



Reuse Assessment: Anaconda/Yerington Mine Site Yerington, Nevada

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EPA Region 9
Superfund Redevelopment Initiative

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prepared by
E² Inc.

Forward

EPA's primary responsibility at Superfund sites is the protection of human health and the environment. EPA's Superfund Redevelopment Initiative (SRI) provides support to communities and stakeholders in their efforts to return environmentally impaired sites to protective and productive reuse. Conducting a reuse assessment that engages site owners and stakeholders in discussing future use options can inform EPA's remedy selection process, help facilitate site stewardship and support the long-term effectiveness of a site's remedy. This reuse assessment documents stakeholder reuse goals and characterizes current site conditions at the Anaconda/Yerington Mine Site in Yerington, Nevada.

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View to the east of Pit Lake from Weed Heights.



View to the east of Process area and waste rock piles.



View to the west of Evaporation Ponds, Luzier Lane residences and Singatze Mountain range.

I. Introduction

The Anaconda/Yerington Mine Site (Site) is located in Lyon County, Nevada approximately ½ mile from the City of Yerington. Copper mining and processing operations at the approximately 3,400-acre Site took place from 1953-1997. EPA and the Site's potentially responsible party Atlantic Richfield Company (ARC) are in the process of identifying the extent of contamination at the Site. To support EPA Region 9 in identifying reasonably anticipated future land uses for the Site, contractor E² Inc. conducted interviews with key stakeholders to identify the range of perspectives on the future use of the Site and developed a set of maps highlighting physical and institutional factors that are likely to influence the future use of the Site. The following sections summarize stakeholder reuse goals and considerations for future land uses and highlight reuse factors in greater detail. Below is a brief summary of key future land use considerations for the Site.

Stakeholder Goals and Future Land Use Considerations

Common reuse goals discussed by stakeholders include: promoting economic development; protecting human health and the environment; utilizing the Site's assets; and phasing Site cleanup and reuse. However, the land owners at the Site will likely dictate future land use in the near term. Mineral exploration company Quaterra has an option to purchase significant portions of the Site. If Quaterra proceeds with its option to purchase, Quaterra and the federal government—represented by the U.S. Department of Interior, Bureau of Land Management (BLM) — will be the primary site owners. Both entities consider mining as a potential future use of these properties. Given these primary landowner interests, mining is the most likely anticipated future land use for the Site.

However, local stakeholders—the Yerington Paiute Tribe and Yerington Community Action Group—both share concerns regarding the potential impact of future mining on human health and the environment. These stakeholders, along with the Mason Valley Environmental Committee, share an interest in exploring environmentally sustainable economic development options, such as renewable energy generation, as a potential future use for the Site. If Quaterra does not pursue its option to purchase Arimetco properties, or if the company determines that mining is not viable and vacates the Site, a broader range of future uses identified by stakeholders could help to inform a determination of the Site's reasonably anticipated future land use.

Site Features and Future Land Use Considerations

The reuse assessment included developing a map set outlining key site features including: the remedial phasing at the Site's eight operable units; parcel ownership; the Site's accessibility to surrounding roads and infrastructure; topography and grade constraints; and surrounding land use. Reuse considerations related to these site features are further outlined in Section III with associated maps included in Section IV.

The extent of contamination has not yet been fully characterized for the Site's OUs, and the future ownership of Arimetco properties remains uncertain. In the future, as site contamination, remedial alternatives and ownership are determined, further Site analyses could help to identify reuse suitability zones and potential reuse scenarios for each zone.

II: Stakeholder Goals

To support EPA Region 9 in identifying reasonably anticipated future land uses for the Site, contractor E² Inc. conducted interviews with key stakeholders to identify the range of perspectives on the future use of the Site. The following section summarizes future land use goals and considerations discussed by site stakeholders during a January 2009 site visit and via telephone interviews conducted in Fall 2009.

Stakeholders Interviewed

- Roy Shipes, Trustee, Arimetco
- Don Tibbals, Property Owner, Weed Heights,
- Linda Kelly, U.S. Dept. of Interior, Bureau of Land Management
- Tom Patton, CEO, Quaterra
- Justin Whitesides, Environmental Coordinator, Yerington Paiute Tribe
- Elwood Emm, Tribal Council Chairman, Yerington Paiute Tribe
- Dan Newell, Advisor, City Manager, City of Yerington and Mason Valley Environmental Committee (MVEC)
- Phyllis Hunewill, Commissioner, Lyon County and MVEC
- Peggy Pauly, Yerington Community Action Group

Current Site Owners

Arimetco

The Arimetco Company currently owns parcels A, B, E, G and H at the Site (see Map 2. Property Ownership on page 18). Arimetco bought the property from Mr. Tibbals in 1988 and built the electrowinning plant (SX/EW plant) and five heap leach pads that comprise Operable Unit 8 at the Site. Arimetco used tailings piles left by Anaconda, and added new ore to create 250 acres of heap leach piles to produce copper. Arimetco filed for bankruptcy in 1997 and abandoned the Site in 2000. Arimetco's bankruptcy proceedings are ongoing.

- Arimetco anticipates that the property and mineral rights will be sold out of bankruptcy to mining company Quaterra. Quaterra has an option to purchase Arimetco property.
- Roy Shipes is the administrator of the remaining Arimetco assets. His current interest in the Site is limited to overseeing the bankruptcy proceedings including the sale of remaining equipment and property.

- Mr. Shipes sees an opportunity to remove existing SX/EW plant equipment from site buildings for sale to another user off-site. EPA representatives indicated that cleanup of building interiors will need to be coordinated with the removal and disposition of processing equipment.
- Mr. Shipes sees the blue warehouse adjacent to the SX/EW plant, known as the blue shop or cat shop, as an ideal machine shop or large equipment repair shop.

