

This section provides the description of the proposed project, which consists of the Amended Mine and Reclamation Plan for expansion of the White Knob/White Ridge Limestone Quarries. The purpose of the project description is to describe the project in a way that will be meaningful to the public, reviewing agencies, and decision-makers. As described in Section 15124 of the California Environmental Quality Act (CEQA) Guidelines, a complete project description must contain the following information but is not required to supply extensive detail beyond that needed for evaluation and review of the potential environmental impacts: (1) the location and boundaries of the project on a regional and detail map; (2) a statement of objectives sought by the proposed project; (3) a general description of the project's economic and environmental characteristics; and (4) a statement briefly describing the intended uses of the Draft EIR.

The Surface Mining and Reclamation Act (SMARA) was signed into law in 1975 and went into effect in 1976; it has been amended 24 times since its effective date. The intent of the act is to assure reclamation of mined lands, encourage production and conservation of minerals, and create and maintain surface mining and reclamation policy (regulations). One of the principal requirements of SMARA is the preparation of reclamation plans. A reclamation plan must be prepared by a mining applicant prior to initiation of mining activities. Reclamation plans must be approved by the SMARA lead agency (usually counties or cities) and the California Department of Conservation, Office of Mine Reclamation (OMR). Reclamation plans are subject to environmental review under CEQA. The Amended Mine and Reclamation Plan was prepared in accordance with SMARA and its implementing regulations (reclamation performance standards) set forth in the Title 14 of the California Code of Regulations, Sections 3700 through 3711.

2.1 PROJECT OVERVIEW

Omya Inc., proposed an Amended Mine and Reclamation Plan (Amended Plan or proposed project) for expansion of the existing White Knob/White Ridge Limestone Quarries, a limestone mining operation located in the San Bernardino Mountains in southwestern San Bernardino County. The Amended Plan would increase the operational years of the quarry by 24 years from the existing permit expiration date of 2031 to the year 2055.

The Amended Plan includes an increase in mine area of approximately 190.1 acres over the existing approved quarry area of 145 acres. This increase results in a total quarry area of approximately 335.1 acres of existing or planned surface mining operation-related disturbance. The Amended Plan would not result in the increase of mining equipment used at the quarry or the increase of daily quarried material. Approximately 40 acres of the existing 83.5-acre Bureau of Land Management (BLM) haul road right-of-way on federal public land must be reclaimed and is added to the proposed project reclamation total. This 375.1-acre area comprises the "project site" for this EIR. The specific elements of the proposed project are described in Sections 2.7 through 2.11. The primary areas to be reclaimed are the existing White Knob Quarry and White Knob Annex Quarry, the approved White Ridge Quarry, the existing Overburden Site #1 and proposed Overburden Sites #2 and #3, and the ancillary disturbance areas, which include haul/access roads, sediment basins, storage pads, crusher location, west slope impact area, and boulder roll-down area. See **Figure 2.0-2** for the haul road and **Figure 2.0-3** for the quarry and ancillary disturbance areas.

The proposed project is designed to make the reclaimed lands suitable for future open space uses and wildlife habitat. It includes site-specific activities to satisfy the reclamation requirements of the Surface Mining and Reclamation Act of 1975, as amended, and its implementing regulations (collectively, SMARA), as well as the County's surface mining and land reclamation ordinance (San Bernardino County Code Chapter 88.03). A lead-agency-approved reclamation

2.0 PROJECT DESCRIPTION

plan is required for all surface mining operations in the state that are subject to SMARA. The County has primary discretionary authority over the proposed project and serves as the lead agency responsible under CEQA and SMARA. If approved, the proposed project would not preclude future permitting of extraction and reclamation activities within or beyond the project site. Any such future proposal would require authorization from the County and compliance with CEQA.

2.2 PROJECT LOCATION

REGIONAL

The project site is located in the San Bernardino Mountains southwest of Lucerne Valley in southwestern San Bernardino County, California (see **Figure 2.0-1**). Northwest of the site lies the Victor Valley metropolitan area, which includes the incorporated cities of Apple Valley, Victorville, Adelanto, and Hesperia, all over 13 miles from the project site. South of the site lies the San Bernardino National Forest (SBNF) and Big Bear Lake and Lake Arrowhead, approximately 11 miles from the project site, as well as the unincorporated communities of Crestline, Lake Arrowhead, Running Springs, Big Bear City, Forest Falls, and the City of Big Bear Lake. West of the project site, Interstate 15 (I-15) traverses north to south with additional SBNF land beyond. Farther south and southwest of the site is the San Bernardino Valley, which includes land in both San Bernardino and Riverside counties and the incorporated cities of Riverside, San Bernardino, Ontario, and Rancho Cucamonga, all more than 23 miles from the project site. The eastern desert area of the county is located east of the site and includes the City of Twentynine Palms, 57 miles from the site, and the Town of Yucca Valley, 37 miles from the site, as well as the Marine Corps Air Ground Combat Center in Twentynine Palms. The area is accessed by I-15 and State Routes (SR) 18 and 247.

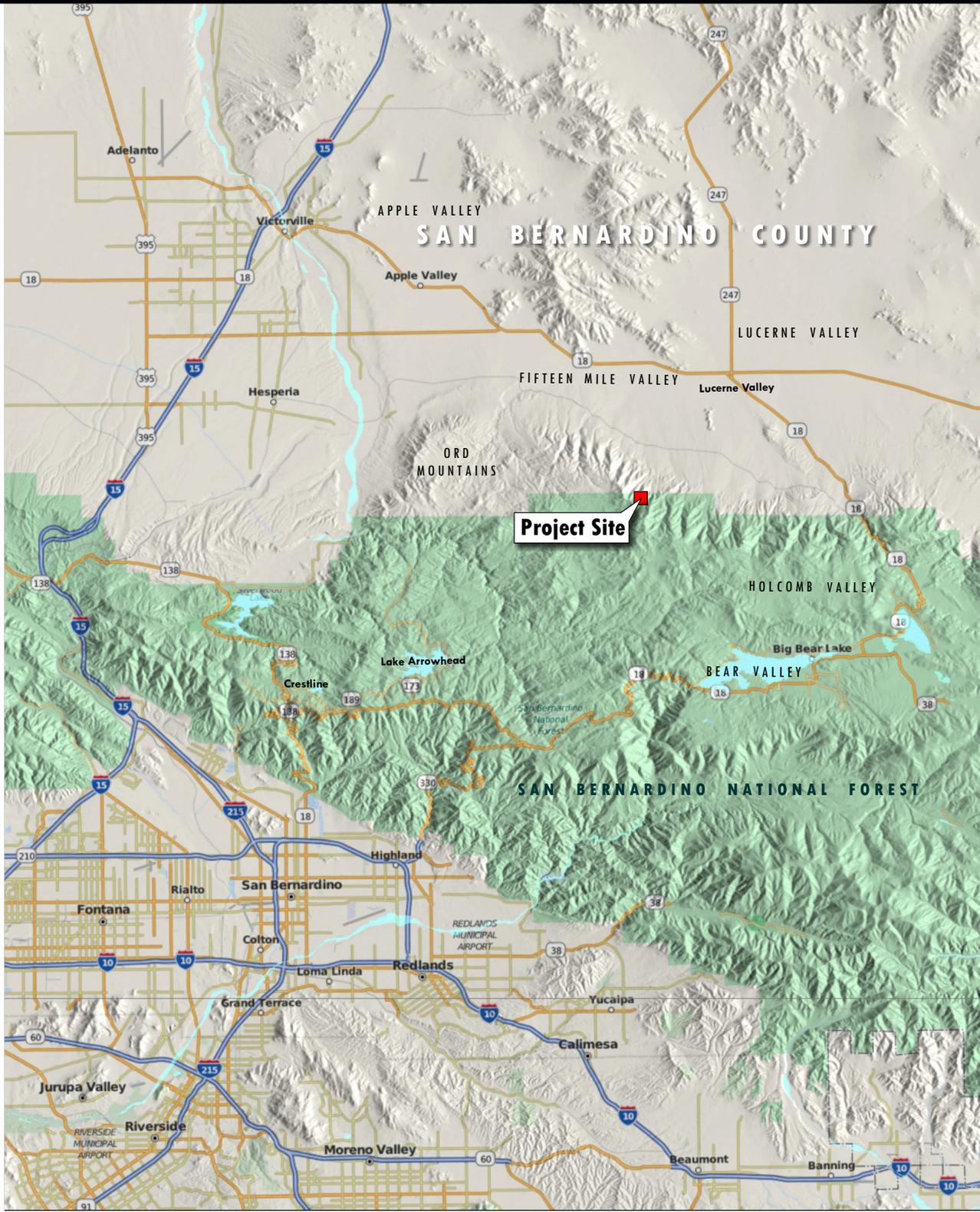
PROJECT SITE

The White Knob/White Ridge Quarries are within the larger San Bernardino Mountains-Lucerne Valley Mining District, in which other large-scale limestone mines are present to the east along the north-facing slope of the mountains over a distance of approximately 10 miles. These other mining operations include:

- Omya – Sentinel/Butterfield
- Specialty Minerals, Inc. – Marble Canyon, Arctic Canyon, Cushenbury 21
- Mitsubishi Cement Co. – Cushenbury Mine

The project site is located entirely on private lands, with the exception of the haul road, which is within an approved right-of-way on BLM-managed lands. The existing mine and planned expansions are bounded on the south by mountainous undeveloped National Forest lands, on the west, north, and east by unpatented placer mining claims on public lands managed by the BLM, and on the northeast by patented open space.

The project site is located approximately 6 miles southwest of the community of Lucerne Valley and 8 miles northwest of Big Bear Lake just north of the San Bernardino National Forest (see **Figure 2.0-2**). The project site is within portions of Sections 5, 6, 7, and 8 of Township 3 North, Range 1 West, SBBM. The site is located on the north range front of the San Bernardino Mountains and includes local topographic relief of about 2,000 feet from approximately 4,900 to 6,900 feet above mean sea level (amsl). The site is accessed at its northeastern corner via a 5.1 mile-long haul road (4.4 miles of which is BLM haul road right-of way) from the Lucerne Valley processing plant at Crystal Creek Road.



Project Site

LEGEND

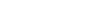
- **Project Site Location (Geographic Location)**
 California Zone 5 (FIPS 405): 6859727.90 1956210.48
 Lat/Lon: 34° 21' 49.3863" N, 117° 00' 44.3577" W

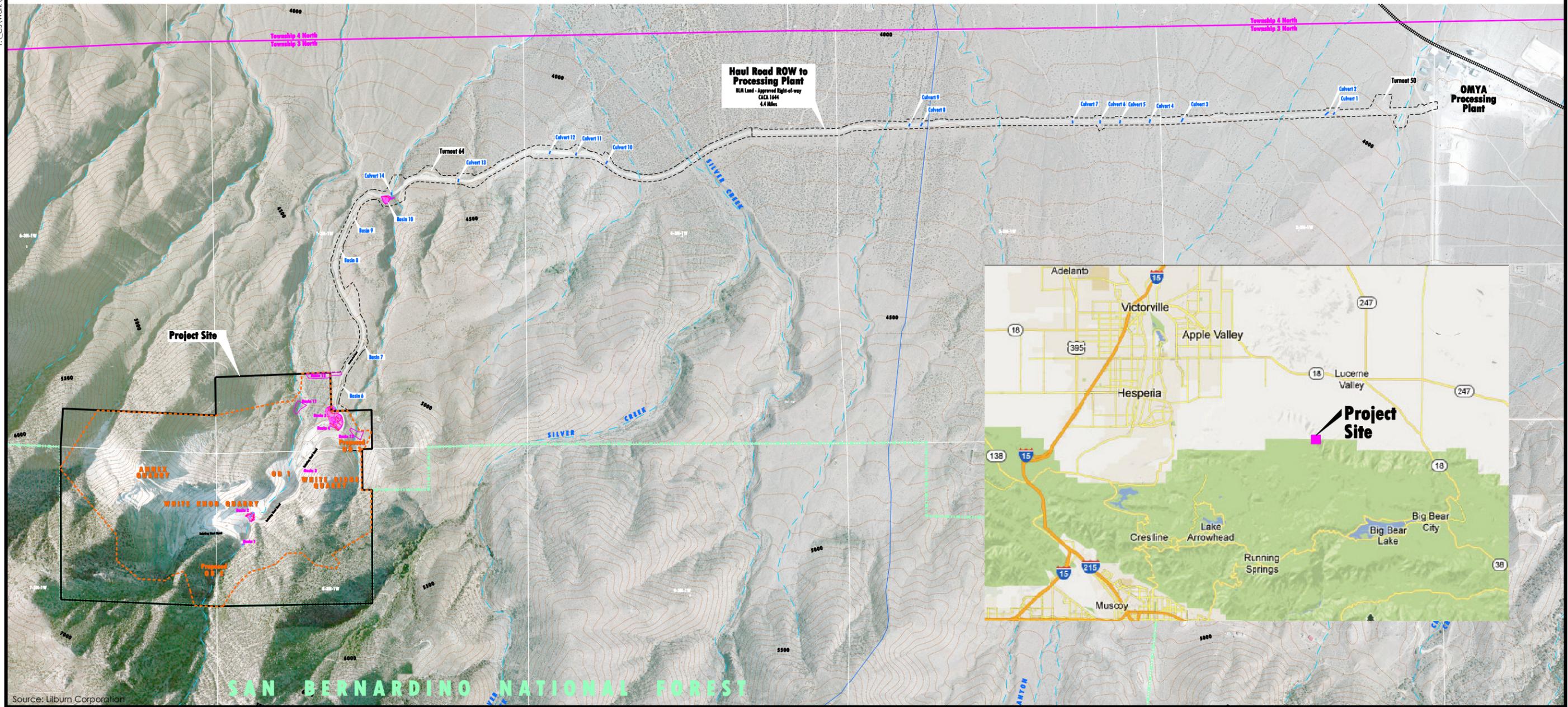
Source: Lilburn Corporation



Figure 2.0-1
Regional Location



-  Project Boundary
-  Private Lands
-  Limits of Planned Disturbance
-  Haul Road Right-of-way BLM Land CACA 16644
-  Overburden Stockpile
-  Proposed/Improved Basins
-  Existing Major Contour
-  Existing Minor Contour
-  Existing Drainages
-  San Bernardino National Forest Boundary
-  USGS Survey Township



