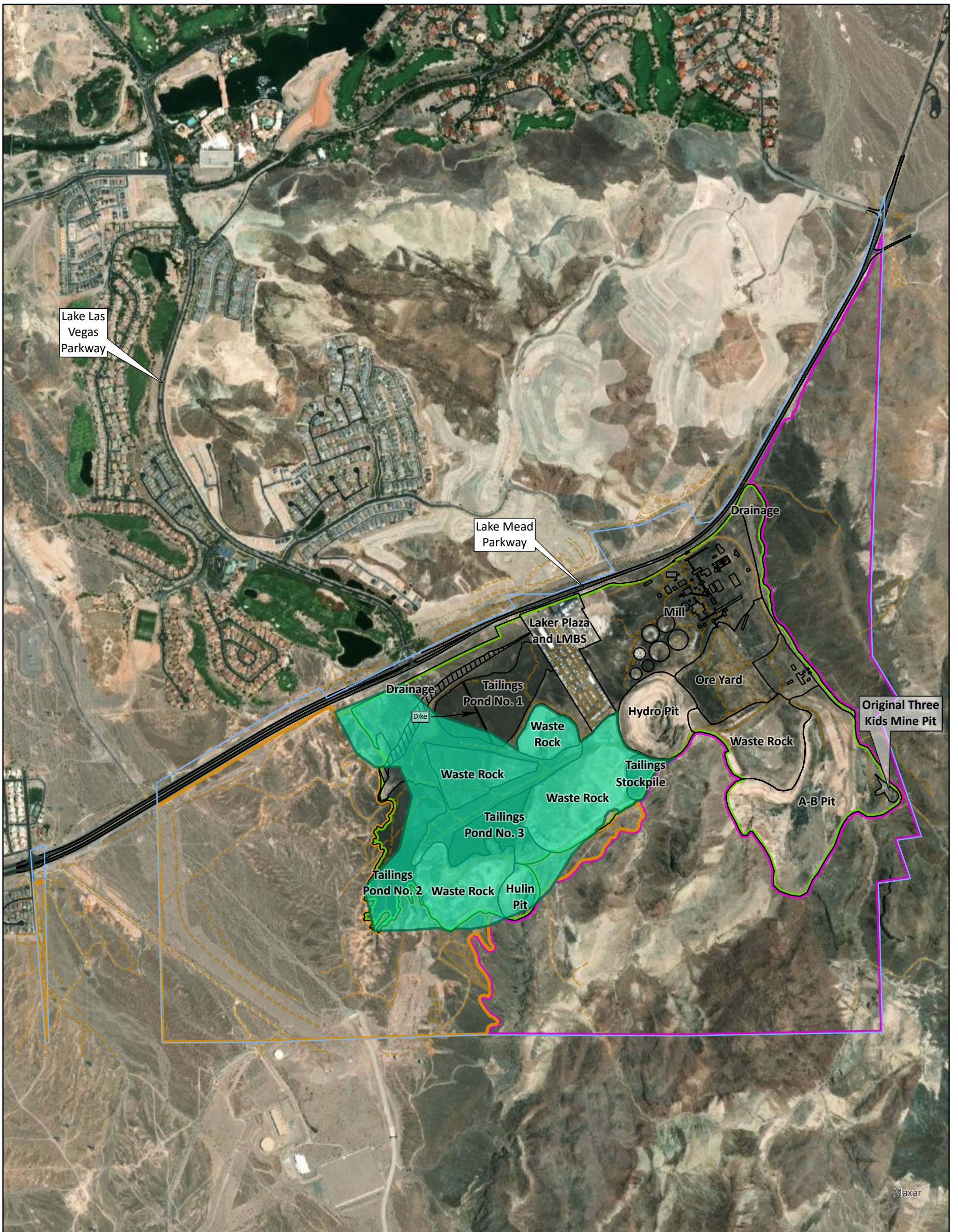


Job # 14-01-156 Date: 3/16/2023

- Legend:
- Complete exposure pathway
 - ◐ Complete but insignificant pathway (not quantitatively evaluated)
 - Incomplete exposure pathway (no expected exposure)

- Notes:
1. Impacted media are also exposure media.
 2. Surface soil is considered the top 0 to 1 foot of soil, tailings, or waste materials.
 3. Subsurface soil is considered media collected deeper than 1 foot.

Figure 6	
Ecological Conceptual Site Model	
Three Kids Mine	
Designed	
Drawn	JCM
Approved	



Legend:

Central Valley Area	Project Area
Site Feature	Mine Site
Unimproved Road	Sedimentary Units (alluvium and Muddy Creek Formation)
Tailings Dam	River Mountain Volcanics

Nevada

Scale: 1:14,000

1,000 500 0 1,000 Feet

Figure 7

Central Valley Area

Three Kids Mine

BROADBENT

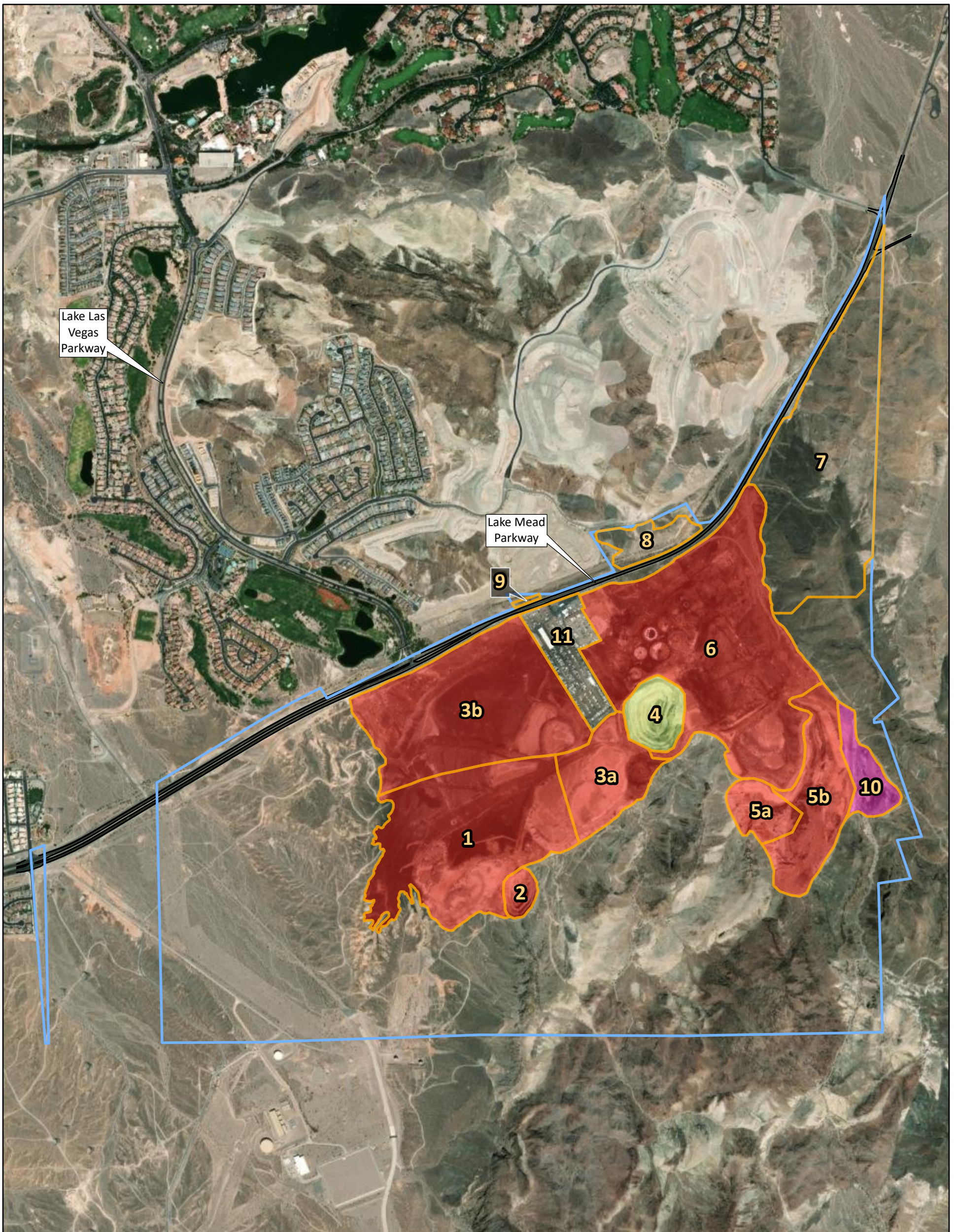
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Job # 14-01-156 Date: 9/20/2022

Notes:

1. Imagery Source: Esri World Imagery
2. Datum: NAD 1983 StatePlane Nevada East FIPS 2701 Feet
3. Not a survey. Derived from aerial imagery.

