5.1 INTRODUCTION TO THE ALTERNATIVES ANALYSIS

California Environmental Quality Act (CEQA) Guidelines Section 15126.6(a) states that an environmental impact report (EIR) shall describe and analyze a range of reasonable alternatives to a project. These alternatives should feasibly attain most of the basic objectives of the project, while avoiding or substantially lessening one or more of the significant environmental impacts of the project. An EIR need not consider every conceivable alternative to a project, nor is it required to consider alternatives that are infeasible. The discussion of alternatives shall focus on those which are capable of avoiding or substantially lessening any significant effects of the project, even if they impede the attainment of the project objectives to some degree or would be more costly (CEQA Guidelines Section 15126.6[b]).

As identified on page 2.0-11 and reiterated here, the objectives of the proposed project defined by the project proponent are to:

- 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
- Mitigate for lost, threatened, and endangered plant 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.

According to the State CEQA Guidelines, an EIR need only examine in detail those alternatives that could feasibly meet most of the basic objectives of the project. When addressing feasibility, CEQA Guidelines Section 15126.6 states that "among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, jurisdictional boundaries, and whether the applicant can reasonably acquire, control or otherwise have access to alternative sites." The CEQA Guidelines also specify that the alternatives discussion should not be remote or speculative; however, they need not be presented in the same level of detail as the assessment of the proposed project.

The CEQA Guidelines indicate that several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) the nature of the significant impacts of the proposed project; (2) the ability of alternatives to avoid or lessen the significant impacts associated with the project; (3) the ability of the alternatives to meet the objectives of the project; and (4) the feasibility of the alternatives. These factors would be unique for each project. The significant environmental impacts of the project that the alternatives will seek to eliminate or reduce were determined and based on the findings contained in each technical section evaluated in Sections 3.1 through 3.8 of this Draft EIR.

5.2 ALTERNATIVES CONSIDERED AND REJECTED FROM FURTHER ANALYSIS

REDUCED PROJECT ALTERNATIVE

This alternative includes the reduction in size of the proposed project by removing the White Ridge Quarry from the project. The currently approved Mine and Reclamation Plan includes the White Ridge Quarry as part of Phase 4, which can be mined under current approvals. However, upon analysis of this alternative, it was determined that the reduced project alternative would not necessarily reduce the project's environmental impacts. This is because much of the project's impacts are due to the mining of the overall site and the placement of the overburden, including the significant and unavoidable impacts on aesthetics. The exclusion of the White Ridge Quarry from the project would decrease the impacts on visual resources but not to an insignificant level, as impacts caused by the remainder of the quarry areas would remain. This alternative would also reduce significant biological resource impacts identified in Section 3.3, Biological Resources, but would not completely avoid these impacts. Additionally, this alternative would not meet the project's objective of 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. Therefore, this alternative has been rejected.

BACKFILL ALL QUARRIES ALTERNATIVE

This alternative includes backfilling the overburden materials stored in OB-1, OB-2, and OB-3 into the White Knob, Annex, and White Ridge quarry pits during mining operations. However, because of how the quarries operate, placing overburden materials in an operating quarry is not possible, as this will not allow for the removal of the limestone and there are no land areas available on the site to store the overburden while mining occurs. Generally, the overburden is placed in an area that would not be mined in order to prohibit it from interfering with ongoing mining operations. Backfilling all of the quarries—White Knob, Annex, and White Ridge—during operation is not logistically possible.

Operation of the mine would still require the placement of overburden material in OB-1, OB-2 and OB-3, thereby impacting these areas. Removal of this overburden from OB-1, OB-2 and OB-3 upon quarry closure would increase the impacts on these areas by re-introducing earth moving equipment to the area, which, over the years of operation, may have begun to stabilize. Removal of overburden from OB-1, OB-2 and OB-3 and filling the quarries with overburden would increase the amount of air emissions, increase the amount of water quality impacts, as well as increase potential for biological resource impacts, as it would prolong the operation of the quarries and any earth moving activities. Additionally, these activities would interfere with concurrent reclamation activities. Therefore, this alternative has been rejected from further analysis.

REMOVAL OF OVERBURDEN FROM PROJECT SITE

This alternative includes the removal of overburden that would have been placed in OB-2 and OB-3 from the project site to another location. This alternative would reduce the impacts related to those areas as well as decrease the project size by 16 acres (13 acres for OB-2 and 3 acres for OB-3). However, this alternative would result in moving large amounts of overburden by truck to another site. This would result in a significant increase in air quality impacts due to transporting the overburden as well as potential impacts on aesthetics, biological resources, cultural resources, geologic and seismic hazards, hydrology and water quality, and possibly other impact areas to the area in which the overburden would be placed. Additionally, this alternative would not allow for the backfilling of the project quarries, which will increase the post-closure impacts on the site by not allowing for the reclamation of the site, much of which depends on the backfilling of the quarries. Therefore, this alternative has been rejected from further analysis.