Source: Liburn Corporation

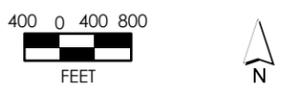
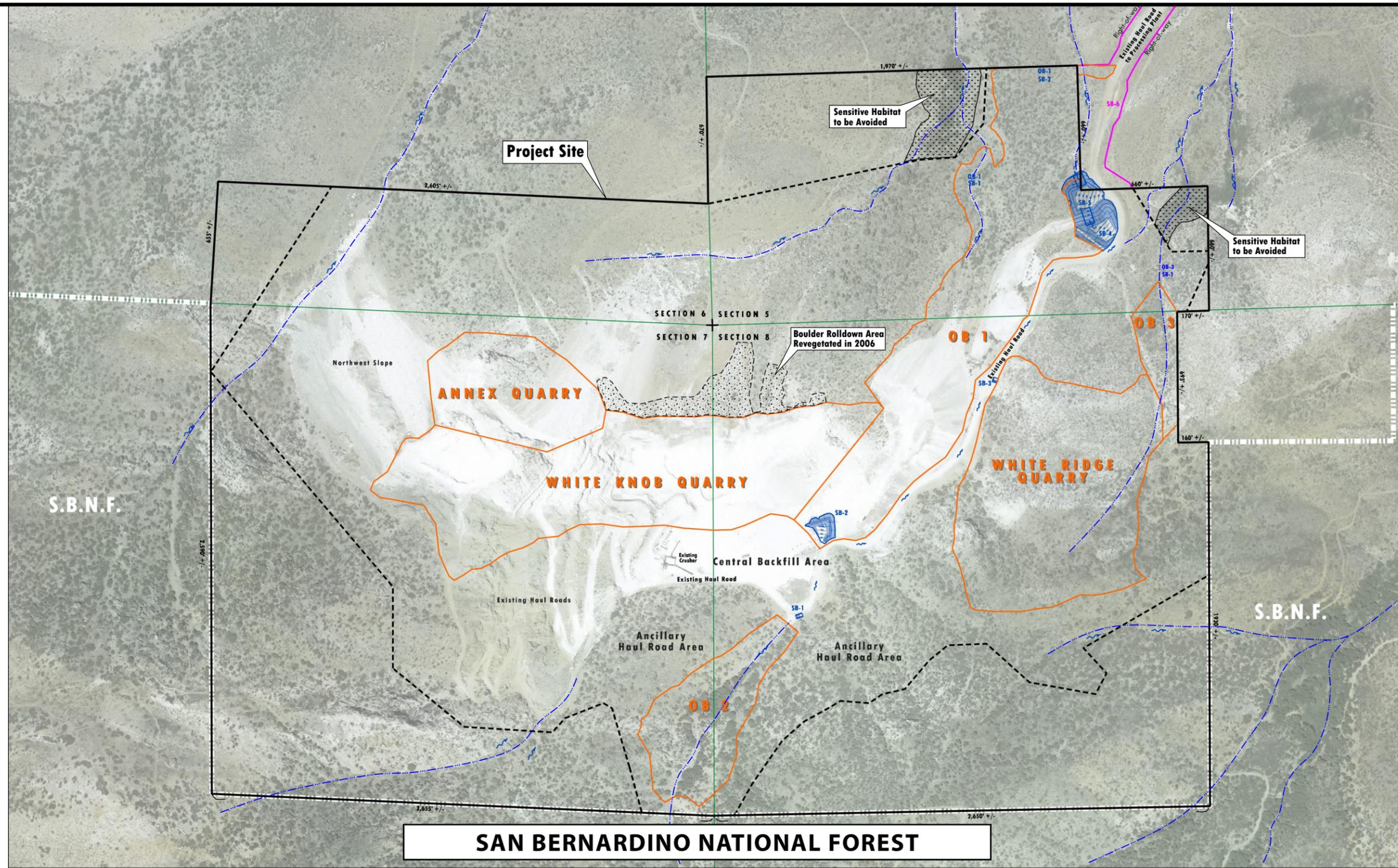


Figure 2.0-2
Project Vicinity
PMC



- Project Boundary Private Lands
- - - Limits of Planned Disturbance
- Major Facilities
- Haul Road Right-of-way on BLM Land CACA 16644
- OB Overburden Stockpile
- SB Sediment Basin
- Proposed / Improved SB
- Existing Drainages

Source: Lilburn Corporation

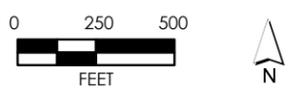


Figure 2.0-3
Existing Quarries and Planned Operations
PMC

At this time, Omya is in the process of acquiring the additional 70 acres of BLM land. As part of the 2011 Settlement Agreement, Omya expanded the right-of-way of the off-site haul road from 67 acres to its present 83.5 acres, which are also located on BLM land. The off-site haul road improvements and the sale of BLM land to Omya will be a part of the County’s Conditions of Approval for the Amended Mine and Reclamation Plan. Thus, this EIR assumes that the federal actions associated with the improvements and land transfer are approved.

With the mandated purchase of 70 acres from BLM (see Section 2.3, Site History), the Omya land holdings, leased and owned, within the project boundary will consist of approximately 427.5 acres which is larger than the actual project disturbance area discussed in Section 2.1. **Table 2.0-1** identifies the land holdings and acreage.

**TABLE 2.0-1
OMYA LAND HOLDINGS WITHIN PROJECT BOUNDARY**

Claim Name and APN	Acreage	Owner
White Ridge Placer #1 APN 0446-021-35	157.5	Owned by Omya Inc.
White Knob Placer #1 APN 0446-011-06	160	Leased from Don Fife
White Knob Annex Placer Claim APN 0446-011-04	40	Leased from Don Fife
Silver Creek Placer #4 (portion) APN 0446-021-11	70	Owned by Omya Inc.

SURROUNDING LAND USE

The project site is located on the north side of the San Bernardino Mountains. All lands surrounding the project site are vacant, open space federal public lands managed by the Bureau of Land Management or by the U.S. Forest Service. The San Bernardino County land use designation for the site and the surrounding area is Resource Conservation (RC). Immediately south of the project site is the San Bernardino National Forest. The nearest private residence is approximately 2 miles north of the project site.

**TABLE 2.0-2
SURROUNDING LAND USE**

Area	Land Use	Land Use Designation
North	Vacant, BLM land	Resource Conservation
South	Vacant	Resource Conservation
East	Vacant	Resource Conservation
West	Vacant	Resource Conservation

2.0 PROJECT DESCRIPTION

2.3 SITE HISTORY

Mining began on the property now controlled by Omya during the late 1950s and has been more or less continuous since 1958. The White Knob and White Ridge claims were staked in the 1950s by the Fife family and later patented. Small-scale mining, road building, and core drilling occurred during the 1960s–1970s. During the early 1980s, the White Knob deposit was leased by Omya and the deposit was explored by core drilling and detailed geologic investigations. In 1985, the decision to open and permit the White Knob/White Ridge deposit was made. Mining at the White Knob Quarry started in 1987 after San Bernardino County permitting was completed. For logistical reasons, mining started between the elevations of 5,500 and 5,900 feet. Ore from those levels met production requirements for 10 years while a haul road was being constructed to the top of the knob at 6,200 feet. Topography in the area of the quarry is extremely steep and rugged. Several 100-foot-high cliffs were originally present before mining began, and the deposit forms a steep cliff-sided ridge trending east to west and about 1,500 feet long.

The San Bernardino County Planning Commission approved the existing White Knob/White Ridge Limestone Mine Site Approval and Reclamation Plan in 1986 (RP# 86M-04) with an expiration date of December 31, 2031. RP# 86M-04 permits mining operations on 145 acres of the mine operator's 357.5 total acres of land holdings. The site is designated as CA mine ID# 91-36-0067.

On April 20, 2011, a Settlement Agreement was entered into by and between the BLM, the California Department of Fish and Game (now the Department of Fish and Wildlife [CDFW]), and Omya relating to activities at the White Knob Quarry. There are six separate components (Parts A through F) in the Agreement. Part B of the Agreement is entitled "Repair, Remediate, and Monitor Improvements to the White Knob Quarry Right-of-Way Access Road and Associated Facilities to Protect Drainages." These conditions are included in the Amended Plan.

The components (Parts A through F) of the Agreement consist of the following:

- Part A – Omya has agreed to study and monitor Ruby Springs, located to the northwest of the quarry. Ongoing monitoring through 2014 is being undertaken and reported to the BLM.
- Part B – Requires Omya to repair, remediate, and monitor measures to control runoff and sedimentation along the 4.4 miles of haul road on BLM-managed land.
- Part C – Requires that the former explosives storage facility located on BLM land be removed and reclaimed. The facility has been removed. The area is part of the 70-acre area to be purchased by Omya (see Part E, below), and its future use and reclamation are part of the Amended Plan.
- Part D – Requires haul road improvements and reclamation to be incorporated into the overall reclamation plan.
- Part E – Requires Omya to apply to the BLM for the purchase of 70 acres on which overburden material is proposed to be placed in the future.
- Part F – Recovery of costs for the BLM.

In August 2011, Stantec prepared the *White Knob Quarry Haul Road Drainage Report and Plan of Development* to analyze the existing drainage conditions at the quarry and along the haul road, and to provide recommendations for facilities to control stormwater and sediment runoff and provide protection to surrounding drainages. Omya subsequently submitted an amended right-of-way application to the BLM to make improvements to the haul road and drainages as recommended in the Plan of Development. As part of the Settlement Agreement and in order to accommodate the improvements required to adequately repair and remediate the right-of-way access road and drainage facilities, the existing right-of-way was expanded from 67 acres to its present 83.5 acres.

2.4 EXISTING CONDITIONS

The White Knob/White Ridge Quarries are currently permitted to operate through the year 2031. Existing operations currently include mining at the White Knob Quarry site only (see **Figure 2.0-3**). At the present time, production comes from both the lower levels (5,500-foot level) and the upper levels (6,200-foot level). Two or three working levels are operated at any one time to supply the quota of ore needed to meet production demands.

Table 2.0-3 identifies the current uses by acreage for the White Knob and White Ridge Quarry area. As is shown, the White Knob Quarry currently consists of approximately 35 acres.

**TABLE 2.0-3
QUARRY/AREA BY ACREAGE**

Quarry or Area	Existing Approved Acres
White Knob Quarry	35
White Knob Annex Quarry	7
White Ridge Quarry	18
Overburden Site #1	15 ¹
Overburden Site #2	– ¹
Overburden Site #3	– ¹
Ancillary Disturbance Limits ² (outside of above)	70
Total	145

Note: Areas from 1986 Plan estimated to whole acres; proposed areas rounded to nearest tenth of an acre. Totals may be slightly different due to rounding.

1. Combined waste areas; not individually estimated in 1986 Plan.
2. Ancillary disturbance limits include haul/access roads to quarries and overburden sites, sediment basins and other erosion control features, storage pads, crusher location, west slope impacts, and incidental impacts from boulder roll-down.

2.0 PROJECT DESCRIPTION

The White Knob Quarry operates year-round. Mining of ore grade limestone may occur throughout the year, but usually occurs for about eight months a year. The excavated material has two main components: ore and overburden.¹

Overburden removal and quarry development may occur throughout the year, but usually occur for about four months per year. The White Knob Quarry currently produces, based on production level from 2004 through 2006², an average of 512,000 tons per year of excavated material, which includes 324,000 tons per year of ore to the crusher and 188,000 tons per year of overburden or non-spec rock³. Of the crushed ore material, 275,400 tons per year are sent to the processing plant for production and 48,600 tons per year of crusher fines are sent to the overburden stockpile. None of the material sent to the processing plant including that considered "waste material" after processing is returned to the quarry site.

The quarrying procedure, which uses standard open pit and benching⁴ practices, generally includes the following steps: (1) the area of planned surface disturbance is cleared of vegetation cover; (2) topsoil is removed and stockpiled for future use during reclamation activities; (3) access roads are developed into the planned upper benches; (4) blast holes are drilled with rotary blast hole drills, then controlled blasting loosens the rock at a benching interval of 25–30 feet; and (5) front-end loaders load the broken rock into 40- to 100-ton off-highway haul trucks to be transported to the primary mobile crusher located adjacent to the mining area. The material is separated into ore for processing and overburden material at the crusher site. Crushed ore is trucked to the Lucerne Valley processing plant located at the beginning of the haul road at its intersection with Crystal Creek Road. Overburden material that is screened out (including non-spec rock) is sent to the on-site overburden stockpile (OB-1). The site includes sediment control basins at key locations to control runoff from rain events.

The existing quarry deposit occurs in an area of extremely rugged topography along narrow ridges with cliffs up to 100 feet on three sides. Natural landslide and talus deposits composed of white and off-color marble are present on both the north and west slopes of the ridge. During mining of the rock in the deposit at the top of the ridge and along the crest, boulders of white limestone have rolled down the slope to the north and to the west into the West Canyon. The incidental boulder roll-down has partly covered the older natural talus and landslide deposits, and is visible from Lucerne Valley due to the contrast between the white limestone and the brown color of the hillside under the boulders.

For such mining-related visual impacts on the north-facing slope where mining has been completed, Permeon™ (permanent nontoxic dye) was applied in January 2006 to approximately 5 acres. The visual contrast has been reduced, as the brown-colored stain on the boulders blends with the natural hillside color. Revegetation of the upper slopes was also undertaken, utilizing native species, slow-release fertilizer, and commercial mycorrhizal inoculations. The area was irrigated for two years to allow a higher proportion of germination.

¹ Ore is a type of rock can be extracted at a profit. For the proposed project, the "ore" is limestone. Overburden is the material that lies above an area of economic or scientific interest. In mining rock materials, it is most commonly the rock, soil, and vegetation that lie above the ore body.

² The three year 2004-2006 timeframe is used because it represents the highest production average for the quarry and therefore, characterizes the greatest impact.

³ Non-spec rock is material that does not meet the quality and type specifications for the product, in this case limestone.

⁴ In mining, a bench is a narrow, strip of land cut into the side of an open-pit mine. These step-like zones are created along the walls of an open-pit mine for access and mining

Although far less visible from a distance, the revegetation helps stabilize the upper slopes and reduce erosion and sediment transport.

The haul road to the White Knob/White Ridge Quarries from the processing plant is approximately 5.1 miles long, runs westerly from the processing plant for approximately 3.5 miles, then turns southerly to climb up a 14 percent grade to the quarry site (see **Figure 2.0-2**). The first 4.4 miles of the haul road cross land managed by the BLM. Use of the haul road on 67 acres was authorized under a Federal Land Policy Management Act (FLPMA) right-of-way (CACA 16644) approved by the BLM Barstow Resource Office in July 1988. As part of the 2011 BLM and Omya Settlement Agreement, the existing right-of-way was expanded from 67 acres to its present 83.5 acres in order to accommodate improvements and repairs to the access road and drainage facilities.

2.5 PROPOSED PROJECT PURPOSE AND NEED

Omya's Lucerne Valley plant operations require high-brightness, high-purity limestone ore (calcium carbonate) of specific quantities and qualities to produce fine ground calcium carbonate for numerous consumer and industrial products. To meet current and future product demand, Omya requires reliable and economic resources of high-quality limestone ore. Such high-quality limestone ore exists in the unique limestone deposits of the area, including those within the White Knob/White Ridge Quarries. The proposed Amended Mine and Reclamation Plan would assure Omya that its Lucerne Valley processing plant would have the raw limestone resources needed to continue producing existing products, and to respond to future product demand. .

2.6 PROJECT OBJECTIVES

The Amended Plan was developed with the following objectives:

- Continue the mining and recovery of a unique high calcium limestone resource to supply the Lucerne Valley processing plant for the production of a wide range of calcium carbonate products.
- Minimize additional land disturbance through the expansion of contiguous existing and previously approved quarries and minimal expansion of existing overburden stockpiles and haul roads.
- Place overburden within completed portions of Overburden Site #1 (OB-1) to limit the area of disturbance.
- Meet the requirements of SMARA and the County surface mining ordinance.
- Minimize impacts to sensitive plants and wildlife through quarry design and ongoing bighorn sheep programs.
- Reclaim the site for post-mining uses which would include open space habitat.
- Reduce the slopes on overburden fill areas to an overall maximum slope of 2H:1V and revegetate disturbed areas to minimize aesthetic and erosion impacts

2.0 PROJECT DESCRIPTION

- Mitigate for lost, threatened, and endangered species habitat in accordance with the CHMS [Carbonate Habitat Management Strategy, April 2003] requirements by relinquishing unpatented mining claims or transfer of private property as determined adequate by the CHMS and regulatory agencies.
- Reclaim and maintain the site to eliminate hazards to public safety.