Designed	
Drawn	JCM
Approved	



Legend:

■	Ten-foot native soil cover
■	Two-foot native soil cover
■	Liner plus two-foot native soil cover
	Closure Unit
	Project Area

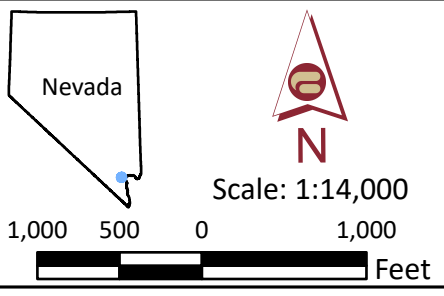


Figure 8

Location of Ten-Foot Cover

Three Kids Mine

Designed	
Drawn	JCM
Approved	

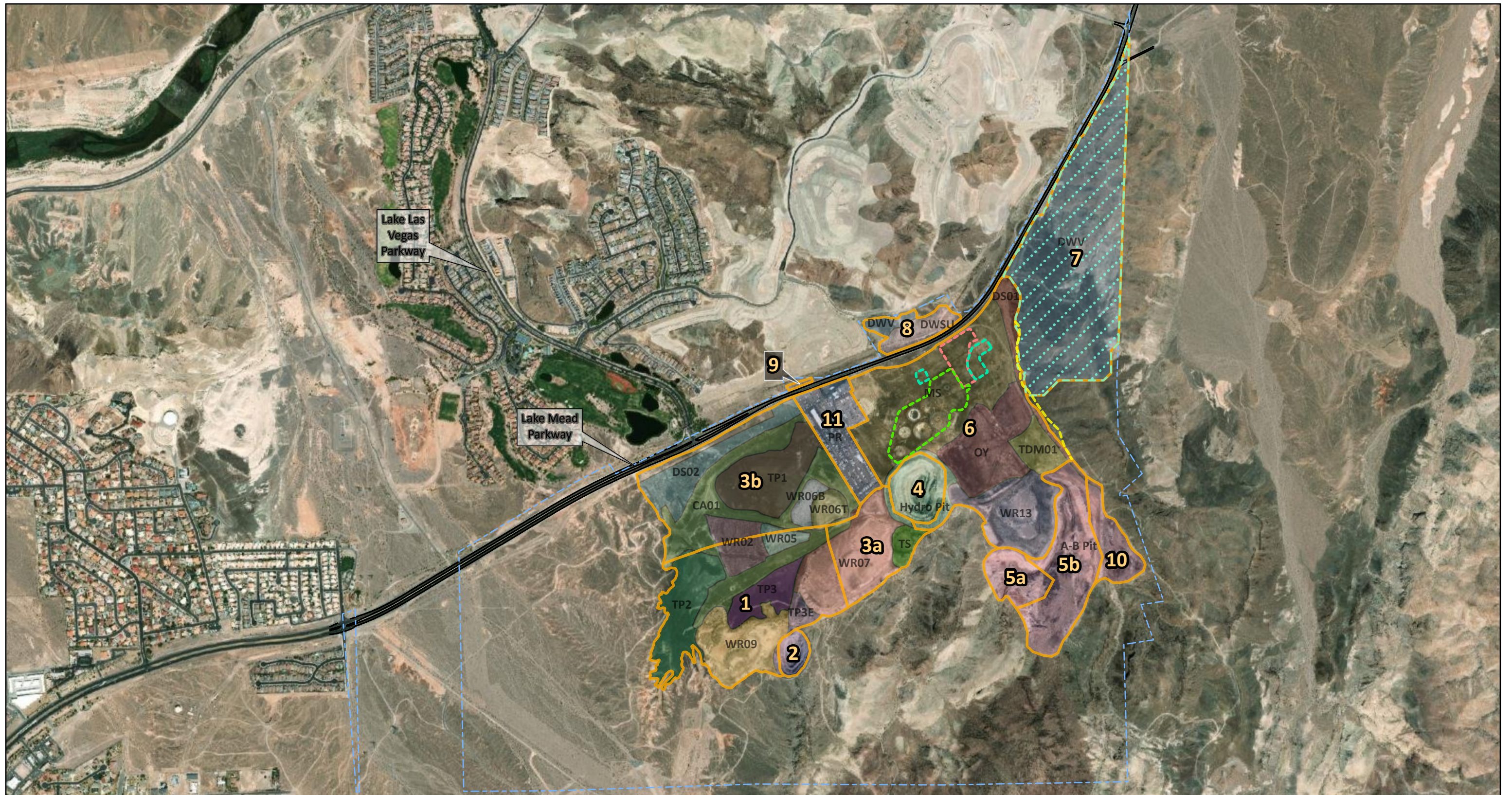
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Job # 14-01-156 Date: 9/1/2023

Notes:

1. Imagery Source: Esri World Imagery (Maxar)
2. Datum: NAD 1983 StatePlane Nevada East FIPS 2701 Feet
3. Not a survey. Derived from aerial imagery.
4. A four-foot border around Laker Plaza and Lake Mead Boat Storage (LMBS) will not receive the full ten-foot native soil cover due to slope safety requirements. Additional details are provided in the Remedial Design engineering figures.



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Job # 14-01-156 Date: 5/10/2023

Legend:

Closure Unit	Flootation circuit	CA01	OY	WR02
NFA, See Note 5	Thermal processing area	DS01	PR	WR05
Approx. location of stormwater	Fuel farm	DS02	TDM01	WR06B
infrastructure connecting parts of unit 10	Project Area	DWSU	TP1	WR06T
	2021 IU	DWV	TP2	WR07
	A-B Pit	Hulin Pit	TP3	WR09
		Hydro Pit	TP3E	WR13
		MS	TS	

Notes:

1. Imagery Source: Esri World Imagery (Maxar)
2. Datum: NAD 1983 StatePlane Nevada East FIPS 2701 Feet
3. Not a survey.
4. Closure Unit 11 includes a ten-foot buffer around the Laker Plaza/Lake Mead Boat Storage properties.
5. Closure Unit 7 received a No Further Action Determination (NFA) from NDEP on August 22, 2022.
6. Investigative Units are abbreviated as: A-B Pit = A-B Pit, CA01 = Compacted Area 01, DS## = Disturbed Soils ##, DWSU = Downwind sedimentary units, DWV = Downwind volcanics, Hulin Pit = Hulin Pit, Hydro Pit = Hydro Pit, MS = Mill Site, OY = Ore Yard, PR = Laker Plaza and Lake Mead Boat Storage, TDM01 = Scale house, TP # = Tailings Pond #, TS = Tailings Stockpile, WR## = Overburden ##.

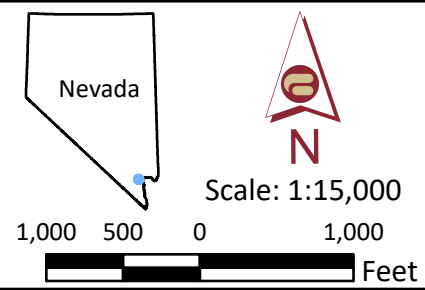


Figure 9	
Closure Units	
Three Kids Mine	
Designed	
Drawn	JCM
Approved	

Table 1. Cost Estimate

Remedial Investigation, Feasibility Study, Design, and Corrective Action Plan					
Description	Quantity	Unit	Unit Cost	Total Cost	Notes
Remedial Investigation (RI)					
Drilling and associated field cost	1	LS	\$ 350,000	\$ 350,000	Based on actual cost
Laboratory and data validation	1	LS	\$ 600,000	\$ 600,000	Based on actual cost
Consulting field cost	1	LS	\$ 800,000	\$ 800,000	Based on actual cost
Leaching study	1	LS	\$ 295,000	\$ 295,000	Based on actual cost
Consulting reporting	1	LS	\$ 270,000	\$ 270,000	Based on actual cost
NEPA	1	LS	\$ 350,000	\$ 350,000	Based on actual cost
			<i>Subtotal</i>	<i>\$ 2,665,000</i>	
Feasibility Study (FS)					
Subcontractor EA cost	1	LS	\$ 70,000	\$ 70,000	Based on actual cost
Review and final report	1	LS	\$ 30,000	\$ 30,000	Based on actual cost
			<i>Subtotal</i>	<i>\$ 100,000</i>	
Design					
Remedial design	1	LS	\$ 1,400,000	\$ 1,400,000	Based on actual and projected cost (LV Paving, EA Engineering, and Broadbent and Associates Inc.)
Corrective Action Plan	1	LS	\$ 120,000	\$ 120,000	Based on actual cost
			<i>Subtotal</i>	<i>\$ 1,520,000</i>	
RI, FS, and Design SUBTOTAL				\$4,285,000	

Table 1. Cost Estimate

Remedial Construction					
Quantities					
	Area (Acre)	Volume (CY)	Weight (Ton)		
Grading area	439				
Overburden & waste rock		7,700,000			
Tailings		1,600,000			
Asbestos containing materials (ACM)		1,400	500		
Cover					
	10-Foot				
10-foot cover	6,200,000	CY			
	Blasting	6,200,000	CY		
	Crushing	500,000	CY		
Stormwater Detention Basin					
	361,000	SF			
Description	Quantity	Unit	Unit Cost	Total Cost	Notes
REMEDIAL CONSTRUCTION					
Site Preparation					
Mobilization / Demobilization	1	LS	\$150,000	\$150,000	Based on previous project similar in nature Four portable toilets and wash station; unit price based on website https://www.bigrentz.com/blog/
Sanitary Facilities	24	MONTH	\$800	\$19,200	<i>porta-potty-rental-cost</i>
Secure Work Zone and Haul Route Setup	439	ACRE	\$250	\$109,750	Based on previous project similar in nature
Site Clearing and Grubbing	439	ACRE	\$7,511	\$3,297,123	RSMeans 3111 1010 0200
Utility Locate	1	DAY	\$2,000	\$2,000	Based on previous project similar in nature
Security guards at nights	14,600	HOUR	\$31.83	\$464,718	RSMeans 0157 3350 0020
Stormwater BMP - silt fence, wattles, and hay bales	5,000	LF	\$12.63	\$63,150	RSMeans 3125 1416 1000; 3125 1416 1250; 3125 1416 0710
Soil stabilization (94.8.2 Clark County AQR)	24	MONTH	\$11,184.00	\$268,416	RSMeans 0154 3340 6950 (assume 2 years)
Demolition of Structural Concrete, building footings and foundations, plain concrete average 8" thick					
	776,899	SF	\$1.26	\$978,893	RSMeans 0241 1617 2420
Excavation					
Tailings	1,600,000	CY	\$1.44	\$2,304,000	RSMeans 3123 1643 5300
Overburden/Waste Rock	7,700,000	CY	\$1.44	\$11,088,000	RSMeans 3123 1643 5300
Contaminated Materials	11,000	CY	\$3.22	\$35,420	Based on previous project similar in nature
Consolidation and Placement in the Open Pits					
Pit access construction	48,038	CY	\$4.98	\$239,229	RS Means 3211 2323 8050, \$1.66/sy x 3 = \$4.98/cy
Additional transport to pits, 3,000 ft haul distance, 22 cy off-road dump truck, 5 cycles/hr (110 cy bank/hr)	84,700	HOUR	\$254.26	\$21,535,822	Caterpillar 769D Mechanical Drive Rear Dump Truck on equipmentwatch.com plus 2022 Clark Co. prevailing wage union hourly rate Group 6 operating engineer
Placement of waste rock, tailings, and demolished concrete into the open pits, spread the fill material with dozer (including 300' haul)	9,317,000	CY	\$4.45	\$41,460,650	RSMeans 3123 2317 0190