5.3 PROJECT ALTERNATIVES

ALTERNATIVE 1 – NO PROJECT ALTERNATIVE

Overview of Alternative

This alternative would retain the approved 1986 White Knob-White Ridge Limestone Mine Site Approval and Reclamation Plan. The 1986 Plan has an expiration date of December 31, 2031. The approved quarry site consists of 145 acres of mining facilities within 357.5 acres of patented fee land, portions of which are leased and owned by Omya. **Table 5.0-1** identifies the approved area of the 1986 Plan.

TABLE 5.0-1
1986 PLAN OPERATIONAL AREAS

Quarry or Area	Approximate Acres
White Knob Quarry	35
White Knob Annex Quarry	7
White Ridge Quarry	18
Overburden Site #1	15
Ancillary Disturbance Limits[1]	70
Total	145

Source: Omya 2013, p. 2

1. 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.

Additionally, as with the proposed project, Alternative 1 would include proposed changes to the existing haul road to the White Knob/White Ridge Quarries from the processing plant. This road is approximately 5.1 miles long; the first 4.4 miles of the haul road crosses land managed by the Bureau of Land Management (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. The BLM and Omya signed a Settlement Agreement for the use and remediation of the road and drainage. 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 the existing 67 acres to 83.5 acres. The

BLM requires final reclamation on approximately 40 acres of the total 83.5 acres of federal public land under a separate existing agreement. This is included in the Amended Plan. All components of the haul road are included as part of this alternative.

Existing throughputs are based on the three-year average from 2004 through 2006. It is assumed for this alternative that these throughputs will remain similar throughout the life of the 1986 Plan. **Table 5.0-2** identifies the 1986 Plan throughputs.

TABLE 5.0-2
THREE-YEAR AVERAGE THROUGHPUTS

	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 (Baseline) (2004–2006)	512,000 (tons/yr)	324,000 (tons/yr)	188,000 (tons/yr)	0 (tons/yr)	275,400 (tons/yr)	48,600 (tons/yr)

Source: Omya 2013, p. 10

Comparative Impacts

The following analysis is based on the potentially significant environmental impacts and significant and unavoidable impacts identified in Sections 3.1 through 3.8, as well as the cumulatively considerable impacts identified in Section 4.1, Cumulative Impacts. Impacts that were identified as being less than significant in Sections 3.1 through 3.8 were not included in this alternative analysis because the impacts were not considered to affect the environment to a degree requiring mitigation.

Aesthetics

Impact 3.1 Substantial Adverse Effect on a Scenic Vista and the Existing Visual Character

The proposed project would result in a **significant and unavoidable** impact on scenic vistas and visual character.

While Alternative 1 is a smaller impact area, impacts on scenic vistas and visual character would be similar to the proposed project. The quarrying of limestone would still require the removal of existing soils and land, revealing lighter-colored subsurface rock formations and the changing of the natural contours of the land. This provides a stark contrast to the surrounding mountains. Reclamation of the site would reduce this contrast, however, but not to a point of unification with the surrounding area. This alternative would also result in a significant and unavoidable impact and would be similar to the proposed project.

Impact 4.0.1 Cumulative Impact on Aesthetics and Visual Resources

Implementation of the proposed project, in combination with other reasonably foreseeable mining projects in San Bernardino County, would contribute to the alteration of the visual character of the San Bernardino Mountains. There is no feasible mitigation to reduce this impact. Therefore, this is considered a **cumulatively considerable** and **significant and unavoidable** impact.

While Alternative 1 would disrupt a smaller area through the mining of limestone, the use of this area for mining would also present visual impacts in the San Bernardino Mountains. Development of Alternative 1, along with other mining projects in the area, would also result in a cumulative impact on aesthetics and visual resources and would result in a cumulatively considerable impact. Thus, Alternative 1 would have a similar result regarding this impact area when compared to the proposed project.

Air Quality

Impact 3.2.1: Emissions of Air Pollutants Resulting in Violation of Air Quality Standards or Contributing to Existing Violations

Implementation of the proposed project would result in **potentially significant** impacts regarding the violation of air quality standards. This impact would be mitigated to a less than significant level with incorporation of the measures listed under mitigation measure **MM 3.2.1**.

Air quality impacts from the proposed project would be largely due to increased PM_{10} levels from use of the haul road for transportation of the ore to the processing plant. Alternative 1 would result in similar air quality impacts because of the use of the haul road for the transportation of ore in this alternative. Much like the proposed project, these impacts could be mitigated to a less than significant level. However, because the No Project Alternative would have a shorter operational period, air quality impacts resulting from transportation of ore on the haul road would be for a shorter time period. Therefore, the air quality impacts of this alternative would be less than the proposed project.