Don Tibbals

In 1982, Mr. Tibbals purchased all parcels at the Site previously owned by Atlantic Richfield Company (ARC). Between 1982 and 1988, he refurbished the Weed Heights residential area and leased portions of the Site to various users. He sold the mining operation areas to Arimetco in 1988 but retains ownership of Weed Heights (parcel K) and parcels F and M, which house the waste water treatment ponds and water supply wells for Weed Heights (see Property Ownership Map on page 18). Mr. Tibbals plans to maintain ownership of Weed Heights and supporting properties over the long-term.

Based on his knowledge of the Site as an owner and former employee at the mine, Mr. Tibbals suggested a number of potential future land use considerations for the Site.

- Maintain utility easements across the Site as well as access to water supply wells and waste water infrastructure necessary for the operation of Weed Heights.
- Consider adaptive reuse of Process Area structures for light industrial uses or storage.
- Maximize economic benefits of remaining copper resources through mining and re-processing (e.g. oxide tailings).
- Consider options for treatment and off-site use of Pit Lake water and waste rock aggregate.

Adjacent Land Use Considerations:

- Weed Heights: Mr. Tibbals does not see a need for future uses at the Site to provide amenities for the Weed Heights neighborhood. Mr. Tibbals owns a nine-hole par three golf course, ball park and restaurant adjacent to Weed Heights. Only 50 percent of Weed Heights housing units are currently occupied. This occupancy rate is down from 80 percent over the past ten years. Due to lack of revenue from rental properties, Mr. Tibbals has temporarily closed the golf course and restaurant. The ball park is not used frequently.

Bureau of Land Management

The United States owns parcels D, I J, L and M at the Site (see Map. 2 Property Ownership on page 18) which are managed by the Department of Interior, Bureau of Land Management (BLM).

- **Ownership and Conveyance Considerations:** The BLM-managed lands (public lands) are designated as “disposal” areas in BLM’s current resource management plan (RMP). The disposal designation identifies public land that may be considered for conveyance out of federal ownership. Section 203 of the Federal Land Policy and Management Act (FLPMA) provides authority for land sales and identifies criteria for sale lands. Section 209 of FLPMA contains specific restrictions on conveyance of mineral interests. Generally, when valuable mineral resources are present, mineral interests must be retained in federal ownership, and in most instances conveyance of surface is undesirable due to potential conflicts or interference with development of the federal minerals. Prior to a FLPMA land sale an environmental site assessment is performed and the results are considered when determining if sale is appropriate. Generally a sale will not proceed until any identified hazardous substances are cleaned up. Liability risk to the United States is of major concern. Leasing of the surface would have similar issues.
- **Superfund Liability Considerations:** Provisions in CERCLA 120(h), allow for conveyance of contaminated land to the Responsible Party. Conveyance of contaminated public land to a 3rd-party would not likely be possible without special legislation.
- **Institutional Controls / Future Land Use Restrictions:** BLM utilizes special designations and withdrawals as mechanisms to restrict uses on public lands outside the boundaries of specific land use authorizations. Such restrictions must be addressed in a RMP prior to implementation. BLM’s current RMP for these public lands does not include such restrictions. Conveyance documents may contain such terms, covenants, conditions and reservations as BLM, with oversight of Department of Interior Solicitors, determines are necessary to insure proper land use and protection of the public interest. This is a factor that may complicate the implementation of institutional controls at the Site and will need to be considered in the development of appropriate future use restrictions for the Anaconda/Yerington Mine Site.

Prospective Purchaser

Mineral exploration company Quaterra has an option to purchase the Arimetco parcels from the bankruptcy holdings. Quaterra’s timeline of acquisition and anticipated uses of the Site are discussed below.

Arimetco Property Acquisition Status

- The bankruptcy court has awarded an option to purchase the Arimetco property including patented mining claims to Quaterra. Quaterra has extended its option to purchase through February 2010 to allow the company to complete its environmental due diligence and ensure that it qualifies as a bona fide prospective purchaser. EPA has issued a reasonable steps letter outlining the conditions Quaterra would need to meet in order to gain liability protections as a bona fide prospective purchaser.

- While details of several agreements with EPA and Atlantic Richfield are still being finalized, Quaterra plans to acquire all Arimetco property at the Site and intends to begin drilling to characterize mineral resources and analyze economic conditions for a mine at the Site and surrounding areas. Quaterra anticipates a two to three year period of exploration and expects that by 2013 they will be in a position to determine if a mine would be viable at the Site.
- Mining claims for BLM land are unpatented. Quaterra would stake a claim to minerals on BLM lands if necessary but does not intend to pursue acquisition of BLM land.

Anticipated Site Uses

If Quaterra determines mineral resources in the area are sufficient for a mine, several alternatives would be considered for the use of the Site.

- The Site could be cleaned up and developed as a process area for ore extracted from surrounding ore areas.
- Pit mining could occur at portions of the Site.
- Portions of the Site could be mined via underground methods.

If Quaterra develops a mine at the Site, the company would not likely consider uses other than mining on other areas of the Site. The anticipated operating life of a mine could range 10-50 years. Mining operations could potentially employ several hundred workers.

Site Suitability and Reuse Considerations

Given the existing roads, power and proximity to mineral resources, Quaterra feels this Site is well-positioned for mining. Quaterra would expect that as the operator of the Site that they would address existing site contamination necessary to support mining activities and maintain compliance with mining and environmental laws. Mr. Patton sees this approach to site cleanup and reuse as a good model for a public-private partnership.

City of Yerington and Lyon County

The Site is located in Lyon County just beyond the western limits of the City of Yerington. Representatives from City of Yerington and Lyon County identified the following future land use goals and considerations for the Site.

- Future uses at the Site should promote economic development in the region.
- Mining was identified as the most beneficial use at the Site from a fiscal and economic development perspective.

- Light industrial or commercial reuse of existing Process Area structures, and new commercial development in areas visible from Route 95 were listed as potential development opportunities. A milk bottling plant is currently located across Route 95 in the Circle Bar N Ranch industrial area. City representatives have an interest in attracting a cheese processing or related dairy products facility to the area.
- The city and county are interested in designating portions of southern waste rock area as a recreation zone for off-road vehicle or motor-cross events. BLM land throughout the Lyon County is available for informal motorized vehicle use. Other suggested recreational uses include a shooting range.
- The city and county are also interested in exploring opportunities for solar energy generation at the Site.