Table 1. Cost Estimate

Description	Quantity	Unit	Unit Cost	Total Cost	Notes
Compaction, water for 6,000 gallon wagon, 3 mile haul	9,317,000	CY	\$1.21	\$11,273,570	RSMeans 3123 2323 9030
Transportation and Offsite Disposal					
Removal, transportation and disposal in Apex Landfill - ACMs	1	LS	\$516,700.00	\$516,700	Based on Las Vegas Paving Corp estimate
Removal, transportation and disposal in Apex Landfill - Soil underneath ACMS					RSMeans 3123 1643 5300 (for excavation); 0281 2010
Removal					1120 (min for bulk material), assume density of soil is 1.5
Loading to transport trucks	1,050	TON	\$220.83	\$232,803	
Transportation	3,760	MILE	\$4.66	\$17,522	RSMeans 0281 2010 1260 (min for bulk material), assume 40 miles to the Apex Landfill one way and 47 loads)
Disposal	1,050	TON	\$162.29	\$170,405	RSMeans 0281 2010 6000 (min for bulk material), assume bulk density of soil 1.5 ton/cy)
Removal, transportation and disposal in Apex Landfill - Solid waste					RSMeans 3123 1643 5300 (for excavation); 0281 2010
Removal					1120 (for loading min. for bulk material), assume density
Loading to transport trucks	3,000	TON	\$220.83	\$662,490	
Transportation	13,360	MILE	\$4.66	\$62,258	RSMeans 0281 2010 1260 (min for bulk material), assume 40 miles to the Apex Landfill one way and 47 loads)
Disposal	3,000	TON	\$162.29	\$486,870	RSMeans 0281 2010 6000 (min for bulk material), assume bulk density of soil 1.5 ton/cy)
10-Foot Cover Construction					
Material Preparation - Blasting	6,200,000	CY	\$10.42	\$64,604,000	RSMeans 3123 1630 0300
Material Preparation - Crushing	500,000	CY	\$16.97	\$8,485,000	RSMeans 3123 1635 0140
Additional transport from borrow pits, 3,000 ft haul distance, 22 cy off-road dump truck, 5 cycles/hr (110 cy bank/hr)	56,364	HOUR	\$254.26	\$14,331,018	Caterpillar 769D Mechanical Drive Rear Dump Truck on equipmentwatch.com plus 2022 Clark Co. prevailing wage union hourly rate Group 6 operating engineer
Cover Construction, spread the fill material with dozer (including 300' haul)	6,200,000	CY	\$4.45	\$27,590,000	RSMeans 3123 2317 0190
Compaction, water for 6,000 gallon wagon, 3 mile haul	6,200,000	CY	\$1.21	\$7,502,000	RSMeans 3123 2323 9030
Finish grading	439	ACRE	\$5,662.80	\$2,485,969	RSMeans 3122 1610 0100 large area finish grading, \$1.17/SY converted to \$5662.8/acre
					RSMeans 3105 1953 1300 (HDPE liner); 3123 2317 0800
Liner/Stormwater Detention Basin Construction	361,000	SF	\$6.74	\$2,433,140	(spread fill and compact)
Survey During Construction	439	ACRE	\$803.57	\$352,767	RSMeans 0221 1309 0020
				<i>Subtotal</i>	\$223,222,882

Table 1. Cost Estimate

Description	Quantity	Unit	Unit Cost	Total Cost	Notes
CONSTRUCTION OVERSIGHT					
Labor 1: Geotechnical Technician	10,400	Hour	\$80	\$832,000	Two year duration; two 10 hr shifts/day; 5 days/week
Labor 2: Certified Dust Monitor	10,400	Hour	\$80	\$832,000	Two year duration; two 10 hr shifts/day; 5 days/week
Labor 3: Site Health and Safety Officer	10,400	Hour	\$120	\$1,248,000	Two year duration; two 10 hr shifts/day; 5 days/week
Labor 4: Air quality monitor	4,160	Hour	\$140	\$582,400	Two year duration; 8 hr shift/day; 5 days/week
Labor 5: Construction Manager	10,400	Hour	\$140	\$1,456,000	Two year duration; two 10 hr shifts/day; 5 days/week
Labor 6: Field Engineer	4,160	Hour	\$180	\$748,800	Two year duration; 8 hr shift/day; 5 days/week
Labor 7: Professional Engineer	4,160	Hour	\$230	\$956,800	8 hours per day duration of project
Construction completion reporting, as-builts preparation, and approval	5	LS	\$75,000	\$375,000	Includes five (5) reports for Construction Phase Closures
Lodging and per diem	2,080	Day	\$300	\$624,000	520 days/person; 4 people; Labor 4, 5 and 6
				<i>Subtotal</i>	<i>\$7,655,000</i>
Contingency	10%			\$22,322,288	Per EPA 2000 Document, p. 5-14.
Construction SUBTOTAL				\$253,200,170	
TOTAL				\$257,485,170	

Reference

U.S. Environmental Protection Agency. July 2000. A Guide to Preparing and Documenting Cost Estimates During the Feasibility Study. EPA 540-R-00-002.

Notes:

CY = Bank cubic yard

EPA = U.S. Environmental Protection Agency

FFS = Focused feasibility study

LF = Linear foot

LS = Lump sum

NEPA = National Environmental Policy Act

SF = Square foot

SY = Square yard

Table 2. Description of Applicable or Relevant and Appropriate Requirements (ARARs) for the Selected Alternative

ARARs/TBCs	Citation or Reference	Requirements	Applicability
Chemical-Specific ARARs			
Disposal of asbestos	Nevada administrative Code (NAC) 444.965 – 976	NAC defines asbestos and provides requirements for its transportation and disposal.	Applicable to asbestos abatement from the surface of the former mine site.
Exclusions for Hazardous Wastes	40 Code of Federal Regulations (CFR) 261.4 (b)(3), and (7)	Lists the solid wastes which shall not be considered hazardous wastes, which include waste rock that is returned to the mine site and tailings from beneficiation of ore.	Applicable to the selected alternative, which includes internment of tailings and waste rock generated from the beneficiation process.
EPA Regional Screening Levels	40 CFR 300.430(e)(2)	Risk-based contaminant concentrations calculated from acceptable human health exposure levels.	To be considered as applies to air monitoring.
Airborne Contamination Monitoring	American Conference of Governmental Industrial Hygienists – Threshold Limit Values (TLV)	Based on the development of a time-weighted average exposure to an airborne contaminant over an 8-hour workday or a 40-hour workweek, TLVs identify levels of airborne contaminants at which health risks may be associated.	Applicable during implementation of selected alternative.
Airborne Contamination Monitoring	American Conference of Governmental Industrial Hygienists – Estimated Limit Values (ELV)	ELVs provide some indication of airborne contaminant levels at which adverse health effects could occur.	Applicable during implementation of selected alternative.
OSHA Worker Protection	29 CFR 1910, 1926 and 1904	Establishes requirements for occupational health and safety applicable to workers engaged in hazardous waste site or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions.	Applicable during implementation of selected alternative.
Location-Specific ARARs			
Clark County Unified Development Code	Title 30 Clark County Code of Ordinances Nevada Revised Statutes (NRS) Chapter 278 Planning and Zoning	This Title is adopted to implement the Comprehensive Master Plan for Clark County to promote the general prosperity, health, safety, and welfare of the citizens of Clark County. It sets forth the regulations that govern the subdivision, use, and/or development of land, divides the County into Zoning Districts, and sets forth the regulations pertaining to such districts.	Applicable.

ARARs/TBCs	Citation or Reference	Requirements	Applicability
Endangered Species Act of 1973	16 United States Code (USC) 1531 et seq.	Requires remedial agency to consult with Fish and Wildlife Service if action may affect endangered species or critical habitat. Requires action to conserve endangered species within critical habitats upon which endangered species depend, includes consultation with Department of Interior.	<p>No endangered species have been observed at the site but desert iguana, listed on the Nevada Natural Heritage Watchlist has been sighted. The site is located within an area considered to be potential habitat for the desert tortoise, a Threatened Species, although no desert tortoises or signs have been seen on the site.</p> <p>It is relevant and appropriate to confirm the previous observations during the soil remediation to ensure protection of the endangered species if found.</p>
Action-Specific ARARs			
Three Kids Mine Remediation and Reclamation Act	U.S. Public Law 113-135	Governs remediation and reclamation schedule, sequence, and transfer of land from the federal government to the City of Henderson Redevelopment Agency.	Applicable.
Asbestos Handling and Management	Chapter 4, Section 4-1, Southern Nevada Health District (SNHD) Solid Waste Management Authority Regulations	Standards for handling and transportation of asbestos waste.	Applicable during abatement of asbestos on the surface of the former mine site.
Discharges of Storm Water Associated with Construction and Land Disturbance Activities	Clean Water Act (CWA) Section 402; 40 CFR Parts 122,123,124 Clark County Code 24.40	<p>If one or more acres of land will be disturbed during construction activities, compliance with Section 402 of the CWA would be applicable and Best Management Practices (BMPs) used to prevent impacts to surface water. If less than one acre is disturbed, the same BMPs will be used to prevent degradation of surface water quality.</p> <p>Stormwater control and construction BMPs.</p>	Applicable given size of surface disturbance to reclaim mine site.
Standards for Analysis and Design of Storm Drainage Facilities	Clark County Regional Flood Control District's Hydrologic Criteria and Drainage Design Manual, Section 300	Standards for analysis and design of storm drainage facilities.	Applicable to design of stormwater detention basins.

