2.0 DESCRIPTION OF THE ALTERNATIVES

This chapter describes the alternatives analyzed in this EIS. NEPA requires the consideration and evaluation of other reasonable ways to meet proposed objectives while minimizing or avoiding environmental impacts. Therefore, the evaluations of a No Action Alternative and a practical range of other "reasonable" action alternatives are required (40 CFR 1502.14). These alternatives should represent other means of satisfying the stated purpose and need for the Proposed Action, which is to issue mineral material sales contract(s) in Sloan Hills. Reasonable alternatives are those that are practical or economically and technically feasible to implement. An alternative that conflicts with federal law does not necessarily make it unreasonable, but such conflicts must be considered. Chapter 4 discusses and evaluates potential environmental impacts for each alternative described in this EIS.

The alternatives provide the basis for analyzing existing conditions, potential environmental consequences of the alternatives, and mitigation measures relative to each element of the environment. Although it fails to meet the purpose of and need for the Proposed Action, the No Action Alternative is required by NEPA to provide a baseline for comparison of the impacts of other alternatives included in the analysis, even when the No Action Alternative may not be implemented based on legal, regulatory, or other considerations, including a legislative mandate to act (40 CFR 1502.14). This chapter also briefly describes alternatives considered and rejected. The analysis of alternatives provides decision makers and the public with information to support selection of an action that avoids or mitigates environmental impacts to the extent possible while meeting the purpose of and need for the project.

The BLM Las Vegas Field Office is proposing the sale of mineral material on two parcels of land. The BLM received proposed MPOs from two mining companies, CEMEX and SRP. These companies propose to mine and process a formation of high-grade limestone and dolomite that are located in the areas proposed for sale. The CEMEX MPO proposes to mine approximately 126 million tons of aggregate materials over 30 years from the south 1/2 of Section 29. The SRP MPO proposes to mine approximately 74 million tons of aggregate over 20 years from the north 1/2 of Section 32. The BLM Proposed Action analyzed in this EIS is the issuance of two separate mineral material sales contracts on two 320-acre parcels of land. Mineral material contracts with the BLM are limited to 10 years in duration (43 CFR 3601); however, extensions or renewals at the end of the 10-year contract term may be permitted. For the purposes of describing Alternative 1, Alternative 2, and Alternative 4 in this EIS, it is assumed that mining on each parcel would continue for approximately 30 years. For the purpose of describing Alternative 3 in this EIS, it is assumed that mining on the parcel would continue for approximately 20 years.

Under the Proposed Action, the south 1/2 of Section 29 of Township 23 South, Range 61 East, and the north 1/2 of Section 32 of Township 23 South, Range 61 East would be auctioned as two separate parcels. Because the sale of mineral materials will be by competitive bid, there is no guarantee that CEMEX or

SRP would be the winning applicants of the two parcels. For the purpose of the analyses in this EIS, it is assumed that the winning applicants would conduct mining operations in a manner that is similar to, and consistent with, the MPOs that have been submitted by CEMEX and SRP. For the purpose of simplicity throughout this EIS, the two parcels proposed for sale are referred to as the North Site (the south 1/2 of Section 29) and the South Site (north 1/2 of Section 32) (Figure 2.0-1).

This EIS analyzes five alternatives: (1) the sale of mineral material in the North Site and the South Site to two mining companies that would operate independently, and the mine pits would eventually merge into a single open pit; (2) the sale of mineral material in the North Site only; (3) the sale of mineral material in the South Site only; (4) the sale of mineral material in the North Site and the South Site as one contract to a single mining company; and (5) the No Action Alternative. These alternatives are described below.

2.1 ALTERNATIVE 1 (TWO INDEPENDENT MINERAL MATERIAL SALES)

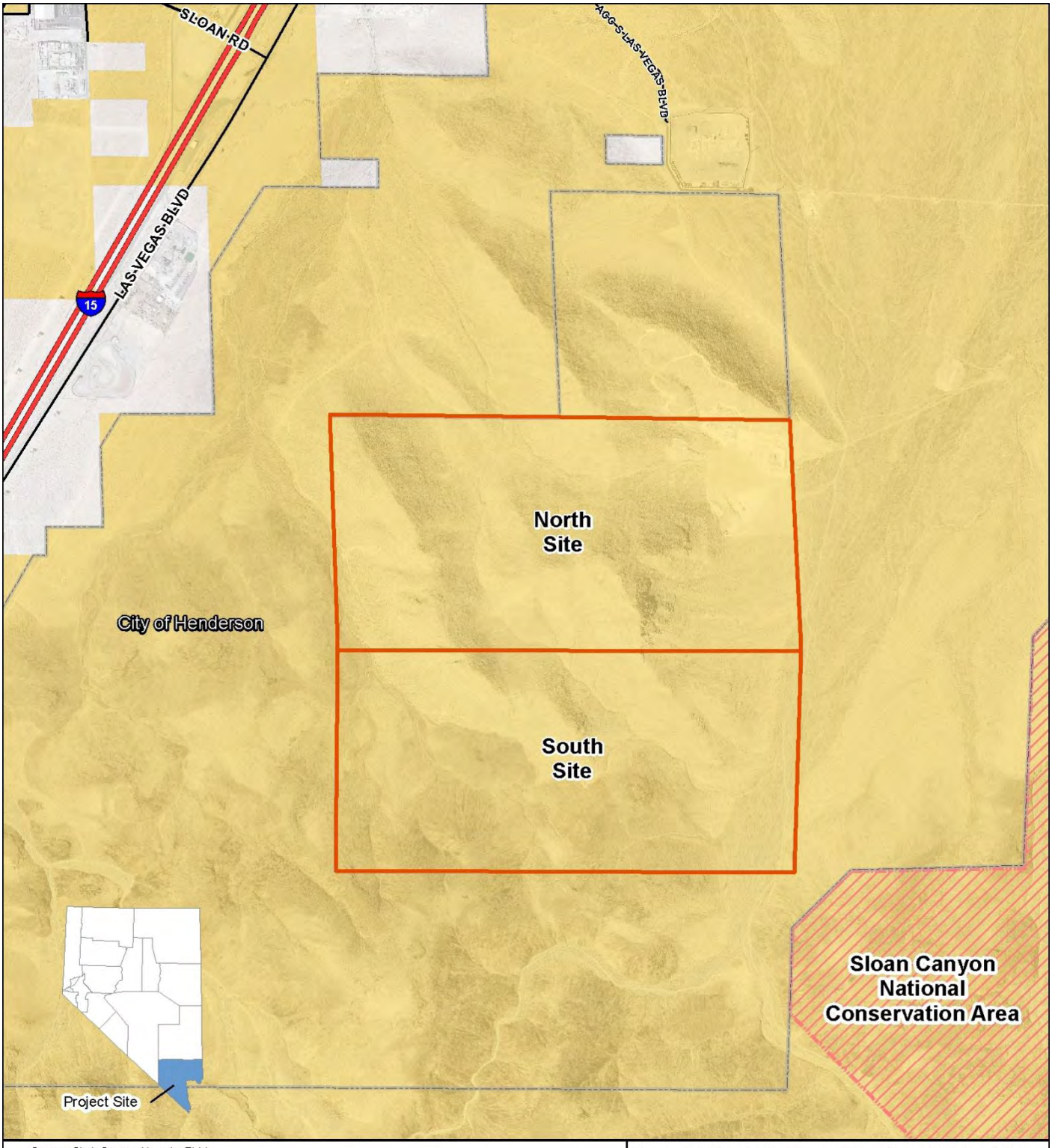
Alternative 1 consists of two proposed competitive mineral material sales that would result in two open pit dolomite/limestone quarries and associated facilities. Eventually, the two open pits would merge into one open pit. Each mining company would maintain a separate site for facilities and staging, and each would be responsible for acquiring the necessary water rights and other utility and access rights-of-way.

2.1.1 North Site Mine

The proposed North Site mine and associated facilities would be located within a 320-acre area in the south 1/2 of Section 29 of Township 23 South, Range 61 East. Once completed, the open pit mine would be approximately 143 acres in size (Figure 2.1-1). In addition to the open pit mine, ancillary facilities would be constructed on a 46-acre site in the northwest portion of the North Site, access roads and utility corridors would occur on approximately 7 acres, and an unusable rock stockpile area would be located on 17 acres in the northeast portion of the North Site (Figure 2.1-1).

2.1.1.1 Drilling and Blasting Activities

The dolomite and limestone materials on the proposed North Site would be developed using traditional aboveground quarrying techniques, including stripping, drilling, blasting, loading, and hauling of both production and waste mineral products. The rock is of a hardened nature requiring drilling and blasting. Blast holes would be drilled with a bench-type down-hole hammer. The drill holes would have a 6.5-inch diameter and be approximately 70 feet deep. An explosives contractor would load the blast holes with bulk blasting agent (ammonium nitrate/fuel oil or other appropriate agents). Blasting would be conducted using the NONEL SnapDet Initiation System, which eliminates the use of a primer cord, a major source of noise. The typical explosive charge range for limestone is 0.4 to 1.00 pound of explosive per yard of rock.



Source: Clark County, Nevada, BLM.

- Proposed Action Area
- City of Henderson Jurisdictional Boundary
- National Conservation Area
- Bureau of Land Management
- Private

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

1 inch = 1,500 feet

1,500 750 0 1,500 Feet

N W E S

Proposed Sloan Hills Competitive Mineral Material Sales Environmental Impact Statement

Figure 2.0-1
Proposed Action Area

NATIONAL SYSTEM OF PUBLIC LANDS

Prepared by: PBS&J

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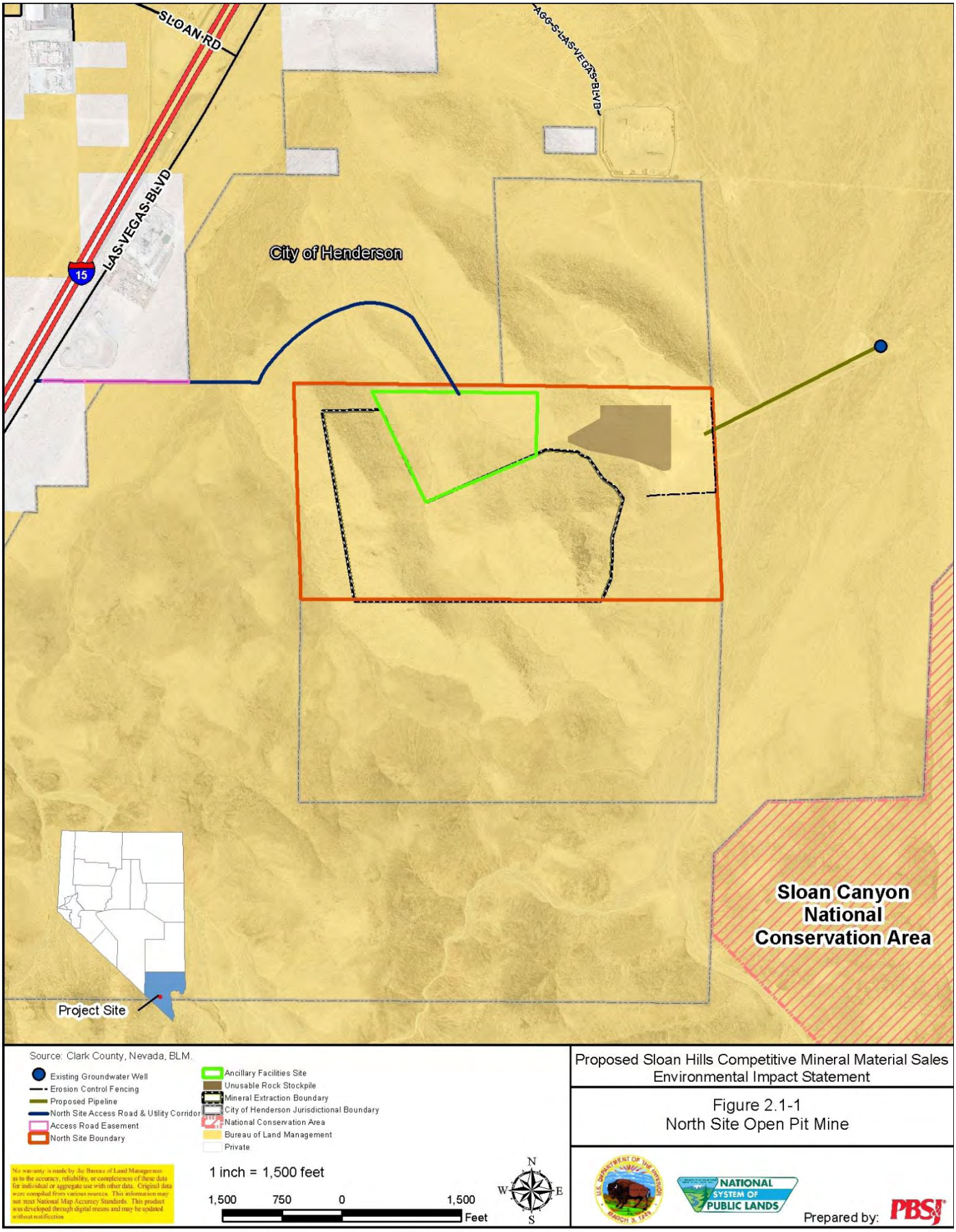
SLOAN RD
LAS VEGAS BLVD
AGGS LAS VEGAS BLVD
15
City of Henderson
Sloan Canyon
National
Conservation Area
Project Site
Source: Clark County, Nevada, BLM.
Existing Groundwater Well
Erosion Control Fencing
Proposed Pipeline
North Site Access Road & Utility Corridor
Access Road Easement
North Site Boundary
Ancillary Facilities Site
Unusable Rock Stockpile
Mineral Extraction Boundary
City of Henderson Jurisdictional Boundary
National Conservation Area
Bureau of Land Management
Private
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
1 inch = 1,500 feet
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W
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S
Proposed Sloan Hills Competitive Mineral Material Sales Environmental Impact Statement
Figure 2.1-1
North Site Open Pit Mine
NATIONAL SYSTEM OF PUBLIC LANDS
Prepared by:
PBSJ

2.1.1.2 Drilling and Blasting Activities

The dolomite and limestone materials on the proposed North Site would be developed using traditional aboveground quarrying techniques including stripping, drilling, blasting, loading, and hauling of both production and waste mineral products. The rock is of a hardened nature requiring drilling and blasting. Blast holes would be drilled with a bench-type down-hole hammer. The drill holes would have a 6.5-inch diameter and be approximately 70 feet deep. An explosives contractor would load the blast holes with bulk blasting agent (ammonium nitrate/fuel oil or other appropriate agents). Blasting would be conducted using the NONEL SnapDet Initiation System, which eliminates the use of a primer cord, a major source of noise. The typical explosive charge range for limestone is 0.4 to 1.00 pound of explosive per yard of rock.

In accordance with Clark County Air Quality Regulations, the following conditions would be imposed on all blasting operations:

- All blasting would be conducted only between the hours of 8:00 a.m. and 4:30 p.m. Monday through Friday.
- Blasting would be prohibited within 1,500 feet of a residential area, occupied building, or major roadway when the wind direction is toward these structures.
- Blasting would be prohibited when the National Weather Service has forecast wind gusts above 25 miles per hour (mph).

All surface soils would be stabilized where drills, support equipment, and vehicles will operate.

Licensed personnel trained in the use of explosives would perform blasting operations in the mine as needed. Only authorized personnel would be allowed in the vicinity of the blasting area. All blasters would be certified in Nevada, and all blasting operations would be performed in compliance with current federal and state regulations. Transportation and storage of explosive materials would be conducted in a manner approved by all appropriate state and federal regulatory agencies. The use, handling, and temporary storage of explosives would comply with the rules and regulations of the Bureau of Alcohol, Tobacco, and Firearms, and the Clark County Fire Department. Employees and visitors would not be allowed to bring cigarettes, lighters, matches, or other highly flammable objects to the blasting area.

The following blasting procedures would be used in conjunction with explosives in the proposed North Site facility:

- The Southern Nevada Regional Heliport would be notified 24 hours prior to blasting operations.
- Guards would be placed at the mine entrance and along the access roads. These guards would prevent entry to the blast area.