Zoning

- Lyon County's zoning designates the Site as industrial M-1, which permits all land uses other than residential. Lyon County is in the process of updating a county-wide master plan and does not anticipate any future land use changes at the Site or in the surrounding area.

County Economic Development Considerations

- County unemployment recently reached 15% and local home foreclosure rates are among the highest in the State of Nevada. The City of Yerington has seen a decrease in the acreage of former industrial park land, due to a revised floodplain delineation along the Walker River and its tributaries. In Lyon County, industrial parks are further north in the City of Fernley.

Ownership

- City of Yerington and Lyon County have considered the possibility of acquiring portions of the Site from BLM. Several years ago, city and county representatives spoke with BLM representatives about the potential for acquiring the southern waste rock area. Local government representatives remain interested in acquiring this land.

Yerington Paiute Tribe

The Yerington Paiute Tribe's (YPT) reservation is located approximately three miles north of the Site, and borders the Wabuska Drain. Members of the YPT are actively working to advocate for site cleanup and regularly attend YMS Stakeholder Group meetings.

- Members of the YPT expressed concern about the long-term protection of ground water, air and natural systems.
- Due to detectable uranium in the drinking well water, the residents of the YPT reservation receive bottled water through ARC's bottled water program.
- YPT members are concerned that future mining activities at the Site may continue to compromise the ground water, air and wildlife directly affecting their community.
- YPT members have expressed an interest in pursuing renewable energy generation locally and have considered the Site as a potential location for a solar installation.

Mason Valley Environmental Committee

The Mason Valley Environmental Committee (MVEC) is an informal group of Yerington and Lyon County government representatives as well as members of the local Chamber of Commerce and Lions and Rotary Clubs working to influence reuse of the YMS and to address water supply issues in the region.

In 2007, MVEC drafted a set of potential future land use goals and conceptual land use plan for the YMS (See Map 6. Mason Valley Environmental Committee Anaconda Mine Site Potential Use Plan on page 22). The plan was submitted to EPA for consideration in the cleanup process. The plan outlines a combination of commercial, industrial and recreational uses at the Site. The plan indicates a preference for phasing cleanup to make the southern waste rock areas available for economic development reuse in the near term.

MVEC has identified the following potential future uses for the Site:

- Wind farm.
- Solar energy installation.
- Storage sheds/warehouse.
- ATV/motorcycle park.
- Reuse of water from the pit lake to irrigate agricultural areas for crops or dairy operations (i.e., Ely, Nevada).
- An industrial site for light industrial or manufacturing.

Yerington Community Action Group

In 2004, Peggy Pauly formed the Yerington Community Action Group with the goal of influencing effective oversight, regulation and investigation of contamination at the YMS. Today, the group has 30 active members but serves a broader network of about 65 interested community members. Ground water characterization, former mine worker public health, ambient air and dust impacts are among the issues that the group has taken interest in. Today, the group is active at Anaconda / Yerington Mine Site stakeholder meetings. The group focuses on advocating for the thorough investigation and characterization of potential contamination issues at the Site.

Reuse Goals

Mrs. Pauly indicated that YCAG's primary interest is in a site cleanup that will be protective for surrounding community. If the site can safely support reuse after clean up is complete, she outlined the future use goals discussed below.

- Renewable Energy Generation:
YCAG is interested in renewable energy generation, primarily solar. She shared the concept of using solar energy on-site to heat commercial green houses to grow saplings for re-forestation / mine reclamation. In addition to having a large amount of acreage and some level areas. The Site also has a large quantity of water in the pit lake, which, if filtered, could be a locational advantage given the large water demand for solar CSP and PV. Pauly mentioned that she had previously discussed the feasibility of reusing pit lake water with former RPM Jim Sickles.

- **Manufacturing or Warehousing:**
As long as the Site can be made protective for future users, Mrs. Pauly could see the benefit of using portions of the Site for indoor manufacturing or warehousing. Worker safety and exposure issues would be her primary concern.
- **Mining:**
Mrs. Pauly expressed concern about future mining activities at the site. Given the history of the Site and mining in Nevada, she does not believe that mining can resume at the Site without affecting nearby residents' health and further degrading the environment. She suggested that active mining in the center of a community does not make sense today. She recognizes that significant copper resources remain in the oxide tailings and she could support taking material off site for processing in a location where public health impacts could be avoided.

Stakeholder Goals Summary

The stakeholders interviewed have expressed a broad range of perspectives regarding the future use of the Site. There are several common goals that have been mentioned throughout several interviews which include:

- Promoting economic development.
- Protecting human health and the environment.
- Utilizing the Site's assets.
- Phasing Site cleanup and reuse.

Despite the range in future use perspectives, the primary land owners will likely dictate future land use in the near term. If Quaterra proceeds with its option to purchase, Quaterra and BLM will be the primary land owners of the Site. These entities share a goal of reusing the site for mining. The MVEC also supports mining along with other economic development options. Given these primary landowner interests, mining is the most likely anticipated future land use for the Site. However, the Yerington Paiute Tribe and the Yerington Community Action Group both share concerns regarding the potential impact of future mining on human health and the environment. These stakeholders, along with MVEC share an interest in exploring environmentally sustainable economic development options, such as alternative energy, as a potential future use for the Site.

Reasonably Anticipated Future Land Use

Two factors identified in stakeholder interviews will likely determine reasonably anticipated future land uses for the Site:

- Mineral exploration company Quaterra intends to purchase the Arimetco parcels at the Site and explore for copper minerals. Unless Quaterra sells and vacates the site after evaluating potential

mineral resources, mining would likely be the anticipated future use at Site parcels currently owned by Arimetco.