ARARs/TBCs	Citation or Reference	Requirements	Applicability
Clean Air Act	Title I, Part A – Air Quality and Emission Limitations	Calls for development and implementation of regional air pollution control programs. Section 101 of Part A delegates primary responsibilities for regional air quality management to the states.	Regulations promulgated under the Clean Air Act apply to actions at the site that generate air emissions, i.e., volatiles potentially generated from soil and tailings removal and fugitive particulate emissions.
National Primary and Secondary Ambient Air Quality Standards	40 CFR 50 and Clean Air Act Part A, 109 NAC 445B.22037	Establishes ambient air quality standards. No person may 1) handle or transport any material in a manner which allows controllable particulate matter to become airborne; 2) cause or permit the construction or use of unpaved areas without best practical methods (paving, chemical stabilization, watering, phased construction) to prevent particulate matter from becoming airborne; or 3) disturb or cover five acres or more of land or its topsoil until the person has obtained an operating permit for surface area disturbance to clear, excavate, or level the land.	Applicable.
Requirements for Preparation, Adoption, and Submittal of Implementation Plans	40 CFR 51	Requires excavation activities be controlled to minimize fugitive dust emissions.	Applicable.
Criteria for Classification of Solid Waste Disposal Facility and Practices	Subtitle D, 40 CFR 257 NAC 444.570 – 7499	Sets standards for land disposal facilities for nonhazardous waste.	Applicable to offsite disposal of asbestos and municipal waste from the surface of the former mine site.
Uniform Environmental Covenants Act	NRS 445D	Specifies process and requirements for environmental covenants in the state of Nevada.	Applicable.
Monitoring Well Construction, Geotechnical Boreholes, and Plug & Abandonment Policy	NAC 534	Provides a set of guidelines for installation and plugging and abandonment of groundwater monitoring wells and boreholes.	Applicable for plugging and abandonment of groundwater monitoring well.

ARARs/TBCs	Citation or Reference	Requirements	Applicability
<p>Notes:</p> <p>ARAR = Applicable or relevant and appropriate requirement BMP = Best management practice CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act CFR = Code of Federal Regulations CWA = Clean Water Act ELV = Estimated Limit Values NAC = Nevada Administrative Code NRS = Nevada Revised Statutes SNHD = Southern Nevada Health District TBC = To be considered TLV = Threshold Limit Values USC = United States Code</p>			

Table 3. Responsiveness Summary

Responses to Comments received during the 30-day public comment period for the Proposed Plan (February 23 - March 25, 2023)

Item	Comment	Response
Responses to written comments received via email during the 30-day public comment period for the Proposed Plan (February 23 - March 25, 2023)		
1	<p>I reside in the Varena community which is located immediately on the east side of Lake Las Vegas Parkway upon entering from Lake Mead Parkway. I have read the Proposed Plan as shown on the website and have concerns about the execution of the remediation and subsequent impacts to the community. In terms of the community my concerns are relative to potential increased property taxes on my current home and the traffic impact on Lake Mead Parkway once the housing development begins. Both concerns are more properly addressed to the City of Henderson, Clark County, and the State of Nevada. My concern with the remediation execution is one that you might alleviate. The plan(s) as described are, necessarily, broad overviews at this stage. It does mention the use of PPE to protect workers; however, there is no detail on fugitive dust emission mitigation measures to protect the community. As you are aware, the prevailing winds cross the mine site into the Lake Las Vegas community. Thank you for any light you might shed on this.</p>	<p>Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p> <p>Cleanup costs will be reimbursed from property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area over a 45-year period. Property taxes from homes outside of the redevelopment area will not be used to fund the cleanup.</p> <p>NDEP is the agency providing environmental oversight for the project; NDEP is not the entity charged with community development planning with respect to traffic impact analysis. City of Henderson Traffic Services Engineering coordinates, designs, and implements the safe and efficient flow of traffic throughout the city.</p>
2	<p>Will there be a SIDS/LIDS-type incremental tax on homes in this area? Or will this be funded through taxes paid by all Henderson tax payers? Will there be an incremental property tax for the homes in Lakemoor Canyon?</p>	<p>So far, funding for the investigative work, site planning, and cleanup planning has been provided by private investors. After the federal land is transferred, land sale money will be used to complete the cleanup and infrastructure work. Additional cleanup costs will be reimbursed from property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area over a 45-year period. Property taxes from homes outside of the redevelopment area will not be used to fund the cleanup.</p>
3	<p>I am emailing you to stress our NO for the type and way to clean up Three Kids Mine, We live in the Calico Ridge Development, my husband is sick and unable to leave the house, I work and take care of him, as he has severe heart and health problems and I take care of him. Filling in the holes of toxic and hazardous waste will only stir up toxic dirt and toxic dust and spread it all around Henderson for miles, the toxic dust could affect my husband and make him die or me die!!! Another clean up should be considered. How could the city of Henderson sell the mine to a developer to build houses on, for people to live and get sick and die from toxins!!! That sounds like Henderson wanted to make money and took the clean up responsibility off of Henderson. How horribly irresponsible is that! No one should live in a house built on that toxic waste!!! That is asking for lawsuits if deaths and illnesses occur, which is what will happen, besides all the workers at health risks for cleanup and building, the man that bought the mine wants to build as he built Tuscany homes, now Cadence has over run the area! Crime has come in, too, you can't even barely drive down Galleria!!!! We say no to the cleanup as proposed until a better cleanup can be done, and no to any building of homes on the toxic site!!! Henderson should have never sold that toxic mine and land to, of all people, a builder!!!! So people can get sick with cancer, die!!! That is not what we want, we say no to the mine cleanup and building upon!!! We will get the toxic dust, too, Lake Las Vegas, Tuscany, Cadence, for sure Lake Mead will be full of the toxic dust so multiple states can drink it, probably all of Henderson will get some of the fallout.</p>	<p>NDEP is the lead agency overseeing the remediation of historical contamination at the Three Kids Mine in Henderson, Nevada. NDEP will require that the site meets residential cleanup standards before residential development at the site can begin.</p> <p>In 2014, the federal Three Kids Mine Remediation and Reclamation Act was enacted, providing a framework for the federally-owned land within the project area to be conveyed from the Bureau of Land Management through the City of Henderson Redevelopment Agency to a private developer accepting responsibility for remediating the site to meet federal, state, and local cleanup standards.</p> <p>Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p>
4	<p>My question is what happens if home development does not take place after all of the money is spent on reclamation and there is no money coming in from property taxes from the site? There are a myriad of reasons that housing may not develop (i.e. developer pulls out, people are not willing to buy homes built on or near a landfill with toxic materials, etc.). Financially guaranteed by who?</p>	<p>Because the development will progress in phases over the course of several years, it's possible that backfilling of the pits could experience some delays due to economic downturns. However, the cleanup will be financially guaranteed via a master developer performance bond and via a binding agreement between NDEP and the responsible party to ensure the completion of the remedy to a minimum of an industrial end land use.</p>
5	<p>I own a property in Lake Las Vegas. I am opposed to any additional development in the area as the existing infrastructure is already saturated due to Cadence and Tuscany developments. The roads are reaching saturation point, schools are overcrowded and commercial and existing residential communities sites are becoming dangerous due to crime increases. 3000 additional homes will wreck our community and cause irreversible property value impact. The site should have been cleaned up decades ago for the public good, not to enrich developers. This project should be set to a local referendum in the next election before one backhoe disturbs the material on site. I am vehemently opposed and will sell my property if it goes forward.</p>	<p>In 2014, the federal Three Kids Mine Remediation and Reclamation Act was enacted, providing a framework for the federally-owned land within the project area to be conveyed from the Bureau of Land Management through the City of Henderson Redevelopment Agency to a private developer accepting responsibility for remediating the site to meet federal, state, and local cleanup standards. The cleanup will be funded by property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area.</p> <p>NDEP is the agency providing environmental oversight for the project; NDEP is not the entity charged with community development planning with respect to traffic impact analysis or land use decisions. City of Henderson Traffic Services Engineering coordinates, designs, and implements the safe and efficient flow of traffic throughout the city. The City of Henderson Community Development and Services Department creates land use policies and plans.</p>