- Audible warnings would be sounded prior to blasting with notices of 5 minutes, 1 minute, and all clear.
- Electronic initiation systems would be tested for their ability to further reduce blasting noise and dust impacts.
- Explosives would consist of ammonium nitrate/fuel oil.
- All blasts would be designed to minimize fly-rock.
- After a blast, the blaster would perform an inspection to determine whether all charges have detonated before any persons are allowed to return to the area. Misfires would be handled in accordance with the requirements of the applicable portions of federal, state, and local safety codes for blasting.
- Immediately following all blasts, guards would be notified by radio that the blast area is clear and the mine area is safe to reenter.

The Clark County Fire Prevention Blasting Guidelines (Clark County Fire Department, 2008) dictate that residents or occupants of occupied structures within 1,000 feet of the proposed blasting site will be notified in writing not less than 24 hours prior to the first blasting operation for each approved Blasting Permit number (Clark County Code 13.04.445). Currently, the nearest residences are located in the town of Sloan, approximately 7,800 feet from the northwest corner of the North Site. The nearest occupied structures are the facilities associated with the existing CEMEX processing facility and cement batch plant located approximately 2,200 feet from the northwest corner of the North Site. A public notification system for blasting operations will be developed and implemented should any areas within 1,000 feet of the North Site become occupied during the estimated 30-year life of the mine.

2.1.1.3 Aggregate Materials Mining

Should BLM approve the proposed project and issue a ROD, mobilization and site preparation would follow. This process would take approximately 7 to 12 months. An additional 6 months of mine development would occur after mobilization and site preparation. Excavation activities would be expected to commence immediately after mine development, approximately 18 to 24 months following the issuance of a ROD. The North Site would be mined in stages over a projected 30-year period. During the progression of the mine pit, benches approximately 25 feet in height would be constructed in the quarry, with a production width of approximately 45 feet to safely accommodate loaders and haul trucks. Table 2.1-1 shows the acreage footprint of the mine pit floor, the area of the mine benches, and the lowest elevation of the mine pit floor for each 5-year interval of mine development.

Table 2.1-1
North Site Mine Dimensions at 5-Year Intervals of Development (Alternative 1)

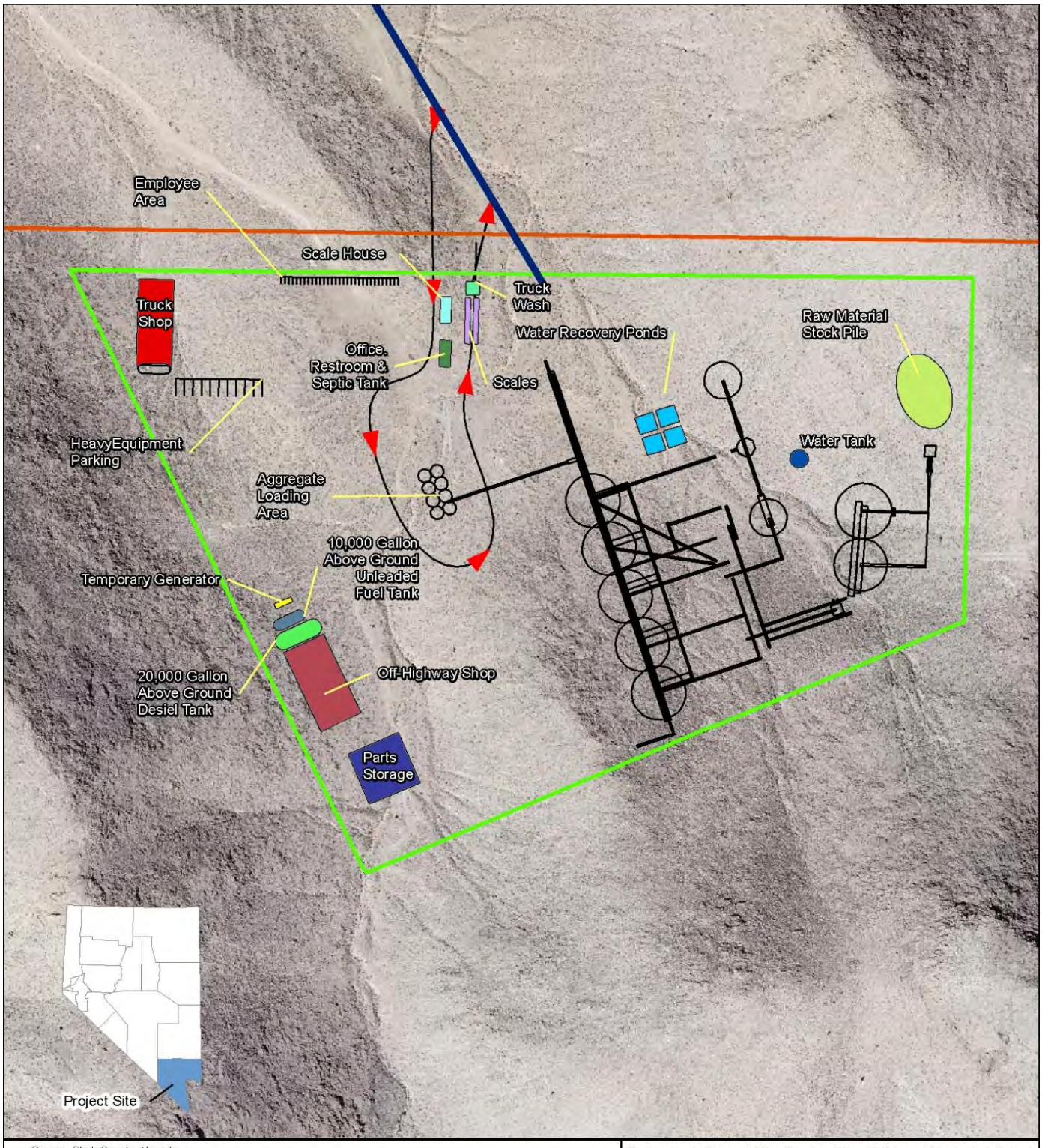
Mine Development Interval (years)	Pit Floor (acres)	Bench Area (acres)	Total Mine Area (acres)	Pit Floor Elevation* (feet)
5	41.2	101.6	142.9	3,100
10	85.1	59.0	144.1	3,025
15	87.6	55.3	142.9	2,900
20	87.6	55.3	142.9	2,800
25	87.6	55.3	142.9	2,650
30 (full build out)	90.5	52.4	142.9	2,500

* The highest North Site elevation is 3,375 feet.

If local rock instability is discovered during mining operations, a pit slope of 1 to 1 would be used in that area. All benches would have slight grades to facilitate water runoff. The proposed final bottom elevation of the North Site mine would be 2,500 feet.

Blasted materials would be pushed down to the mine floor. Haul trucks would then transport the materials to an onsite crushing plant (Figure 2.1-2). Loaded haul trucks would be covered with tarps or equivalent enclosures to stabilize material during offsite or highway transportation. Unusable rock (rock that does not meet mine material specifications) would be removed to allow access to the defined zones of aggregate deposits. Unusable rock would be removed after blasting by loaders, and haul trucks and would be stockpiled in a 17-acre site located in the southeast 1/4 of Section 29 (Figure 2.1-1). An erosion control fence approximately 2,100 feet long would be installed around the east and south boundary of the unusable rock stockpile area (Figure 2.1-1). The successful mining applicant will be responsible for maintaining the erosion control fence in a functional condition and replacing it as necessary.

The proposed volume of material to be removed from the property is approximately 126 million tons, the majority of which would be processed on site and would leave the property as finished products. Table 2.1-2 shows the proposed amount of aggregate and waste rock that would be produced at the North Site each year. Approximately 5 percent of all materials handled would be stripped and stockpiled as overburden. Material that is unusable as construction aggregate would be used to soften slopes and block access to the property during reclamation or would be sold for fill, decorative rock, and other low-end construction applications.



Source: Clark County, Nevada.

North Site Access Road & Utility Corridor
North Site Traffic Flow
10,000 Gallon Above Ground Unleaded Fuel Tanks
20,000 Gallon Above Ground Diesel Tank
Aggregate Loadout
Off-Highway Shop
Office, Restroom & Septic Tank
Parts Storage
Raw Material Stock Pile
Scale House
Scales
Temporary Generator
Truck Shop
Truck Wash
Water Recovery Ponds
Water Tank
North Site Boundary

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

1 inch = 300 feet

300 150 0 300 Feet

N W E S

Proposed Sloan Hills Competitive Mineral Material Sales Environmental Impact Statement

Figure 2.1-2
North Site Ancillary Facilities

NATIONAL SYSTEM OF PUBLIC LANDS

Prepared by: PBS&J

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Table 2.1-2
Proposed Annual Production of Construction Aggregate from the North Site Mine (Alternative 1)

Year after Mining Commences	Aggregate Mining (tons)	Waste Rock (tons)
1	750,000	37,500
2	1,000,000	50,000
3	2,300,000	100,000
4	2,300,000	100,000
5	2,300,000	100,000
6	2,500,000	125,000
7	2,500,000	125,000
8	3,000,000	150,000
9	4,000,000	200,000
10	5,000,000	250,000
11	5,000,000	250,000
12	5,000,000	250,000
13	5,000,000	250,000
14	5,000,000	250,000
15	5,000,000	250,000
16	5,000,000	250,000
17	5,000,000	250,000
18	5,000,000	250,000
19	5,000,000	250,000
20	5,000,000	250,000
21	5,000,000	250,000
22	5,000,000	250,000
23	5,000,000	250,000
24	5,000,000	250,000
25	5,000,000	250,000
26	5,000,000	250,000
27	5,000,000	250,000
28	5,000,000	250,000
29	5,000,000	250,000
30	5,000,000	250,000
Total	125,650,000	6,237,500

These proposed extraction volumes were verified using a three-dimension AutoCAD® software application. The results of this analysis showed that the actual volume of material available within the mineral extraction boundary is more than the volume proposed for extraction. The maximum total volume that could be extracted during each 5-year operational phase is shown in Table 2.1-3. For the purposes of the impact analyses in Chapter 4, the proposed extraction volumes shown in Table 2.1-2 were used. The

successful applicant of a mineral material sales contract would be limited to a maximum extraction rate of 5 million tons per year, as analyzed in Chapter 4. Therefore, the final pit elevation may be higher than the 2,500 feet as proposed by the mining applicants.

Table 2.1-3
Actual Volume of Construction Aggregate Available for Extraction from the North Site Mine (Alternative 1)

Stage (years)	Total Tons of Excavated Material	Total Tons of Construction Aggregate Produced	Total Tons of Unusable Waste Rock	Yearly Average Production of Aggregate (tons)
1–5	12,630,215	11,998,704	631,511	2,399,741
6–10	17,795,801	16,906,011	889,790	3,381,202
11–15	41,624,078	39,542,874	2,081,204	7,908,575
16–20	32,836,772	31,194,934	1,641,839	6,238,987
21–25	48,371,513	45,952,937	2,418,576	9,190,587
26–30	50,413,617	47,892,936	2,520,681	9,578,587
Total	203,671,996	193,488,396	10,183,600	NA

NA = Not applicable

2.1.1.4 Transportation of Salable Mineral Materials

During the first year of operations, approximately 750,000 tons of aggregate materials would be produced for transportation off site. This would steadily increase to a peak production level of approximately 5 million tons of aggregate materials by the tenth year of operations. The crushed aggregate products would be loaded into highway haul trucks and weighed at onsite scale houses for transportation off site. Onsite haul trucks operating in the mine would have a carrying capacity of 85 to 100 tons per load. The trucks that would be used to transport finished product would be 18-wheel, diesel-powered tractors pulling two bottom dump trailers and would carry a maximum of 42 tons per trip.

Product loading would be controlled to prevent overfilling and to ensure that material does not fall out of the trailers during transportation. Once the product has been loaded, each truck would exit the mine area, turn onto the access roads, and exit the project area onto Las Vegas Boulevard. All trucks would be properly licensed, permitted, and maintained.

Aggregate material transportation requirements would depend on product sales. The actual number of truck trips per day would depend on a number of variable factors including product sales, numbers and types of trucks available, projects where the materials are required, and the distance to and from the final product destination. An estimated 23,438 offsite truck trips would be required to transport the materials during the first year, increasing to an estimated 156,250 truck trips per year by the tenth year at full production levels.

2.1.1.5 Ancillary Facilities

Several facilities would be constructed to support the mining operations. Ancillary facilities would be located within the 46-acre ancillary facility site (Figure 2.1-2). The majority of the onsite structures would be pre-engineered modular metal buildings. Structures would be painted a neutral color to minimize visual impacts. All building structures would conform to Clark County regulations. Ancillary facilities that would be constructed include a crushing and screening plant, office building, truck repair and maintenance building, off-highway shop, scale houses, employee and heavy equipment parking areas, fueling facilities and fuel storage tanks, and parts and equipment storage.

Crushing and Screening Plant

Initially, a temporary portable crushing and screening plant would be used to prepare the site for the permanent operation. The portable crushing and screening plant would be in operation for approximately 18 months and would be powered by a diesel generator. The plant would be sited at the location of the permanent crushing and screening plant (Figure 2.1-2) and would be powered by electricity as soon as power is connected to the mine grid. The permanent crushing and screening plant would be approximately 120 feet in height, and sorted material stockpiles could be as much as 80 feet in height. The crushing and screening plant consists of the following core equipment:

- Jaw crusher
- Cone crusher
- Triple deck screen
- Multiple processing and product delivery conveyors
- Water tank for plant dust control
- Water truck for surface dust control
- Loader
- Dozer
- Excavator

The excavated material would be stabilized before processing and during and after crushing and screening activities. Excavated material would be brought from the open pit mine to the crushing and screening plant using front-end loaders and/or dump trucks. In the crushing and screening plant, the incoming material would be mixed with water and discharged through a large perforated screen in a feeder to remove rocks, lumps of clay, sticks, and other foreign material. The excavated material would then be passed through several perforated screens or plates with different hole diameters to separate the particles according to size. In general, the screens are vibrated to allow the trapped material on each level to work its way off the end of the screen and onto separate conveyor belts. The coarsest screen with the largest holes is on top, and the screens underneath have progressively smaller holes.

The material that comes off the coarsest screen is washed before it is further screened. The water used in the crushing and screening plant would be recycled and stored in four water recovery ponds located in the 46-acre ancillary facilities site (Figure 2.1-2). The material that comes off the intermediate screen would be stored and blended with either the coarser gravel or the finer sand to make various aggregate mixes. The water and material that pass through the finest screen would then be pumped into a horizontal sand classifying tank, which is used to sort out the remaining particles from the water. The water would then be recirculated to the crushing and screening plant to be used again. Stockpiles and disturbed areas would be maintained in damp, crusted, or otherwise stabilized condition.

Some of the sorted material may be crushed to produce aggregate of a specific size. The crusher would consist of a rotating cone type in which the sand falls between an upper rotating cone and a lower fixed cone that are separated by a very small distance. This type of crusher operates by passing particles between heavy metal cones.

Baghouse dust collectors, or similar insertable technology, would be used to control particulate emissions at the crushing and screening points. The baghouses would be operated in accordance with recommended operating parameters from the manufacturer. Appropriate enclosures would be installed where feasible to minimize particulate emissions. Foam sprays would also be tested in the crushing and screening operation for their effectiveness in reducing particulate emissions. Additionally, water fog sprays, or appropriate dust extraction technology, would be used at key transfer points.

Appropriate enclosures would be installed where feasible to minimize particulate emissions. As process rock is needed, a front-end loader would be used to load trucks from the appropriate stockpiles for transport off site.

Office Building

A single office building would be located within the 46-acre ancillary facility site (Figure 2.1-2). The office building would be located in an 80-foot by 150-foot area and would include a small parking lot and restrooms. The office building would be approximately 24 feet wide, 60 feet long, and 35 feet high. The office building would be a pre-engineered, single-story modular type as allowed by local building codes.

Truck Repair and Maintenance Building

The truck repair and maintenance building would be located on site within an 80-foot by 200-foot area. This building would be a pre-fabricated metal structure with a maximum height of 40 feet. An outside storage area would be used for tires and large parts.

Off-Highway Shop

An off-highway shop would be located within the ancillary facilities site in a 100-foot by 200-foot area (Figure 2.1-2). The off-highway shop would be used for maintenance and repair of large, off-highway

mining equipment used to haul materials to the site. This shop would be constructed of prefabricated metal with a maximum height of 50 feet.