- BLM considers mining to be a likely future use of the public land at the Site. Given BLM's restrictions on the conveyance of land with waste in place and land with mineral resources, mining and open space are the most likely future uses of the public land at the Site and may have an impact on the future uses of the private land portions of the Site.
- Local stakeholders have indicated that a broader and more environmentally friendly set of future uses would be desirable at the Site, including: light industrial, commercial, recreational and renewable energy generation. If Quaterra does not pursue its option to purchase Arimetco properties, or if the company determines that mining is not viable and vacates the Site, this broader set of uses could help to inform the identification of reasonably anticipated future land uses for the Site.

III: Site Features

To support EPA Region 9 in identifying reasonably anticipated future land uses for the Site, contractor E² Inc. developed a set of maps highlighting site features that are likely to influence the future use of the Site.

Operable Units and Remedy Status

Map 1 (page 17) delineates the eight Operable Units (OU) at the Site and summarizes the remedial status and lead entity responsible for addressing site contamination at each OU as outlined in the table below.

OU	OU Name	Status	Lead
1	Groundwater	Remedial investigation activities underway.	Atlantic Richfield (ARC)
2	Pit Lake	Remedial timeline to be determined.	ARC
3	Process Areas	Removal action underway.	ARC
4	Sulfide Tailings / Evaporation Ponds	Removal action underway.	ARC
5	Waste Rock Piles	Remedial timeline to be determined.	ARC
6	Oxide Tailings	Remedial timeline to be determined.	ARC
7	Wabuska Drain	Remedial timeline to be determined.	ARC
8	Arimetco Facilities	Interim removal actions complete; remedial investigation underway.	EPA

When additional information becomes available regarding the extent of contamination and potential remedial alternatives for site OUs, identifying remedial constraints and future use restrictions could help to refine site reuse options.

Property Ownership

Map 2 (page 18) identifies parcel ownership at the Site. There are four separate property owners and 14 parcels at the Site.

- *Arimetco:*
 Parcels highlighted in blue are currently owned by former site operator Arimetco, which filed for bankruptcy protection in 1997. Arimetco's bankruptcy proceedings are ongoing, and mineral exploration company Quaterra has an option to purchase these parcels.
- *Bureau of Land Management:*
 Gray shaded parcels are owned by the United States of America and managed by the Bureau of Land Management (BLM). BLM-managed properties are likely to remain in federal ownership over the long-term.
- *Walker River Irrigation District:*
 The Wabuska Drain, which extends north of the Site, is owned and managed by the Walker River Irrigation District.
- *Private Owners:*
 The remaining site parcels, highlighted in tan and green, are owned by private parties Don Tibbals

and Desert Pearl Farms, respectively. Tibbals property includes active residential uses at the Weed Heights housing development. Desert Pearl Farms is an active agricultural operation.

The majority of the Site is owned by either the federal government (managed by BLM) or Arimetco. Reuse options will need to consider that BLM-managed properties are likely to remain in federal ownership over the long-term. The future ownership of Arimetco properties, along with the property owner's goals, will be a primary factor in determining future land use at the Site.

Access

Map 3 (page 19) characterizes vehicular access at the Site and highlights that Process Area, Waste Rock and Sulfide Tailings areas are accessible via Highway 95 and the Burch Drive arterial. The remaining areas of the Site are only accessible from local roads or internal site access roads. Currently, the Site is accessed via gated entrance points on Burch Drive, Luzier Lane and an unimproved road north of Weed Heights.

Grades

Map 4 (page 20) illustrates the site's topography and outlines general grade-related constraints that would likely affect reuse options.

- *Minimal Constraints:*
Process Area and Sulfide Tailings/Evaporation Pond areas are generally level and have minimal grade constraints.
- *Moderate Constraints:*
Waste Rock areas, which include large piles of material with level surfaces at elevations higher than surrounding grade, present moderate grade constraints.
- *Significant Constraints:*
Steep slopes throughout the Pit Lake and Oxide Tailings areas pose significant grade constraints.

As future use options are evaluated, topography will be an important factor to consider. Areas with minimal grade constraints are likely more suitable for future development. Areas with moderate or severe constraints are likely more suitable for open space or recreational uses.

Surrounding Land Uses

Map 5 (page 21) shows existing land uses in the vicinity of the Site. Land use classifications are based on Lyon County Assessor's current use data.

- *Residential uses:*
Single-family residential areas are located to the north on Luzier Lane, and multi-family residences are located to the west in the Weed Heights housing development.
- *Agricultural:*
Farmland and vacant agricultural land lies north east of the Site.
- *Commercial and industrial:*
Highway-related commercial and light industrial uses are located to east of the Site along U.S. Route 95.

- *Open space:*
Undeveloped rural areas lie to the south and southwest of the Site.
- *Yerington Paiute land:*
The in-active Wabuska Drain extends north of the Site and traverses agricultural and rural residential areas of Lyon County, as well as portions of the Yerington Paiute reservation.

Compatibility with adjacent land uses may be a consideration in determining future land use options.

Reuse Considerations Summary

Key factors to consider in evaluating reuse options for the Anaconda/Yerington Mine Site include: remedial approaches and phasing at the Site's eight OUs; ownership considerations; the Site's accessibility to surrounding roads and infrastructure; topographic constraints; and surrounding land uses. Currently, site remedial approaches have not yet been determined and the future ownership of Arimetco properties remains uncertain. In the future, as the extent of contamination, potential remedial alternatives and ownership are determined, further site analyses could help to identify reuse suitability zones and potential reuse scenarios for each zone.