6	<p>I live in Lake Las Vegas across from the project.</p> <p>1. Will there be continuous air quality monitoring as clean up commences? Of the 14 or so identified contaminants (COPCs) on page 12 , which ones could be quantified through monitoring? What would the trigger be to shut down construction activity during a wind event? Would a wind event forecast be a proactive approach to shut down activities? Who/how would neighbors be alerted?</p>	<p>Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p>
7	<p>2. Will a webcam be on site to record the cleanup continuous real time, like "Dropicana" & Allegiant stadium? We cannot see what is happening due to the buffer walls present; this adds transparency to the project.</p>	<p>NDEP is the lead agency overseeing the remediation of historical contamination at the Three Kids Mine in Henderson, Nevada. Additional oversight is also being provided by Certified Environmental Managers (CEM) – individuals whom NDEP has certified as being qualified to oversee the remediation of environmental contamination in Nevada. Due to these factors, a webcam will not be on site during the cleanup.</p>
8	<p>3. Should Preferred Alternative S-4 prevail, as the asbestos loads are prepared and transported off site, I would request reasonable advance notice to the closest neighbors. This seems reasonable when a health risk is involved.</p>	<p>The current Preferred Alternative is a combination of Alternatives S-3 and S-4. Abatement of asbestos will be performed by an asbestos abatement contractor licensed by the Nevada Department of Business and Industry, Division of Industrial Relations, Occupational Safety and Health Administration (OSHA) section. The abatement activities will be performed in accordance with applicable OSHA regulations by properly trained workers that have been licensed in Nevada through the Asbestos Control Program. OSHA requires the asbestos abatement work to include the establishment of regulated areas, use of wet methods (no visible emissions), prompt clean-up, use of leak tight containers, and employee exposure monitoring. It is anticipated that the use of wet methods will be successful in minimizing the generation of asbestos fibers so that potential asbestos fibers do not migrate beyond the regulated area. Additional details are available in Appendix C of the <i>Corrective Action Plan</i> available on the NDEP website. NDEP will continue informing the community about the project in accordance with the <i>Community Involvement and Participation Plan</i> available on the NDEP website.</p>
9	<p>4. How long will groundwater monitoring extend after the clean up? What jurisdiction has this continued responsibility? I read there is an "impermeable" liner at the Hydro pit with only 2 feet of clean soil. Are there liners at Hulin &/or A-B pits? What is the rationale in the difference? It is stated that groundwater is 500-700 feet under the surface. Claim is that this is not a source of drinking water. What about wildlife? What studies, if any, have been done to indicate the health of Bighorns, coyotes, birds, fish, etc ? What assurance does the public have that there are minimal raised levels of toxins (COPCs) in their blood post mortem or as living species? You can see my concerns are focused on both immediate and long term health for humans and wildlife due to my education in biological science. I appreciate the "systems" approach to this project from both the private and public entities involved. I just want it to be safe proactively and to best ensure no untoward deleterious outcomes. Thanks to all.</p>	<p>Groundwater is about 500-700 feet below ground surface (approximately 200 feet below the bottom of the Hydro Pit), and is not a source of drinking water. Drinking water will be supplied by the City of Henderson. City of Henderson drinking water is sourced from Lake Mead and meets safe drinking water standards. Furthermore, chemicals of potential concern (COPCs) at the site are found in impacted soil and mines wastes, such as tailings and waste rock. Modeling results show little downward migration of moisture and contaminants below the bottom of the backfilled pits because of low rates of precipitation, infiltration, and resulting low seepage velocities at the base of backfilled pits. Additional details can be found in the <i>Leaching Analysis Report</i> available on the NDEP website. Due to these factors, groundwater will not be monitored.</p> <p>The backfilled Hydro Pit will be covered by an impermeable liner, a minimum of 2 feet of native soil, and a community park and detention basin to control stormwater; the backfilled Hulin Pit will be covered with 10 feet of native soil, and a community park or open space element; and the backfilled A-B Pit will be covered by 10 feet of native soil and homes in selected locations. The rationale is based on the future contents of the pits, as well as the planned development amenities over each pit.</p> <p>A <i>Screening Level Ecological Risk Assessment</i> was conducted to evaluate current ecological risks at the site for terrestrial invertebrates, plants, reptiles, mammals, and birds. The selected alternative includes placing 10 feet of native soil cover across the disturbed area of the Site prior to development for residential use. This will eliminate ecological risks by isolating the high concentrations of metals currently present, thus eliminating exposure pathways. Remaining habitat after residential development will no longer present an ecological risk.</p>

10	<p>I'm a resident at Lake Las Vegas and extremely concerned about the proposed development on the former Three Kids location particularly the cleanup process. Based on the initial information provided, including the size of the development and chemicals involved, the costs involved could easily be in the hundreds of millions of dollars. There are many fellow residents with other concerns including the increase in the demand of water resources. We all read from many sources that we are in a water crisis so how in the world is further development approved. In review of the extensive costs involved in the proper clean up of the proposed site I don't believe the project is possible. We have a civil engineer, attorney and other resources involved in this process and look forward to meeting with you and others involved on the project. I look forward Thank you.</p>	<p>NDEP is the lead agency overseeing the remediation of historical contamination at the Three Kids Mine in Henderson, Nevada. The site will be remediated to meet federal, state, and local cleanup standards. NDEP will require that the site meets residential cleanup standards before residential development at the site can begin. Although the Three Kids Mine is not a Superfund site, the Superfund process is being followed to protect public health and the environment.</p> <p>In 2014, the federal Three Kids Mine Remediation and Reclamation Act was enacted, providing a framework for the federally-owned land within the project area to be conveyed from the Bureau of Land Management through the City of Henderson Redevelopment Agency to a private developer accepting responsibility for remediating the site. The cleanup will be financially guaranteed to ensure the completion of the remedy to a minimum of an industrial end land use and will be funded by property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area.</p> <p>Drinking water will be supplied by the City of Henderson. City of Henderson drinking water is sourced from Lake Mead and meets safe drinking water standards. NDEP is the agency providing environmental oversight for the project; NDEP is not the entity charged with community development planning with respect to water resource allocation or land use decisions. The Nevada Division of Water Resources is responsible for reviewing water availability for new subdivisions. The City of Henderson Community Development and Services Department creates land use policies and plans.</p>
11	<p>By my calculations this project will need to remove 82,328,400 tons of soil. This is done with 315 acres and a ten foot depth. At a hauling cost of even \$10/ per ton I am sorry to say I don't see how a developer can afford to pay for it. That isn't even the cost of bringing in fresh soil to do the backfill. So can you tell me where all of this soil will be removed to ? Is it going to be exposed to the elements and create an even bigger hazard than it currently represents? I believe you said that the 314 acres of private developer land were going to be cleaned up to federal superfund standards. Is that correct ? Or did I misunderstand you ? My comment for this project is that we as a community need to be reassured that this remediation will be according to federal standards. So by my calculations this project will be in excess of 1.8 billion dollars And yet who will guarantee the completion so that there is not open landfill just left exposed ? I think that the developer will need to post some type of bond that if they quit the project or go bankrupt that there is at least 80% of these monies held by the city or state to complete the work.. How will the city or state hold a bond over the development so that this phase is guaranteed to completion ? My intuition tells me this scale of this project for the 314 acres requires federal oversight and budgeting dollars.</p>	<p>The selected alternative will meet site cleanup goals and achieve substantial risk reduction by: consolidating the tailings, waste rock, and impacted soil in the open pits; covering the backfilled Hydro Pit with an impermeable liner and a minimum of 2 feet of native soil; and covering other disturbed areas of the site (including the other two backfilled open pits) with 10 feet of native soil for residential land use. Therefore, mine wastes and impacted soil will not be exposed to the elements.</p> <p>NDEP is the lead agency overseeing the remediation of historical contamination at the Three Kids Mine in Henderson, Nevada. The site will be remediated to meet federal, state, and local cleanup standards. Before residential development at the site can begin, NDEP will require that the site meets residential cleanup standards. Although the Three Kids Mine is not a Superfund site, the Superfund process is being followed to protect public health and the environment.</p> <p>The cleanup will be financially guaranteed via a master developer performance bond and via a binding agreement between NDEP and the responsible party to ensure the completion of the remedy to a minimum of an industrial end land use.</p>
12	<p>I noticed that the pit at 3 kids is about 300 feet deep. With respect to the bottom of the pit how much further down is it before you hit the valley aquifer?</p>	<p>Groundwater is approximately 200 feet below the bottom of the Hydro Pit and is not a source of drinking water.</p>
13	<p>Here are my questions: 1). It appears that there will be no incremental tax on future home buyers in this area. Doesn't that mean that all of the home owners in Henderson will either fund this project or fund the city services that will be used by new home owners in this area whose taxes are used for clean up.</p>	<p>So far, funding for the investigative work, site planning, and cleanup planning has been provided by private investors. After the federal land is transferred, land sale money will be used to complete the cleanup and infrastructure work. Additional cleanup costs will be reimbursed from property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area over a 45-year period. Property taxes from homes outside of the redevelopment area will not be used to fund the cleanup.</p>
14	<p>2). Will a construction road be built behind the project to alleviate congestion traffic on LMP?</p>	<p>NDEP is the agency providing environmental oversight for the project; NDEP is not the entity charged with community development planning with respect to traffic impact analysis. City of Henderson Traffic Services Engineering coordinates, designs, and implements the safe and efficient flow of traffic throughout the city. NDEP anticipates that haul road locations and constraints will be identified in the Remedial Design.</p>

15	3). How will air and water quality be monitored? And how frequently, and for how long? How will those measurements be communicated to the community?	<p>Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p> <p>Groundwater is about 500-700 feet below ground surface (approximately 200 feet below the bottom of the Hydro Pit), and is not a source of drinking water. Drinking water will be supplied by the City of Henderson. City of Henderson drinking water is sourced from Lake Mead and meets safe drinking water standards. Furthermore, chemicals of potential concern at the site are found in impacted soil and mines wastes, such as tailings and waste rock. Modeling results show little downward migration of moisture and contaminants below the bottom of the backfilled pits because of low rates of precipitation, infiltration, and resulting low seepage velocities at the base of backfilled pits. Additional details can be found in the <i>Leaching Analysis Report</i> available on the NDEP website. Due to these factors, groundwater will not be monitored. Perennial and/or intermittent streams are not present at the site.</p>
16	4). It appears that two different levels of additional dirt will be added – a 2 foot addition and a 10 foot addition. What is the reason for the difference?	<p>The backfilled Hydro Pit will be covered by an impermeable liner, a minimum of 2 feet of native soil, and a community park and detention basin to control stormwater; the backfilled Hulin Pit will be covered with 10 feet of native soil, and a community park or open space element; and the backfilled A-B Pit will be covered by 10 feet of native soil and homes in selected locations. The rationale is based on the future contents of the backfilled pits, as well as the planned development amenities over each pit. Other disturbed areas of the site will also be covered with 10 feet of native soil. The 10-foot soil cover over the pits and other disturbed areas of the site is based on the planned future land use (i.e., residential development) and is contingent upon the completion of site remediation and reclamation as described in Sections 1.4 and 2.12.1 of this ROD.</p>
17	5). Will there be any video surveillance of this area while the work is being done? And who will have access to those video files?	<p>NDEP is the lead agency overseeing the remediation of historical contamination at the Three Kids Mine in Henderson, Nevada. Additional oversight is also being provided by Certified Environmental Managers (CEM) – individuals whom NDEP has certified as being qualified to oversee the remediation of environmental contamination in Nevada. Due to these factors, there will not be video surveillance of the area while the work is being done.</p>
18	6). Has anything been established to monitor air and water quality away from the site? With the amount of wind we've experienced in the last year, are remote sites far enough away from the work site?	<p>Adjacent, downwind, undisturbed areas of the site were evaluated for potential impacts by windblown material from the disturbed area of the Three Kids Mine site. The evaluation found no health concerns for soil that was potentially impacted within the adjacent downwind areas. Additional details can be found in the <i>Screening Level Human Health Risk Assessment</i> available on the NDEP website. Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed. Due to these factors, air quality away from the site will not be monitored.</p> <p>Groundwater is about 500-700 feet below ground surface (approximately 200 feet below the bottom of the Hydro Pit), and is not a source of drinking water. Drinking water will be supplied by the City of Henderson. City of Henderson drinking water is sourced from Lake Mead and meets safe drinking water standards. Furthermore, chemicals of potential concern at the site are found in impacted soil and mines wastes, such as tailings and waste rock. Modeling results show little downward migration of moisture and contaminants below the bottom of the backfilled pits because of low rates of precipitation, infiltration, and resulting low seepage velocities at the base of backfilled pits. Additional details can be found in the <i>Leaching Analysis Report</i> available on the NDEP website. Due to these factors, groundwater will not be monitored. Perennial and/or intermittent streams are not present at the site.</p>