Scale Houses

Two scale houses would be located on site, and each would be approximately 10 feet by 125 feet (Figure 2.1-2). All trucks entering the mine site would be weighed to determine their unloaded weight; they would be weighed a second time as they exit to determine how much material is leaving the site. The purpose of weighing the haul trucks is (1) to determine how much material the mining company is selling to its customers, and (2) to determine how much the mining company should pay BLM for the material in accordance with any mineral material contract that would be issued. Weighing haul trucks at the scale houses would also ensure that truckloads of product leaving the mine are not overloaded. The truck scales would be constructed of precast concrete modules and rated for a minimum capacity of 100 tons. The scales would be calibrated and tested to certify that they meet the criteria set forth in the National Institute of Standards and Technology Handbook 44: Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices (National Institute of Standards and Technology, 2008).

Parking Areas

The employee parking area would provide a location for employee vehicles. The parking area would be 22 feet by 300 feet, and the parking spaces would be 10 feet by 22 feet to accommodate large pickup trucks (Figure 2.1-2). The employee parking area would initially be unpaved and covered with gravel. Once the permanent crushing and screening building is constructed, the employee parking area would be paved. Heavy-equipment parking would be provided south of the truck repair and maintenance building in a 50-foot by 300-foot area. The heavy-equipment parking spaces would be 30 feet by 50 feet to accommodate a total of 10 parking spaces (Figure 2.1-2). In accordance with Clark County Air Quality Regulations, the successful mining applicant would be required to pave, apply dust palliatives to the parking lot, or apply dust palliatives to travel lanes within the parking lot (Clark County Code 92.2.1.2).

Fueling Facilities and Fuel Storage Tanks

The North Site ancillary facilities site would contain two separate areas for fuel storage and refueling of vehicles. The first area would be located in the off-highway shop (Figure 2.1-2). This shop would consist of a 20,000-gallon aboveground diesel storage tank, a 10,000-gallon aboveground unleaded gasoline storage tank, and a 500-gallon aboveground motor oil fuel tank. The second fuel storage and refueling area would be located adjacent to the off-highway shop (Figure 2.1-2) and would consist of a 20,000-gallon aboveground diesel storage tank with secondary containment and a 10,000-gallon aboveground unleaded gasoline storage tank. All fuel storage (diesel, unleaded, and oil) would be in aboveground self-contained facilities with secondary containment provided by double-walled steel tanks

or concrete floors and berms to contain any losses. All fuel storage facilities would be permitted through the Clark County Fire Department and NDEP.

Parts and Equipment Storage

Parts and equipment storage would be located in a 125-foot by 125-foot area within the 46-acre ancillary facility site (Figure 2.1-2).

2.1.1.6 Utilities

Utilities that would be required for the operation of the mine include a sanitation system, water, and electricity.

Sanitation System

Initial sanitation service would be provided by portable toilets until the onsite office building is constructed. Long-term sanitation service would be by septic tank and leach field. A 1,500-gallon capacity septic tank would be installed at the location of the onsite office building and would be designed to accommodate approximately 25 employees (Figure 2.1-2). The leach field would consist of an underground, small-diameter, perforated pipe that allows liquids to leach into surrounding soils. The surrounding soils would absorb the small quantity of wastewater generated from the offices. The final design of the leach field would be determined by the percolation condition of the soils on site. The system would be designed in accordance with the requirements of the Southern Nevada Health District.

Water

Water for the North Site could be obtained from several sources: the nearby existing Bernadot well, newly constructed water well(s) with permitted point of diversion(s), or by working with the LVVWD to secure water.

The existing Bernadot well is located approximately 2,300 feet to the northeast of the Proposed Action area. This well is currently permitted to produce 322 acre-feet per year (AFY) for industrial use. If used, water from this well would be transported to the North Site via a newly constructed underground pipeline as shown in Figure 2.1-1. The successful applicant for the North Site would be responsible for determining how water would be distributed and transported throughout the North Site. In addition to the Bernadot well, CEMEX currently holds permits from the Nevada Department of Conservation and Natural Resources, Division of Water Resources, to divert approximately 961 AFY (313.1 million gallons per year) of groundwater from the Las Vegas Valley Groundwater Basin (Division of Water Resources, 2009). CEMEX could obtain water for the project through a permitted change in the point of diversion of CEMEX's existing water rights.

The LVVWD also has proposed the construction of the Sloan 2745 Zone Reservoir for the northeast corner of Section 30, immediately northwest of the North Site. If this reservoir and pipeline are constructed, there would be additional opportunities for the successful applicant to secure water from the LVVWD. All water provided by LVVWD would be transported via pipelines from LVVWD-approved sources.

If CEMEX were not the successful applicant, the successful mining applicant would be responsible for securing the appropriate water rights for the project and demonstrating that there is adequate water supply prior to BLM's issuance of a mineral material sales contract.

Large, high-volume water trucks would be used to wet critical items such as production shots, access roads, and stockpile areas, in accordance with Section 94 of the Clark County Air Quality Regulations. Water used for dust control purposes would be stored in 5,000-gallon aboveground storage tanks and small holding ponds (Figure 2.1-2).

As stated in the MPO, the estimated water use for the site would be 500 to 750 AFY (162.9 million to 244.4 million gallons per year) at peak aggregate production levels. The majority of the water used during the first year of the project would be for dust suppression purposes (approximately 580 acre-feet, or 189 million gallons). This water would be used to wet areas during vegetation removal, mass grading, fine grading, and to wet dirt access roads and stockpile areas. After the first year, the majority of water use on the North Site would be for the processing of mineral materials and water used for dust suppression would be reduced to approximately 1.8 AFY (590,000 gallons per year). The successful mining applicant would be required to implement a recycling system for water recovery that would recycle 85 to 90 percent of the non-potable water used in the crushing and screening plant and substantially reduce the 500 to 750 AFY water requirements. Water used for dust suppression is consumptive use and cannot be recycled.

Water to be used for potable service would be conveyed in a system built to the standards of the NDEP, Bureau of Safe Drinking Water. Water would also be used in restrooms and for routine cleaning of equipment and building facilities.

Electricity

Electricity would be brought to the North Site from the existing power lines owned and operated by NV Energy along the I-15 right-of-way. New power lines would be constructed within the proposed access road and utility corridor (Figure 2.1-1). The power lines would be 12-kilovolt (kV) aboveground lines. Power poles would be constructed of wood, spaced approximately 50 feet apart, and would be approximately 15 feet in height. Until this power could be connected to the mine grid, power would be provided by portable diesel-fueled generators. Once electricity has been connected to the mine grid, all machinery and equipment would be powered by the electricity, to the extent practicable. At full production, power requirements would be approximately 2.5 kilowatt-hour (kW-hr).

2.1.1.7 Access Roads

Access to the North Site would be from the west via a new road that would connect to Las Vegas Boulevard (Figure 2.1-1) and be partially located on dedicated public right-of-way that traverses private land. The road (approximately 6,500 feet in length) would be graded to a width of 30 feet and covered with gravel to improve conditions. In addition, all plant and mine roads would be graded to a minimum width of 30 feet and covered with gravel during the site preparation phase. All access roads would be paved approximately 6 months after site development has begun to reduce fugitive dust emissions. A turn lane would be constructed along the I-15 right-of-way to accommodate the additional traffic that would enter from Las Vegas Boulevard. The successful applicants of the North Site and the South Site would be responsible for coordinating with NDOT on the construction of a new turn lane along I-15.

Dust control would be provided by large, high-volume water trucks with water cannons and side and rear discharge spray mechanisms. A 10,000-gallon water truck (primary) and an 8,000-gallon water truck (secondary) would be used to wet critical areas such as production shots, haul roads, access roads, and waste areas. Chemical sprays (e.g., calcium chloride and water-based polymers) may be applied in the ancillary facilities site or the open pit mine for dust suppression where it is economically feasible and in accordance with Section 94 of the Clark County Air Quality Regulations. Chemical dust suppression would not be used along access roads, haul roads, or other areas where the use of chemical sprays may impact desert tortoise habitat.

2.1.1.8 Project Boundary Fence

Under this alternative, both the North Site and the South Site would be enclosed by a single 8-foot chain-link fence that would be topped with a single line of barbed wire to prevent unauthorized persons from entering the site. All entrances to the North Site would have a gate that could be locked when the mine is not operating. This fence would also have the benefit of preventing the entry of large animals onto the site where they could become injured. Additionally, the project boundary fence could be fitted with USFWS-approved desert tortoise exclusionary fence if required by the Biological Opinion.

2.1.2 South Site Mine

The proposed South Site mine would be located on a 320-acre parcel of BLM-administered land approximately 1 mile southeast of the Sloan Road exit on I-15 (Figure 2.1-3). This property is adjacent to the proposed North Site mine, and the mining and processing operations proposed for the South Site are similar to those described in Section 2.1.1.

The MPO submitted by SRP proposes a 20-year mining operation to extract a maximum of 74 million tons of aggregate with peak production levels of 5 million tons per year. However, if Alternative 1 is selected, the successful mining applicants (of both the North Site and the South Site) would be required to work together for the duration of mining activities to coordinate the removal of the wall between the two

pits as the mines progress (Section 2.1.3). Therefore, for the purposes of discussion, it is assumed that under Alternative 1, mining of the South Site would occur over 30 years.

Once completed, the South Site open pit mine would be approximately 63 acres in size (Figure 2.1-1). In addition to the open pit mine, ancillary facilities would be constructed on a 44-acre site in the west portion of the South Site, access roads and utility corridors would occur on approximately 5 acres, and an unusable rock stockpile area would be located on approximately 8 acres in the center of the North Site.

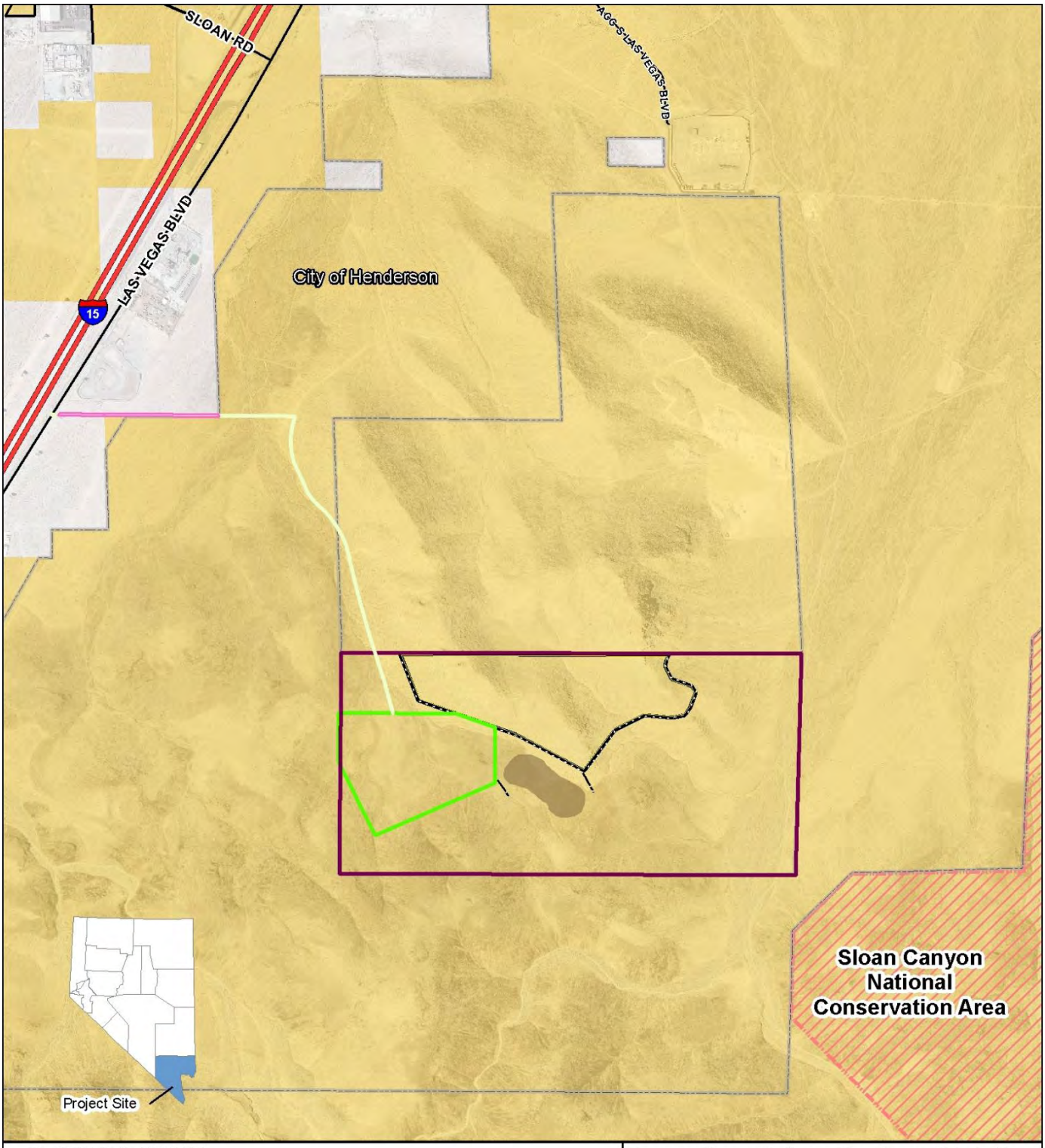
2.1.2.1 Drilling and Blasting Activities

The dolomite and limestone materials on the proposed South Site would be developed using the same methods employed at the North Site (Section 2.1.1.1).

No occupied structures are within 1,000 feet of the proposed South Site mine. Currently, the nearest residences are located in the town of Sloan, approximately 9,100 feet from the northwest corner of the South Site. The nearest occupied structures are the facilities associated with the existing CEMEX processing facility and cement batch plant located approximately 4,500 feet from the northwest corner of the South Site. If any areas within 1,000 feet of the Proposed Action area become occupied during the estimated 30-year life of the South Site mine, a public notification system for blasting operations would be developed and implemented in accordance with Clark County Fire Department requirements.

2.1.2.2 Aggregate Materials Mining

If the BLM approves the proposed project and issues an ROD, mobilization and site preparation would follow. This process would take approximately 7 to 12 months. An additional 6 months of mine development would occur after mobilization and site preparation. Excavation activities would be expected to begin immediately after mine development, approximately 18 to 24 months after the issuance of a ROD. The South Site mine would be mined in stages over a projected 20-year period. During the progression of the mine pit, benches approximately 25 feet in height would be constructed in the quarry with a production width of approximately 25 feet to safely accommodate loaders and haul trucks. All benches would have slight grades to facilitate water runoff. The proposed final bottom elevation of the South Site mine would be 2,500 feet. Table 2.1-4 shows the area of the mine pit floor, the area of the mine benches, and the lowest elevation of the mine pit floor for each 5-year interval of mine development.


SLOAN RD
AGG-S-LAS-VEGAS-BLVD
LAS-VEGAS-BLVD
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City of Henderson
Sloan Canyon
National
Conservation Area
Project Site
Source: Clark County, Nevada, BLM.
Erosion Control Fencing
South Site Access Road & Utility Corridor
Access Road Easement
South Site Boundary
Ancillary Facilities Site
Unusable Rock Stockpile
Mineral Extraction Boundary
City of Henderson Jurisdictional Boundary
National Conservation Area
Bureau of Land Management
Private
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification
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Proposed Sloan Hills Competitive Mineral Material Sales
Environmental Impact Statement
Figure 2.1-3
South Site Open Pit Mine
NATIONAL SYSTEM OF PUBLIC LANDS
Prepared by: PBS&J
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Table 2.1-4
South Site Mine Dimensions at 5-Year Intervals of Development (Alternative 1)

Mine Development Interval (years)	Pit Floor (acres)	Bench Area (acres)	Total Mine Area (acres)	Pit Floor Elevation* (feet)
5	7.8	54.8	62.5	3,100
10	25.6	36.9	62.5	3,025
15	31.9	30.6	62.5	2,900
20	31.9	30.6	62.5	2,800
25	31.9	30.6	62.5	2,650
30 (full build out)	34.7	27.8	62.5	2,500

* The highest South Site elevation is 3,214 feet.