IV. Site Maps

Map 1. Site Operable Units and Remedial Status

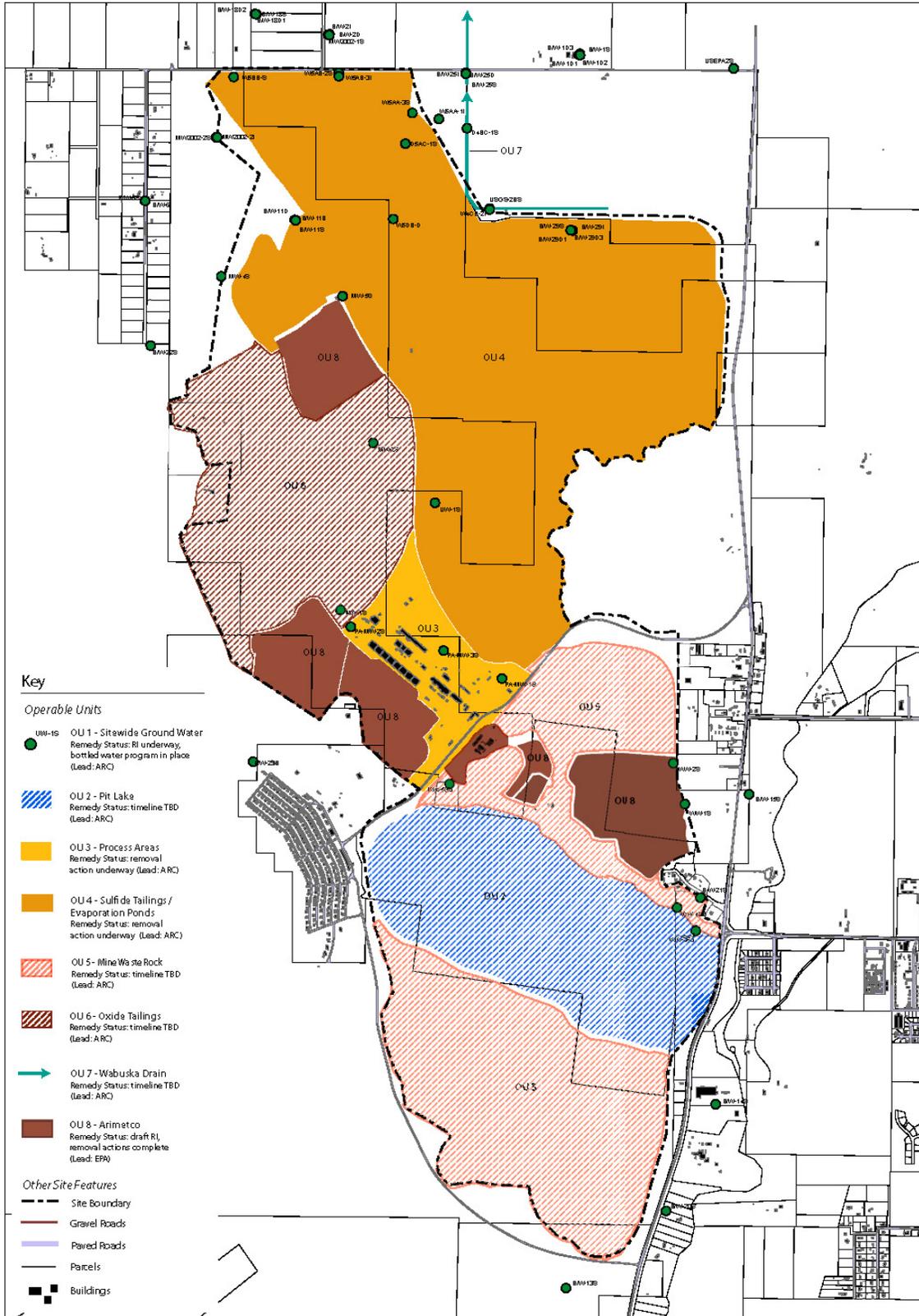
Map 2. Property Ownership

Map 3. Access Suitability

Map 4. Grade Constraints

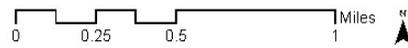
Map 5. Surrounding Land Use

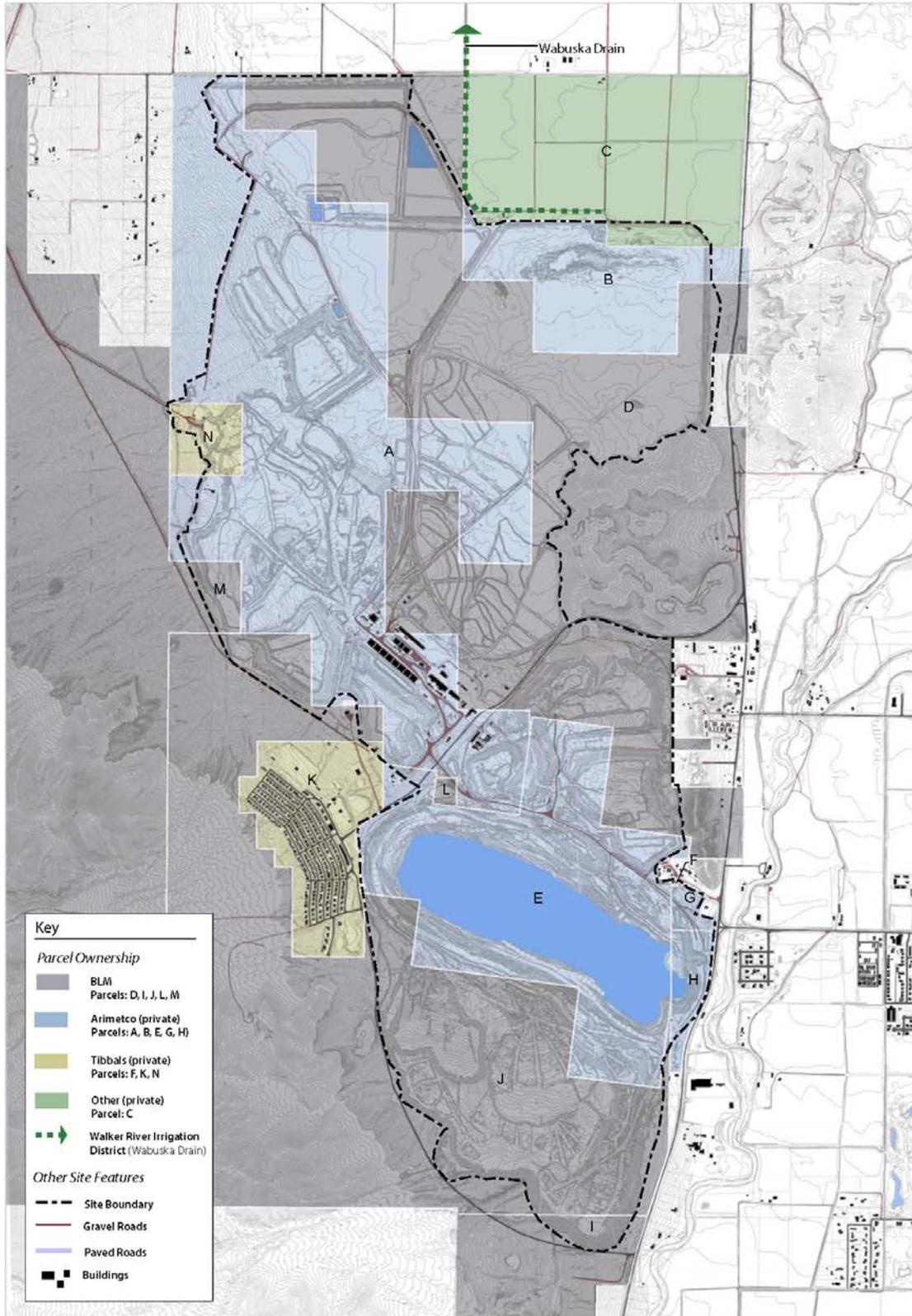
Map 6. Mason Valley Environmental Committee Potential Future Use Plan