19	<p>7). If hazardous chemicals are found in the air or water, what is the plan to ensure nearby Residents are not adversely affected?</p>	<p>The site has been fully characterized and the results are presented in the <i>Remedial Investigation Report</i> available on the NDEP website.</p> <p>Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p> <p>Groundwater is about 500-700 feet below ground surface (approximately 200 feet below the bottom of the Hydro Pit), and is not a source of drinking water. Drinking water will be supplied by the City of Henderson. City of Henderson drinking water is sourced from Lake Mead and meets safe drinking water standards. Furthermore, chemicals of potential concern at the site are found in impacted soil and mines wastes, such as tailings and waste rock. Modeling results show little downward migration of moisture and contaminants below the bottom of the backfilled pits because of low rates of precipitation, infiltration, and resulting low seepage velocities at the base of backfilled pits. Additional details can be found in the <i>Leaching Analysis Report</i> available on the NDEP website.</p>
20	<p>The clean up of the former Three Kids Mine is long overdue. With regards to developing the land that is an entirely different matter. I am just one of hundreds of local residents that are strongly opposed to building more homes in the area for a number of reason and here are a few of the reasons:</p> <p>1. Hazardous Waste - Developing homes will no doubt create new health problems for the residents as the toxic soil will become airborne for the next several years leading to illnesses. The clean up of the Three Kids mine is good and should have been done years ago, however the development will create health issues with toxins becoming airborne for the next 5 years.</p>	<p>Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p>
21	<p>2. Water shortage - There is not an adequate water supply to provide for an additional 10,000 + residents. As you are clearly aware we have an existing water crisis and the development will only make a bad situation worse. We have reached a point in this crisis where Henderson residents will now be penalized for going over the allotment of gallons used per month.</p>	<p>Drinking water will be supplied by the City of Henderson. City of Henderson drinking water is sourced from Lake Mead and meets safe drinking water standards. NDEP is the agency providing environmental oversight for the project; NDEP is not the entity charged with community development planning with respect to water resource allocation. The Nevada Division of Water Resources is responsible for reviewing water availability for new subdivisions.</p>
22	<p>3. Congestion - The quality of life is important to all residents and adding additional homes will only exacerbate an already very bad situation. Once again, we are all for the cleanup however the proposed development is not in the best interests of the community. There are already thousands of new homes in the process of being built in the area and any additional homes would be detrimental to the area and certainly not in the best interests of the local residents. We all understand that developers and home builders are in the business of developing land and building homes but unfortunately when they are long gone the residents have to live with what is left. In the case of this particular development the only winners will be Lakemoor Ventures and Pulte Homes. Thank you.</p>	<p>NDEP is the agency providing environmental oversight for the project; NDEP is not the entity charged with community development planning with respect to land use decisions. The City of Henderson Community Development and Services Department creates land use policies and plans.</p>
23	<p>I noticed in a geological report I read that a lot of tailings were sitting on a liquefaction layer A 200 ft buffer then keeping back the tailing sludge from hitting the aquifer. Is there anyway for me to know that the soil + tailings going into the pit will be compacted properly or that an adequate runoff at the top is provided? If not am I not just creating a large water pressure at the bottom of the pit with all of toxic concentration levels being very high because all of the tailings were dumped in ?</p>	<p>Based upon the finding in the January 2021 test pits investigation, the tailings have dried to at least a depth of 12 feet below ground surface. Eight borings installed to below the total depth of the tailings in September 2021 also demonstrated that the tailings are solid. The selected alternative includes placing the tailings into the Hydro Pit (with the possibility of some also going into the A-B Pit if they do not fit in the Hydro Pit). The backfilled Hydro Pit will be covered by an impermeable liner, a minimum of 2 feet of native soil, and a detention basin to control stormwater. The liner and cover over the Hydro Pit will be periodically inspected as part of ongoing operation and maintenance activities to ensure that integrity is maintained and human health and the environment continue to be protected. Modeling results show little downward migration of moisture and contaminants below the bottom of the backfilled pits because of low rates of precipitation, infiltration, and resulting low seepage velocities at the base of backfilled pits. Additional details can be found in the <i>Leaching Analysis Report</i> available on the NDEP website. The <i>Remedial Investigation Report</i> on the NDEP website includes a summary of geotechnical properties in Section 4.3, as well as the most recent geotechnical reports in Appendix E (compaction tests were performed as part of the Remedial Investigation). A mixture of tailings and waste rock will be placed in the Hydro Pit. The ratio may be up to 90 percent tailings with 10 percent waste rock but will ultimately depend on achieving compaction requirements. Loose material will be placed in approximately 12-inch lifts and compacted.</p>

24	<p>Again, I am among hundreds of concerned LLV residents that this development will be detrimental to our health. Regardless of the added congestion that the proposed development will create along with insufficient water resources, the costs involved with the proper cleanup of the site will be extensive and we believe well above the current estimated costs. To that end our civil engineer is requesting the following questions to be answered:</p> <p>1. Please provide a list of all chemicals and Asbestos and estimated amounts of each?</p>	<p>Chemicals of potential concern (COPCs) include arsenic, cadmium, lead, manganese, hexavalent chromium, total petroleum hydrocarbons, naphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and dioxins. COPCs at the site are found in impacted soil and mines wastes, such as tailings (1.6 million cubic yards) and waste rock (7.7 million cubic yards). Additional details can be found in the <i>Remedial Investigation Report</i> available on the NDEP website. Appendix F of the report includes the complete dataset of analytical results. Contaminants of concern by stratum are also tabulated in Section 2.5.5 of this <i>Record of Decision</i>.</p> <p>Three types of asbestos (chrysotile, amosite, and crocidolite) were found in materials identified at the site. Additional details can be found in the <i>Asbestos Survey Report</i> available on the NDEP website; the report includes descriptions, maps, and tables of the asbestos survey results.</p>
25	<p>2. Estimated Costs for clean up? Extra funds if needed comes from where? Don't want to start and not finish! Total cost plus contingency \$\$.</p>	<p>As shown in Table 1 of this Record of Decision, the total estimated cleanup cost is \$257,485,170. So far, funding for the investigative work, site planning, and cleanup planning has been provided by private investors. After the federal land is transferred, land sale money will be used to complete the cleanup and infrastructure work. Additional cleanup costs will be reimbursed from property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area over a 45-year period. Property taxes from homes outside of the redevelopment area will not be used to fund the cleanup. The cleanup will be financially guaranteed via a master developer performance bond and binding agreement to ensure the completion of the remedy to a minimum of an industrial end land use.</p>
26	<p>3. Who is monitoring the clean up efforts?</p>	<p>NDEP is the lead agency overseeing the remediation of historical contamination at the Three Kids Mine in Henderson, Nevada. Additional oversight is also being provided by Certified Environmental Managers (CEM) – individuals whom NDEP has certified as being qualified to oversee the remediation of environmental contamination in Nevada.</p>
27	<p>4. What is the track record of the cleanup contractor?</p>	<p>NDEP is the lead agency providing environmental oversight for the project to ensure that the cleanup is conducted in accordance with the selected alternative and in a manner that is protective of human health and the environment. The site will be remediated to meet federal, state, and local cleanup standards, and NDEP will require that the site meets residential cleanup standards before residential development at the site can begin.</p>
28	<p>5. Separate subjects. Traffic and congestion studies. Traffic is already a problem why add more?</p>	<p>NDEP is the agency providing environmental oversight for the project; NDEP is not the entity charged with community development planning with respect to traffic impact analysis or land use decisions. City of Henderson Traffic Services Engineering coordinates, designs, and implements the safe and efficient flow of traffic throughout the city. The City of Henderson Community Development and Services Department creates land use policies and plans.</p>
29	<p>6. Where is the cradle to grave concept with respect to the mine? The government created this issue and is now trying to avoid cleaning it up.</p>	<p>In 2014, the federal Three Kids Mine Remediation and Reclamation Act was enacted, providing a framework for the federally-owned land within the project area to be conveyed from the Bureau of Land Management through the City of Henderson Redevelopment Agency to a private developer accepting responsibility for remediating the site to meet federal, state, and local cleanup standards.</p>
30	<p>7. Please explain how the water resources, managed by the City of Henderson, can approve of this project when they have recently decreased water usage for residents?</p>	<p>Drinking water will be supplied by the City of Henderson. City of Henderson drinking water is sourced from Lake Mead and meets safe drinking water standards. NDEP is the agency providing environmental oversight for the project; NDEP is not the entity charged with community development planning with respect to water resource allocation. The Nevada Division of Water Resources is responsible for reviewing water availability for new subdivisions.</p>
31	<p>8. Who reimburses the residents of LLV and the city of Henderson for health illnesses stemming from airborne particulates from the mine? Thank you and we await your response.</p>	<p>Adjacent, downwind, undisturbed areas of the site have been evaluated for potential impacts by windblown material from the disturbed area of the Three Kids Mine site. The evaluation found no health concerns for soil that was potentially impacted within the adjacent downwind areas. Additional details can be found in the <i>Screening Level Human Health Risk Assessment</i> available on the NDEP website. Additionally, throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p>