Blasted materials would be pushed down to the quarry floor. Haul trucks would then transport the materials to an onsite crushing plant. Loaded haul trucks would be covered with tarps or equivalent enclosures to stabilize material during offsite or highway transportation. Unusable rock would be removed to allow access to the defined zones of aggregate deposits. Unusable rock would be removed after blasting by loaders and haul trucks and would be stockpiled in an 8-acre site located in the northwest 1/4 of Section 32 within the 44-acre staging area (Figure 2.1-3). Approximately 10 percent of the rock mined would be unsuitable as construction aggregate. The estimated volume of the waste rock storage area would be approximately 26,600 tons. Material that is unusable as construction aggregate would be used to soften slopes and block access to the property during reclamation or would be sold for fill, decorative rock, and other low-end construction applications.

The estimated volume of aggregate material to be mined from the South Site is approximately 74 million tons, the majority of which would be processed on site and would leave the property as finished products. Table 2.1-5 shows an estimate of the amount of aggregate and waste rock that would be produced at the South Site mine each year.

Table 2.1-5
Annual Production of Construction Aggregates
for the South Site Mine (Alternative 1)

Year After Mining Commences	Aggregate Mining (tons)	Waste Rock (tons)
1	250,000	25,000
2	500,000	50,000
3	750,000	75,000
4	1,000,000	100,000
5	2,000,000	200,000
6	3,000,000	300,000
7	3,500,000	350,000
8	4,000,000	400,000
9	4,000,000	400,000
10	5,000,000	500,000
11	5,000,000	500,000
12	5,000,000	500,000
13	5,000,000	500,000
14	5,000,000	500,000
15	5,000,000	500,000
16	5,000,000	500,000
17	5,000,000	500,000
18	5,000,000	500,000
19	5,000,000	500,000
20	5,000,000	500,000
Total	74,000,000	7,400,000

* Numbers in this table are derived from the MPO submitted by SRP, which assumes a 20-year mine operation. However, if Alternative 1 is selected, the operator of the South Site mine would be required to coordinate with the operator of the North Site mine to remove the wall between the two pits as the mines progress. Therefore, Alternative 1 assumes a 30-year mine operation for the South Site. The successful applicant would be limited to a maximum extraction of 74 million tons, regardless of the duration of mine operations.

These proposed extraction volumes were verified using a three-dimension AutoCAD® software application. The results of this analysis showed that the actual volume of material available within the mineral extraction boundary is less than the volume proposed for extraction. The maximum total volume that could be extracted during each 5-year operational phase is shown in Table 2.1-6. For the purposes of the impact analyses in Chapter 4, the proposed extraction volumes shown in Table 2.1-5 were used. The successful applicant of a mineral material sales contract would be limited to a maximum extraction rate of 5 million tons per year, as analyzed in Chapter 4.

Table 2.1-6
Actual Volume of Construction Aggregate Available for Extraction from the South Site Mine (Alternative 1)

Stage (years)	Total Tons of Excavated Material	Total Tons of Construction Aggregate Produced	Total Tons of Unusable Waste Rock	Yearly Average Production of Aggregate (tons)
1–5	1,012,115	910,904	182,181	101,212
6–10	4,397,004	3,957,304	791,461	439,700
11–15	13,226,760	11,904,084	2,380,817	1,322,676
16–20	12,775,442	11,497,897	2,299,579	1,277,544
21–25	18,276,165	16,448,549	3,289,710	1,827,617
26–30	20,300,396	18,270,356	3,654,071	2,030,040
Total	69,987,881	62,989,093	12,597,819	NA

NA = Not applicable

2.1.2.3 Transportation of Salable Mineral Materials

During the first year of operations, approximately 250,000 tons of aggregate materials would be produced for transportation off site. This amount would steadily increase to a peak production level of approximately 5 million tons per year of aggregate materials by the tenth year of operations. The crushed aggregate products would be loaded into highway haul trucks and weighed at onsite scale houses for transportation off site. Onsite haul trucks operating in the mine would have a carrying capacity of 85 to 100 tons per load. The trucks that would be used to transport finished product would be 18-wheel, diesel-powered tractors pulling two bottom dump trailers, and would carry a maximum of 42 tons per trip.

Product loading would be controlled to prevent overfilling and to ensure that material does not fall out of the trailers during transportation. Once the product has been loaded, each truck would exit the mine area, turn onto the access roads, and exit the project area onto Las Vegas Boulevard. All trucks would be properly licensed, permitted, and maintained.

Aggregate material transportation requirements would depend on product sales. The actual number of truck trips per day would depend on a number of variable factors, including product sales, numbers and types of trucks available, projects where the materials are required, and the distance to and from the final product destination. An estimated 7,813 offsite truck trips would be required to transport the materials during the first year, increasing to an estimated 156,250 truck trips per year by the tenth year at full production levels.

2.1.2.4 Ancillary Facilities

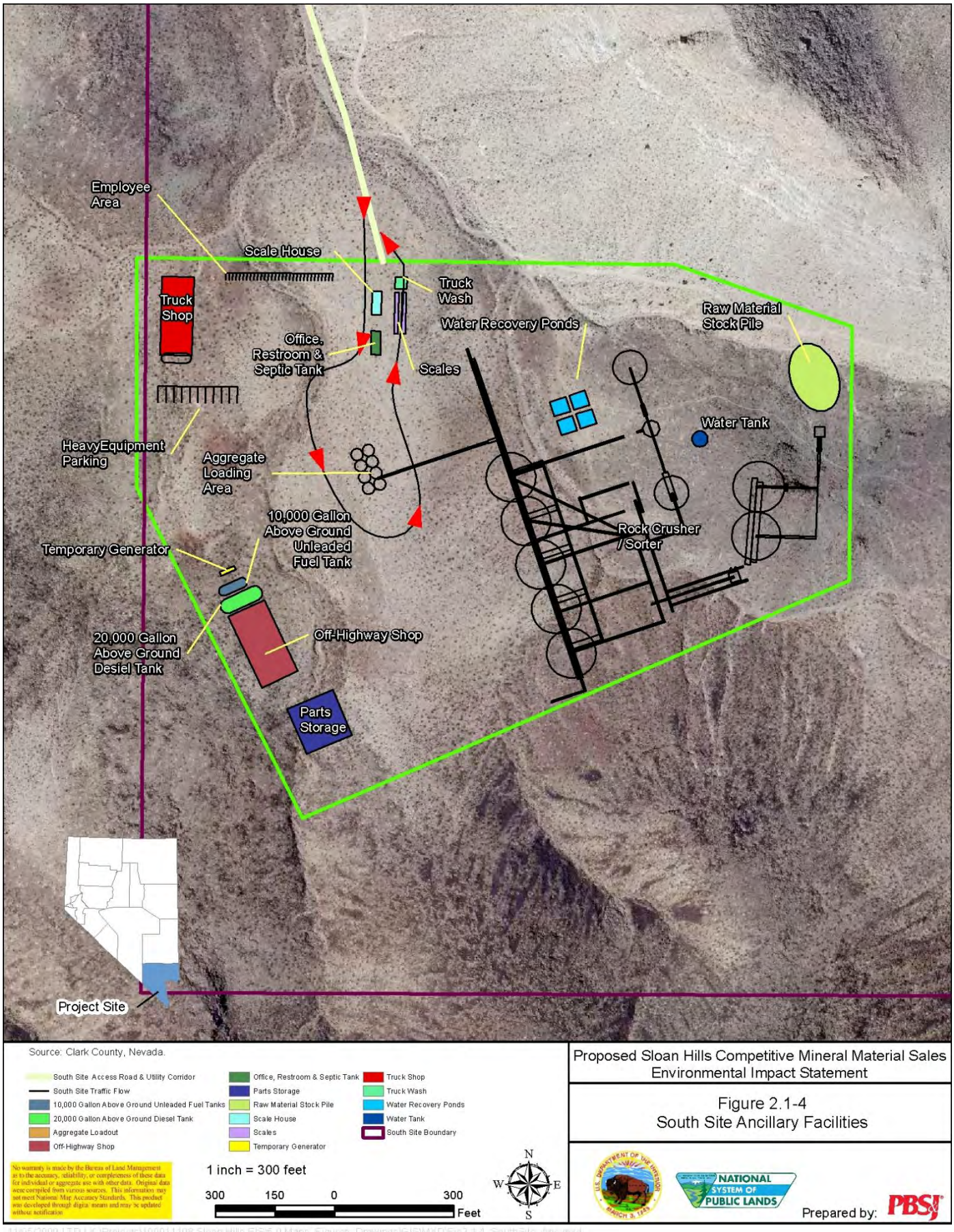
Several facilities would be constructed to support the mining operations. Ancillary facilities would be located within the 44-acre ancillary facility site (Figure 2.1-4). The majority of the onsite structures would be pre-engineered, modular, metal buildings. Structures would be painted a neutral color to minimize visual impacts. All building structures would conform to Clark County regulations. Ancillary facilities that would be constructed include a crushing and screening plant, office building, truck repair and maintenance building, off-highway shop, scale houses, parking areas, fueling facilities and fuel storage tanks, and parts and equipment storage.

Crushing and Screening Plant

Initially, a temporary portable crushing and screening plant would be used to prepare the site for the permanent operation. The portable crushing and screening plant would be in operation for approximately 18 months and would be powered by a diesel generator. The portable crushing and screening plant would be sited at the location of the permanent crushing and screening operation (Figure 2.1-4). The crushing and screening operation consists of the following core equipment:

- Jaw crusher
- Cone crusher
- Triple deck screen
- Multiple processing and product delivery conveyors
- Water tank for plant dust control
- Water truck for surface dust control
- Loader
- Dozer
- Excavator

The crushing and screening plant would operate in the same manner as described in Section 2.1.1.4. Similar dust control and water recycling technologies would be employed at the South Side crushing and screening plant.


Employee Area
Scale House
Truck Shop
Truck Wash
Water Recovery Ponds
Raw Material Stock Pile
Office, Restroom & Septic Tank
Scales
Water Tank
Heavy Equipment Parking
Aggregate Loading Area
10,000 Gallon Above Ground Unleaded Fuel Tank
Rock Crusher / Sorter
Temporary Generator
20,000 Gallon Above Ground Desiel Tank
Off-Highway Shop
Parts Storage
Project Site
Source: Clark County, Nevada.
South Site Access Road & Utility Corridor
South Site Traffic Flow
10,000 Gallon Above Ground Unleaded Fuel Tanks
20,000 Gallon Above Ground Diesel Tank
Aggregate Loadout
Off-Highway Shop
Office, Restroom & Septic Tank
Parts Storage
Raw Material Stock Pile
Scale House
Scales
Temporary Generator
Truck Shop
Truck Wash
Water Recovery Ponds
Water Tank
South Site Boundary
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification
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Proposed Sloan Hills Competitive Mineral Material Sales Environmental Impact Statement
Figure 2.1-4
South Site Ancillary Facilities
NATIONAL SYSTEM OF PUBLIC LANDS
Prepared by: PBS&J

Office Building

A single office building would be located within the 44-acre ancillary facility site (Figure 2.1-4). The office building would be located in an 80-foot by 150-foot area and would include a small parking lot and restrooms. The office building would be approximately 24 feet wide, 60 feet long, and 35 feet high. The office building would be a pre-engineered, single-story, modular type as allowed by local building codes.

Truck Repair and Maintenance Building

The truck repair and maintenance building would be located on site within an 80-foot by 200-foot area. This building would be a prefabricated metal structure with a maximum height of 40 feet. An outside storage area would be used for tires and large parts.

Off-Highway Shop

An off-highway shop would be located within the ancillary facilities site in a 100-foot by 200-foot area (Figure 2.1-4). The off-highway shop would be used for maintenance and repairs of the large off-highway mining equipment used to haul materials to the site. This shop would be constructed of prefabricated metal structures with a maximum height of 50 feet.

Scale Houses

Two scale houses would be located on site. Each scale house would be approximately 10 feet by 125 feet and would be used to weigh truckloads of product leaving the plant to make sure they are not overloaded (Figure 2.1-4). The truck scales would be constructed of precast concrete modules and rated for a minimum capacity of 100 tons. The scales would be calibrated and tested to certify that they meet the criteria set forth in the National Institute of Standards and Technology Handbook 44: Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices (National Institute of Standards and Technology, 2008).

Parking Areas

An employee parking area would provide a location for employee vehicles. This parking area would be approximately 22 feet by 300 feet, and the parking spaces would be 10 feet by 22 feet to accommodate large pickup trucks (Figure 2.1-4). The employee parking area would initially be unpaved and covered with gravel. Once the permanent crushing and screening operation is constructed, the employee parking area would be paved. Heavy-equipment parking would be provided south of the truck shop in a 50-foot by 300-foot area. The heavy-equipment parking spaces would be 30 feet by 50 feet to accommodate a total of 10 parking spaces (Figure 2.1-4). In accordance with Clark County Air Quality Regulations, the successful mining applicant would be required to pave, apply dust palliatives to the parking area, or apply dust palliatives to travel lanes within the parking area (Clark County Code 92.2.1.2).

Fueling Facilities and Fuel Storage Tanks

The South Site ancillary facilities site would contain two separate areas for fuel storage and refueling of vehicles. The first area would be located in the off-highway shop (Figure 2.1-4). This shop would consist of a 20,000-gallon aboveground diesel storage tank, a 10,000-gallon aboveground unleaded gasoline storage tank, and a 500-gallon aboveground motor oil fuel tank. The second fuel storage and refueling area would be located adjacent to the off-highway shop (Figure 2.1-4) and would consist of a 20,000-gallon aboveground diesel storage tank with secondary containment and a 10,000-gallon aboveground unleaded gasoline storage tank. All fuel storage (diesel, unleaded, and oil) would be in aboveground self-contained facilities with secondary containment provided by double-walled steel tanks or concrete floors and berms to contain any losses. All fuel storage facilities would be permitted through the Clark County Fire Department and NDEP.

Parts and Equipment Storage

Parts and equipment storage would be located in a 125-foot by 125-foot area within the 44-acre ancillary facility site (Figure 2.1-4).

2.1.2.5 Utilities

The utilities that would be required for the mine operation include a sanitation system, water, and electricity.

Sanitation System

Initial sanitation service would be provided by portable toilets until the onsite office building is constructed. Long-term sanitation service would be by septic tank and leach field. A 1,500-gallon capacity septic tank would be installed at the location of the onsite office building and would be designed to accommodate approximately 25 employees (Figure 2.1-4). The leach field would consist of an underground, small-diameter, perforated pipe that allows liquids to leach into surrounding soils. The surrounding soils would absorb the small quantity of wastewater generated from the offices. The final design of the leach field would be determined by the percolation condition of the onsite soils. The system would be designed in accordance with the requirements of the Southern Nevada Health District.

Water

Water for the South Site could be obtained from two potential sources: newly constructed water well(s) with permitted point(s) of diversion, or by working with the LVVWD to secure water.

The location and depth of new groundwater wells would be determined by a hydrogeologist once a ROD was issued; however, it is expected that new wells would be located within the 44-acre ancillary facility site.

SRP currently holds permits from the Nevada Department of Conservation and Natural Resources, Division of Water Resources to divert approximately 41 AFY (13.4 million gallons per year) of groundwater from the Las Vegas Valley Groundwater Basin (Division of Water Resources, 2009). If SRP were the successful applicant, they would obtain water from new groundwater wells through a permitted change in the point of diversion of SRP's existing water rights and other newly constructed water well(s) with permitted point(s) of diversion and/or by working with the LVVWD to secure water. If SRP is not the successful applicant, the successful mining applicant would be responsible for securing the appropriate water rights for the project. All water provided by LVVWD would be transported via pipelines from LVVWD-approved sources.

As stated in the MPO, the estimated water use for the site would be 500 to 750 AFY (162.9 million to 244.4 million gallons per year) at peak aggregate production levels. The majority of the water used during the first year of the project would be for dust suppression purposes (approximately 580 acre-feet, or 189 million gallons). This water would be used to wet areas during vegetation removal, mass grading, fine grading, and to wet dirt access roads and stockpile areas. After the first year, the majority of water use on the South Site would be for the processing of mineral materials and water used for dust suppression would be reduced to approximately 1.8 AFY (590,000 gallons per year). The successful mining applicant would be required to implement a recycling system for water recovery that would recycle 85 to 90 percent of the non-potable water used during the processing of mined material and substantially reduce the 500 to 750 AFY water requirements. Water used for dust suppression is consumptive use and cannot be recycled.

Water to be used for potable service would be conveyed in a system built to the standards of the NDEP, Bureau of Safe Drinking Water. Water for the mining operations would be stored in 5,000-gallon aboveground storage tanks and small holding ponds (Figure 2.1-4). Large, high-volume water trucks would be used to wet critical items, such as production shots, access roads, and stockpile areas, in accordance with Section 94 of the Clark County Air Quality Regulations.