Map 1: Operable Units & Remedy Status

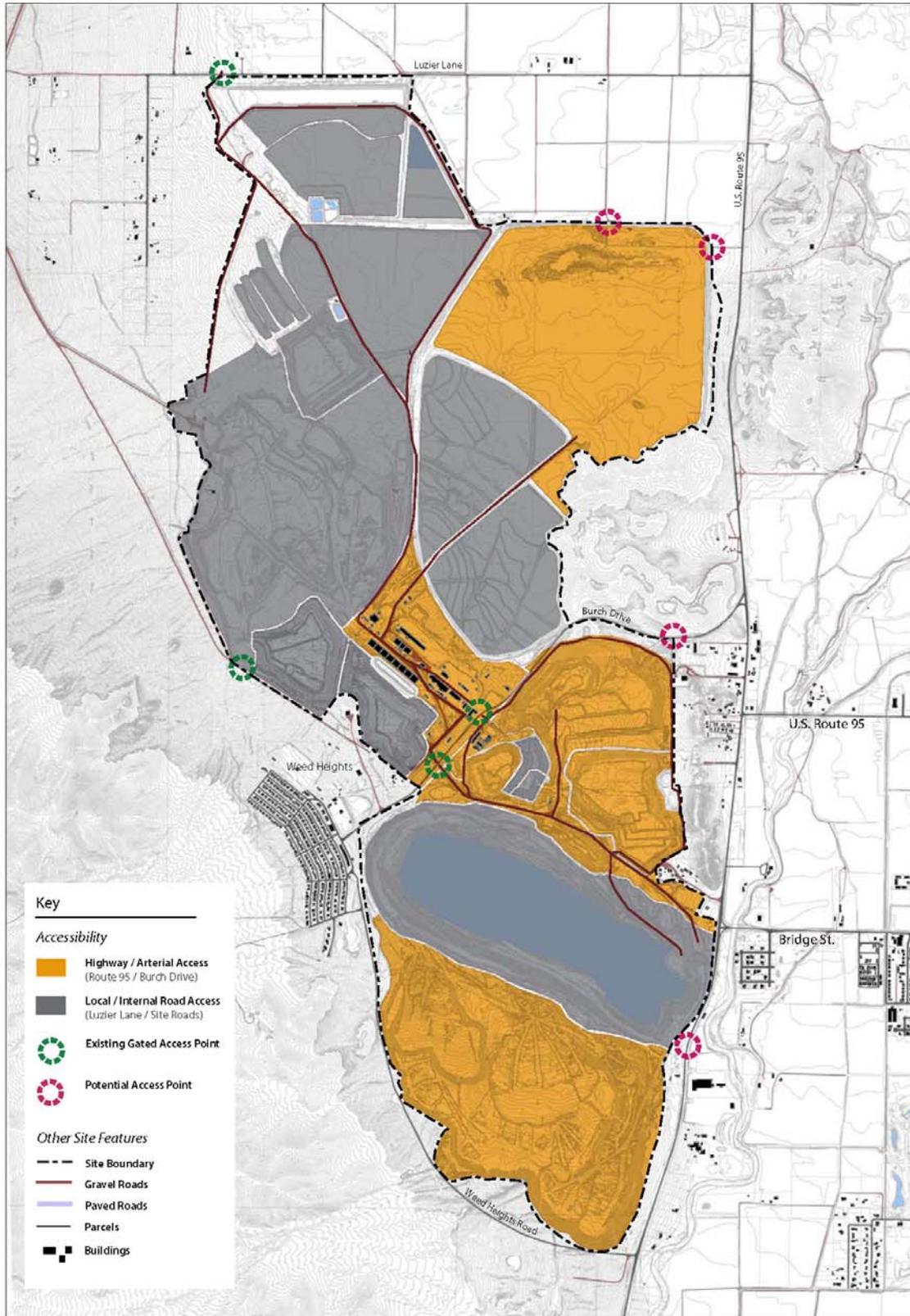
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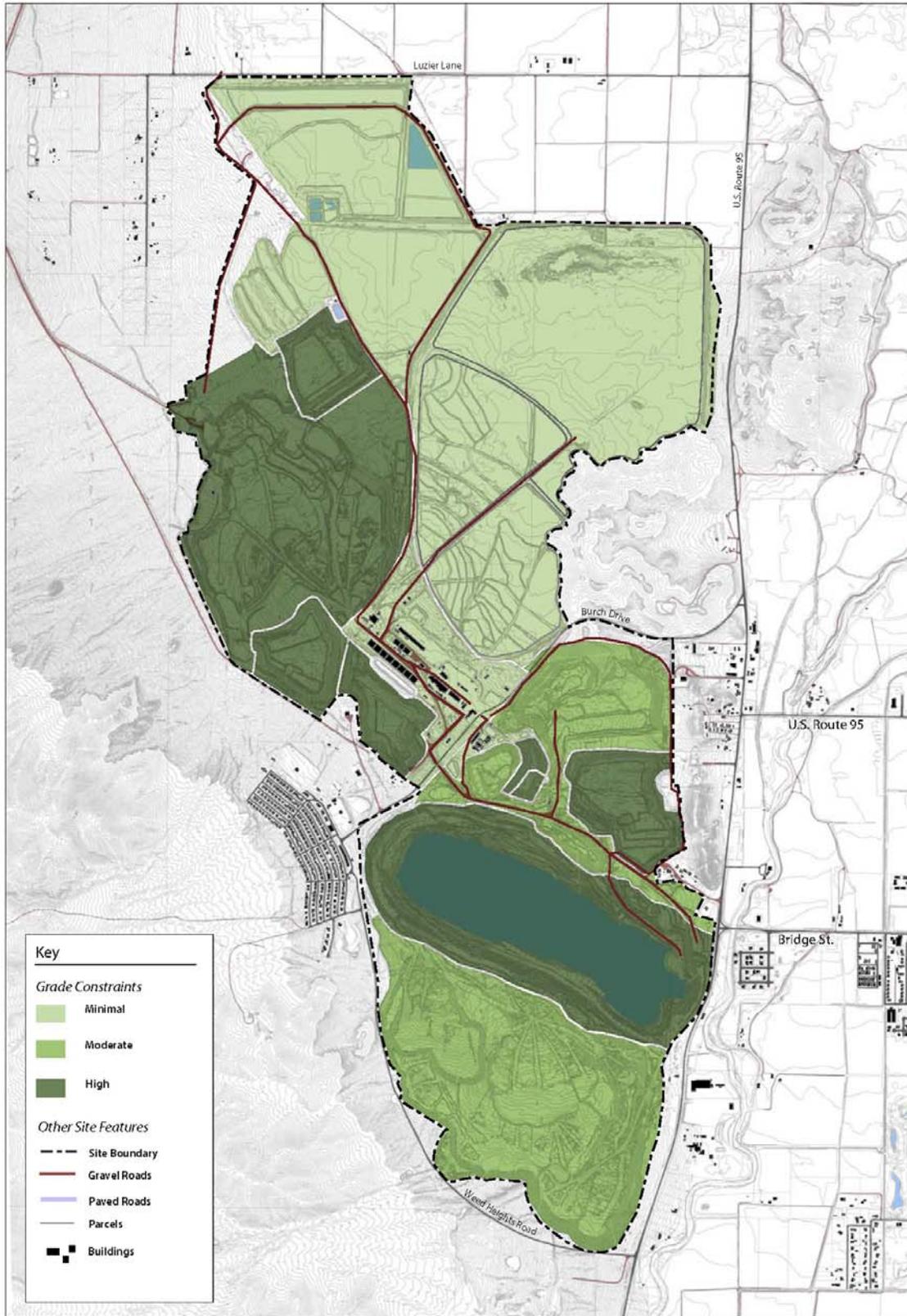
Map 2. Property Ownership