32	<p>I am one of the members of the Varena Homeowner Advisory Committee (Varena) to the Lake Las Vegas Master Homeowner Association (LLVHOA). While I appreciate the information you have provided in response to many concerns Varena's homeowners and others have raised some points need further clarification and discussion. Please consider this message as an official request for a written response and part of the public record when considering remediation plans, proposed and preferred:</p> <p>1. Standards: Your initial remarks indicate that any clean-up effort would be compliant with all "federal, state and local standards," yet you have also previously noted that "Superfund procedures" would be followed (although Three Kids Mine is not a designated Superfund site). Below you expressly note that only "Clark County Air Quality Regulations" would be followed. Which is it? Superfund standards are considerably more stringent than other "federal, state and local" standards, requiring significantly more time and cost than currently projected. Which specific standards will the Proposed Plan follow? What about Alternatives 1, 2, 3, 4 or any newly proposed alternative?</p>	<p>The Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund, is a federal law passed in 1980 with the goal of protecting human health and the environment by cleaning up contaminated sites. Although the Three Kids Mine is not a Superfund site, the Superfund process is generally being followed to protect public health and the environment. The Superfund site closure process includes the following steps:</p> <ol style="list-style-type: none"> 1. Preliminary Assessment/Site Investigation 2. Remedial Investigation/Feasibility Study 3. Proposed Plan 4. Record of Decision 5. Remedial Design and Remedial Action 6. "No Further Action" Determination <p>Steps 1, 2, 3, and 4 have been completed, and will be followed by Steps 5 and 6.</p> <p>Acceptable cleanup alternatives must comply with Applicable, Relevant and Appropriate Requirements (ARARs). ARARs are local, state, and federal environmental regulations that deal with site cleanups. Remedial action must comply with ARARs. Table 2 of this Record of Decision provides a description of federal, state, and local ARARs for the selected alternative. Some examples of listed ARARs include: Code of Federal Regulations (i.e., federal standards), Nevada Administrative Code (i.e., state standards), and Southern Nevada Health District Solid Waste Management Authority Regulations (i.e., local standards).</p> <p>The Clark County Division of Air Quality administers the air pollution control program for Clark County under provisions of the Clark County Air Quality Regulations. Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations (i.e., local standards).</p>
33	<p>2. Offsite (Downwind) Monitoring: The Proposed Plan notes non-specific types of immediately adjacent air monitoring, presumably sited only on the developing land. The Varena community of 71 homes is the closest downwind LLV community to the land sought to be remedied at Three Kids Mine, yet no plan - proposed or alternative - makes provision for any LLV community air monitoring at Varena or on any part of LLV. Independent air monitoring of all potentially impacted residential areas during remediation and construction should be required, with costs borne by the private developer, not any impacted community or any governmental entity or agency. We look forward to a more robust discussion - with adequate advance notice to all impacted communities - as remediation plans are considered.</p>	<p>Adjacent, downwind, undisturbed areas of the site have been evaluated for potential impacts by windblown material from the disturbed area of the Three Kids Mine site. The evaluation found no health concerns for soil that was potentially impacted within the adjacent downwind areas. Additional details can be found in the <i>Screening Level Human Health Risk Assessment</i> available on the NDEP website. Additionally, throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed. Due to these factors, air at offsite locations will not be monitored.</p>
34	<p>Good morning, I hope you are doing well. I wanted to write you and verify if the Three Kids Mine is a superfund site. I looked on this website through some pages, I searched it by name as well as city/state/county and didn't see it on there, so I just wanted to verify that it is not a superfund. Please let me know if this is correct or not. Thank you for your time.</p>	<p>The Three Kids Mine is not a Superfund site. However, the Superfund cleanup process is being followed to protect public health and the environment.</p>
35	<p>I went in to visit professor Batista at UNLV and she said to say hello and that you would use a high standard of care for the citizens. So a few questions</p> <p>1) I thought you said that the government had allocated money for the cleanup of the Public lands ? The reclamation act documentation is very vague; it just says Henderson will acquire the land at fair-market value based on the(land value - clean-up costs.) Clean-up costs were estimated from 300 million to 1.3 billion for the public lands. So do you know whether the redevelopment agency will be shouldering the cost of the public clean-up with local taxpayer dollars or whether we have gotten a financial settlement from the federal government to help fund that very expensive clean-up ? In the Pepcon settlement Harry Reid engineered a cash settlement and avoided takeover of the land as a superfund project and I assume the same here.</p>	<p>So far, funding for the investigative work, site planning, and cleanup planning has been provided by private investors. After the federal land is transferred, land sale money will be used to complete the cleanup and infrastructure work. Additional cleanup costs will be reimbursed from property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area over a 45-year period. The cleanup will be financially guaranteed via a master developer performance bond and binding agreement to ensure the completion of the remedy to a minimum of an industrial end land use.</p>

36	<p>2) Professor Batista explained to me that we have 2 aquifers in the valley. She seemed to say that if the pit was existing over the good aquifer that they would need to seal the entire pit before dumping the tailings into it. Essentially she was saying that the water authority would have different regulations depending upon whether the pit had faults underneath it and what aquifer was underneath the pit. Can you give me a little more details on this ?</p>	<p>Based upon the finding in the January 2021 test pits investigation, the tailings have dried to at least a depth of 12 feet below ground surface. Eight borings installed to below the total depth of the tailings in September 2021 also demonstrated that the tailings are solid. The selected alternative includes placing the tailings into the Hydro Pit (with the possibility of some also going into the A-B Pit if they do not fit in the Hydro Pit). The backfilled Hydro Pit will be covered by an impermeable liner, a minimum of 2 feet of native soil, and a detention basin to control stormwater. Groundwater is approximately 200 feet below the bottom of the Hydro Pit. Modeling results show little downward migration of moisture and contaminants below the bottom of the backfilled pits because of low rates of precipitation, infiltration, and resulting low seepage velocities at the base of backfilled pits. The majority of the Hydro Pit simulations show less than a tenth of an inch downward migration of moisture, with one sensitivity result at approximately one quarter of an inch, or constituents based on a 70-year simulation period that represented an impermeable geosynthetic liner that prevents infiltration of natural meteoric water. Additional details can be found in the <i>Leaching Analysis Report</i> available on the NDEP website. Groundwater beneath the site is not used as a source of drinking water. Drinking water will be supplied by the City of Henderson. City of Henderson drinking water is sourced from Lake Mead and meets safe drinking water standards. Faults are present in the three major open pits and were considered in the leaching analysis. The liner and cover over the Hydro Pit will be periodically inspected as part of ongoing operation and maintenance activities to ensure that integrity is maintained and human health and the environment continue to be protected.</p>
37	<p>3) What engineering company is receiving the contract? She seemed to like Converge engineering and felt they would do a quality job</p>	<p>Broadbent & Associates, Inc. and its subconsultants have completed the assessments, evaluations, and technical reports associated with the cleanup efforts. The contractor for implementation of the cleanup will be Las Vegas Paving Corp. NDEP is the lead agency providing environmental oversight for the project to ensure that the cleanup is conducted in accordance with the selected alternative and in a manner that is protective of human health and the environment.</p>
38	<p>4) We would like to form a citizens oversight committee and have the city pay for the staffing of the committee with experts such as Professor Batista. How can we petition the city to do this for us ? Maybe the citizens need to pay out of pocket but I believe we are legally entitled to have an oversight committee</p>	<p>NDEP is the agency providing environmental oversight for the project; NDEP is unaware of the city's capacity to pay for the staffing of a citizens oversight committee or what might be the appropriate avenue for submitting such a petition.</p>
39	<p>I've received this email from a concerned neighbor and to be honest, I'm appalled that until today, this is the first I've heard of this. Many of my neighbors haven't been made aware. How can this happen? Closed or no bids for hazardous materials removal is unethical. Especially if the organization doing it doesn't have the certification or the experience to pull it off. I'm not sure of what the "inside track" looks like but piling on more households in a small community seems to be for financial purposes and not for the health and safety of those that live in LLV. Not to mention the time it will take to build and all the disruption, congestion, and basically, "all things NOT LLV." I didn't move to LLV to enjoy asbestos and arsenic flying around in the air. Politics are a funny thing.. but making this mistake is inexcusable. Just a concerned home owner in lovely (for the time being) LLV.</p> <p>"Fellow LLV Residents, Thank you for your cooperation and efforts to block the development of the Three Kids Mine. The development of 3,000 new homes and 6,000 more vehicles will lead to a great deal more congestion along with further straining energy and especially water resources. Most importantly the health of the residents are at risk to the point where it could be dangerous to go outside during the day as several toxic materials are unearthed during the 3- 5 year construction period. Just to review the proposal and the information within, Las Vegas Paving is the proposed cleanup contractor that was selected in a no-bid process. They own acreage within LLV and based on what has been shared with the group do not have extensive experience in this type or scope of industrial cleanup which will include the removal of Arsenic, Asbestos, Lead and Manganese. The mine has been dormant since 1961 with modest impact to the environment from cyclists and an occasional off road vehicles versus the use of heavy equipment. An average size of a bulldozer is 240,000 pounds and the development will last several years creating a path for the contaminants listed above to become airborne. Again, the other items to consider with this development as an LLV homeowner, is the added congestion and noise, additional water requirements for 3,000 homes with families of 2 to 5 individuals and stress to the energy grid. These are the facts and all LLV homeowners are entitled to be fully aware of all of the information prior to the final agreement by the City of Henderson with Lakemoor Development company and Pulte Homes."</p>	<p>NDEP is the lead agency providing environmental oversight for the remediation of historical contamination at the Three Kids Mine to ensure that the cleanup is conducted in a manner that is protective of human health and the environment. The site will be remediated to meet federal, state, and local cleanup standards, and NDEP will require that the site meets residential cleanup standards before residential development at the site can begin.</p> <p>Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p> <p>NDEP has hosted two community information meetings as part of community outreach efforts for the Three Kids Mine cleanup project – the first in June 2022 and the second in March 2023. On each occasion, invitations were mailed to approximately 2,800 households in neighboring communities, and the meetings were well-attended by members of the public. NDEP will continue to keep the community informed in accordance with the <i>Community Involvement and Participation Plan</i> available on the NDEP website.</p>