Electricity

Electricity would be brought to the South Site from the existing power lines owned and operated by NV Energy along the I-15 right-of-way. New power lines would be constructed within the proposed access road and utility corridor (Figure 2.1-3). The power lines would be 12-kV aboveground lines. Power poles would be constructed of wood, spaced approximately 50 feet apart, and would be approximately 15 feet in height. Until this power could be connected to the mine grid, power would be provided by portable diesel-fueled generators. Once electricity has been connected to the mine grid, all machinery and equipment would be powered by the electricity, to the extent practicable. At full production, power requirements would be approximately 2.5 kW-hr.

2.1.2.6 Access Roads

Access to the South Site would be from the west via a new road that would connect to Las Vegas Boulevard (Figure 2.1-3) and be partially located on dedicated public right-of-way that traverses private land. The road (approximately 6,000 feet in length) would be graded to a width of 30 feet and covered with gravel to improve conditions. In addition, all plant and mine roads would be graded to a minimum width of 30 feet and covered with gravel. Access roads serving the portable crushing and screening plant would be paved once the permanent plant is constructed, approximately 6 months after initiation of site development. Additionally, a turn lane would be constructed along the I-15 right-of-way to accommodate the additional traffic that would be entering from Las Vegas Boulevard. The successful applicants of the North Site and South Site mineral material sales would be responsible for coordinating with NDOT regarding the construction of a new turn lane along I-15. Dust control on access roads would be the same as described for the North Site (Section 2.1.1.6)

2.1.2.7 Project Boundary Fence

Under this alternative, both the South Site and the North Site would be enclosed by a single 8-foot chain-link fence that would be topped with a single line of barbed wire to prevent unauthorized persons from entering the site. All entrances to the South Site would have a gate that could be locked when the mine is not operating. This fence would also have the benefit of preventing the entry of large animals onto the site where they could become injured. Additionally, the project boundary fence could be fitted with USFWS-approved desert tortoise exclusionary fence if required by the Biological Opinion.

2.1.3 Two Open Pits Merge

The open pit mines on the North Site and the South Site would be situated immediately adjacent to one another. The boundary between the two pits would be taken down as the mine pits progress; this would be accomplished by establishing a surveyed boundary between the two properties. As the pits progress, excavated rock along the surveyed boundary would be monitored to determine who has the extractive rights to the rock (Figure 2.1-5). The two mining companies would then coordinate the extraction rates to ensure the process was safe and does not impede the other operator when extracting along the common boundary. The final merged pit is shown in Figure 2.1-5.

2.1.4 Alternative 1 Surface Disturbance

Under Alternative 1, the ultimate open pit mine would be 205 acres. Table 2.1-7 shows the acres of surface disturbance that would occur from the implementation of Alternative 1.

Table 2.1-7
Surface Disturbance Resulting from
Implementation of Alternative 1

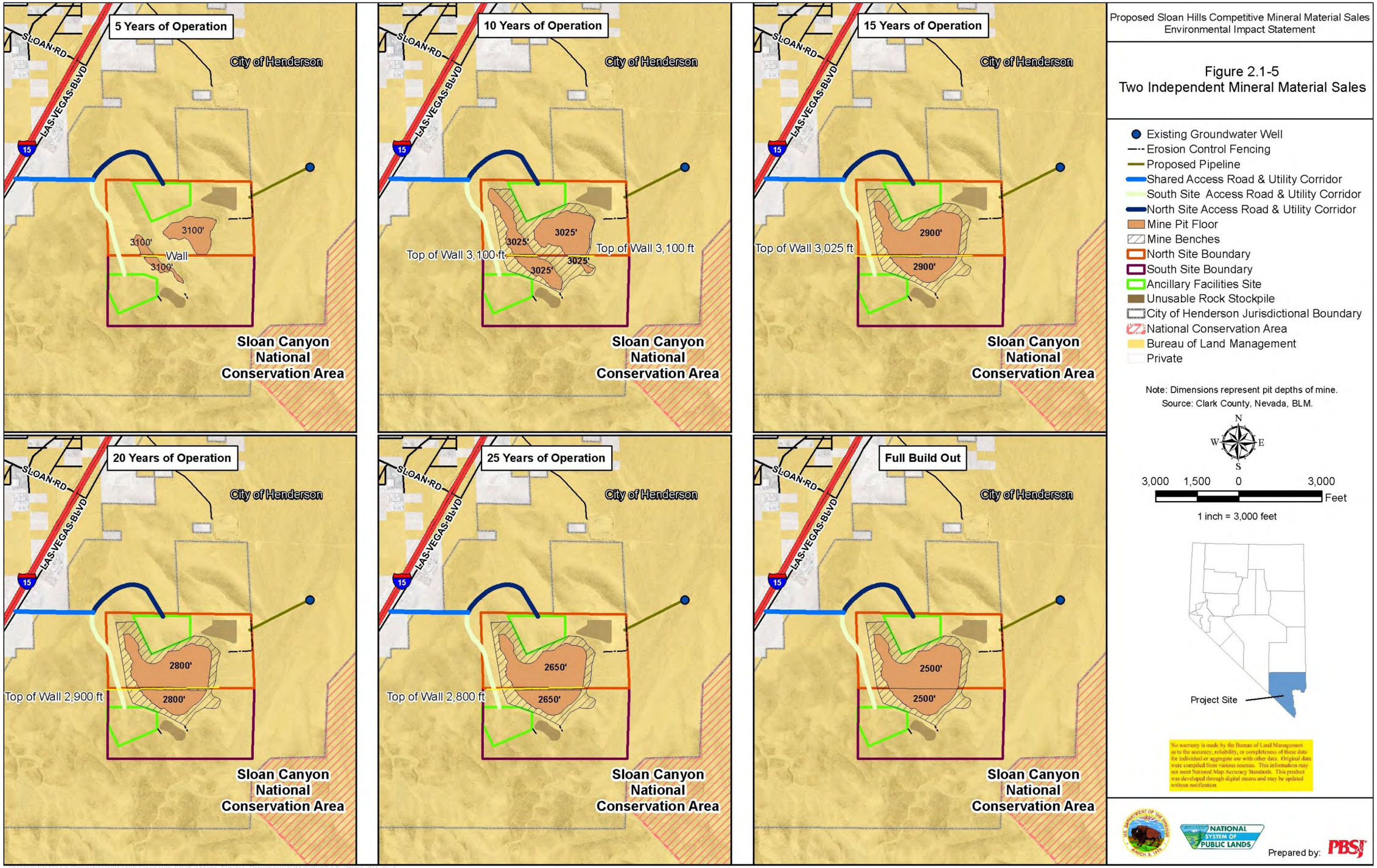
Project Feature	Disturbance Area (acres)
North Site Open Pit Mine	142.9
North Site Access and Utility Corridor	2.4
North Site Ancillary Facilities Site	45.9
North Site Water Pipeline	2.8
North Site Unusable Rock Stockpile Area	17.0
North Site Erosion Control Fencing	1.0
South Site Open Pit Mine	62.5
South Site Access and Utility Corridor	2.6
South Site Ancillary Facilities Site	44.0
South Site Unusable Rock Stockpile Area	8.4
South Site Erosion Control Fencing	0.2
Shared Access and Utility Corridor	1.9
Shared Project Boundary Fence	9.7
Total Surface Disturbance	**341.3**

2.2 ALTERNATIVE 2 (SALE OF NORTH SITE ONLY)

Under Alternative 2, only the mineral materials in the North Site would be sold by competitive bid. This parcel would be developed in a manner similar to that described in Section 2.1.1. The mineral materials in the South Site would not be sold and would therefore not be quarried for construction aggregate materials.

2.2.1 Drilling and Blasting Activities

Drilling and blasting activities under Alternative 2 would be the same as those described in Section 2.1.1.1.



Proposed Sloan Hills Competitive Mineral Material Sales Environmental Impact Statement

Figure 2.1-5
Two Independent Mineral Material Sales

- Existing Groundwater Well
- Erosion Control Fencing
- Proposed Pipeline
- Shared Access Road & Utility Corridor
- South Site Access Road & Utility Corridor
- North Site Access Road & Utility Corridor
- Mine Pit Floor
- Mine Benches
- North Site Boundary
- South Site Boundary
- Ancillary Facilities Site
- Unusable Rock Stockpile
- City of Henderson Jurisdictional Boundary
- National Conservation Area
- Bureau of Land Management
- Private

Note: Dimensions represent pit depths of mine.
Source: Clark County, Nevada, BLM.

N W E S

3,000 1,500 0 3,000 Feet

1 inch = 3,000 feet

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2.2.2 Aggregate Materials Mining

The methodology for mining aggregate materials under Alternative 2 would be the same as described in Section 2.1.1.2, except fewer aggregate materials would be produced. Under Alternative 2, the north 1/2 of Section 32 would not be sold; therefore, the North Site mine would not merge with the South Site mine. The southern portion of the North Site pit would be excavated as benches as the mine progressed (Figure 2.2-1). Table 2.2-1 shows the acreage footprint of the mine pit floor, the area of the mine benches, and the lowest elevation of the mine pit floor for each 5-year interval of mine development.

Table 2.2-1
North Site Mine Dimensions at 5-Year Intervals of Development (Alternative 2)

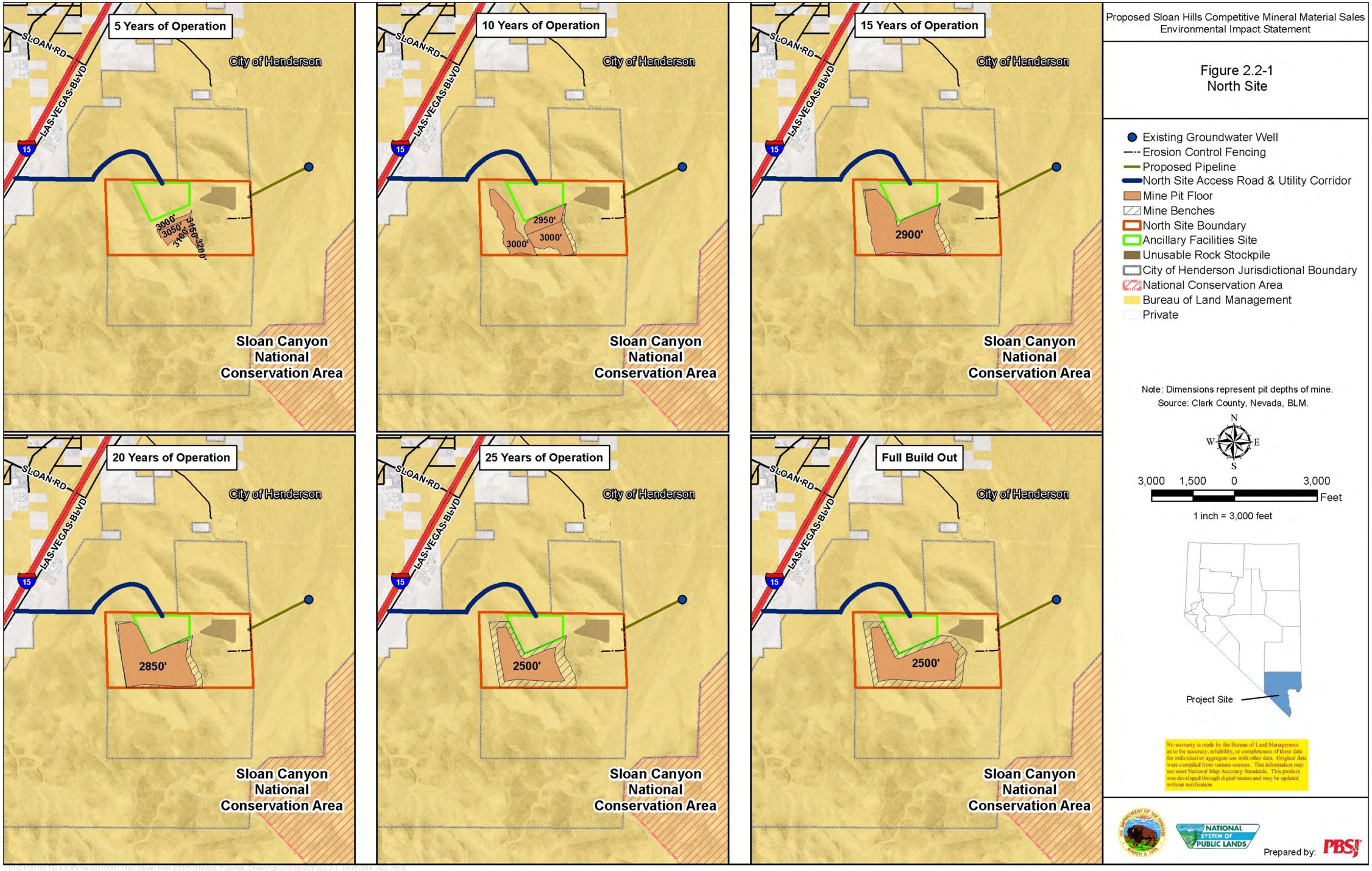
Mine Development Interval (years)	Pit Floor (acres)	Bench Area (acres)	Total Mine Area (acres)	Pit Floor Elevation (feet)
5	24	0	24	3,000
10	77	5	82	2,950
15	96	13	109	2,900
20	95	18	113	2,850
25	59	55	114	2,500
30 (full build out)	85	58	143	2,500

The estimated volume of material to be removed from the property is approximately 126 million tons, the majority of which would be processed on site and would leave the property as finished products.

Table 2.2-2 shows an estimate of the amount of aggregate and waste rock that would be produced at the North Site mine each year. Approximately 5 percent of all materials handled would be stripped and stockpiled as overburden. Material that is unusable as construction aggregate would be used to soften slopes and block access to the property during reclamation or would be sold for fill, decorative rock, and other low-end construction applications.

Table 2.2-2
Annual Production of Construction Aggregates
for the North Site Mine (Alternative 2)

Year After Mining Commences	Aggregate Mining (tons)	Waste Rock (tons)
1	750,000	37,500
2	1,000,000	50,000
3	2,300,000	100,000
4	2,300,000	100,000
5	2,300,000	100,000
6	2,500,000	125,000
7	2,500,000	125,000
8	3,000,000	150,000
9	4,000,000	200,000
10	5,000,000	250,000
11	5,000,000	250,000
12	5,000,000	250,000
13	5,000,000	250,000
14	5,000,000	250,000
15	5,000,000	250,000
16	5,000,000	250,000
17	5,000,000	250,000
18	5,000,000	250,000
19	5,000,000	250,000
20	5,000,000	250,000
21	5,000,000	250,000
22	5,000,000	250,000
23	5,000,000	250,000
24	5,000,000	250,000
25	5,000,000	250,000
26	5,000,000	250,000
27	5,000,000	250,000
28	5,000,000	250,000
29	5,000,000	250,000
30	5,000,000	250,000
Total	125,650,000	6,237,500


5 Years of Operation
10 Years of Operation
15 Years of Operation
20 Years of Operation
25 Years of Operation
Full Build Out
SLOAN RD
LAS VEGAS BLVD
15
City of Henderson
Sloan Canyon National Conservation Area
3000'
3050'
3100'
3150'
3200'
2950'
3000'
2900'
2850'
2500'
Proposed Sloan Hills Competitive Mineral Material Sales Environmental Impact Statement
Figure 2.2-1
North Site
Existing Groundwater Well
Erosion Control Fencing
Proposed Pipeline
North Site Access Road & Utility Corridor
Mine Pit Floor
Mine Benches
North Site Boundary
Ancillary Facilities Site
Unusable Rock Stockpile
City of Henderson Jurisdictional Boundary
National Conservation Area
Bureau of Land Management
Private
Note: Dimensions represent pit depths of mine.
Source: Clark County, Nevada, BLM.
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3,000 1,500 0 3,000
Feet
1 inch = 3,000 feet
Project Site
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
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2.2.3 Transportation of Salable Mineral Materials

The transportation of salable mineral materials under Alternative 2 would be the same as described in Section 2.1.1.3, except that fewer truck trips would occur because less aggregate material would be produced under Alternative 2. An estimated 15,555 offsite truck trips would be required to transport the materials during the first year, increasing to an estimated 160,000 truck trips per year by the tenth year at full production levels.

2.2.4 Ancillary Facilities

The construction of ancillary facilities under Alternative 2 would be the same as described in Section 2.1.1.4.