2.7 PROPOSED PROJECT COMPONENTS

Existing and proposed facilities and areas included in the Amended Plan are identified in **Table 2.0-4**. As is shown, all quarries/areas will be expanded, increasing the total project area to 335.1 acres. This increase represents 131.1 percent change in the project size.

**TABLE 2.0-4
AMENDED MINE AND RECLAMATION PLAN COMPONENTS**

Quarry or Area	Existing Approved Areas (acres)	Proposed New Areas (acres)	Total Amended Project Areas (acres)	Percent Change
White Knob Quarry	35	6.1	41.1	17.4%
White Knob Annex Quarry	7	5.5	12.5	78.6%
White Ridge Quarry	18	15.1	33.1	83.9%
Overburden Site #1	15 ¹	16.9	31.9	11.2%
Overburden Site #2	– ¹	13.0	13.0	N/A
Overburden Site #3	– ¹	3.0	3.0	N/A
Ancillary Disturbance Limits ² (outside of above)	70	130.5	200.5	186.4%
Totals	145	190.1	335.1	131.1%

Note: Areas from 1986 Plan estimated to whole acres; proposed areas rounded to nearest tenth of an acre. Totals may be slightly different due to rounding.

1. Combined waste areas; not individually estimated in 1986 Plan.

2. Ancillary disturbance limits include haul/access roads to quarries and overburden sites, sediment basins and other erosion control features, storage pads, crusher location, west slope impacts, and incidental impacts from boulder roll-down.

The White Knob/White Ridge Quarries are currently permitted to operate through the year 2031. Known limestone resources would provide for an increase to approximately 8.9 million tons of ore to the Lucerne Valley processing plant for a proposed 40 years of operations (2016 through 2055). Depending on market demand, the White Knob/White Ridge Quarries' average ore-to-plant production rates may slightly decrease to approximately 222,500 tons per year compared to the 2004–2006 baseline average of 275,400 tons of ore to the plant per year (see **Table 2.0-5**). In order to ensure that the processing plant has sufficient limestone for production, a maximum amount of 680,000 of finished (crushed) ore tons per year is listed to show the White Knob/White Ridge Quarries solely supplying the Lucerne Valley processing plant in the event that production from the nearby Sentinel/Butterfield Quarries (not part of this project) is unavailable.

**TABLE 2.0-5
WHITE KNOB/WHITE RIDGE QUARRIES THREE-YEAR AVERAGE
AND AMENDED PLAN PROPOSED THROUGHPUTS (TONS PER YEAR)**

	Material Excavated (Ore and Overburden)	Ore to Crusher	Overburden & Non-Spec Rock to On-Site Overburden Stockpile	Overburden & Non-Spec Rock for Aggregate (to Processing Plant)	Crushed Ore to Processing Plant (Production)	Crusher Fines to Stockpile (Est. 17% of Ore to Crusher)
3-Year Average ¹ (Baseline) (2004–2006)	512,000	324,000	188,000	0	275,400	48,600
Proposed Amended Plan (Average) ¹	662,500	270,000 ³	392,500 (242,500) ⁴	150,000 ³	222,500	47,500
Proposed Amended Plan (Maximum) ²	1,950,000	800,000 ³	1,150,000 (850,000) ⁴	Up to 300,000 ³	680,000 ⁵	120,000

Sources: Omya California 2013

Notes:

1. The 2004-2006 average is used as a baseline as these years represent the highest productions years for the quarry. Three-year amounts are average actual production levels from 2004 through 2006, and the Amended Plan amounts are listed as both average and maximum proposed amounts. Percentages of ore, overburden and non-spec rock, and crusher waste (fines) vary with excavation phase and quality of limestone. The “material excavated” is the amount that includes the ore and overburden.
2. Maximum amounts are listed to show the White Knob/White Ridge Quarries solely supplying the Lucerne Valley processing plant in the event that production from the Sentinel/Butterfield Quarries is unavailable.
3. Per the Amended Plan, varying amounts of quarry overburden and non-spec rock would be crushed and transported to the processing plant (along with fines) for aggregate sales, depending on demand. Table lists potential overburden crushed and transported to the processing plant area.
4. Amounts of overburden including fines sold for aggregate would be subtracted from the amounts deposited on the overburden stockpiles.
5. Finished ore to the plant.

2.8 PROPOSED PROJECT PHASING

Although mining is more or less continuous, the ultimate development of the quarry is phased. Four phases were previously identified for existing operations, and development of the middle benches during Phases 1 and 2 has been completed. Phase 3 is currently in progress and includes full development of the existing White Knob and White Knob Annex quarries, with mining expected to be completed around 2045. Phase 4 includes development of the White Ridge Quarry deposits to the east and is scheduled to begin around 2015 and last until 2055. Phase 5 is reclamation of the mine site, generally after completion of mining. The backfilling of portions of the White Knob Quarry and the Central Area would be initiated during the last 20 years of operations (approximately after year 2035).

Proposed phasing is described in **Table 2.0-6**. Phases 3 through 5 have been amended as a part of the proposed project. Note that mining operations may experience unscheduled phasing changes due to unforeseen market/economic demands and variation in material quality since the natural deposit is not of uniform quality. The County would be updated in the annual monitoring report on the status of operational phases.

2.0 PROJECT DESCRIPTION

**TABLE 2.0-6
APPROVED AND AMENDED PHASED DEVELOPMENT – WHITE KNOB/WHITE RIDGE QUARRIES**

Mining Phase	Duration Total Mine Life from 1988 to 2031 and Cumulative Years	Currently Permitted 1986 Plan and Location	Proposed Amendment Changes
1986 Approved Mine and Reclamation Plan			
Phase 1	Years 1–5, 5 years 1988–1993	Yes/completed White Knob development	No
Phase 2	Years 5–12, 7 years 1993–2000	Yes/completed White Knob development	No
Phase 3	Years 12–40, 28 years 2000–2031	Yes/in progress White Knob/Annex mining	Yes
Phase 4	Years 18–32, 14 years 2007–2020	Yes/not yet started White Ridge development	Yes
Phase 5	2032–2037	Yes/not yet started Final reclamation	Yes
2012 Proposed Amended Mine and Reclamation Plan <i>Time spans below per the Amended Plan starting in year 2015 (year 1)</i>			
Phase	Duration	Location/Description	
Phase 3 Amended	Years 1–30, 30 years Ongoing 2015–2045	White Knob Annex mining; placement of waste rock into OB-1 & 2	
Phase 4 Amended	Years 1–40, 40 years 2015–2055	White Ridge mining; placement of waste rock into OB-1, 2 & 3	
Phase 5 Amended	Years 20–50, 30 years 2035–2065	Backfilling of White Knob Quarry and Central Area; final reclamation and revegetation	

Source: Omya California 2013

Notes: OB = overburden

2.9 MINING OPERATIONS

The following is a description of the Amended Plan mining operations proposed expansion at the White Knob/White Ridge Quarries. **Figure 2.0-4** identifies the various locations of proposed operations on the project site and should be referenced while reading this section.

PRE-MINING ACTIVITIES OF UNDISTURBED LANDS

The following activities would be conducted prior to mining and overburden⁵ and waste rock stockpile development in order to limit disturbed areas to the mine plan boundaries and to facilitate ongoing and future reclamation and revegetation:

- Excavation and development limits would be located and marked in the field.
- Specified plants that can tolerate transplant would be salvaged and stored in a nursery and would be replanted on reclaimed land as areas become available for revegetation.

⁵ Overburden is the term used in mining to describe material that lies above the area of economic interest, e.g., the rock and soil that lies above the ore seam.

- Seeds of specified plants would be collected and either used for revegetation or stored appropriately for maximum future viability.
- Salvageable soils and/or growth media would be placed in separate identified stockpiles for use as a seed bank and seedbed during reclamation. Soil stockpiles would be clearly marked and managed to limit wind and water erosion.

WHITE KNOB QUARRY MINING

The proposed White Knob Quarry expansion consists of approximately 6.1 acres, for a total disturbance area of approximately 41.1 acres. Estimated ore reserves are approximately 3.5 million tons, with approximately 5 million tons of waste rock. The haul road to the top of White Knob has been established, and mining would continue from the top down to the footwall of the deposit. Benches established previously would be pushed back to the south, west, and north as far as economic limits would allow.

The elongated quarry would be approximately 2,500 feet west to east and 600 feet wide and would reach a maximum elevation of 6,200 feet amsl on the west to a floor elevation of 5,300 feet daylighting on the east (see **Figure 2.0-5**). Typical slopes would be 45 to 50 feet vertical with a slope face angle averaging 70 degrees. Bench width would be typically 25 feet, but would be greater if wall height is over 50 feet. Generally, bench width is half-wall height. Pit ramps, the roadway that accesses the pit floor, would be 25 to 35 feet wide and grade would be 12 to 18 percent, depending on conditions.

WHITE KNOB ANNEX QUARRY MINING

The White Knob Annex Quarry area is a 12.5-acre area contiguous to the northwest of the White Knob Quarry. The Annex Quarry would be mined concurrently with the White Knob Quarry from the top down based on mining logistics and specific ore grades in demand. The oval-shaped quarry would be approximately 900 feet west to east and 550 feet wide and would reach a maximum elevation of 6,075 feet on the southwest to a floor elevation of 5,575 feet (see **Figure 2.0-6**). Estimated ore reserves are approximately 1.3 million tons, with approximately 2.7 million tons of waste rock.

WHITE RIDGE QUARRY MINING

The White Ridge Quarry area consists of about 33 acres on the east side of the site. Currently, the White Ridge Quarry area has not been mined. The White Ridge deposit is the eastward continuation of the White Knob ore body. The box-shaped quarry would be approximately 1,200 feet north to south and 900 feet west to east and would reach a maximum elevation of 5,750 feet on the south to a floor elevation of 5,050 feet (see **Figure 2.0-7**). Estimated ore reserves are approximately 6 million tons, with approximately 8 million tons of waste rock. Typical slopes would be 50 feet vertical with a slope face angle averaging 70 degrees. Bench width would typically 25 feet, but would be greater if wall height is over 50 feet. Generally, bench width is half-wall height. Pit ramps would be 25 to 35 feet wide and grade would be 12 to 18 percent, depending on conditions.

Access to the White Ridge deposit would be constructed from the existing crusher site south of White Knob Quarry and north of the existing access road eastward directly to the upper level of approximately 5,750 feet. After the existing crusher is decommissioned, the ore would be hauled to the mobile crusher, which would be placed at various locations around the mine to be in close proximity to active mining areas and to reduce on-site hauling. Overburden and waste

2.0 PROJECT DESCRIPTION

rock would be deposited in the proposed Overburden Site #2 (OB-2) in the canyon to the west and at the existing OB-1. The new access roads would access the top of the deposit, and the site would be mined from the top down.

At an elevation of 5,350 to 5,050 feet, the White Ridge Quarry design leaves a 300-foot-high ridge of undisturbed hillside facing Lucerne Valley, behind which mining activities would occur. This would reduce views of a quarry face and reduce visual impacts of the lower southern portion of this quarry. A small 3-acre overburden site (OB-3) and an associated access road are planned on the southeast side of the White Ridge Quarry to handle waste rock for the northern portion of the quarry.

OVERBURDEN AND WASTE ROCK

Overburden and waste rock at the White Knob/White Ridge Quarries are composed of gray impure limestone and granite intrusive rock and granite dikes. Overburden and waste rock are nontoxic, naturally occurring rock material, but which is of insufficient quality (purity and brightness) to process for ore. The vast majority (60 percent) of the overburden and waste rock is impure calcium carbonate. Most of the remainder (40 percent) is granitic rock (monzonite). Limestone waste rock/overburden does not have the chemical composition to create acid mine drainage.⁶

Currently, overburden and fines that are not sold are deposited into the OB-1 stockpile. Material placed in this area includes both waste rock and material stockpiled for potential future use such as topsoil to be used during reclamation activities. Topsoil is kept segregated from rock material within the overburden storage areas. Material stockpiling would continue throughout the life of the operation. The Amended Plan proposes to expand the existing OB-1 and create two additional overburden sites (OB-2 and OB-3) to accommodate overburden and waste rock. The three overburden areas are described in more detail below. Waste rock is also planned to be backfilled into the White Knob Quarry and the area to its south defined as the Central Area.

The Amended Plan proposes the revisions shown in **Table 2.0-7** to handle the estimated overburden from the planned expansion of mining.

⁶ Acid mine drainage (AMD) is caused when water flows over or through sulfur-bearing materials, forming solutions of net acidity. AMD comes mainly from abandoned coal mines and currently active coal mining. AMD is formed when pyrite, an iron sulfide, is exposed and reacts with air and water to form sulfuric acid and dissolved iron (EPA 2013, p. 1).

Mine Plan Notes

1. Name: White Knob – White Ridge Quarries
2. Mineral Mined: Limestone
3. Mine Operator:
Omya California
7225 Crystal Creek Road
Lucerne Valley, CA 92356
Peter Sutherland, Plant Manager
(760) 248-5233
4. Land Owner:
Omya Inc.
7225 Crystal Creek Road
Lucerne Valley, CA 92356
Peter Sutherland, Plant Manager
(760) 248-5233
5. Applicant: Same as (3) Omya California
6. Representative:
Lilburn Corporation
1905 Business Center Drive
San Bernardino, CA 92408
(909) 890-1818
7. Owner of Mineral Rights:

Omya Land Holdings White Knob – White Ridge Quarries

APN: 0446-011-04

CLAIM NAME	ACREAGE LEASED OR OWNED BY OMYA & APN	LEGAL DESCRIPTION AND CAMCF#	NAME AND ADDRESS
White Ridge Placer #1	157.5 acres Patented APN 0446-021-35	NW1/4 Sec 8, T3N, R1W SBBM Patent #1186488	Owned by: Omya Inc. 7225 Crystal Creek Road Lucerne Valley, CA
White Knob Placer #1	160 acres APN 0446-011-06	NE1/4 Sec 7, T3N, R1W, SBBM Patent #04-83-0104	Leased from: Don Fife P.O. Box 1054 Tustin CA 92681
White Knob Annex Placer Claim	40 acres APN 0446-011-04	SE 1/4 Sec 6, S1/2, S1/2 T3N, R1W SBBM Patent #04-83-0104	Leased from: Don Fife P.O. Box 1054 Tustin CA 92681
Silver Creek Placer #4 (portion)	70 acres APN 0446-021-11	SW 1/4 Sec 5, S1/2, T3N, R1W Land Sale with BLM	Owned by: Omya Inc. 7225 Crystal Creek Road Lucerne Valley, CA 92356

8. Geologists:
CHJ Consultants
1355 E. Cooley Drive, Suite C
Colton, CA 92324
(909) 824-7311

9. Map Preparers:
Omya California
Lilburn Corporation

10. Source of Existing Topography: Digital Mapping, Inc. & Aerial, 2009

11. Date of Map Preparation: January 2013

12. Assessor's Parcel Numbers: See No. 7 above.

13. Utilities:
Electricity: Onsite generated as needed
Gas: Not applicable
Water: Omya well system
Sewer: Portable sanitation stations
Telephone: Verizon

14. Area To Be Disturbed: 190.1 acres per this Amendment
Area To Be Reclaimed: 335.1 acres total with this Amendment and prior 1986 approval
BLM ROW – half road width or approx. 40 acres

15. Reclaimed End Uses: Open space habitat for native wildlife and plants

16. County Land Use District: Resource Conservation (RC)

17. Plant and Tree Protection:
No protected or endangered trees exist onsite. Specific plant and tree species including Joshua tree, Mojave yucca, pinyon pine, juniper, and canyon live oak will be managed per County Native Plant Protection policy.