40	<p>Hello, I am a resident of Lake Las Vegas and am extremely concerned about the potential development of this old mine. It does not sound like this is a safe development at all. Can you, please, enlighten me. Thank you.</p>	<p>NDEP is the lead agency providing environmental oversight for the remediation of historical contamination at the Three Kids Mine to ensure that the cleanup is conducted in a manner that is protective of human health and the environment. The site will be remediated to meet federal, state, and local cleanup standards, and NDEP will require that the site meets residential cleanup standards before residential development at the site can begin. Several useful resources are available on the NDEP website, including:</p> <p>Slideshow – The slideshow displayed at the public meeting held on March 9th is a good starting point for someone looking to familiarize themselves with the cleanup project.</p> <p>Frequently Asked Questions – The FAQ provides answers to common questions NDEP has received from the public about the cleanup project.</p> <p>Proposed Plan – The Proposed Plan summarizes information about the environmental investigation, cleanup alternatives considered, and proposed solution.</p>
41	<p>Hello, it is only recently that I have learned about the three kids mine development proposals and the clean up that needs to happen for the land to be developed. As a resident across the street in Lake Las Vegas, I find it disturbing that no knowledge of this project has been relayed to the numerous new homeowners who have come into the area in the past two years. This specific project was not sighted in sales documents. What is more disturbing than that is the fact that a company without extensive experience nor expertise in removal of dangerous and toxic materials has won the contract to do the remediation work in a no bid process. Why is there no environmental body with expertise like the E.P.A. not going to monitor this project to ensure it is being done in the utmost safe and protective way? Why has the developer been given carte blanche to manage this environmental cleanup, when they do not have the expertise? How do we the residents ensure that this is being done properly and safely to protect the health of us all and the environment and wildlife in the area? The developers priority is to complete the project in the fastest and most economical way, not necessarily the safest for the long term health of the area. Please allow the residents who this will affect the most to more and better information, more transparency and an ability to participate in the decision process. There is nothing that I have read or heard from the recent meeting (which truly WAS NOT a public forum) that gives me any confidence that this will be done in a manner that will protect us residents from the toxins that will be airborne once the movement of earth begins, and as such am requesting a halt to the project until you the backing of the community you will be disturbing.</p>	<p>NDEP is the lead agency providing environmental oversight for the remediation of historical contamination at the Three Kids Mine to ensure that the cleanup is conducted in a manner that is protective of human health and the environment. The site will be remediated to meet federal, state, and local cleanup standards, and NDEP will require that the site meets residential cleanup standards before residential development at the site can begin. Additional oversight is also being provided by Certified Environmental Managers (CEM) – individuals whom NDEP has certified as being qualified to oversee the remediation of environmental contamination in Nevada. Although the Three Kids Mine is not a Superfund site, the Superfund process is being followed to protect public health and the environment.</p> <p>Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p> <p>NDEP has hosted two community information meetings as part of community outreach efforts for the Three Kids Mine cleanup project – the first in June 2022 and the second in March 2023. On each occasion, invitations were mailed to approximately 2,800 households in neighboring communities, and the meetings were well-attended by members of the public. Additionally, a 30-day public comment period for the <i>Proposed Plan</i> was held from February 23, 2023 to March 25, 2023 to provide community members with the opportunity to participate in the remedy selection process. NDEP will continue to keep the community informed in accordance with the <i>Community Involvement and Participation Plan</i> available on the NDEP website.</p>

42	<p>To the City of Henderson and NVEPA, This is a formal notice on behalf of the concerned residents of Lake Las Vegas regarding the Three Kids mine proposed development. The communications to the public regarding this proposed development has been very poor and now that the word is spreading, and the facts understood, there are now hundreds if not many thousands that oppose this development. The cleanup of the mine should have been completed years ago and no one that I know of is opposed to this, however, tying the cleanup with the condition of building 3,000 new homes is certainly not in the best interests of the residents of Lake Las Vegas and surrounding area for a number of reasons. These include: added congestion and noise, increase in crime, lack of water resources, inadequate energy supply and most importantly creating a serious health hazard. According to our experts, to adequately complete the cleanup will extend well beyond the proposed budget and if not done completely jeopardizes the health of every citizen in the surrounding area. If this development goes forward, the airborne contaminants that will fill the air for many years will no doubt lead to serious illnesses to our community, many of whom are senior citizens. Further, the vast majority of LLV residents were never informed of the Three Kids mine development when purchasing their respective properties, which is criminal as many planned to spend the rest of their lives here. There is currently a formal petition with a growing list of citizens opposed to the building of the Three Kids mine development. Further the Federal government has also been notified that their decision to try to pass along their responsibility and push it over to our local government is not in the best interest of the local community. The committee to halt the Three Kids mine development will continue to march forward and we appreciate your support and look forward to many discussions.</p>	<p>NDEP has hosted two community information meetings as part of community outreach efforts for the Three Kids Mine cleanup project – the first in June 2022 and the second in March 2023. On each occasion, invitations were mailed to approximately 2,800 households in neighboring communities, and the meetings were well-attended by members of the public.</p> <p>In 2014, the federal Three Kids Mine Remediation and Reclamation Act was enacted, providing a framework for the federally-owned land within the project area to be conveyed from the Bureau of Land Management through the City of Henderson Redevelopment Agency to a private developer accepting responsibility for remediating the site. The cleanup will be financially guaranteed to ensure the completion of the remedy to a minimum of an industrial end land use and will be funded by property taxes generated by homes within the City of Henderson Redevelopment Agency's Lakemoor Canyon Redevelopment Area.</p> <p>Throughout the duration of the project, dust will be controlled and air quality will be monitored in accordance with Clark County Air Quality Regulations. Air sampling devices will be located around the perimeter of the project area, including upwind and downwind of cleanup activities. Due to the dust control measures that will be implemented during cleanup and development of the site, dust that is generated by site activities is expected to be less than the uncontrolled dust that is currently generated by wind and trespassers. Additional details regarding air monitoring procedures will be available upon finalization of the Perimeter Air Monitoring Plan that is currently being developed.</p> <p>NDEP is the agency providing environmental oversight for the project; NDEP is not the entity charged with community development planning with respect to traffic impact analysis, energy or water resource allocation, or land use decisions. City of Henderson Traffic Services Engineering coordinates, designs, and implements the safe and efficient flow of traffic throughout the city. The Nevada Division of Water Resources is responsible for reviewing water availability for new subdivisions. The City of Henderson Community Development and Services Department creates land use policies and plans. NV Energy provides energy services to customers in Henderson.</p>
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Responses to written comments received at the public meeting on March 9, 2023

43	<p>Need copy of EIS!</p>	<p>Federal agencies prepare an Environmental Impact Statement (EIS) if a proposed major federal action is determined to significantly affect the quality of the human environment. If the agency determines that the action will not have significant environmental impacts, the agency will issue a Finding of No Significant Impact (FONSI). A FONSI is a document that presents the reasons why the agency has concluded that there are no significant environmental impacts projected to occur upon implementation of the action. After evaluating the impacts of transferring the federal land, the Bureau of Land Management (BLM) prepared a FONSI stating that “[BLM] determined that the Proposed Action will not have a significant effect on the quality of the human environment. The environmental effects are not significant (40 CFR 1501.3(b)). Therefore, preparation of an environmental impact statement (EIS) to further analyze possible impacts is not required pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969.”</p> <p>NDEP is the lead state agency providing environmental oversight for the remediation of historical contamination at the Three Kids Mine to ensure that the cleanup is conducted in a manner that is protective of human health and the environment.</p>
44	<p>Will contaminants that did not meet the threshold for toxic levels be considered collectively for impact on environment?</p>	<p>A total of 907 soil samples were collected as part of the Three Kids Mine Remedial Investigation completed in 2022. Chemicals of potential concern (COPCs) were identified by screening sample results against Environmental Protection Agency Regional Screening Levels (RSL) and Three Kids Mine Background Threshold Values (BTV). Analyte results that exceeded the RSL and the BTV were considered COPCs. Results that were not considered COPCs do not pose a risk to human health. COPCs at the site are found in impacted soil and mines wastes, such as tailings and waste rock. The selected alternative will meet site cleanup goals and achieve substantial risk reduction by: consolidating the tailings, waste rock, and impacted soil in the open pits; covering the backfilled Hydro Pit with an impermeable liner and a minimum of 2 feet of native soil; and covering other disturbed areas of the site (including the other two backfilled open pits) with 10 feet of native soil for residential land use. The selected alternative will isolate COPCs, thus eliminating exposure pathways. Furthermore, modeling results show little downward migration of contaminants below the bottom of the backfilled pits because of low rates of precipitation, infiltration, and resulting low seepage velocities at the base of backfilled pits. Due to these factors, impacts to the environment from contaminants are not anticipated. Site assessment reports with additional details are available on the NDEP website.</p>

45	Create a formal standing community liason committee made up with immediate local resident volunteers in the affected area.	The developer and the NDEP met with two small committees of local stakeholders and will continue to periodically disseminate important information about the project. Details about the project and its progress are currently available on the NDEP website. An additional website is currently being developed and should be available in September 2023. NDEP will continue informing the community about the project in accordance with the <i>Community Involvement and Participation Plan</i> available on the NDEP website.
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