Impact 3.2.4: Exposure of Sensitive Receptors to Localized Criteria Pollutants

Implementation of the proposed project would result in **potentially significant** impacts on sensitive receptors as a result of increased PM_{10} levels. This impact would be mitigated to a less than significant level with incorporation of the measures listed under mitigation measure **MM 3.2.1**.

The proposed project's impacts on sensitive receptors are also largely due to increased PM_{10} levels on the haul road. Alternative 1 would result in similar air quality impacts because of the inclusion of the haul road in this alternative. However, much like the proposed project, these impacts could be mitigated to a less than significant level. Therefore, the air quality impacts of this alternative would be similar to the proposed project.

Biological Resources

Impact 3.3.1 though Impact 3.3.10: Impacts on Candidate, Sensitive, or Special-Status Species

The species or species groups identified in Section 3.3 were determined to have the potential to be substantially adversely affected by project-related activities, either directly or through habitat modifications. Impacts on these species would be considered **potentially significant**. However, mitigation measures **MM 3.3.1a** through **MM 3.3.1i, MM 3.3.2, MM 3.3.3a** and **MM 3.3.3b, MM 3.3.4, MM 3.3.5, MM 3.3.6, MM 3.3.7, MM 3.3.9,** and **MM 3.3.10** would reduce the potential impacts to a less than significant level.

Alternative 1 would result in impacts on special-status species, although because of the smaller disturbed area of Alternative 1, the impacts on the special-status species' habitat may not be as extensive as the proposed project's impacts. The currently approved Mine and Reclamation Plan includes mitigation for the impacts on biological resources that were identified in the 1987 environmental review. As such, Alternative 1 would result in similar impacts on biological resources when compared to the proposed project.

Impact 3.3.11: Impacts on Riparian Habitat or Sensitive Natural Communities

Sensitive habitats include those that are of special concern to resource agencies and those that are protected under the CEQA, Section 1600 of the Fish and Game Code (FGC), and Section 404 of the Clean Water Act (CWA). Project-related activities have the potential to substantially adversely affect riparian vegetation. Impacts on these resources would be considered **potentially significant**. However, mitigation measure **MM 3.3.11** would reduce the potential impacts to a less than significant level.

Alternative 1 would impact less area. No specific areas of riparian vegetation were identified in the approved Mine and Reclamation Plan environmental review. However, the plan includes mitigation for the impacts on biological resources that were identified. As such, Alternative 1 would result in similar impacts on biological resources when compared to the proposed project.

Impact 4.0.3: Cumulative Impacts on Biological Resources

The proposed project in combination with other reasonably foreseeable projects could result in mortality and loss of habitat for special-status species, as well as biologically sensitive habitats. Therefore, this impact is considered **cumulatively considerable**. Implementation of avoidance, minimization, and mitigation measures **MM 3.3.1a** through **MM 3.3.1i, MM 3.3.2, MM 3.3.3a** and **MM 3.3.3b, MM 3.3.4, MM 3.3.5, MM 3.3.6, MM 3.3.7, MM 3.3.9,** and **MM 3.3.10** will reduce potentially cumulative impacts to a less than cumulatively considerable level.

Alternative 1 would result in cumulative impacts on biological resources, although because of the smaller disturbed area of Alternative 1, the impacts on biological resources may not be as extensive as the proposed project's impacts. The currently approved Mine and Reclamation Plan includes mitigation for the impacts on biological resources that were identified in the 1987 environmental review. As such, Alternative 1 would result in similar impacts on cumulative biological resources when compared to the proposed project.

Cultural and Paleontological Resources

Impact 3.4.1: Substantial Adverse Change in the Significance of an Archaeological or Historical Resource

Implementation of the proposed project would result in a **potentially significant** impact on archaeological or historical resources. Processing of the quarries may result in the unearthing of unknown historical or archaeological resources. This impact would be reduced to a less than significant level with incorporation of mitigation measure **MM 3.4.1**.

Alternative 1 may result in impacts on historical or archaeological resources. Processing of the quarries would still have the potential to unearth unknown resources. However, the current Mine and Reclamation Plan EIR provides mitigation for the possible discovery of unknown historical or archaeological resources. As such, Alternative 1's impact on archaeological of historical resources is similar to the proposed project in that impacts can be reduced to a less than significant level with the incorporation of mitigation measures.

Impact 3.4.3: Destroy a Unique Paleontological Resource or Geologic Feature

Implementation of the proposed project would result in a **potentially significant** impact on paleontological resources because of the undetermined potential for the project site to contain significant nonrenewable paleontological remains, primarily invertebrate fossils. Implementation of

mitigation measure **MM 3.4.3** would ensure that any previously unknown unique paleontological resources or geologic features resources inadvertently discovered during project implementation are protected and would reduce this impact to a level that is less than significant.