18. Previously Mitigated / Incidental Disturbance Area defined on the map includes:

- Existing disturbance previously mitigated through either reclamation or the April 2011 Settlement Agreements. Previously mitigated disturbance areas are apparent on the photograph base map for Sheet 2.

Source: Lilburn Corporation

LEGEND

- Amended Project Boundary
- Private Land
- Limits of Planned Disturbance
- Major Facilities
- Previously Mitigated April 2011 Incidental Disturbance Area
- Overburden
- Sediment Basin
- Proposed/improved SB
- Operating Major Contour
- Operating Minor Contour
- Haul Road
- Slope Indicator
- Top of slope
- Toe of slope
- Design Drainage
- Existing Major Contour
- Existing Minor Contour
- Existing Drainages
- San Bernardino National Forest Boundary
- Sensitive Habitat to be Avoided
- USGS Survey Section
- Claim / Parcel Line

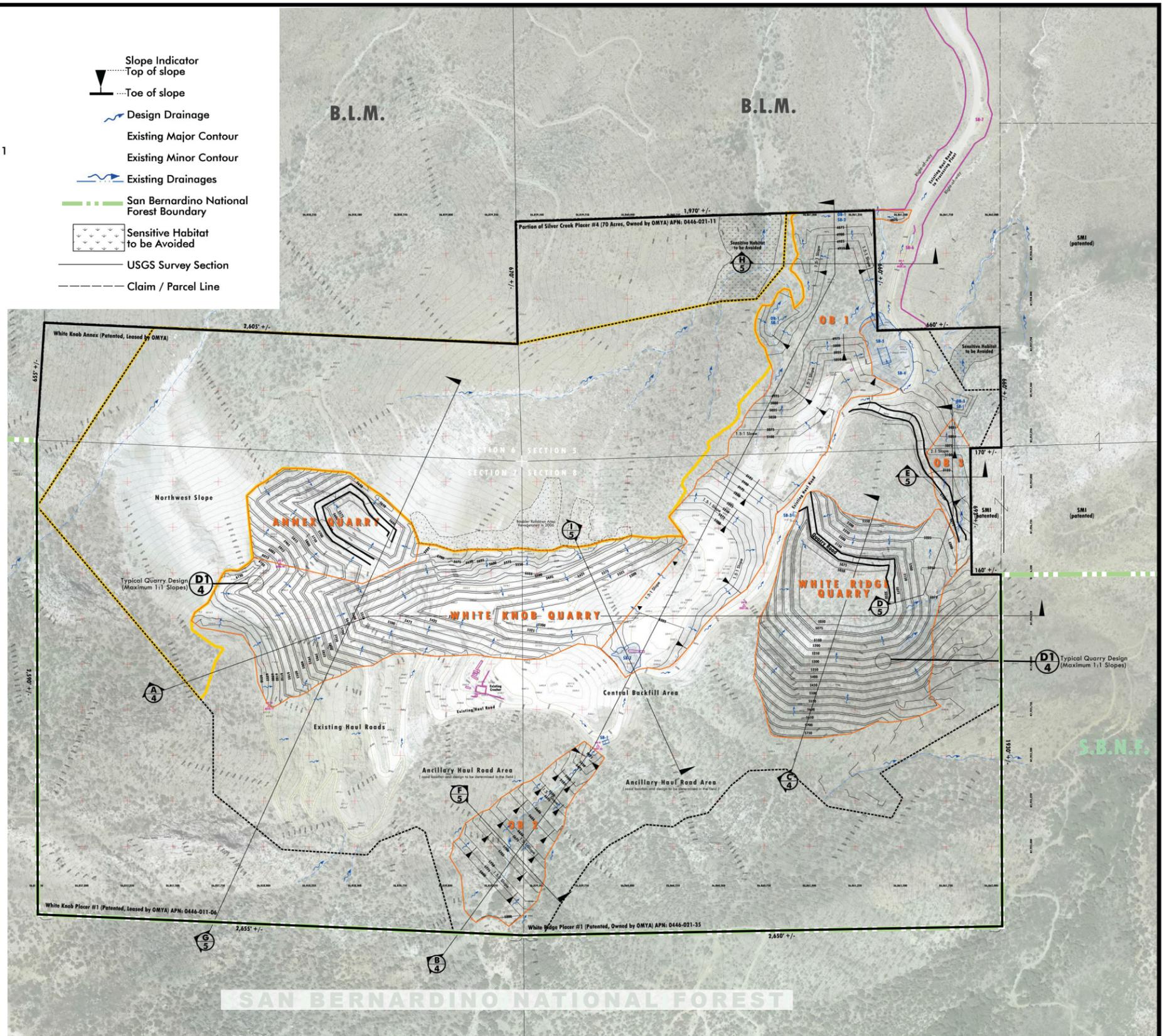


Figure 2.0-4
Amended Mine Plan
PMC

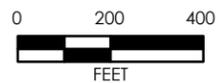
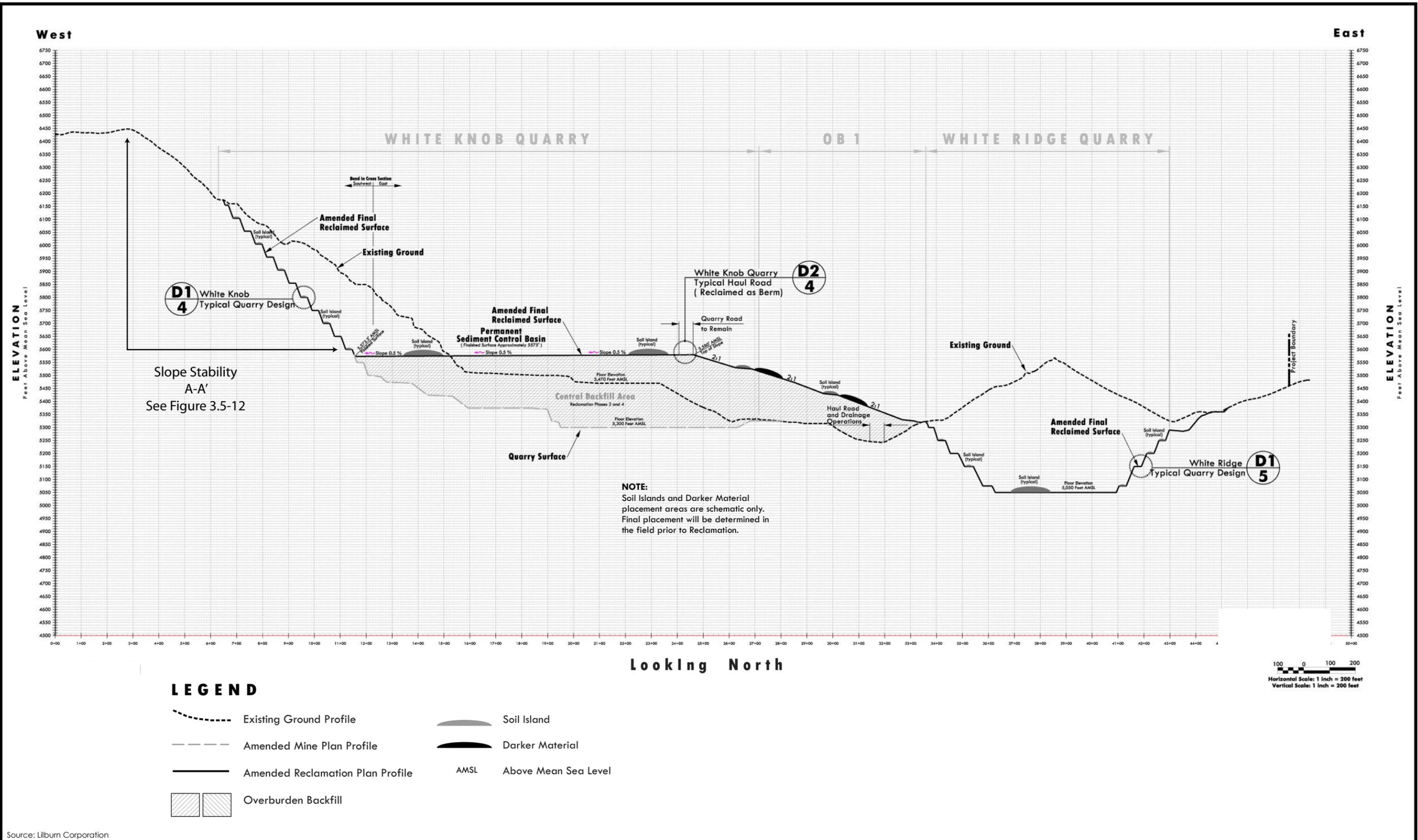
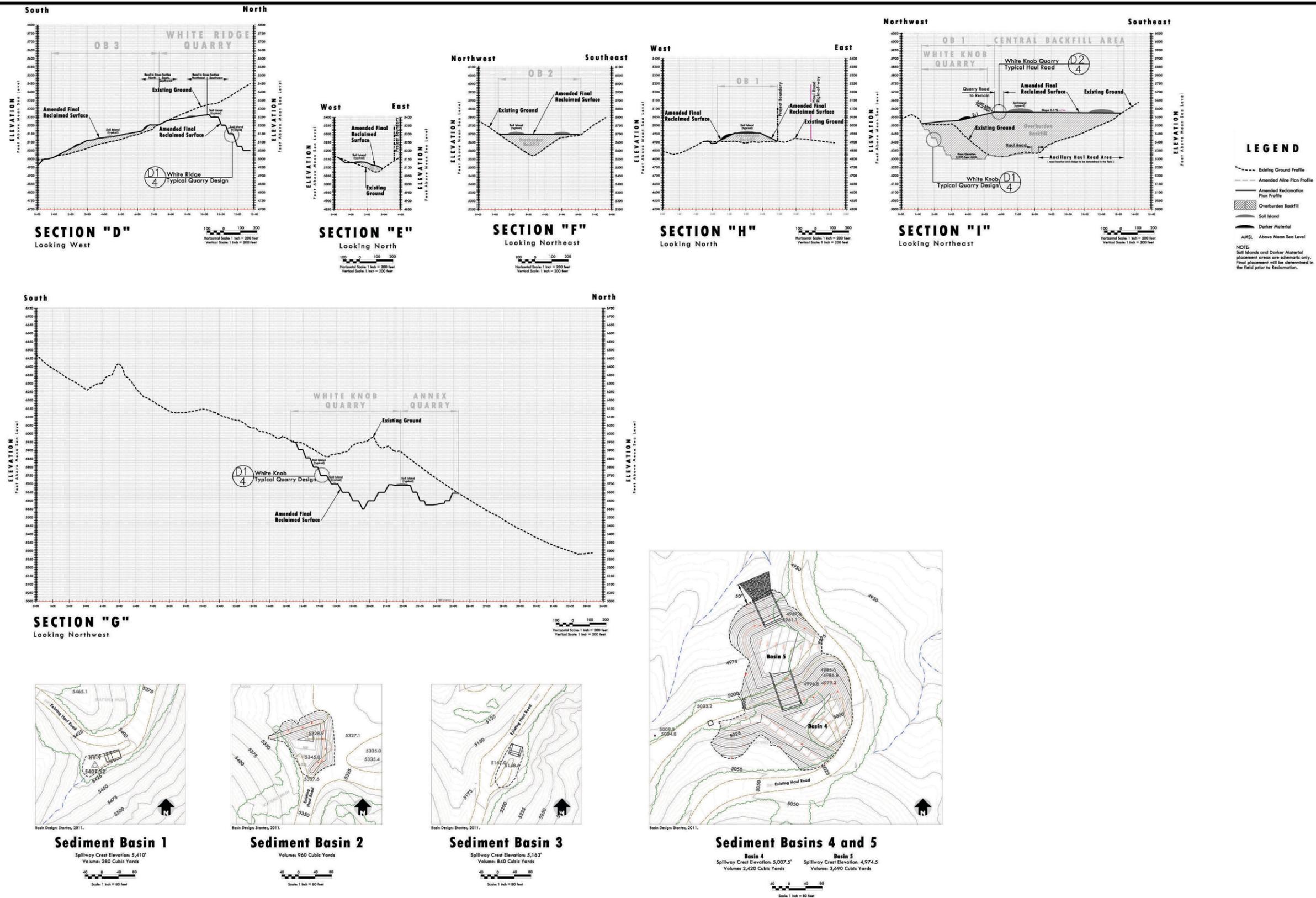


Figure 2.0-5
White Knob and White Ridge Quarries Cross Section – West to East



Source: Lilburn Corporation

Figure 2.0-6
White Knob and Annex Quarries Cross Section – North to South

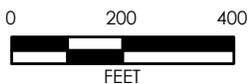
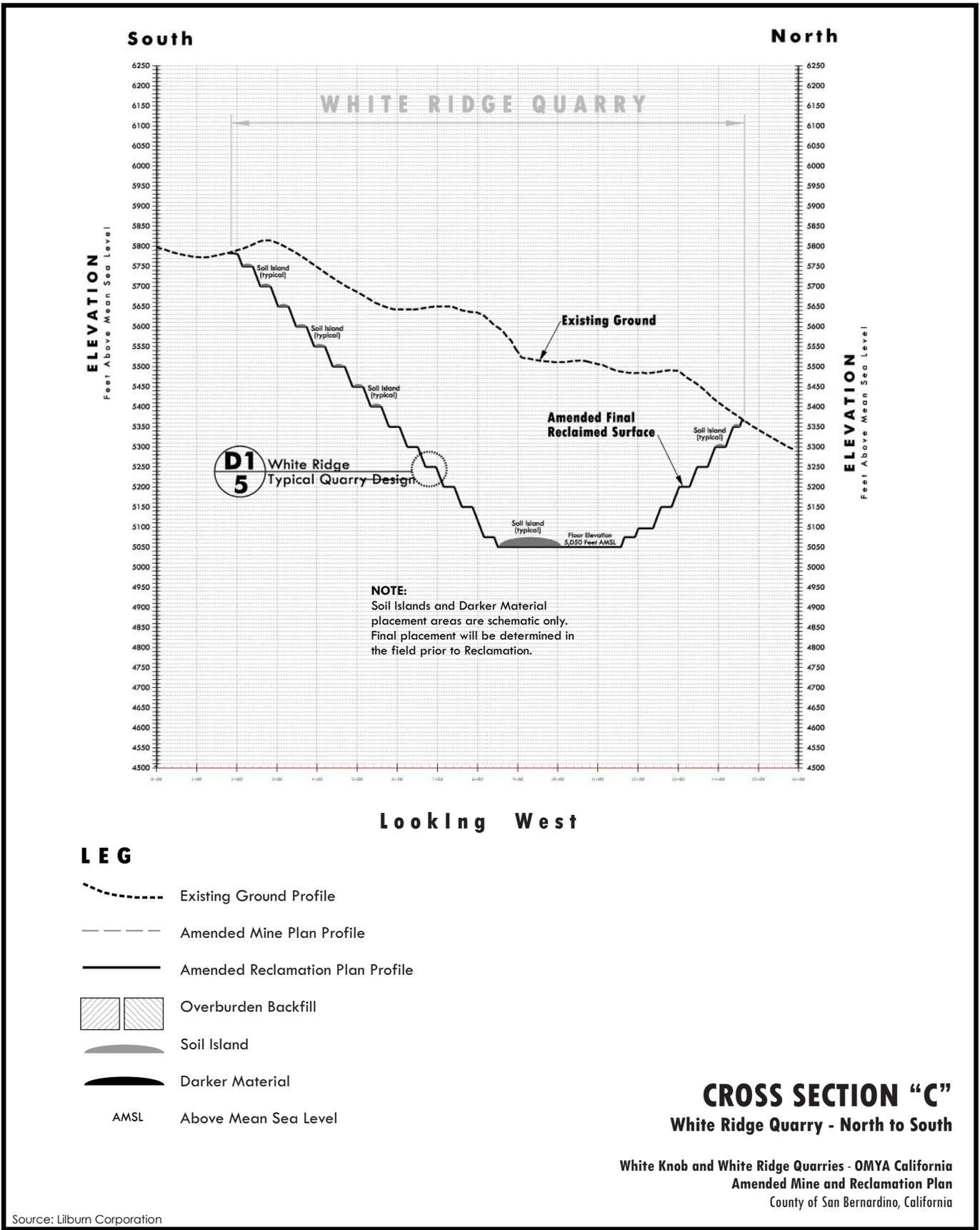


Figure 2.0-7
White Ridge Quarry Cross Section – North to South

**TABLE 2.0-7
PLANNED OVERBURDEN, WASTE ROCK, AND FINES STORAGE AREAS – WHITE KNOB/WHITE RIDGE QUARRIES**

Storage Area	Existing Areas (approx. acres)	Planned Additional Areas (acres)	Total Area (acres)
OB-1	15	16.9	31.9
OB-2	0	13.0	13.0
OB-3	0	3.0	3.0
Total OB Stockpiles	15	32.9	47.9
White Knob Quarry Backfill	Within planned quarry	(15) ¹	15
Central Area Backfill	To be disturbed by crusher site and quarry haul roads	(11) ²	11

Source: Omya California 2013

Notes:

Areas rounded to nearest tenth of an acre. Totals may be slightly different due to rounding.