2.2.5 Utilities

Utilities for the North Site mine under Alternative 2 would be the same as those described in Section 2.1.1.5.

2.2.6 Access Roads

Access roads to the North Site would be the same as those described in Section 2.1.1.6.

2.2.7 Project Boundary Fence

A project boundary fence would be constructed around the perimeter of the North Site as described in Section 2.1.1.7.

2.2.8 Alternative 2 Surface Disturbance

Under Alternative 2, the ultimate open pit mine would be approximately 143 acres. Table 2.2-3 shows the surface disturbance that would result from implementation of Alternative 2.

Table 2.2-3
Surface Disturbance from Implementation of Alternative 2

Project Feature	Disturbance Area (acres)
North Site Open Pit Mine	142.9
North Site Access and Utility Corridor	4.3
North Site Ancillary Facilities Site	45.9
North Site Water Pipeline	2.8
North Site Unusable Rock Stockpile Area	17.0
North Site Erosion Control Fencing	1.0
North Site Boundary Fence	7.3
Total Surface Disturbance	221.2

2.3 ALTERNATIVE 3 (SALE OF SOUTH SITE ONLY)

Under Alternative 3, only the mineral materials in the South Site would be sold by competitive bid. This parcel would be developed according to the description in Section 2.1.2. The mineral material in the North Site would not be sold and would therefore not be quarried for construction aggregate materials.

2.3.1 Drilling and Blasting Activities

Drilling and blasting activities under Alternative 3 would be the same as those described in Section 2.1.2.1.

2.3.2 Aggregate Materials Mining

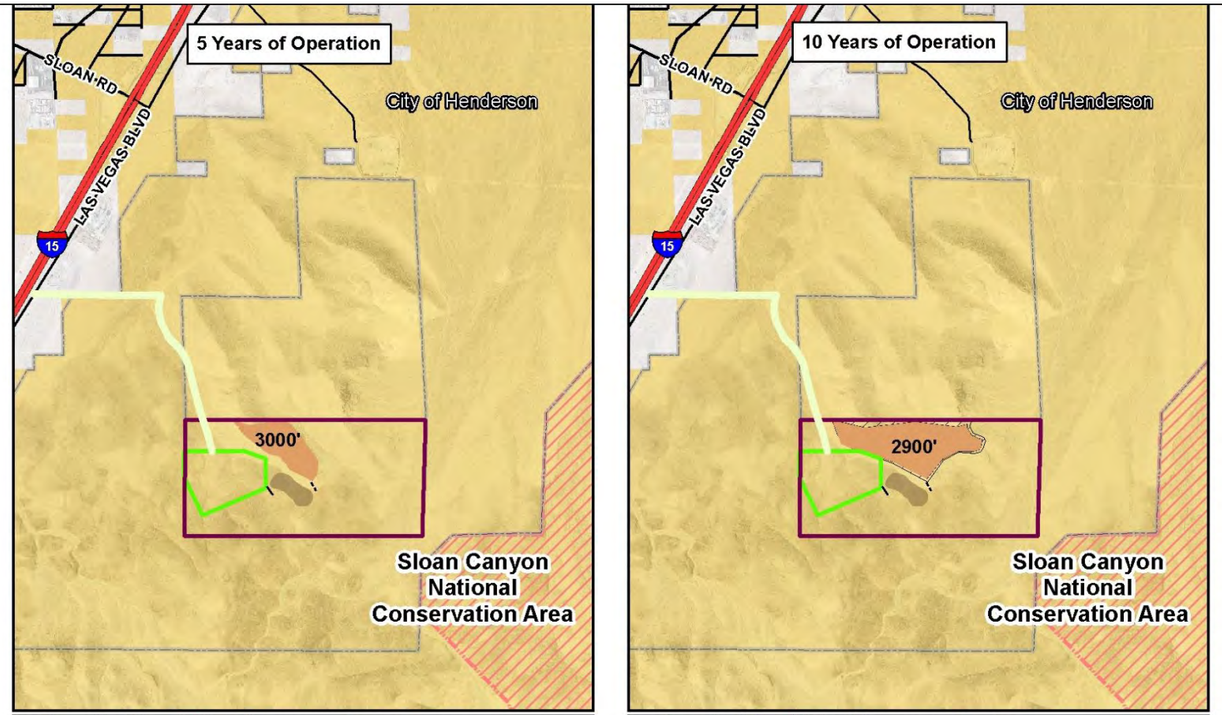
The methodology for mining aggregate materials under Alternative 3 would be the same as described in Section 2.1.2.2, except fewer aggregate materials would be produced. Under Alternative 3, the south 1/2 of Section 29 would not be sold and the South Site mine would therefore not merge with the North Site mine. The northern portion of the South Site mine would contain benches as the mine progressed (Figure 2.3-1).

Table 2.3-1 shows the acreage footprint of the mine pit floor, the area of the mine benches, and the lowest elevation of the mine pit floor for each 5-year interval of mine development.

Table 2.3-1
South Site Mine Dimensions at 5-Year Intervals of Development (Alternative 3)

Mine Development Interval (years)	Pit Floor (acres)	Bench Area (acres)	Total Mine Area (acres)	Pit Floor Elevation (feet)
5	27	0	27	3,000
10	62	10	72	2,900
15	63	24	87	2,750
20 (build out)	63	43	106	2,500

The estimated volume of aggregate material to be mined from the site is approximately 74 million tons, the majority of which would be processed on site and would leave the property as finished products. Table 2.3-2 shows an estimate of the amount of aggregate and waste rock that would be produced at the South Site mine each year.



Proposed Sloan Hills Competitive Mineral Material Sales Environmental Impact Statement

Figure 2.3-1
South Site

- Erosion Control Fencing
- South Site Access Road & Utility Corridor
- Mine Pit Floor
- Mine Benches
- South Site Boundary
- Ancillary Facilities Site
- Unusable Rock Stockpile
- City of Henderson Jurisdictional Boundary
- National Conservation Area
- Bureau of Land Management
- Private

Note: Dimensions represent pit depths of mine.
Source: Clark County, Nevada, BLM.

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Feet

1 inch = 3,000 feet

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Table 2.3-2
Annual Production of Construction Materials
for the South Site Mine (Alternative 3)

Year after Mining Commences	Aggregate Mining (tons)	Waste Rock (tons)
1	250,000	25,000
2	500,000	50,000
3	750,000	75,000
4	1,000,000	100,000
5	2,000,000	200,000
6	3,000,000	300,000
7	3,500,000	350,000
8	4,000,000	400,000
9	4,000,000	400,000
10	5,000,000	500,000
11	5,000,000	500,000
12	5,000,000	500,000
13	5,000,000	500,000
14	5,000,000	500,000
15	5,000,000	500,000
16	5,000,000	500,000
17	5,000,000	500,000
18	5,000,000	500,000
19	5,000,000	500,000
20	5,000,000	500,000
Total	74,000,000	7,400,000

2.3.3 Transportation of Salable Mineral Materials

The transportation of salable mineral materials under Alternative 3 would be the same as described in Section 2.1.1.3, except fewer truck trips would occur because less aggregate material would be produced. An estimated 7,813 offsite truck trips would be required to transport the materials during the first year, increasing to an estimated156,250 truck trips per year by the tenth year at full production levels.

2.3.4 Ancillary Facilities

The construction of ancillary facilities under Alternative 2 would be the same as described in Section 2.1.1.4.

2.3.5 Utilities

Utilities for the South Site mine under Alternative 2 would be the same as those described in Section 2.1.1.5.

2.3.6 Access Roads

Access roads to the South Site would be the same as those described in Section 2.1.2.6.

2.3.7 Project Boundary Fence

A project boundary fence would be constructed around the perimeter of the South Site as described in Section 2.1.2.7.

2.3.8 Alternative 3 Surface Disturbance

Under Alternative 3, the ultimate open pit mine would be approximately 63 acres. Table 2.3-3 shows the surface disturbance that would result from implementation of Alternative 3.

Table 2.3-3
Surface Disturbance from Implementation of Alternative 3

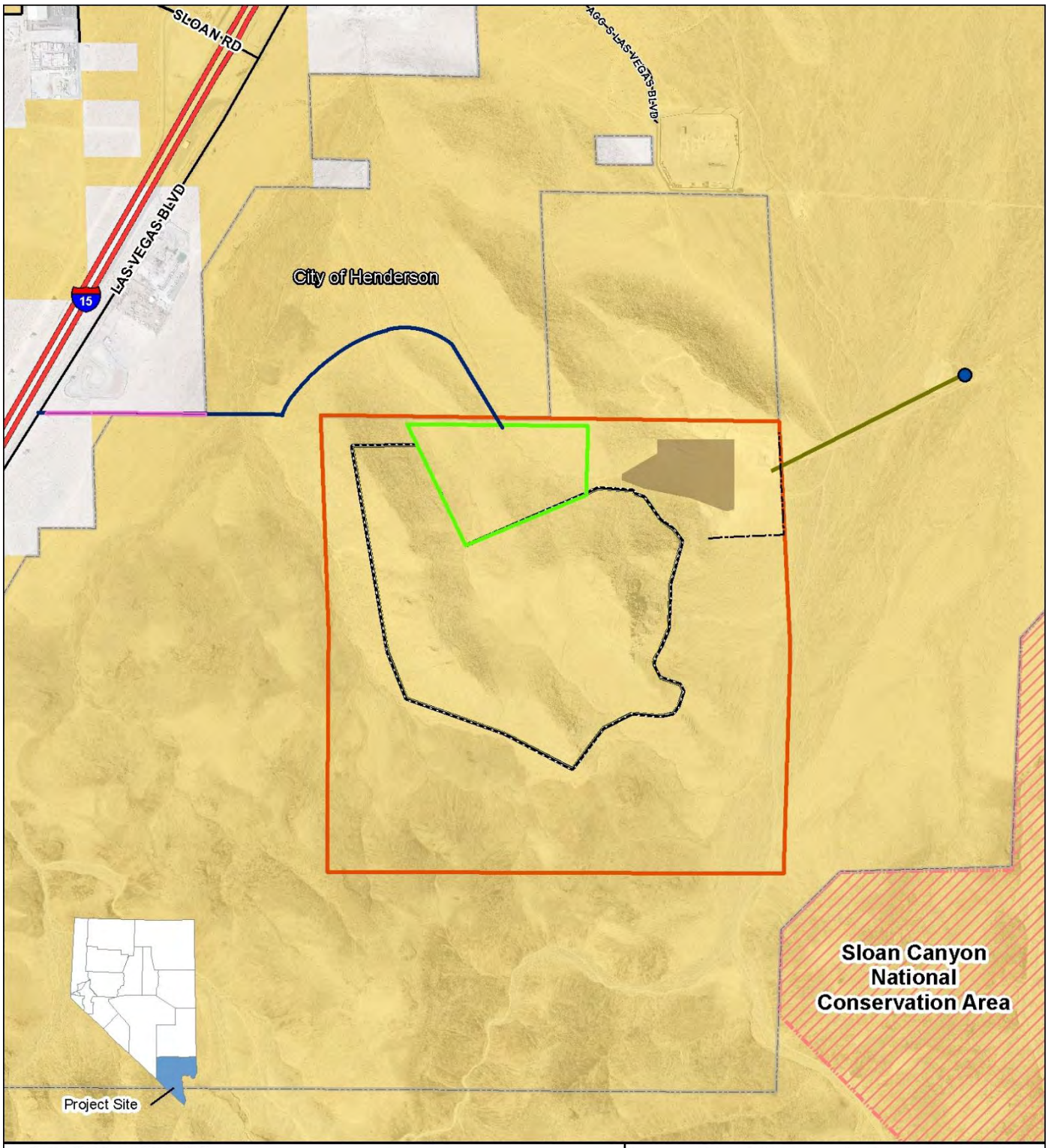
Project Feature	Disturbance Area (acres)
South Site Open Pit Mine	62.5
South Site Access and Utility Corridor	4.5
South Site Ancillary Facilities Site	44.0
South Site Unusable Rock Stockpile Area	8.4
South Site Erosion Control Fencing	0.2
South Site Boundary Fence	7.3
Total Surface Disturbance	126.9

2.4 ALTERNATIVE 4 (SINGLE SALE OF THE NORTH SITE AND THE SOUTH SITE)

Under Alternative 4, the BLM would simultaneously sell the mineral material in the North Site and the South Site to a single applicant. The sale of mineral material would be by competitive bid. The combined mineral material mining site would be modified from the plans described in Section 2.1 to include a single 46-acre ancillary facility site, a single unusable rock storage area, and a single access and utility corridor (Figure 2.4-1). The sections below describe the mining operations that would occur if Alternative 4 were selected.

2.4.1 Drilling and Blasting Activities

Drilling and blasting activities under Alternative 4 would be the same as those described in Sections 2.1.1.1 and 2.1.2.1.


SLOAN RD
LAS VEGAS BLVD
AGG-S-LAS-VEGAS-BLVD
15
City of Henderson
Sloan Canyon
National
Conservation Area
Project Site
Source: Clark County, Nevada, BLM.
Existing Groundwater Well
Erosion Control Fencing
Proposed Pipeline
Single Sale Access Road & Utility Corridor
Access Road Easement
Single Sale Site Boundary
Ancillary Facilities Site
Mineral Extraction Boundary
Unusable Rock Stockpile
City of Henderson Jurisdictional Boundary
National Conservation Area
Bureau of Land Management
Private
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
1 inch = 1,500 feet
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Proposed Sloan Hills Competitive Mineral Material Sales
Environmental Impact Statement
Figure 2.4-1
Single Sale Open Pit Mine
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2.4.2 Aggregate Materials Mining

The methodology for mining aggregate materials under Alternative 4 would be the same as described in Sections 2.1.1.2 and 2.1.2.1. The excavation of aggregate materials would progress as shown in Figure 2.4-2. Table 2.4-1 shows the acreage footprint of the mine pit floor, the area of the mine benches, and the lowest elevation of the mine pit floor for each 5-year interval of mine development.

Table 2.4-1
Single Sale Mine Dimensions at 5-Year Intervals of Development (Alternative 4)

Mine Development Interval (years)	Pit Floor (acres)	Bench Area (acres)	Total Mine Area (acres)	Pit Floor Elevation (feet)
5	32	0	32	2,950
10	130	6	136	2,900
15	157	7	164	2,850
20	174	42	214	2,750
25	174	67	241	2,500
30 (full build out)	205	69	274	2,500

The estimated volume of material to be removed from the property under Alternative 4 is approximately 168 million tons, the majority of which would be processed on site and would leave the property as finished products. Table 2.4-2 shows an estimate of the amount of aggregate and waste rock that would be produced at the single sale site each year. Approximately 6 percent of all materials handled would be stripped and stockpiled as unusable rock. Material that is unusable as construction aggregate would be used to soften slopes and block access to the property during reclamation or would be sold for fill, decorative rock, or other low-end construction applications.

Table 2.4-2
Annual Production of Construction Materials for the Single Sale Alternative (Alternative 4)

Year after Mining Commences	Aggregate Mining (tons)	Waste Rock (tons)
1	1,000,000	62,500
2	1,500,000	100,000
3	3,050,000	175,000
4	3,300,000	200,000
5	3,300,000	200,000
6	3,500,000	225,000
7	4,000,000	250,000
8	5,000,000	300,000
9	6,000,000	350,000
10	7,000,000	437,500
11	7,000,000	437,500

Table 2.4-2
Annual Production of Construction Materials for the Single Sale Alternative (Alternative 4)

Year after Mining Commences	Aggregate Mining (tons)	Waste Rock (tons)
12	7,000,000	437,500
13	7,000,000	437,500
14	7,000,000	437,500
15	7,000,000	437,500
16	7,000,000	437,500
17	7,000,000	437,500
18	7,000,000	437,500
19	7,000,000	437,500
20	7,000,000	437,500
21	7,000,000	437,500
22	7,000,000	437,500
23	7,000,000	437,500
24	7,000,000	437,500
25	7,000,000	437,500
26	7,000,000	437,500
27	7,000,000	437,500
28	7,000,000	437,500
29	7,000,000	437,500
30	7,000,000	437,500
Total	177,650,000	11,050,000

2.4.3 Transportation of Salable Mineral Materials

The transportation of salable mineral materials under Alternative 4 would be the same as described in Section 2.1.1.3, except that more truck trips would occur because more aggregate material would be produced. An estimated 31,251 offsite truck trips would be required to transport the materials during the first year, increasing to an estimated 218,750 truck trips per year by the tenth year at full production levels.