Anaconda/Yerington Mine Site - Reuse Assessment
Yerington, Nevada



Map 3. Access Suitability

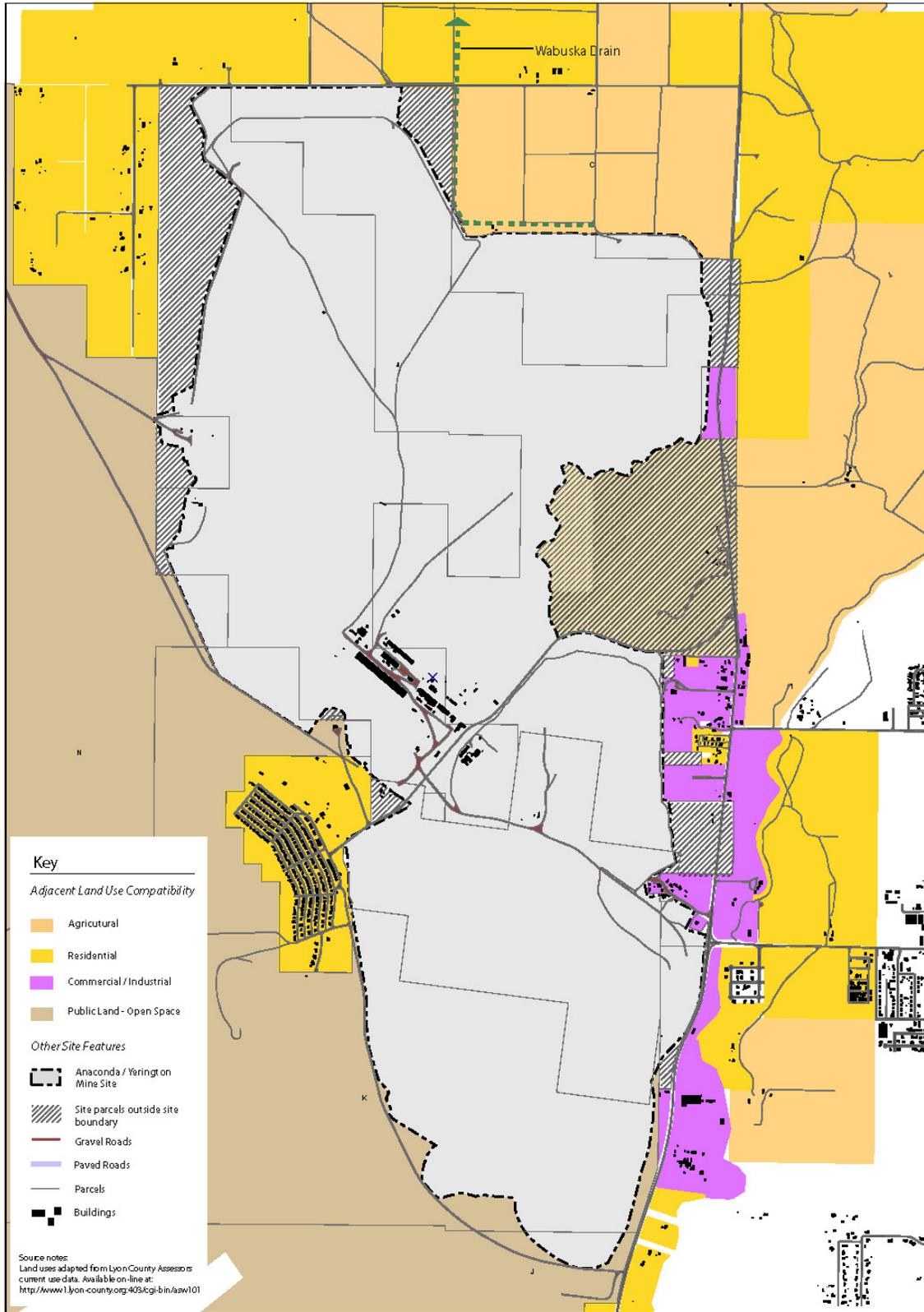
Anaconda/Yerington Mine Site - Reuse Assessment
Yerington, Nevada