1. White Knob Quarry to be partially backfilled by overburden to approximate elevation of 5,575 feet, reducing height of quarry face to 625 feet.

2. Central Area to be backfilled up to approximate elevation of 5,575 feet as feasible.

Overburden Stockpile 1 (OB-1)

The existing approved OB-1 stockpile of approximately 15 acres would be progressively extended to the south into the White Knob Quarry and north by about 1,300 feet onto an additional 70 acres into BLM land west of the haul road (see **Figures 2.0-4** and **2.0-8**). At this time, Omya is in the process of acquiring the additional 17 acres as part of its 70-acre purchase of BLM land. Sale of this land to Omya will be a part of the County's Conditions of Approval for the Amended Mine and Reclamation Plan. As overburden removal progresses, the pad would be incrementally built southward to a planned elevation of 5,325 feet. OB-1 would be developed as a series of three benches of varied widths per the existing grade reclaimed to 2H:1V.⁷ Basins 4 and 5 would be improved per the updated sedimentation control plan, and secondary sediment basins 11 and 12 would be constructed to the stockpile's northwest and north to prevent sediment from leaving the site. Backfilling of the eastern portion of the White Knob Quarry during about the last 20 years of operations would occur to minimize OB-1 expansion and to minimize disturbance of new ground.

Overburden Stockpile 2 (OB-2)

OB-2 would be developed on approximately 13 acres in a canyon area south of the crusher and west of the White Ridge Quarry in Phase 4. Overburden from the White Ridge Quarry would be transported on haul roads along level alignments along the contour. Overburden and waste rock would be placed at OB-2 between the elevations of 5,800 feet and 5,425 feet (see **Figures 2.0-4** and **2.0-8**). Basin 1 located at OB-2's toe would be improved per the updated sedimentation control plan. OB-2 would be approximately 1,150 feet southwest to northeast and approximately 550 feet wide at its widest point and would be developed as a series of approximately six 50-foot-wide benches along interslopes of 1.5H:1V. The overall slope of OB-2 would be no greater than approximately 2H:1V from the amended final reclaimed surface beginning at 5,573.5 feet above mean sea level (AMSL) to the top of OB-2 at 5,800 feet AMSL.

⁷ 2H:1V describes the slope. For every 2 feet in run (horizontal increase), the rise (vertical increase) is 1 foot, which equates to a 50 percent slope.

2.0 PROJECT DESCRIPTION

Overburden Stockpile 3 (OB-3)

OB-3 would be developed on approximately 3 acres to the northeast of the White Ridge Quarry in Phase 4. Overburden from the White Ridge Quarry would be placed at OB-3 between approximate elevations of 5,200 and 5,025 feet (see **Figures 2.0-4** and **2.0-9**). Basin 3 would be constructed at the toe to collect sediment from the stockpile. OB-3 would be approximately 750 feet north to south and approximately 200 feet wide at its widest point and developed as a series of benches.

NON-SPEC MATERIAL PRODUCTION

The Amended Plan includes an option of crushing varying amounts of overburden and non-spec rock and transporting this material to the processing plant (along with fines) for sale as aggregate, depending on demand. These amounts would be subtracted from the amounts deposited on the overburden stockpiles. **Table 2.0-5** lists potential overburden crushed and transported to the processing plant as an average of 150,000 tons per year with a maximum of 300,000 tons per year. The combination of all material transported to the processing plant would not exceed 680,000 tons of finished ore per year, which is the processing plant maximum capacity.

Depending on the amounts of non-spec material transported off-site, a portion of this material would be eliminated from being deposited in the overburden stockpiles. It is anticipated that some of the overburden stockpiles may be a level or two lower than shown on the reclamation plot plan, depending on the amount of non-spec material removed.

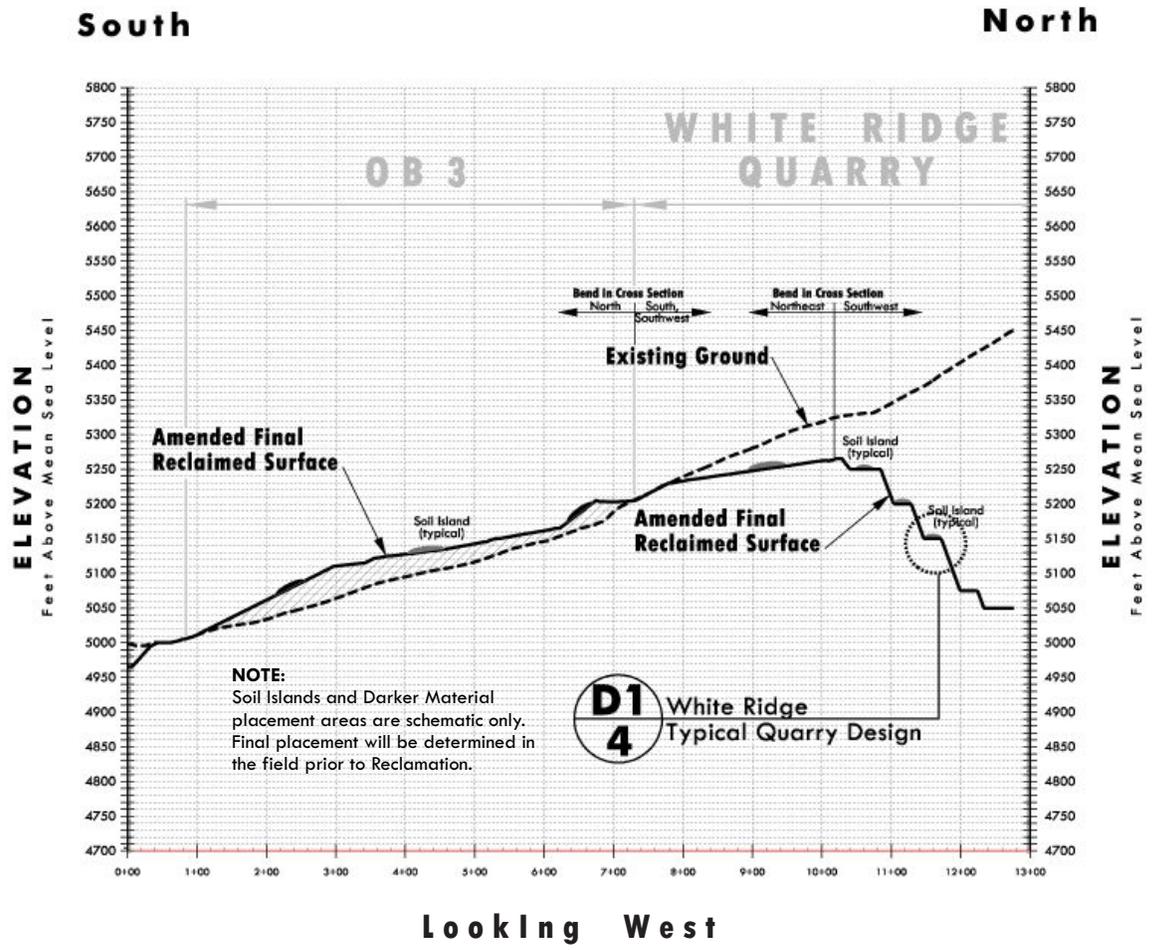
OPERATIONS

Hours of Operation and Employees

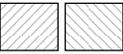
Mining of ore grade limestone would occur throughout the year, but would usually occur approximately eight months per year. Overburden removal and quarry development may occur throughout the year, but would usually occur for about four months per year. Ore production requirements are the major determining factor for scheduling of mining activities.

Mining activities vary throughout the year and may occur 24 hours per day, 7 days a week, depending on operational requirements. Blasting is currently restricted to daylight hours and would remain so with the proposed project.

The current mining operations employ approximately 10 equipment operators/haul truck drivers Monday through Thursday over two 10-hour shifts (6:00 a.m. to 4:00 p.m. and 4:00 p.m. to 2:00 a.m.). In addition, the site employs two managers and one geologist. During the summer months (June through September), four additional contractors work on-site to assist with crushing and screening operations. Several drilling and blasting contractors visit the site approximately once a week. The maximum number of employees at the site is anticipated to be 16 equipment operators/haul truck drivers, two managers, one geologist, and two contractors. All of these employees divide their time between the White Knob Quarry facility and Omya's other quarry in the county, the Sentinel/Butterfield Quarry.



LEGEND

-  Existing Ground Profile
-  Amended Mine Plan Profile
-  Amended Reclamation Plan Profile
-  Overburden Backfill
-  Soil Island
-  Darker Material
- AMSL Above Mean Sea Level

CROSS SECTION "D"
OB-3 - North to South

White Knob and White Ridge Quarries - OMYA California
Amended Mine and Reclamation Plan
County of San Bernardino, California

Source: Lilburn Corporation

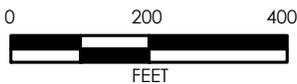


Figure 2.0-9
OB-3 Cross Section – North to South

Equipment Used

The major equipment listed in **Table 2.0-8** is currently used in mining at the White Knob/White Ridge Quarries. No changes in equipment numbers are planned because processing operations would not increase. As operations progress, alternate equipment may be required to optimize operations; this equipment is also listed in the table. The alternative equipment would not substantively change the mining operations described in this section.

**TABLE 2.0-8
TYPICAL QUARRY EQUIPMENT – WHITE KNOB/WHITE RIDGE QUARRIES**

Equipment	Typical Number	Proposed Increase in Equipment	Purpose
Bobcat	3	0	Earthmoving
Crane	1	0	Lifting as needed
Dozer	2	0	Removal of topsoil and waste rock. Construction and maintenance of the haul road and quarry bench grading.
Off-Road Haul Trucks	11 (40- to 100-ton trucks)	0	Transportation of excavated material to the primary crusher and to overburden stockpiles onsite and transportation of crushed sized ore to the Lucerne Valley processing plant.
Front-End Loaders	8	0	Loading of excavated materials into haul trucks at quarry and at the primary crusher.
Excavator	1	0	Currently limited use for special projects and boulder breaking. Potential future replacement to be used in place of front-end loader.
Grader	1	0	Limited use for road development and maintenance.
Forklift	15	0	Equipment moving
Generator	1	0	Electrical power
Manlift	1	0	Various operations
Dump Truck	1	0	Ore moving
Grease Truck	1	0	Equipment maintenance
Fuel Truck	1	0	Fueling vehicle
Sweeper	3	0	Site maintenance
Lube Van	1	0	Equipment maintenance

Source: Omya California 2013

Ore Crushing Operations

The primary crushing area is currently centrally located at the 5,500-foot level immediately adjacent and to the south of the White Knob Quarry and north of the existing haul road (**see Figure 2.0-4**). However, the permanent crusher is nearing the end of its operational use and will be decommissioned in the future. Once the permanent crusher is decommissioned, a mobile-type crusher would be relocated in proximity to active mining to reduce hauling from the quarry to the crusher. The following discussion applies to a stationary or mobile crusher at varied locations. No changes in the crushing process are planned, only moving the crusher to another disturbed site within the mining area.

2.0 PROJECT DESCRIPTION

Ore from the White Knob Quarry is hauled to the crusher and screened for size reduction and sorting of ore grades. The screen arrangement separates fines from the load. Stockpiles of ore, separated as to grade, are made by the conveyor at the crusher. From these stockpiles, haul trucks are loaded to transport the crushed ore to the processing plant using the main haul road.

The following is a list of the equipment and support facilities for the ore crushing system:

- Truck dump hopper and vibrating feeder
- Primary screen
- Jaw crusher
- Belt conveyors and radial stacker
- One 50-foot railroad boxcar containing spare parts, tools, and lunchroom
- Portable toilets
- One 10,000-gallon diesel fuel tank (double-walled) for mobile equipment
- One 10,000-gallon skid-mounted nonpotable water tank

Fuel for mobile equipment is stored at the quarry site in an approved double-walled tank with a spill control berm. Mine equipment is fueled at the fuel storage site. Scheduled equipment maintenance occurs at the Lucerne Valley processing site. Minor or emergency repairs may be conducted at the quarry. Any waste oil generated at the mine site is collected and transported for off-site disposal by approved methods and by properly trained and licensed personnel. As operations progress, alternate equipment may be required to optimize operations (see **Table 2.0-8**). These may include the utilization of a mobile crusher, which would be capable of being set up near the face of the quarry to reduce handling of the ore. A mobile crusher could also be moved within the quarry area as needed. The alternate equipment would not substantively change the process described previously.

Site Access and Circulation

Vehicular access to the mining area is provided only on restricted access/haul roads. **Figure 2.0-4** shows the location of all haul, access, and quarry roads on the site. As described previously, the site is accessed via a 5.1-mile-long haul road at its northeastern corner. From this point, an internal haul road runs south along the eastern side of OB-1 and Basins 4 and 5, winds southwest between the White Ridge and White Knob quarries, and continues south past Basin 2 and through the Central Backfill Area. The internal haul road then turns west and splits to access the White Knob Quarry to the north and the crusher site to the west. The haul road then continues west past the crusher site and winds through the western portion of the White Knob Quarry into the Annex Quarry.

A new haul/access road would be extended from the existing internal road near Basins 4 and 5 southeasterly to provide access to the proposed OB-3. As shown on **Figure 2.0-4**, the internal haul/access road would also be extended south to provide access to the proposed OB-2. The exact location and design would be determined in the field.

Off-Site Haul Road

The off-site haul road is within a recently amended BLM right-of-way (CACA 16644) incorporating the first 4.4 miles of the 5.1-mile haul road starting at the boundary of the Lucerne Valley processing plant and ending at the fee land boundary at the quarry site. The BLM and Omya Settlement Agreement has six separate remediation components (Parts A–F). In order to accommodate the improvements required to adequately repair and remediate the right-of-way access road and drainage facilities, the existing right-of-way was expanded from 67 acres to its present 83.5 acres. The BLM requires final reclamation on approximately 40 acres of the total 83.5 acres of federal public land. This is included in the Amended Plan.