2.4.4 Ancillary Facilities

The construction of ancillary facilities under Alternative 4 would be the same as described in Section 2.1.1.4.

2.4.5 Utilities

Utilities for Alternative 4 would be the same as those described in Section 2.1.1.5.

2.4.6 Access Roads

Access roads to the single sale site would be the same as those described in Sections 2.1.1.6 and 2.1.2.6.

2.4.7 Project Boundary Fence

A project boundary fence would be constructed around the perimeter of the single sale site as described in Sections 2.1.1.7 and 2.1.2.7.

2.4.8 Alternative 4 Surface Disturbance

Under Alternative 4, the ultimate open pit mine would be approximately 205 acres. Table 2.4-3 shows the surface disturbance that would result from implementation of Alternative 4.

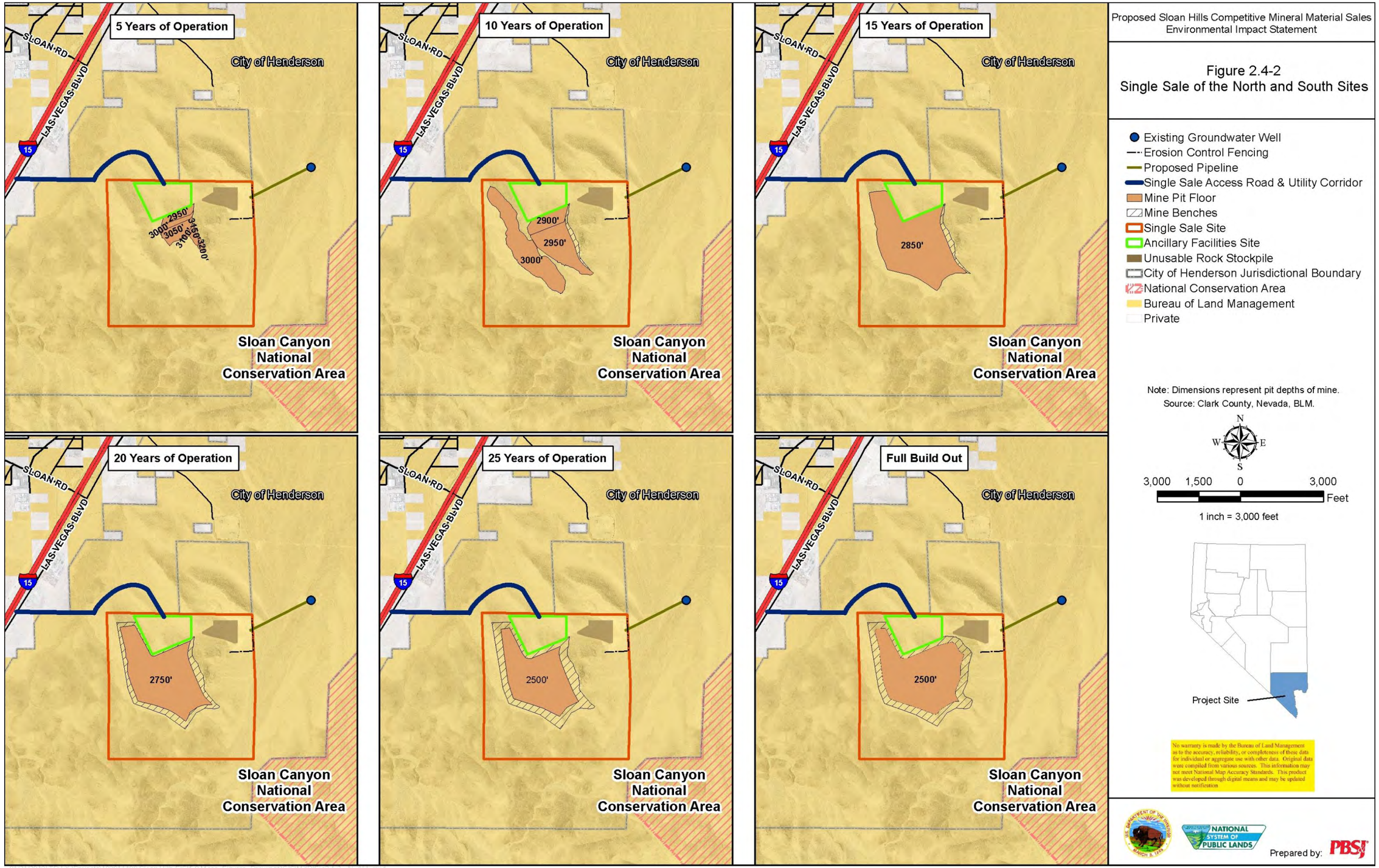
Table 2.4-3
Surface Disturbance from Implementation of Alternative 4

Project Feature	Disturbance Area (acres)
Open Pit Mine	205.4
Access and Utility Corridor	7.4
Ancillary Facilities Site	45.9
Water Pipeline	2.8
Unusable Rock Stockpile Area	17.0
Erosion Control Fencing	1.0
Boundary Fence	9.7
Total Surface Disturbance	289.2

2.5 ALTERNATIVE 5 (NO ACTION ALTERNATIVE)

The analysis of a No Action Alternative provides a benchmark, enabling decision makers to compare the magnitude of environmental effects of each action alternative. Under the No Action Alternative, the BLM would deny the request to sell mineral material rights in the Sloan Hills area while allowing existing land uses to continue.

Under the No Action Alternative, the BLM sale of mineral material would not occur in the Sloan Hills area. Mining operations in the Proposed Action area would not be authorized or approved. No surface disturbance would occur, and no impacts to the existing physical or biological environment would take place. Nearly 200 million tons of construction aggregate would not be produced.



Proposed Sloan Hills Competitive Mineral Material Sales Environmental Impact Statement

Figure 2.4-2
Single Sale of the North and South Sites

- Existing Groundwater Well
- Erosion Control Fencing
- Proposed Pipeline
- Single Sale Access Road & Utility Corridor
- Mine Pit Floor
- Mine Benches
- Single Sale Site
- Ancillary Facilities Site
- Unusable Rock Stockpile
- City of Henderson Jurisdictional Boundary
- National Conservation Area
- Bureau of Land Management
- Private

Note: Dimensions represent pit depths of mine.
Source: Clark County, Nevada, BLM.

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1 inch = 3,000 feet

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2.6 RECLAMATION

It is a statutory mandate that BLM ensure that reclamation and closure of mineral operations be completed in an environmentally sound manner; therefore, reclamation of the mine site(s) would be required once mining operations cease. All reclamation activities would be conducted in accordance with the BLM Handbook 3042-1, Solid Minerals Reclamation Handbook (BLM, 1992). The successful applicant(s) would be responsible for developing a site-specific reclamation plan in cooperation with the BLM once a mineral material sales contract is awarded. The required components of reclamation plans for the closure of solid mineral mine sites are discussed in the sections below. The site-specific reclamation plan developed for Sloan Hills would be required to contain these components.

Waste Management. All undesirable materials (e.g., contaminated soils, drilling fluids, refuse, and process residue) will be isolated, removed, buried, or otherwise disposed of as appropriate. No contaminated soils will remain at or near the surface of the site.

Subsurface. The subsurface will be properly stabilized, holes and underground workings properly plugged, and surface integrity ensured.

Site Stability. The reclaimed area will be stable. The slopes will be stabilized using appropriate reshaping and earthwork measures, including proper placement of soils and other materials. Appropriate water courses and drainage features will be established and stabilized.

Water Management. The quality and integrity of affected ground and surface waters will be protected. Where appropriate, measures will be taken to eliminate groundwater commingling and contamination. Drill holes will be plugged in a manner that protects and isolates aquifers and prevents infiltration of surface waters, as appropriate.

Soil Management. Topsoil, selected subsoils, or other materials suitable as a growth medium will be salvaged from areas to be distributed and managed for later use in reclamation.

Erosion Prevention. Surface area that is disturbed will be reclaimed as soon as practicable. The soil surface must be stable and have adequate roughness to reduce runoff, capture rainfall, and allow for the capture of wind-blown plant seeds. Soil conservation measures, including surface manipulation, reduction in slope angle, revegetation, and water management techniques, will be used. Sediment retention structures or devices will be located as close to the source of sediment-generating activities as possible.

Revegetation. When the final landform is achieved, the surface will be stabilized by vegetation or other means as soon as practicable to reduce further soil erosion by wind or water, provide forage and cover, and reduce visual impacts. Revegetation will approximate the surrounding undisturbed vegetation. Where revegetation is impractical or inconsistent with the surrounding undisturbed areas, other forms of surface stabilization, such as rock pavement, will be used.

Visual Resources. To the extent practicable, the reclaimed landscape will have the characteristics that approximate, or are compatible with, the visual quality of the adjacent area.

Site Protection. During and after reclamation activities, the operator will be responsible for monitoring and, if necessary, protecting the reclaimed landscape to help ensure reclamation success.

2.7 COMPARISON OF THE ALTERNATIVES

Chapter 4 presents a detailed analysis of the impacts resulting from each of the five alternatives. Table 2.9-1 summarizes the potential long-term impacts from each alternative to the resources analyzed in Chapter 4. Short-term impacts are not included in this table but are analyzed in Chapter 4.

2.8 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

A NEPA review specifies the purpose and need for a proposed action, describes the action that the federal agency proposes to meet that purpose and need, and identifies reasonable alternatives. A potential alternative might be eliminated from detailed consideration for many reasons, including but not limited to:

- The alternative would not meet the purpose and need of the proposed action.
- The alternative would take too long to implement.
- The alternative would be prohibitively expensive.
- The alternative would be highly speculative in nature and is therefore not considered reasonable.

This section identifies alternatives that were eliminated from further consideration and provides a brief explanation of the reasons for elimination.

2.8.1 Alternate Mine Site Locations

Several alternate mine site locations were assessed for their potential use to quarry construction aggregate materials. A search of potential aggregate sources in southern Clark County was conducted by the mining applicants through a review of literature and geologic maps. Records of existing community pits and other sand and aggregate mining operations were also reviewed to evaluate potential source areas. Potential sites were identified at Sheep Mountain, Hidden Valley, Beer Bottle Pass, and Dutchman Pass (Figure 2.7-1).

Table 2.8-1

Comparison of Long-term Impacts from Each of the Alternatives

Resource	Alternative 1 (Two Independent Mineral Material Sales)	Alternative 2 (Sale of North Site Only)	Alternative 3 (Sale of South Site Only)	Alternative 4 (Single Sale of North Site and South Site)	Alternative 5 (No Action)
Surface Disturbance (acres)	341	221	127	286	0.0
Tons of Aggregate Mined (millions)	200	126	74	178	0
Air Quality	Mining would result in moderate, localized impacts to local air quality from increased fugitive dust, volatile organic compounds and nitrogen oxides. Impacts would be moderate as measured at nearby residential communities. Mining operations would not cause an exceedance of air quality standards.	Mining would result in moderate, localized impacts to local air quality from increased fugitive dust, volatile organic compounds and nitrogen oxides. Impacts would be minor as measured at nearby residential communities. Mining operations would not cause an exceedance of air quality standards.	Mining would result in moderate, localized impacts to local air quality from increased fugitive dust, volatile organic compounds and nitrogen oxides. Impacts would be minor as measured at nearby residential communities. Mining operations would not cause an exceedance of air quality standards.	Mining would result in moderate, localized impacts to local air quality from increased fugitive dust, volatile organic compounds and nitrogen oxides. Impacts would be minor as measured at nearby residential communities. Mining operations would not cause an exceedance of air quality standards.	No long-term impacts would occur in the Sloan Hills area.

Table 2.8-1
Comparison of Long-term Impacts from Each of the Alternatives

Resource	Alternative 1 (Two Independent Mineral Material Sales)	Alternative 2 (Sale of North Site Only)	Alternative 3 (Sale of South Site Only)	Alternative 4 (Single Sale of North Site and South Site)	Alternative 5 (No Action)
Earth Resources	Mining would permanently alter the topography on approximately 205 acres. Mining would have minor long-term impacts to soils on approximately 346 acres.	Mining would permanently alter the topography on approximately 143 acres. Mining would have minor long-term impacts to soils on approximately 224 acres.	Mining would permanently alter the topography on approximately 63 acres. There would be minor long-term impacts to soils on approximately 129 acres.	Mining would permanently alter the topography on approximately 205 acres. There would be minor long-term impacts to soils on approximately 289 acres.	No long-term impacts would occur in the Sloan Hills area. Mineral materials may be obtained from an alternative location. High-grade construction aggregate would not be produced within an area that is projected to have high population growth over the next 30 years.
Biological Resources	Mining would permanently remove approximately 205 acres of vegetation and wildlife habitat. Noxious weeds could be introduced to the area, become established, and spread. Mining would result in the long-term exclusion of terrestrial wildlife from approximately 640 acres of habitat.	Mining would permanently remove approximately 143 acres of vegetation and wildlife habitat. Noxious weeds could be introduced to the area, become established, and spread. Mining would result in the long-term exclusion of terrestrial wildlife from approximately 640 acres of habitat.	Mining would permanently remove approximately 63 acres of vegetation and wildlife habitat. Noxious weeds could be introduced to the area, become established, and spread. Mining would result in the long-term exclusion of terrestrial wildlife from approximately 640 acres of habitat.	Mining would permanently remove approximately 205 acres of vegetation and wildlife habitat. Noxious weeds could be introduced to the area, become established, and spread. Mining would result in the long-term exclusion of terrestrial wildlife from approximately 640 acres of habitat.	No long-term impacts would occur.

Table 2.8-1
Comparison of Long-term Impacts from Each of the Alternatives

Resource	Alternative 1 (Two Independent Mineral Material Sales)	Alternative 2 (Sale of North Site Only)	Alternative 3 (Sale of South Site Only)	Alternative 4 (Single Sale of North Site and South Site)	Alternative 5 (No Action)
Water Resources	Mining would alter natural drainage patterns. Mining operations would require up to 225 AFY of water. Groundwater pumping and changes in the point of diversion could lead to a localized increase in the depth to groundwater. Groundwater pumping for dust suppression could have temporary (1 year) localized adverse effects on the groundwater table during site preparation activities.	Mining would alter natural drainage patterns. Mining operations would require up to 112.5 AFY of water. Groundwater pumping and changes in point of diversion could lead to a localized increase in the depth to groundwater. Groundwater pumping for dust suppression could have temporary (1 year) localized adverse effects on the groundwater table during site preparation activities.	Mining would alter natural drainage patterns. Mining operations would require up to 112.5 AFY of water. Groundwater pumping and changes in the point of diversion could lead to a localized increase in the depth to groundwater. Groundwater pumping for dust suppression could have temporary (1 year) localized adverse effects on the groundwater table during site preparation activities.	Mining would alter natural drainage patterns. Mining operations would require up to 225 AFY of water. Groundwater pumping and changes in the point of diversion could lead to a localized increase in the depth to groundwater. Groundwater pumping for dust suppression could have temporary (1 year) localized adverse effects on the groundwater table during site preparation activities.	No impacts would occur in the Sloan Hills area. Mineral materials may be obtained from an alternative location.
Cultural Resources	Mining operations would impact four cultural resources. These resources are not eligible for listing on the National Register of Historic Places	Mining operations would impact two cultural resources. These resources are not eligible for listing on the National Register of Historic Places	Mining operations would impact two cultural resources. These resources are not eligible for listing on the National Register of Historic Places	Mining operations would impact four cultural resources. These resources are not eligible for listing on the National Register of Historic Places	No impacts on cultural resources would occur in the Sloan Hills area.