Map 4. Grade Constraints

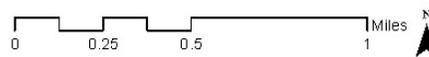


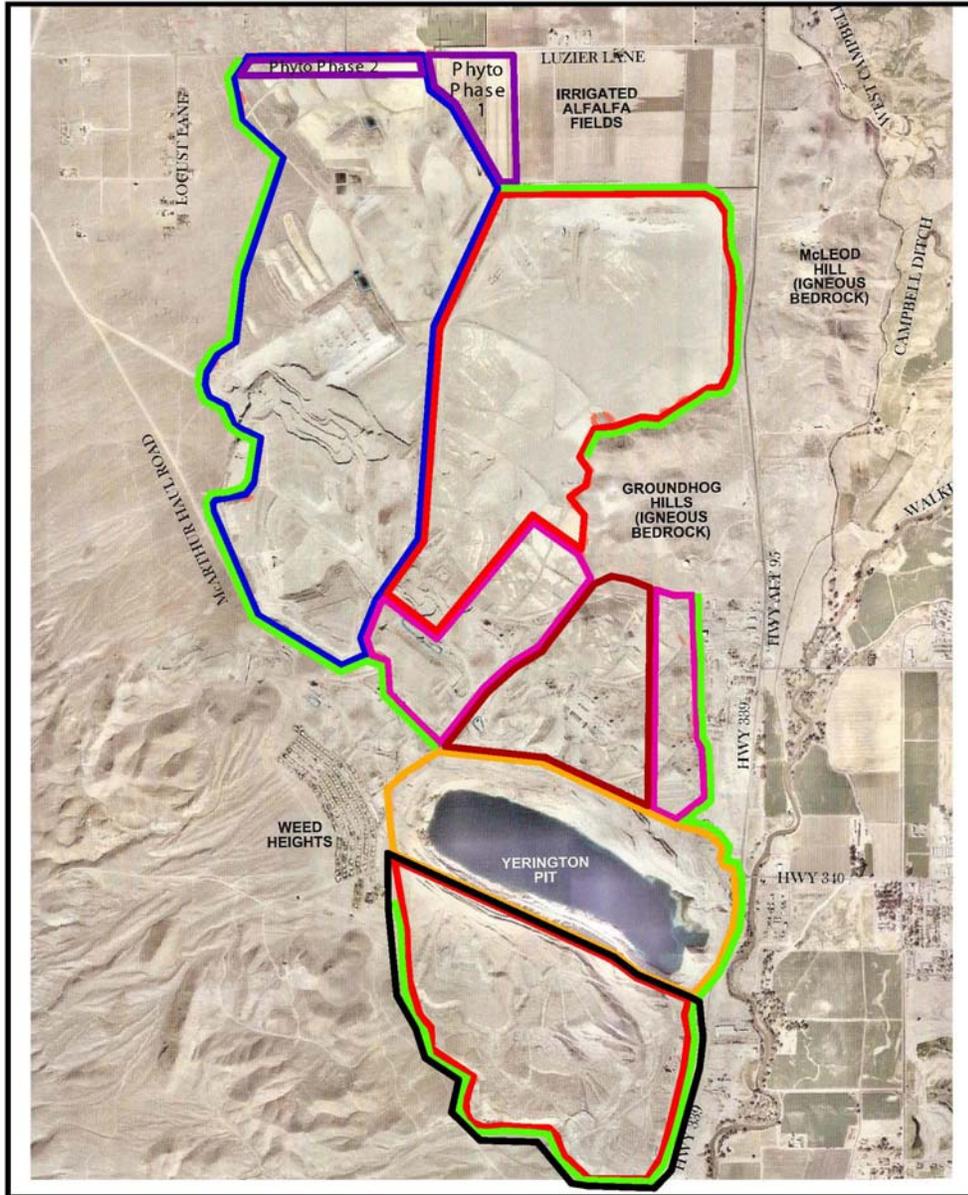
Anaconda/Yerington Mine Site - Reuse Assessment
Yerington, Nevada



Map 5. Surrounding Land Use

Anaconda/Yerington Mine Site - Reuse Assessment
Yerington, Nevada





<p>Legend</p> <ul style="list-style-type: none">  Characterize 1st and Remove  View Scope  Phytoremediation  Light Industrial  Industrial  Mining  Commercial - Office  Recreation 		
<p>Mason Valley Environmental Committee</p> <p>Anaconda Mine Site Potential Land Use</p> <p>November 2006</p>		

Map 6. Mason Valley Environmental Committee Potential Future Use Plan

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