Lighting

No lighting is currently used or would be used to operate the quarries during nighttime hours, with the exception of headlights on mobile equipment. No new sources of lighting are proposed as part of the project.

Water and Wastewater

The White Knob/White Ridge Quarries utilize groundwater during operations. Water is obtained from two permitted sources: a well located at the processing plant site and a well located in Crystal Creek Canyon near Turnout 5 on the Crystal Creek haul road. No surface water is used in the operation. Water is hauled in a water truck and sprayed on the haul roads and active mining and overburden areas to minimize fugitive dust. Water is also used for revegetation during the initial stages of reclamation. The project proposes to increase water usage by approximately 2.25 acre-feet per year in order to provide the needed water for quarry operations in the expanded areas. There are no planned additional diversions or storage for water supply, and no new or expanded treatment facilities are proposed.

Portable toilets with hand washing stations are supplied for use by employees and are located at the crusher site. No other wastewater is produced from the mining and crushing operations.

Solid Waste

Small amounts of solid waste are generated in the form of general refuse from on-site project personnel. This general refuse is collected and disposed of off-site at the Victorville Landfill located approximately 30 miles west of the project site. The Amended Plan would also require the need to remove solid waste from the project site. However, because solid waste removal currently occurs and is not expected to increase due to mine expansion, it is considered an existing condition for the purposes of this EIR.

Hazardous Materials and Waste

No processing chemicals are used or are proposed to be used during mining and crushing operations. The current blasting agent ammonium nitrate and fuel oil mixture (ANFO) is used during blasting operations at the site. All ANFO used at the site is currently stored separately in magazines located at designated locations at Omya's processing plant site per all federal, state, and local regulations. Magazine storage of ANFO would continue in this manner and no changes are proposed.

2.0 PROJECT DESCRIPTION

DRAINAGE AND EROSION/SEDIMENTATION CONTROL

Numerous erosion and sedimentation controls have been and are planned to be implemented in the quarries and stockpile areas to control, minimize, and prevent off-site sedimentation. Runoff is directed into the quarries, and many sediment basins, culverts, dips, or drains direct water off roads. A number of energy dissipaters, riprap, hay bales, catch basins, and/or silt fences trap sediment and prevent it from traveling off-site. Long-term stabilization, or reclamation, would generally involve grading or reshaping disturbed areas, establishing effective drainage, placement of plant growth media, and revegetation. Following reclamation, the majority of surface runoff from quarry areas would be retained in the quarry limits where it would either percolate to groundwater or evaporate. A brief description of project drainage facilities is included below. Section 3.7, Hydrology and Water Quality, provides a detailed discussion of these facilities.

On-Site Haul Road/Drainage

The on-site haul road within the quarry area from the crusher area to the northeast corner of the project site east of OB-1 carries stormwater from the southern areas northward. The area where the haul road is located does not have the width to place a separate drainage channel. The drainage report determined that the required 4-foot berms on each side (or a hillside slope or eventually the side slope of OB-1), as required for truck safety per the Mine Safety and Health Administration (MSHA), are adequate to contain the 10-year design flow and the 100-year flow within the roadway with over 2 feet of freeboard. The haul road would be graded with a 2 percent cross fall and berm openings to allow stormwater discharge to the existing sediment catchment basins on the site. Equipment and aggregate material is located on-site to make repairs to the roadway/drainage damaged during and after a storm.

Sediment Basins

There are currently four sediment catchment basins on the quarry site as well as two basins off-site. Sediment Basins 1, 3, 4, and 5 are located along the haul road and are illustrated on **Figure 2.0-6**. Basin 6 and Basin 7 are located just off-site. No modifications to the existing sediment basins are anticipated in order to implement the proposed project.

Quarries

The existing and future mining activities located on the site would create and deepen their pit floors. Future runoff down slopes, benches, roads, and ramps and any sediment would be directed into the mined-out portion of the quarry or into sediment basins. For the White Knob Quarry, the final backfill would be designed to act as a permanent sediment basin.

2.10 RECLAMATION

RECLAMATION PLAN

Reclamation of the proposed project pertains to the end use of the property. The approved 1986 reclamation plan includes a revegetation plan that was updated in 2008. No substantial changes to the approved reclamation and revegetation methods are proposed in the Amended Plan. However, the timing and some specific details of reclamation would be affected by the proposed expansion of quarries and overburden sites. Reclamation of disturbed lands is an integral part of ongoing mining operations. As a part of the proposed project,

reclamation of the site to meet SMARA standards is included in order to minimize impacts to the surrounding environments. Because of the phased nature of the mining development, reclamation concurrent with mining can only occur to a limited degree for safety and logistical reasons. Concurrent reclamation starts with the initiation of mining and includes the following:

- Salvaging and stockpiling of grubbed organics, soils, growth media, seeds, and relocatable plants and cuttings for propagation and direct deposition and/or replanting to available reclamation areas during clearing of areas to be developed.
- Ongoing seed collection on-site and/or adjacent to the site and propagation of seeds, salvaged plants, and cuttings at a local nursery by a contracted revegetation contractor.
- Backfilling of the eastern half of the White Knob Quarry to approximately the 5,575-foot level.
- Sloping and grading of completed quarry and stockpile slopes for safety, slope stability, and erosion control.
- Placement of darker materials, as available, on the outside of more visible slopes, and colorization if shown successful for slopes not susceptible to raveling to reduce color contrast.
- Ripping of compacted areas prior to revegetation.
- Covering approximately 30 percent of equipment-accessible horizontal areas with growth media, utilizing the island revegetation concept.
- Phasing reclamation of on-site roads to begin after reclamation of quarries and overburden sites is completed, as determined by the County, to allow access to reclamation areas.
- Reclamation of the White Knob Quarry access road to half width by ripping and seeding.
- Revegetation including hand seeding and direct seeding followed by imprinting, seedling planting, and hydroseeding on steep slopes impacted by roll-down as deemed most effective.
- Irrigation may be conducted on newly seeded and planted areas for two to three years to maximize establishment.
- Monitoring and remediation of revegetated areas until success criteria are achieved.

RECLAMATION PHASING

A summary of the general reclamation phasing is included in **Table 2.0-9**. The Amended Reclamation Plan is provided as **Figure 2.0-10**.

2.0 PROJECT DESCRIPTION

**TABLE 2.0-9
GENERAL RECLAMATION PHASING WHITE KNOB-WHITE RIDGE QUARRIES**

Phase	Years of Operations (estimated)	Planned Reclamation Activities
1	1–10	<u>Newly developed areas</u> – Salvage and stockpile plants and cuttings, organics, seeds, and soils. <u>North-facing slopes</u> – Concurrent colorization and revegetation below the quarry where mining has been completed and downhill migration of the material has sufficiently slowed.
2	11–20	<u>Newly developed areas</u> – Salvage and stockpile plants and cuttings, organics, seeds, and soil. <u>North-facing slopes</u> – Concurrent colorization and revegetation below the quarry where mining has been completed and downhill migration of the material has sufficiently slowed. <u>White Knob – Annex Quarry</u> – Initiate revegetation on completed upper benches as they become available.
3	21–30	<u>White Knob – Annex Quarry</u> – Complete slope contouring and initiate backfilling on eastern half developing final sediment basin; revegetation on completed areas. <u>Central Area</u> – Initiate backfilling and revegetation as areas become available.
4 (Final Mining Phase)	31–40	<u>White Knob – Annex Quarry</u> – Complete slope contouring and initiate backfilling on eastern half developing final sediment basin; revegetation on completed areas. <u>White Ridge Quarry</u> – Initiate revegetation on 30% of completed upper benches as they become available. <u>Central Area</u> – Initiate backfilling and revegetation as areas become available. <u>OB-1 & 2</u> – Complete deposition and sloping of overburden, initiate revegetation on completed areas.
5 (Final Reclamation during the 10 years following the termination of mining)	41–50	<u>Remove crusher</u> and other plant equipment within one year after completion of mining. <u>White Knob – Annex Quarry</u> – Finish sloping of backfill; revegetate 30% of all areas not previously revegetated; maintain erosion control; monitor revegetation progress and conduct remediation as necessary until success criteria achieved. <u>White Ridge Quarry</u> – Finish sloping of quarry; revegetate 30% of benches; maintain erosion control; monitor revegetation progress and conduct remediation as necessary until success criteria achieved. <u>Central Area</u> – Finish sloping; revegetate 30% of area; maintain erosion control; monitor revegetation progress; and conduct remediation as necessary until success criteria achieved. <u>OB-1, 2 & 3</u> – Finish sloping; maintain erosion control facilities; revegetate; monitoring and remediation as necessary until success criteria achieved. <u>On-Site Roads</u> – Reclaimed after reclamation of quarries and pads certified complete as determined by County in order to allow access to all reclamation areas.

Source: Omya California 2013

Final reclamation would take place within the 10 years after termination of mining. All remaining equipment, stockpiles, and internal roads not needed for site access, reclamation, and revegetation and general site monitoring would be reclaimed. Final sloping of quarry walls, backfilled areas, and overburden stockpiles; erosion control; and revegetation of any unreclaimed areas and waste rock stockpiles would be conducted. Some haul roads may be left on-site for use in the revegetation and monitoring activities and for overall site public safety.

Reclamation Plan Notes

- Name: White Knob - White Ridge Quarries
 - Mineral Mined: Limestone
 - Mine Operator:
Omya California
7225 Crystal Creek Road
Lucerne Valley, CA 92356
Peter Sutherland, Plant Manager
(760) 248-5233
 - Land Owner:
Omya Inc.
7225 Crystal Creek Road
Lucerne Valley, CA 92356
Peter Sutherland, Plant Manager
(760) 248-5233
 - Applicant: Same as (3)
 - Representative:
Lilburn Corporation
1905 Business Center Drive
San Bernardino, CA 92408
(909) 890-1818
 - Owner of Mineral Rights:
Omya Land Holdings
White Knob - White Ridge Quarries
- | CLAIM NAME | ACREAGE LEASED OR OWNED BY OMYA & APN | LEGAL DESCRIPTION AND CAMC# | NAME AND ADDRESS |
|----------------------------------|--|--|--|
| White Ridge Placer #1 | 157.5 acres
Patented
APN 0446-021-35 | NW1/4 Sec 8, T3N, R1W
S88M
Patent #1180-488 | Owned by: Omya Inc.
7225 Crystal Creek Road
Lucerne Valley, CA |
| White Knob Placer #1 | 160 acres
APN 0446-011-06 | NE1/4 Sec 7, T3N, R1W,
S88M
Patent #104-83-0104 | Leased from: Don File
P.O. Box 1054
Tustin, CA 92681 |
| White Knob Annex Placer Claim | 40 acres
APN 0446-011-04 | SE 1/4 Sec 6, S1/2, S1/2
T3N, R1W S88M
Patent #104-83-0104 | Leased from: Don File
P.O. Box 1054
Tustin, CA 92681 |
| Silver Creek Placer #4 (partial) | 70 acres
APN 0446-021-11 | SW 1/4 Sec 5, S1/2, T3N,
R1W
Land Sale with BLM. | Owned by: Omya Inc.
7225 Crystal Creek Road
Lucerne Valley, CA 92356 |
- Geologists:
CHJ Consultants
1355 E. Cooley Drive, Suite C
Colton, CA 92324
(909) 824-7311
 - Map Preparers:
Omya California
Lilburn Corporation
 - Source of Existing Topography:
Digital Mapping, Inc. & Aerial 2009
 - Date of Map Preparation: January 2013
 - Assessor's Parcel Numbers: See No. 7 above
 - Utilities:
Electricity - Onsite generated as needed
Gas - Not applicable
Water - Omya well system
Sewer - Portable sanitation stations
Telephone - Verizon
 - Area To Be Disturbed: 190.1 acres per this Amendment
Area To Be Reclaimed: 335.3 acres total with this Amendment and prior 1986 approval
BLM ROW - half road width or approx. 40 acres
 - Reclaimed End Uses: Open space habitat for native wildlife and plants
 - County Land Use District: Resource Conservation (RC)
 - Reclamation starts with the initiation of mining and includes the following:
 - Salvaging and stockpiling of grubbed organics, soils, growth media, seeds, and re-locatable plants and cuttings for propagation and direct deposition and/or re-planting to available reclamation areas during clearing of areas to be developed;
 - Ongoing seed collection onsite and/or adjacent to the site and propagation of seeds, salvaged plants and cuttings at local nursery by a revegetation contractor;
 - Sloping and grading of completed quarry and stockpile slopes for safety, slope stability, and erosion control;
 - Backfilling of the eastern half of the White Knob Quarry after about year 20;
 - Placement of darker materials as available on outside of more visible slopes and colorization if shown successful for slopes not susceptible to raveling to reduce color contrast;
 - Ripping of compacted areas prior to revegetation;
 - Covering approximately 30% of equipment accessible horizontal areas with growth media to begin utilizing the island concept;
 - Reclamation of onsite roads after reclamation of quarries and overburden stockpiles certified complete as determined by the County in order to allow access to all reclamation areas; and
 - Reclamation of half width of the BLM ROW haul road (approx. 40 acres) including removal of road surface material as needed, ripping compacted areas and seeding.
 - Revegetation is summarized below: (See Amended Reclamation Plan text for details.)
 - Ripping the surface to a depth of 2 feet for moisture and seed collection;
 - Placement of available growth media in islands to cover approximately 30% of equipment accessible horizontal surfaces to 1.5' to 2 feet thick;
 - Seeding with locally native species and revegetation per methods described in Reclamation Plan and table below;
 - Staking or flagging reclaimed areas to eliminate additional disturbance;
 - Irrigation maximum of 2 years as recommended;
 - Monitoring and maintenance is required as access allows; and
 - Application of remedial activities as necessary, including but not limited to additional seeding and planting, plant protection, irrigation, and change of seed and plant mix.

Source: Lilburn Corporation

Table 11
Recommended Plant Species for Revegetation

Perennial Grasses for application as seed and mycorrhizal nursery stock. Bold species required.

Common Name	Latin Name	Lbs./acre (PLS)
Indian ricegrass	<i>Achnatherum hymenoides (Oryzopsis h.)</i>	10
Parish's needlegrass	<i>Achnatherum parishii (Stipa coronata depauperata)</i>	10
Desert needlegrass	<i>Stipa speciosa (<6,000 feet)</i>	10
Squirreltail	<i>Elymus elymoides (Sitanion hystrix)</i>	2
3-awn grass	<i>Aristida purpurea</i>	2
Needling bluegrass	<i>Poa secunda</i>	2

Shrubs for application as potted nursery stock: greenhouse propagation by seed or cuttings; outplanted as "deep pot" stock.