Table 2.8-1
Comparison of Long-term Impacts from Each of the Alternatives

Resource	Alternative 1 (Two Independent Mineral Material Sales)	Alternative 2 (Sale of North Site Only)	Alternative 3 (Sale of South Site Only)	Alternative 4 (Single Sale of North Site and South Site)	Alternative 5 (No Action)
Native American Resources	No impacts.	No impacts.	No impacts.	No impacts.	No impacts.
Land Use	Increased noise, fugitive dust, and changes to the visual character of the proposed project area may decrease the attractiveness of the area for development and create land use conflicts. The Las Vegas Boulevard right-of-way would be modified to include an additional turn lane. The Los Angeles/Salt Lake Railroad right-of-way would be crossed two times by the access road/utilities.	Increased noise, fugitive dust, and changes to the visual character of the proposed project area may decrease the attractiveness of the area for development and create land use conflicts. The Las Vegas Boulevard right-of-way would be modified to include an additional turn lane. The Los Angeles/Salt Lake Railroad right-of-way would be crossed one time by the access road/utilities.	Increased noise and fugitive dust from the proposed project may decrease the attractiveness of the area for development and create land use conflicts. The Las Vegas Boulevard right-of-way would be modified to include an additional turn lane. The Los Angeles/Salt Lake Railroad right-of-way would be crossed one time by the access road/utilities.	Increased noise, fugitive dust, and changes to the visual character of the proposed project area may decrease the attractiveness of the area for development and create land use conflicts. The Las Vegas Boulevard right-of-way would be modified to include an additional turn lane. The Los Angeles/Salt Lake Railroad right-of-way would be crossed one time by the access road/utilities	No impacts.
Visual Resources	Mining would introduce a strong degree of contrast and a significant change in the landform/water characteristic and would not meet Visual Resource Management	Mining would introduce a strong degree of contrast and a significant change in the landform/water characteristic and would not meet Visual Resource Management objectives at Key Observation Point 2.	Impacts would be less than significant and would be consistent with Visual Resource Management objectives.	Mining would introduce a strong degree of contrast and a significant change in the landform/water characteristic and would not meet Visual Resource Management objectives at Key Observation Point 2.	No impacts.

Table 2.8-1
Comparison of Long-term Impacts from Each of the Alternatives

Resource	Alternative 1 (Two Independent Mineral Material Sales)	Alternative 2 (Sale of North Site Only)	Alternative 3 (Sale of South Site Only)	Alternative 4 (Single Sale of North Site and South Site)	Alternative 5 (No Action)
	objectives at Key Observation Point 2. Effects at Key Observation Points 1 and 3 would be weak and moderate, respectively.	Effects at Key Observation Points 1 and 3 would be weak and moderate, respectively.		Effects at Key Observation Points 1 and 3 would be weak and moderate, respectively.	
Noise and Vibration	Mining would cause moderate to imperceptible long-term noise and vibration impacts that would be less than significant.	Mining would cause moderate to imperceptible long-term noise and vibration impacts that would be less than significant.	Mining would cause moderate to imperceptible long-term noise and vibration impacts that would be less than significant.	Mining would cause moderate to imperceptible long-term noise and vibration impacts that would be less than significant.	No impacts.
Transportation and Traffic	An estimated 1,204 trips to and from the site would occur each day. Trips would have minimal impacts on traffic conditions, and all roadways would continue to operate at acceptable levels of service. Trips would accelerate structural deterioration of roads and reduce pavement lifespan.	An estimated 602 trips to and from the site would occur each day. Trips would have minimal impacts on traffic conditions, and all roadways would continue to operate at acceptable levels of service. Trips would accelerate structural deterioration of roads and reduce pavement lifespan. Impacts to roads would be half of that of Alternative 1.	An estimated 602 trips to and from the site would occur each day. Trips would have minimal impacts on traffic conditions, and all roadways would continue to operate at acceptable levels of service. Trips would accelerate structural deterioration of roads and reduce pavement lifespan. Impacts to roads would be half of that of Alternative 1.	An estimated 842 trips to and from the site would occur each day. Trips would have minimal impacts on traffic conditions, and all roadways would continue to operate at acceptable levels of service. Trips would accelerate structural deterioration of roads and reduce pavement lifespan. Impacts to roads would be 70 percent of that of Alternative 1.	Mineral materials may be mined from an alternate location that would be located further away from areas where the material will be used. This may result in an increase in traffic on major roadways.

Table 2.8-1
Comparison of Long-term Impacts from Each of the Alternatives

Resource	Alternative 1 (Two Independent Mineral Material Sales)	Alternative 2 (Sale of North Site Only)	Alternative 3 (Sale of South Site Only)	Alternative 4 (Single Sale of North Site and South Site)	Alternative 5 (No Action)
Socioeconomics	The proposed project would have no significant impacts on employment and the economy; population; housing; and property valuation and taxation.	The proposed project would have no significant impacts on employment and the economy; population; housing; and property valuation and taxation.	The proposed project would have no significant impacts on employment and the economy; population; housing; and property valuation and taxation.	The proposed project would have no significant impacts on employment and the economy; population; housing; and property valuation and taxation.	Between 20 and 50 long-term jobs would not be created in the southern Las Vegas Valley. Up to $40 million dollars would not be deposited in the Federal General Treasury fund and $8 million would not be deposited into the State General Treasury.
Special Management Areas	Increased levels of fugitive dust, noise, and visual impacts would occur at the Sloan NCA, Sloan Rock Art ACEC, and Jean Lake/Roach Special Recreation Management Area (SRMA). Mining would remove 640 acres from the Jean Lake/Roach SRMA that was available for dispersed recreation. Increased levels of fugitive dust, noise, and visual impacts would affect wilderness characteristics and	Increased levels of fugitive dust, noise, and visual impacts would occur at the Sloan NCA, Sloan Rock Art ACEC, and Jean Lake/Roach SRMA. Mining would remove 320 acres from the Jean Lake/Roach SRMA that was available for dispersed recreation. Increased levels of fugitive dust, noise, and visual impacts would affect wilderness characteristics and decrease outstanding opportunities for solitude.	Increased levels of fugitive dust, noise, and visual impacts would occur at the Sloan NCA, Sloan Rock Art ACEC, and Jean Lake/Roach SRMA. Mining would remove 320acres from the Jean Lake/Roach SRMA that was available for dispersed recreation. Increased levels of fugitive dust, noise, and visual impacts would affect wilderness characteristics and decrease outstanding opportunities for solitude.	Increased levels of fugitive dust, noise, and visual impacts would occur at the Sloan NCA, Sloan Rock Art ACEC, and Jean Lake/Roach SRMA. Mining would remove 640 acres from the Jean Lake/Roach SRMA that was available for dispersed recreation. Increased levels of fugitive dust, noise, and visual impacts would affect wilderness characteristics and decrease outstanding opportunities for solitude.	No impacts.

Table 2.8-1
Comparison of Long-term Impacts from Each of the Alternatives

Resource	Alternative 1 (Two Independent Mineral Material Sales)	Alternative 2 (Sale of North Site Only)	Alternative 3 (Sale of South Site Only)	Alternative 4 (Single Sale of North Site and South Site)	Alternative 5 (No Action)
	decrease outstanding opportunities for solitude.				
Recreation	The proposed project would remove 640 acres that were available for dispersed recreation. Increased levels of fugitive dust, noise, and visual impacts would affect the character and rural, undeveloped feel of the surrounding area.	The proposed project would remove 320 acres that were available for dispersed recreation. Increased levels of fugitive dust, noise, and visual impacts would affect the character and rural, undeveloped feel of the surrounding area.	The proposed project would remove 320 acres that were available for dispersed recreation. Increased levels of fugitive dust, noise, and visual impacts would affect the character and rural, undeveloped feel of the surrounding area.	The proposed project would remove 640 acres that were available for dispersed recreation. Increased levels of fugitive dust, noise, and visual impacts would affect the character and rural, undeveloped feel of the surrounding area.	No impacts.

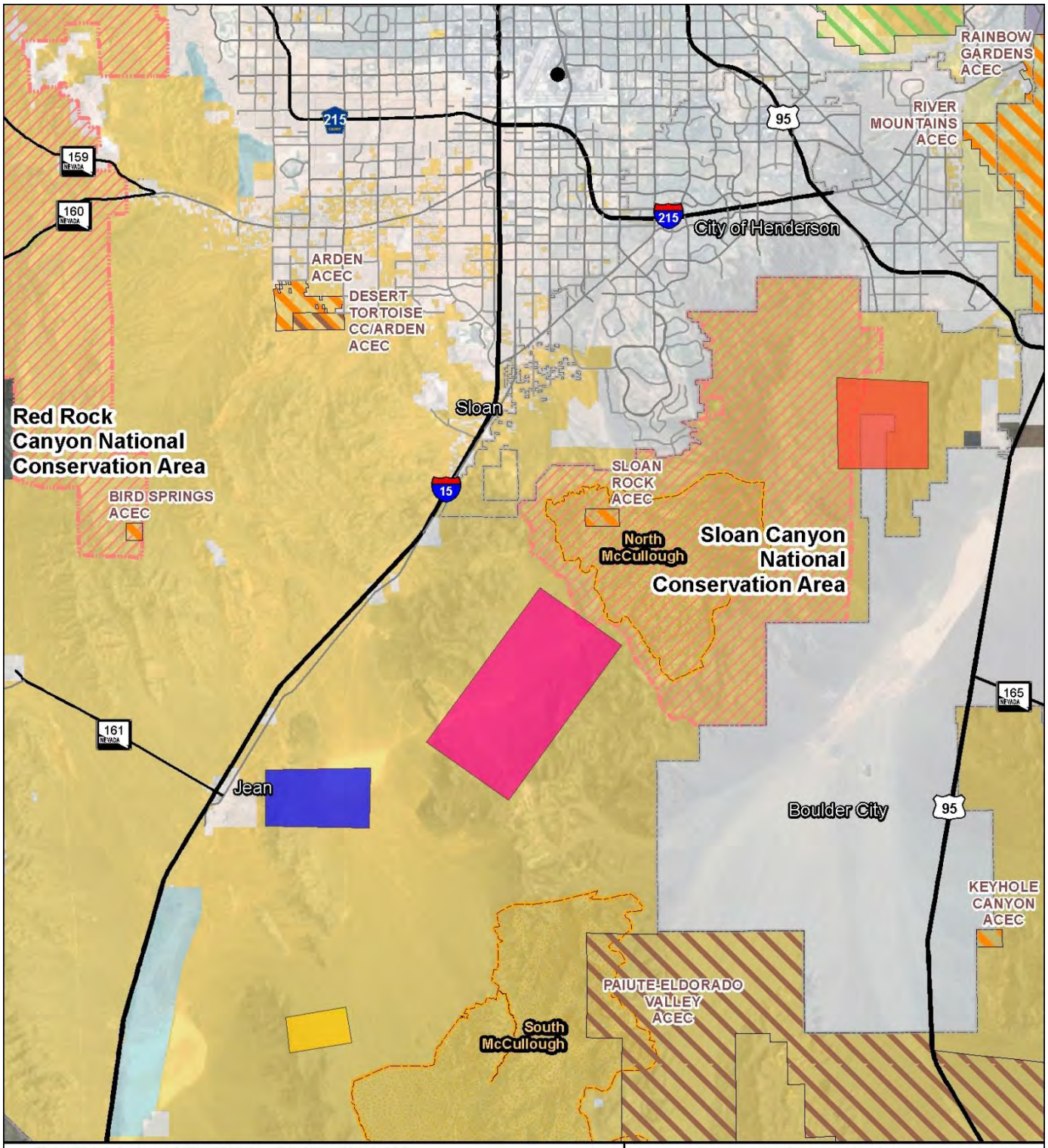
Sheep Mountain

The Sheep Mountain site is located approximately 22 miles south of McCarran Airport (Figure 2.7-1). This site contains rock deposits that are generally uniform in mineralogy and lithology and would be adequate for producing aggregate of any size once crushed. There are two current BLM mineral material sales contracts at Sheep Mountain for limestone aggregate. One contract is for 500,000 tons, the other is for 19 million tons. An application is pending for another contract to remove 23 million tons. Sheep Mountain is currently a source of aggregate and has the potential to supply aggregate well into the future. This site does not meet the purpose of and need for this Proposed Action, which is to determine whether the Sloan Hills site is suitable for mining and mineral extraction and whether a mineral material sales contract(s) should be issued. This site was dismissed from further analysis for this reason.

Hidden Valley

The Hidden Valley site is located approximately 18 miles south of McCarran Airport (Figure 2.7-1). This site contains alluvial deposits of andesite, basalt, pumice, scoria, and ash-tuffs. Alluvial deposits are typically highly variable in mineralogy and lithology and are limited in the range of particle sizes found within the deposit. Variability in the mineralogy and lithology of the deposit translates into variability in the strength and durability of the concrete that is produced from it. Alluvial deposits contain a large amount of fine (clay and sand-sized) particles that are generally unusable as construction material. If an alluvial deposit does not contain coarse particulate components for a concrete mix, the coarse components must be obtained from a second location, which increases production costs and environmental impacts. Likewise, production costs are also increased proportionately to the amount of fine particles that must be removed from the deposit.

Two operators in Hidden Valley are currently removing material in this area. One is removing decorative rock under a BLM mineral material sales contract. The other is removing perlite under a Plan of Operations in accordance with 43 CFR 3809. The pumice is being used as lightweight aggregate for the production of cinder blocks. No one is currently mining limestone or dolomite aggregate. This site does not meet the purpose of and need for this Proposed Action, which is to determine whether the Sloan Hills site is suitable for mining and mineral extraction and whether a mineral material sales contract(s) should be issued. This site was dismissed from further analysis for this reason.


RAINBOW GARDENS ACEC
RIVER MOUNTAINS ACEC
215
95
159
NEVADA
160
NEVADA
215
City of Henderson
ARDEN ACEC
DESERT TORTOISE CC/ARDEN ACEC
Red Rock Canyon National Conservation Area
Sloan
BIRD SPRINGS ACEC
15
SLOAN ROCK ACEC
North McCullough
Sloan Canyon National Conservation Area
165
NEVADA
161
NEVADA
Jean
Boulder City
95
KEYHOLE CANYON ACEC
PAIUTE-ELDORADO VALLEY ACEC
South McCullough
Source: Nevada Environmental Consultants Inc., Clark County, Nevada, BLM.
Alternative Sites
Beer Bottle Pass
Dutchman Pass
Hidden Valley
Sheep Mountains
Municipal Boundary
Biological ACEC
Cultural ACEC
Cultural/Biological ACEC
Desert Tortoise ACEC
Desert Tortoise/Cultural ACEC
Designated Wilderness
National Conservation Area
Bureau of Land Management
Bureau of Reclamation
Clark County, Nevada
National Park Service
Private
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
1 inch = 20,000 feet
20,000 10,000 0 20,000
Feet
N
W
E
S
Proposed Sloan Hills Competitive Mineral Material Sales Environmental Impact Statement
Figure 2.7-1
Alternative Sites Considered and Dismissed from Further Analysis
NATIONAL SYSTEM OF PUBLIC LANDS
Prepared by: PBS&J
11/05/2009 | TD | X:\Projects\100011108 Sloan Hills EIS\6.0 Maps_Figures_Drawings\GIS\MXD\Fig2.7-1_Alt_Sites.mxd

Beer Bottle Pass

The Beer Bottle Pass site is located approximately 28 miles south of McCarran Airport (Figure 2.7-1). This site contains alluvial deposits of mostly sand and gravel. The site has access to nearby transmission lines, but no water is available. Additionally, there are several existing mining claims in the area. Mining this site would result in some of the same issues as described for the Hidden Valley site that are inherent with mining alluvial deposits. This site does not meet the purpose of and need for this Proposed Action to determine whether the Sloan Hills site is suitable for mining and mineral extraction and whether a mineral material sales contract(s) should be issued. Therefore, this site was dismissed from further analysis.

Dutchman Pass

The Dutchman Pass site is located approximately 14 miles south of McCarran Airport. The site contains alluvial deposits of andesite flows, intrusive rocks, and red and black scoria. This site has been mined and the material has been used to produce construction aggregates for many years. This site does not meet the purpose of and need for this Proposed Action to determine whether the Sloan Hills site is suitable for mining and mineral extraction and whether a mineral material sales contract(s) should be issued. Therefore, this site was dismissed from further analysis.

2.8.2 Competitive Mineral Material Sale of Fewer Acres

A smaller sale of mineral material within the Sloan Hills was considered by the BLM. The settlement agreement with CEMEX stipulates that BLM will initiate a proposed action for the sale of approximately 25 million tons for an initial term of 10 years. The settlement agreement with SRP stipulates that BLM will initiate a proposed action for the sale of approximately 50 million tons for an initial term of 10 years, renewable for an additional term of up to 10 years. Preliminary analyses of the available materials in the Sloan Hills site indicated that a smaller sale would not yield the volume of material that BLM must consider for sale, per the settlement agreements. A smaller sale would also not meet the BLM purpose to respond to the applications submitted by CEMEX and SRP for a competitive mineral material sale of limestone and dolomite in Sloan Hills.