Common Name	Latin Name	Approx. 100 per acre
Blackbrush	<i>Coleogyne ramosissima</i>	

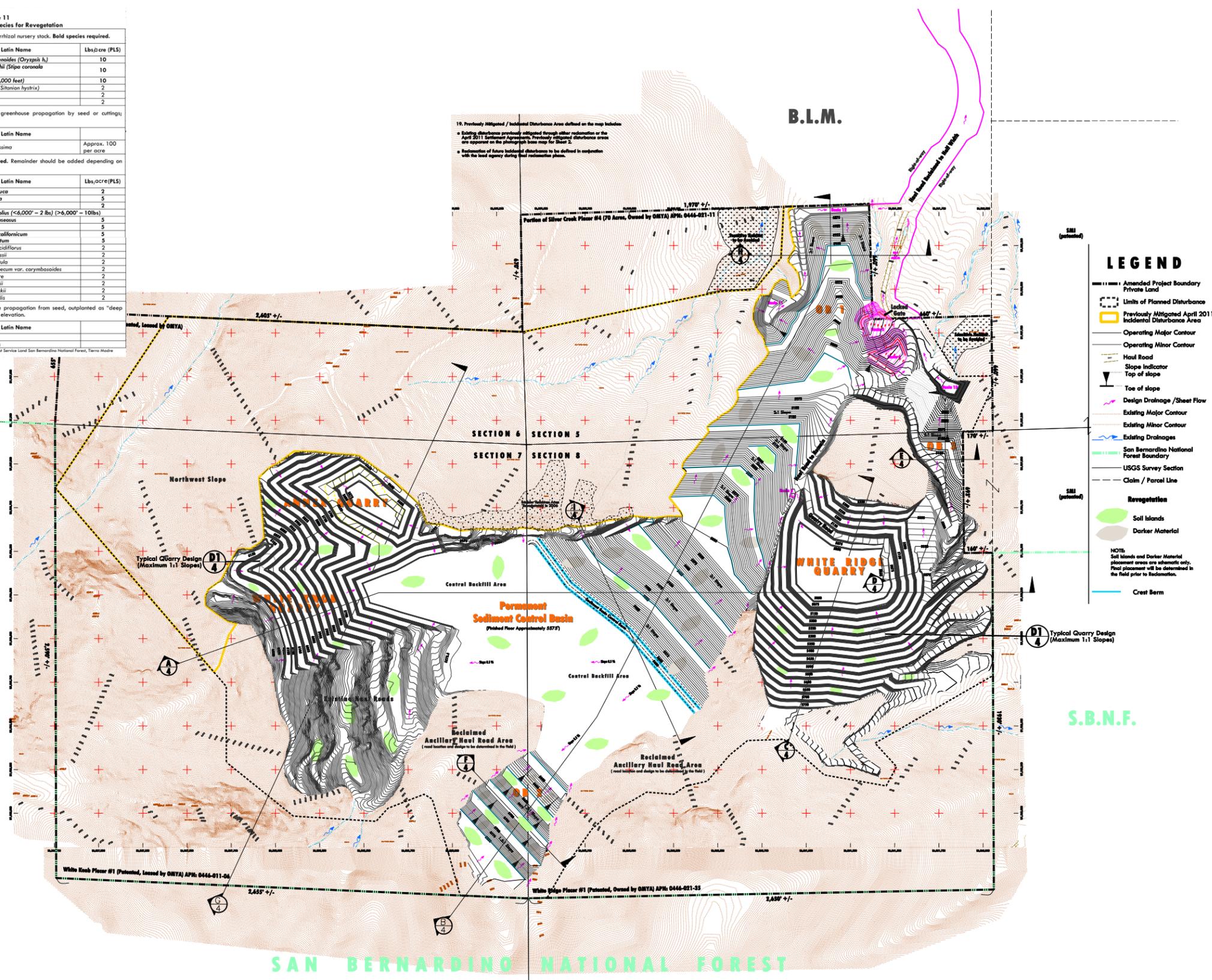
Shrubs for application as seed. Bold species required. Remainder should be added depending on availability.

Common Name	Latin Name	Lbs./acre(PLS)
Bigberry manzanita	<i>Arctostaphylos glauca</i>	2
Great basin sagebrush	<i>Artemisia tridentata</i>	5
Cupleaf ceanothus	<i>Ceanothus greggii</i>	2
Curleaf mountain mahogany	<i>Cercocarpus ledifolius (<6,000' - 2 lbs) (>6,000' - 10lbs)</i>	5
Common rabbitbrush	<i>Chrysothamnus nauseosus</i>	5
Green sagebrush	<i>Ephedra viridis</i>	5
California Fremontia	<i>Fremontodendron californicum</i>	5
California buckwheat	<i>Eriogonum fasciculatum</i>	5
Curleaf rabbitbrush	<i>Chrysothamnus viscidiflorus</i>	2
Douglas rattlesnake	<i>Astragalus douglasii</i>	2
Greenleaf manzanita	<i>Arctostaphylos patula</i>	2
San Bernardino Mt buckwheat	<i>Eriogonum microthecum var. carymbosoides</i>	2
Snakeweed	<i>Gutierrezia serotina</i>	2
Grinnell's penstemon	<i>Penstemon grinnellii</i>	2
Purple mat	<i>Nemophila rotundifolia</i>	2
Blazing star	<i>Mentzelia laevicaulis</i>	2

Trees for application as nursery stock: greenhouse propagation from seed, outplanted as "deep pot" stock. Densities determined by slope aspect and elevation.

Common Name	Latin Name
Pinyon pine	<i>Pinus monophylla</i>
Canyon live oak	<i>Quercus chrysolepis</i>

Source: "Revegetation Plan" Omya Mining Operations on USGS Forest Service Land San Bernardino National Forest, Tama Madra Consultants 1996.



LEGEND

- Amended Project Boundary
- Private Land
- Limits of Planned Disturbance
- Previously Mitigated April 2011 Incidental Disturbance Area
- Operating Major Contour
- Operating Minor Contour
- Haul Road
- Slope Indicator
- Top of slope
- Toe of slope
- Design Drainage / Sheet Flow
- Existing Major Contour
- Existing Minor Contour
- Existing Drainages
- San Bernardino National Forest Boundary
- USGS Survey Section
- Claim / Parcel Line

Revegetation

- Soil Islands
- Darker Material

NOTE: Soil Islands and Darker Material placement areas are schematic only. Final placement will be determined in the field prior to reclamation.

- Crest Berm

Figure 2.0-10
Amended Reclamation Plan
PMC

Ongoing maintenance of fencing, signs, and erosion control would be conducted. Roads not needed for site and quarry access would be ripped, covered with available growth media, and revegetated. Other on-site roads needed for quarry and pad access would be reclaimed after reclamation of quarries and pads is certified complete.

RECLAMATION AND BACKFILLING OF WHITE KNOB AND WHITE KNOB ANNEX QUARRIES

During mining of the White Knob and White Knob Annex quarries, concurrent reclamation of the completed slopes and upper haul roads would occur, but only after those portions of the pit have reached their final outer limit and the ore has been mined. During Phases 3 and 4, the White Knob Quarry would be mined from top to bottom from approximately 6,200 to 5,300 feet and the Annex Quarry from 6,075 to 5,575 feet. After completion of mining, likely during the last 20 years of operations, the eastern portion of the White Knob Quarry and the adjacent Central Area to its south would be partially backfilled with overburden to create a floor elevation at approximately the 5,575-foot level and graded to maintain a permanent sediment basin for future sediment control. The final backfilled floor would be graded to drain toward the highwall on the south and west and would have capacity to retain all quarry runoff for a 20-year/1-hour precipitation event. During and after completion of mining in the Annex Quarry, the quarry would be utilized for stormwater and sediment retention for precipitation that falls on this quarry area.

Concurrent and final reclamation would include final slope stabilization, placement of growth media, revegetation, colorization where needed and feasible, maintenance of erosion controls, monitoring of revegetation progress, and remediation as necessary until success criteria are achieved.

RECLAMATION OF WHITE RIDGE QUARRY

During and after completion of mining in this quarry, the quarry floor at approximately 5,050 feet would be utilized for stormwater and sediment retention for precipitation that falls on the quarry area and for a portion of the haul road drainage on the west. Final reclamation would include final slope stabilization, haul road removal, placement of growth media, revegetation, colorization where needed and feasible, maintenance of erosion controls, monitoring of revegetation progress, and remediation as necessary until established success criteria are achieved.

RECLAMATION OF OVERBURDEN SITES

The three overburden sites would be concurrently reclaimed, as possible. As the final buildout design and overburden placement for each site is completed, the stockpile surface and slopes can be reclaimed. Reclamation of the surface would include slope reduction, drainage controls, placement of growth media, revegetation with native species, irrigation, and monitoring and remediation as necessary until established success criteria are achieved. Reclamation of the slopes would include slope reduction to no steeper than an overall 2H:1V.

HAUL ROAD AND OFF-SITE ACCESS ROAD

The 2011 Settlement Agreement Part B requires Omya to repair, remediate, and monitor measures to control runoff and sedimentation along the 4.4 miles of haul road on BLM-managed land. In addition, the BLM requires final reclamation on approximately 40 acres of the total 83.5 acres of federal public land for haul road right-of-way. These measures are identified further in this section under subsection 2.12, Project-Proposed Environmental Mitigation Measures, Off-Site Haul Road.

2.0 PROJECT DESCRIPTION

The off-site White Knob Quarry access road is needed for access from Lucerne Valley to the quarries during the mining and reclamation phases. After receiving certification from the County that reclamation and revegetation of the quarries have achieved established success criteria, this road would be reclaimed to half width through ripping and revegetation.

CLEANUP

All cleanup operations are to be conducted within one year of the final termination of mining. Scrap material, refuse, residual equipment, and surplus materials would be removed, recycled, and/or disposed of at an appropriate landfill site. Excess material piles and disturbed areas would be regraded for positive drainage, scarified, and revegetated. Any spillage of fuel, oil, grease, or hazardous materials is to be cleaned up in a proper and legally acceptable manner.

SLOPE AND SLOPE TREATMENT

A slope stability investigation was prepared for the proposed project in January 2013 by CHJ Consultants. The investigation concluded that the proposed mine excavation and reclamation (backfilling) of the quarries would be suitably stable against gross failure for the anticipated long-term conditions, including the effects of seismic shaking, and meet the factor of safety criteria for status and seismic conditions. All recommended measures, as listed below, would be implemented as part of the proposed project during mining activities.

- Overall final cut slopes in the granite and limestone should be no steeper than approximately 1H:1V up to the maximum heights proposed in the mining and reclamation plans.
- If encountered during future mining, geologic structures that exhibit exceptional continuity and adverse geometry with regard to planned slope aspects or contain significant clay linings, water seepage, or other potentially deleterious conditions shall be evaluated for potential impacts to reclaimed slopes. Slope design may require adjustment of bench geometry to mitigate potential instability if such features are encountered.
- Large, unstable boulders on mine slopes shall be removed or stabilized prior to the end of reclamation.
- Final reclaimed fill slope composed of overburden materials and proposed as OB-1, OB-2, and OB-3 should be no steeper than 2H:1V overall to the maximum proposed heights.
- Slopes should be protected with berms and/or levees as necessary to prevent slope erosion in the areas where natural slopes drain onto the reclaimed slopes.

A final slope stability assessment report would be prepared for the County to assess the final slopes as part of the site closure, to comply with SMARA slope stability requirements, per California Code of Regulations (CCR) Section 3502(b)(13).

PONDS AND WASTE STOCKPILES

No operational ponds, reservoirs, or tailings are utilized or produced at the project site. Rock waste and overburden have been and would continue to be deposited in overburden placement sites. Overburden placement areas would be reclaimed with overall slopes no greater than 2H:1V and revegetated as discussed previously.

REVEGETATION

Implementation of the proposed project is intended to restore self-sustaining native vegetation communities and provide visual integration of reclaimed lands with surrounding open space areas to support future wildlife habitat and open space use of the project site. The Omya White Knob Quarry Revegetation Plan was prepared by Scott White Biological Consulting in 2008.

Revegetation of the disturbed areas would include ripping of the compacted soil, placement of growth media and organics (logs) to assist in plant growth, and revegetation of the area during the fall planting season. The island concept would be utilized and would cover approximately 30 percent of the equipment-accessible horizontal surface in a manner that would allow maximum visual enhancement and revegetation success. The islands would be constructed of 1.5 to 2 feet of soil and media growth cover and would trap windblown seeds and attract wildlife to aid in seed dispersal. Irrigation would occur for two years as needed, followed by monitoring for 10 years or until success criteria, as outlined in the revegetation plan, are met.

MONITORING AND MAINTENANCE

SMARA requires annual reporting of mining and reclamation activities. The reports are filed with the Department of Conservation (DOC) Office of Mine Reclamation (OMR) and the County. Revegetated areas would be monitored over a 10-year period or until success criteria are achieved following initial seeding and/or planting. Data on plant species diversity, cover, survival, and vigor would be collected on revegetated sites and compared to baseline data from undisturbed sites to evaluate project success.

Monitoring and maintenance of reclamation is an ongoing responsibility of Omya. The project site would be inspected as needed, at least annually by the County. As reclamation efforts increase through establishment of native species, the frequency of monitoring by Omya would increase commensurate with the activities being conducted. As required by the proposed project's reclamation plan, the individual monitor(s) would be qualified revegetation specialists approved by the County.

RECLAMATION ASSURANCE

Omya would post an updated reclamation assurance annually in an amount sufficient to pay for the cost of reclamation for existing disturbance as outlined in the Amended Plan and summarized here. The County would annually review the updated reclamation financial assurance cost estimate (FACE), as annual updates are required by SMARA. San Bernardino County is the lead agency for SMARA, which also requires the reclamation assurance to be reviewed and approved by the OMR, in compliance with Section 88.03.080 of the County Development Code.

Omya most recently submitted its annually updated FACE to the County in June 2013, which is pending approval. The current FACE, in the form of a letter of credit on file payable to the County and to the OMR, was approved in July 2012.

2.11 PUBLIC SAFETY

To reduce the risk of injury to the general public and employees, several safety measures have been incorporated and would be ongoing as part of mining and reclamation activities on the project site.

2.0 PROJECT DESCRIPTION

Vehicular access to the mining area is provided only on restricted access/haul roads. The roads have multiple highly visible warning signs directing the public away from the active mining area. In addition, the haul roads are watched by company personnel during operating hours. During non-operating times, locked steel gates are closed on all haul roads accessing both active and inactive quarries to restrict vehicle access. Safety berms are placed on jeep and off-road vehicle (ORV) trails to restrict ORV access and would be maintained as necessary.

Signs are located around the perimeter of the mining area directing vehicles or foot traffic away from the mining or reclamation areas.

Active mining areas comply with all federal (MSHA) and state (Cal/OSHA) mine safety regulations. Workers, including contractor labor, are trained in mine safety and first aid. Elevated roads have safety berms, quarries have safety benches with berms, and inactive ramps and roads in mining areas are blocked to prevent access.

Prior to blasting activities, employees working in the area are notified, and a visual search of the area is done prior to blasts to verify that no one is present in the area. Standard horn signals are used to notify personnel before and after blasts (all clear). "No Smoking" signs are placed on all storage containers that contain flammable materials. Storage containers are labeled indicating contents, and hazardous or poisonous materials are identified. Buildings or storage facilities are locked.

Once mining has been completed, the quarry rims would have a fence or other type of access restriction erected along dangerous highwalls with warning signs to prevent anyone from entering the quarry area. Upon completion of the reclamation of the mine, this fencing/access restriction will be removed.

2.12 POST-RECLAMATION AND FUTURE MINING

Because natural resources, particularly high-grade limestone resources, are finite and limited, an effort would be made in the reclamation to conserve remaining limestone resources that may have some conceivable future resource value. Limestone resources would be left in benches within the quarries. Reclamation on the patented land would not preclude future permitting of mining and reclamation of the potentially economic limestone resources that may remain after mining related to this proposed project is completed.

The planned land use subsequent to mining is open space and wildlife habitat compatible with surrounding BLM and U.S. Forest Service lands. The quarry excavation and reclamation would result in a series of reclaimed benches 25 to 30 feet wide and 50 feet high within the quarries. The eastern portion of the White Knob Quarry would be backfilled with waste rock to approximately the 5,575-foot elevation, graded to maintain a permanent sediment basin for future sediment control, and revegetated. The slopes of the reclaimed overburden sites would be no greater than 2H:1V overall and revegetated on up to 30 percent of the equipment-accessible horizontal surfaces.

The project area is bounded by SBNF lands to the south, by BLM lands on the west and north, and by privately held land to the east (patented claims). The area is known to have additional limestone resources, and mining could be undertaken in the vicinity of the site in the future with additional entitlements.

2.13 PROJECT-PROPOSED IMPACT REDUCTION MEASURES

Numerous project designs, conditions of approval, and mitigation measures from the existing approved 1986 Plan were incorporated into the existing White Knob/White Ridge Quarries operations. This Amended Plan includes the following avoidance/minimization and environmental protection measures to reduce potential environmental impacts:

- 1) Implement mining methods along ridges and cliffs to minimize future boulder roll-down.
- 2) Place future overburden into existing overburden areas and/or backfill into completed quarries as much as feasible to reduce requirement for additional land and visual impacts.
- 3) Design and implement drainage control improvements to comply with CDFW regulations, including a number of sediment basins within the project area for overburden stockpiles and along roads.
- 4) Maximize overburden and fines for off-site use, reducing volume of overburden stockpiles.
- 5) As areas become available, implement reclamation/revegetation of completed quarries and overburden stockpiles to reduce visual impacts through backfilling, recontouring and slope reduction, growth media placement, revegetation with native plant species, and colorization as applicable.
- 6) Salvage and relocate Joshua trees, Mojave yuccas, and specific cacti species suitable for transplanting.
- 7) Develop the quarry site consistent with the CHMS Plan and guidelines, and mitigate impacts to these listed species through permanent conservation easements on mining claims in consultation with the County and the Forest Service.
- 8) Design overburden sites to avoid known or potential carbonate habitat to the degree possible. As most of the overburden and waste rock is carbonate rock, additional habitat will be created during reclamation, minimizing the overall loss of plant habitat.
- 9) Continue support of CDFW bighorn sheep studies during the mining project.
- 10) Implement and monitor erosion control facilities along the access road on BLM-managed lands per the approved right-of-way conditions.

The Amended Plan includes a site-specific revegetation plan that identifies growth media and organics salvage and placement, seeding and revegetation, seed collection and propagation, irrigation, site cleanup, public safety, rock and fill slope stability, drainage and erosion controls, a monitoring and maintenance plan, and bond release criteria.

AIR QUALITY PERMITS

The existing crusher has approved air quality permits to operate, which are renewed annually by the Mojave Desert Air Quality Management District (MDAQMD). The permits outline specific conditions that must be met to maintain air quality standards and limits on daily and hourly production rates. The existing permits allow for a maximum of 4,000 tons per day and 400 tons

2.0 PROJECT DESCRIPTION

per hour of ore processed, which is sufficient to accommodate the increased excavation area proposed in the Amended Plan. Therefore, no change in the existing crusher air quality permits will be necessary. Existing dust control measures are in compliance with MDAQMD Rules 401 (limiting visible emissions from exhaust), 402 (avoid nuisance emissions to people or businesses or property), 403 (prohibits visible dust from crossing property lines), and 403.2 (requirements for controlling fugitive dust) and meet the required air quality regulations. The dust control measures are required to be in place and operative, and regular monitoring by agency personnel ensures that the regulatory standards are met. Haul trucks and diesel equipment must meet all requirements of the California Air Resources Board's diesel vehicle regulations to reduce diesel pollutants. Upon decommissioning of the stationary crusher, a mobile crusher would be used. A new air quality permit would be required for the mobile crusher.

EROSION AND SEDIMENTATION CONTROL

The objective of all drainage control measures is to limit runoff to minimize or prevent erosion and to promote settling of suspended solids before the runoff leaves the site. The Settlement Agreement, as discussed previously, includes as Part B a section entitled: "Repair, Remediate, and Monitor Improvements to the White Knob Quarry Right-of-Way Access Road and Associated Facilities to Protect Drainages." The *White Knob Quarry Haul Road Drainage Report and Plan of Development* was prepared to analyze the existing drainage conditions at the quarry and along the haul road and to provide recommendations for facilities to control stormwater and sediment runoff and provide protection to surrounding drainages. Recommendations from the Plan of Development are summarized below.

On-Site Haul Road

The on-site haul road within the quarry area from the crusher area to the northeast corner of the project site east of OB-1 carries stormwater from the southern areas northward. The area where the haul road is located does not have the width to place a separate drainage channel. The hydrology study determined that the required 4-foot berms on each side (or a hillside slope or eventually the side slope of OB-1), as required for truck safety per the Mine Safety and Health Administration (MSHA), are adequate to contain the 10-year design flow and the 100-year flow within the roadway with over 2 feet of freeboard. The haul road will be graded with a 2 percent cross fall and berm openings to allow stormwater discharge to the sediment catchment basins discussed below. Adequate on-site equipment and aggregate materials are available to make repairs to road damage that may occur during heavy storms.

Off-Site Haul Road

There are currently four sediment catchment basins on the quarry site [Basins 1, 3, 4, and 5] along the road (illustrated on **Figure 2.0-6**) and two just downstream off-site (Basin 6 and Basin 7). The sediment debris production calculations determined that the four on-site basins have a volume of less than half of the predicted volumes needed, and recommended improvements are discussed below. The two basins just off-site to the northeast have adequate capacity and spillway protection, and no additional improvements are required. Sediment basins will be monitored, maintained, and excavated as necessary and sediment removed from the sites to an overburden site at the quarry. The basins and captured sediment would be maintained for the life of the quarry. Each basin site requires access that will support loading and haulage equipment and would meet required MSHA safety standards. Access roads and the sedimentation basins would be reclaimed as part of the long-term reclamation plan for the mine site.

Stantec completed the *White Knob Quarry Haul Road Drainage Report and Plan of Development* in 2011. This report was intended to specifically comply with items 15 through 17 of Part B of the Settlement Agreement. The report made the following recommendations:

Roadway Grading and Ditch: The road should be graded with a 2 percent cross fall. Which side of the road would be the low side of the roadway would be predicated on which side the next downstream catchment basin is on. The road surface should be an aggregate base course, free of calcium carbonate materials. The 4-foot-high earthen berms should continue to be provided, with the addition of breaks in the berms at the sediment catchment basins to allow stormwater and debris to flow in to the basins.

Sediment Catchment Basins: The following recommendations were made for the on-site roadway catchment basins:

Basin 1 is located at the base of the proposed OB-2 in a confined area with little room for expansion. A concrete spillway is recommended to allow overflow of the 10-year design storm without failure of the basin embankment.

Basin 2 is a new basin located in the upper drainage area about 400 feet north of Basin 1 with a designed volume of 960 cubic yards. Note that Basin 1 and Basin 2 will eventually be covered over with overburden during the last 10 years of operations or so, and storm flow and sediment would be captured by the permanent sediment basin to be designed on the former White Knob Quarry floor.

Basin 3 is an existing basin along the haul road near the northwest end of the planned White Ridge Quarry. This basin is not able to be expanded; however, a concrete spillway will be constructed following BLM approval of the improvement.

Basins 4 and 5 are adjacent to each other and located to the east of the proposed OB-1 expansion area. These two basins will be combined into one basin with a concrete spillway from Basin 4 into Basin 5 and a concrete spillway and a 50-foot riprap apron from Basin 5 to the natural drainage to the north. The bottoms of the basins will have a maximum grade of 10 percent and a total debris and sediment volume capacity of 6,380 cubic yards.

Since existing Basins 6 through 9 along the off-site portion of the haul road have sufficient capacity as well as spillway protection, no changes to these basins are recommended. However, Stantec recommended that a new basin be constructed off-site at location 10.

On-site Basins 11 and 12 will be constructed on the northeast and north side of OB-1 to control potential runoff and sediment off of OB-1. Both will have riprap spillways discharging into the natural drainages. On-site Basin 13 will be constructed at the toe of OB-3 to handle potential runoff and sediment and will have a riprap spillway discharging into the natural drainage.

The overburden stockpiles will be constructed with berms near the crest of the fill benches to prevent runoff over the fill slope. Typically, due to the porosity of the overburden, little runoff occurs. Drainage will be directed away from the rims. Riprap, catchment basins, and various energy dissipaters will be placed along the toe of fills as needed to trap sediment and minimize the potential for off-site transport. These drainage controls will be periodically inspected and maintained as necessary.

2.0 PROJECT DESCRIPTION

Culvert Riprap: Stantec recommended that the length of protection downstream of the culvert outlet should be extended in all locations. The culverts at Stations 154+20, 170+50, and 182+00 should have the existing outlet riprap protection removed and replaced with the appropriate riprap class and apron dimension.

Quarries

Existing and future mining activities at the three on-site quarries area will create and deepen their pit floors. Future runoff down slopes, benches, roads, and ramps and any sediment will be directed into the mined-out portion of the quarry or into sediment sumps located down the road in the vicinity of OB-1. For the White Knob Quarry, the final backfill will be designed to act as a permanent sediment basin for future sediment control through sloping the drainage toward the west into the quarry walls with sufficient capacity to handle potential runoff for a 20-year/1-hour precipitation event. The drainage controls will minimize the potential for off-site transport and will eliminate any potential adverse effect on downstream property.

A large number of energy dissipaters, sediment capture basins, riprap, hay bales, and/or silt fences trap sediment and minimize the potential for off-site transport. Operations also limit surface disturbance to minimum areas, and concurrent reclamation and revegetation will stabilize disturbed pads and slopes.

INCIDENTAL BOULDER ROLL-DOWN MITIGATION

During mining of the rock in the deposit at the top of the ridge and along the crest, boulders of white limestone have rolled down the slope to the north and to the west into the West Canyon. The incidental boulder roll-down has partly covered the older natural talus and landslide deposits, and is visible from Lucerne Valley.

Precautions have been taken and new mining procedures have been implemented to minimize future roll-down. However, because of remaining cliffs, some roll-down would be unavoidable, as it is necessary to continue to mine the ridge down and daylight in order to safely recover the ore. The following procedures are to continue for the life of the project to minimize boulder roll-down:

- 1) Precision drilling and buffer blasting when the outside edge is approached.
- 2) Drilling lifters on the edge to undercut the remaining slope and let it fall into the pit (like directional falling of a tree).
- 3) Excavator to pull down and pull in toward the pit blasted rock away from the edge.
- 4) Use of alternatives to blasting along the outside such as rock breakers, surface miners, cutting heads, and excavators.
- 5) Loader to pull back material from the edge.
- 6) Loader to dig at an angle to the edge or parallel to the edge when possible.
- 7) Manually scaling boulders from the highwalls where they may be above a haulage road.

Additional measures to reduce the visual impacts include concurrent colorization and revegetation of the visible north-facing slopes below the quarry where mining has been completed and downhill migration of the material has sufficiently slowed.

Where mining-related visual impacts have been completed on the north-facing slope, Permeon™ (permanent nontoxic dye) was applied in January 2006 to approximately 5 acres. The visual contrast has been substantially reduced, as the brown-colored stain on the boulders blends with the natural hillside color. Revegetation of the upper slopes was also undertaken, utilizing native species, slow release fertilizer, and commercial mycorrhizal inoculations. Irrigation occurred for two years to allow a higher proportion of germination. Revegetation helps stabilize the upper slopes and reduce erosion and sediment transport.

Reclamation will be a concurrent effort in which colorization by the use of permanent nontoxic dye that colors the rocks brown to blend in with the natural colors of the mountainsides, and revegetation would occur on the benches where mining is completed. Concurrent and final reclamation would include colorization (if feasible due to surface material suitability) and revegetation to blend with the natural-colored slopes.

VISUAL IMPACT MITIGATION

The Amended Plan includes designs and reclamation activities to reduce existing and future visual impacts from the quarries, overburden sites, and roll-down areas. These measures include the following:

- Implement measures to minimize boulder roll-down visual impacts as discussed previously.
- Maintain the existing crusher site at the White Knob Quarry or use a portable plant within an active quarry to reduce its visibility from Lucerne Valley.
- Deposit waste rock within the White Knob Quarry footprint, as described in the Amended Plan, to reduce the area of disturbance for overburden stockpiles and visual impact outside the quarry.
- Design and phase mining of the White Ridge Quarry, which allows for concurrent reclamation and leaves an approximately 300-foot-high ridge of undisturbed hillside facing Lucerne Valley to minimize visual impacts.
- Implement reclamation and revegetation on completed equipment-accessible quarry benches and on overburden stockpiles concurrent with mining where feasible.
- Utilize color-staining product to darken the visible quarry and roll-down slopes where not subject to raveling to reduce visual impacts.
- Deposit darker waste rock on overburden sites where available to reduce color contrast.
- Design adequate erosion control features along the haul and access roads and quarry to control and limit erosion and sediment transport.
- Where feasible, construct catchment berms at the foot of stockpiles to reduce rock roll-down and sediment flow.
- Limit surface disturbances to areas identified in the Amended Plan.
- Implement appropriate dust controls to reduce visible dust.

2.0 PROJECT DESCRIPTION

BIOLOGICAL RESOURCES MITIGATION

Compliance with Carbonate Habitat Management Strategy Requirements

The carbonate soils located on the project site provide a unique habitat, and there are five federally listed threatened or endangered plant species endemic to carbonate soils. The proposed project site was previously determined by the US Fish and Wildlife Service to not be located within designated critical habitat for these carbonate-endemic plants. An intensive collaborative effort led to the development of the Carbonate Habitat Management Strategy (CHMS) in 2003. The strategy is designed to provide long-term protection for the carbonate-endemic plants and also provide for continued long-term mining in the San Bernardino Mountains. A portion of the carbonate habitats is protected from mining impacts in perpetuity within the carbonate habitat reserves dedicated and managed as described in the CHMS.

Omya intends to develop the quarry site consistent with the CHMS and guidelines. Omya will mitigate impacts to these listed species through permanent relinquishment of mining claims or transfer of private property in accordance with the CHMS requirements and consultation with the County and the US Forest Service.

Draft North Slope Raptor Conservation Strategy

Omya and three other mining companies are actively participating in the development of the Raptor Conservation Survey (RCS) and have agreed to follow the guidelines outlined in the final document (Eliason 2013). The RCS is intended to be a living document that may be updated over time as new information becomes available and includes monitoring objectives, schedules, and protocols, as well as measures to avoid, minimize, rectify, and reduce effects to nesting raptors along the North Slope. The following is a summary of the standard design features for mining and other projects on the North Slope, as outlined in the draft RCS.

2.14 REGULATORY REQUIREMENTS, PERMITS, AND APPROVALS

PROPOSED ACTION

The project proponent is requesting the following from the County of San Bernardino:

- Approval of a Mining Conditional Use Permit
- Approval of an amendment to an existing Reclamation Plan (RP# 86M-04)

REQUIRED PERMITS AND CONSULTATIONS

In addition to the approvals by the County listed above, the following permits may be required prior to the development and operation of the proposed project:

- California Department of Fish and Wildlife – Streambed Alteration Agreement
- Mojave Desert Air Quality Management District – Air Quality Permitting
- Office of Mine Reclamation – Approval of Amended Mine and Reclamation Plan
- Regional Water Quality Control Board – National Pollutant Discharge Elimination System Permit
- U.S. Fish and Wildlife Service – Section 7 Consultation with Forest Service through the Carbonate Habitat Management Strategy