Alternative 1 may result in impacts on paleontological resources. Processing of the quarries would still have the potential to impact unknown unique paleontological resources or geologic features. However, the current Mine and Reclamation Plan EIR provides mitigation for the possible discovery of unknown unique paleontological resources or geologic features. As such, Alternative 1's impact on paleontological resources is similar to the proposed project in that impacts can be reduced to a less than significant level with the incorporation of mitigation measures.

Geology and Soils

Impact 3.5.3: Rock and Soil Talus Erosion

The proposed project's rock and soil talus on the northwest slope and within the Western Drainage could impact the Ruby Springs area, resulting in a **potentially significant** impact. Past mining operations at White Knob Quarry allowed white talus overburden material to fall onto the northwest slope. An intense rain storm event could cause some of this talus material to reach the Western Drainage. As such, mitigation measure **MM 3.5.3** is included in this Draft EIR, which upon implementation, would reduce the impact to a less than significant level.

Alternative 1 would also result in impacts in the Ruby Springs/Western Drainage area as a result of rock and soil talus. This is an existing condition. In April 20, 2011, a Settlement Agreement between the BLM and Omya relating to activities at the White Knob Quarry included six separate components (Parts A–F). The Part A component deals with Ruby Springs and the Western Drainage and requires 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, and no substantial impacts to the drainage or springs have been observed.

Alternative 1 would be subject to this Settlement Agreement. From a geology and soils perspective, this alternative may result in a greater potential for significant impacts as compared to the proposed project. The currently approved 1986 Reclamation Plan does not require backfilling of the White Knob Quarry; therefore, all of the overburden and waste rock would be placed in OB-1, expanding its area and height. The proposed project extends mining for 23 years to the year 2055 from the current year 2032, and final reclamation is completed 28 years later, in the year 2065 from the current year 2037. Reclamation activities will ultimately still be required and completed, as required under SMARA.

The proposed project includes precautions to minimize future boulder 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.

Alternative 1 does not include these steps. Instead, the alternative would allow for reclamation of the project under the SMARA standards at the time of approval (1986). The project's Amended Reclamation Plan includes the more recent reclamation standards, SMARA Sections 3700–3713, while the currently approved Mine and Reclamation Plan does not because the plan was approved prior to adoption of the new standards. The new SMARA standards provide for improved reclamation on mine sites. Therefore, Alternative 1 would have a greater result in this impact area when compared to the proposed project and would result in a significant impact.

Hydrology and Water Quality

Impact 3.7.1: Substantially Alter Drainage Pattern

The project will substantially alter the existing drainage pattern in the quarry area, while maintaining the existing haul road drainage, thereby increasing the potential for sedimentation and erosion. This would result in a **potentially significant** impact. Implementation of mitigation measure **MM 3.7.1** would reduce this impact to less than significant.

Three main drainages cross the White Knob/White Limestone Ridge Quarries area, while the east–west haul road has 6 Arizona crossings and 14 culverts. Alternative 1 would not alter the existing drainage beyond those changes identified in the 1986 Mine and Reclamation Plan. In 2011, Stantec analyzed the hydrology for the project and determined that the capacities of the existing hydraulic structures, e.g., sedimentation basins, drainage conveyances, and haul road culverts, with some minor modification to the existing hydraulic structures, were adequate for the predicted 10-year stormwater flow, while most are marginal for a 20-year storm event. Stantec also recommended that the on-site haul road be graded with a 2 percent cross fall, that the road surface be an aggregate base course that is free of calcium carbonate materials, and that the low side of the roadway be determined by which side the next downstream catchment basin is on. Alternative 1 would also include changes in the cross fall of the haul road and therefore would direct stormwater flows into the catchment basins. As such, although Alternative 1 does not expand the quarry areas beyond those already approved, the inclusion of the additional haul road areas would present new drainage impacts not analyzed in the 1986 Mine and Reclamation Plan EIR (Michael Brandman, Inc. 1986). However, these impacts could be mitigated to a less than significant level using the same mitigations listed under mitigation measure **MM 3.7.1**.

From a hydrology and water quality perspective, Alternative 1 may result in a greater potential for significant impacts relative to the proposed project. The currently approved 1986 Reclamation Plan does not require backfilling of the White Knob Quarry; therefore, all of the overburden and waste rock would be placed in OB-1, expanding its area and height. The proposed project extends mining for 23 years to the year 2055 from the current year 2032, and

final reclamation is completed 28 years later, in the year 2065 from the current year 2037. Reclamation activities will ultimately still be required and completed, as required under SMARA.

This alternative would allow for reclamation of the project under the SMARA standards at the time of approval, 1986. The project's Amended Reclamation Plan includes the more recent reclamation standards, SMARA Sections 3700–3713, while the currently approved Mine and Reclamation Plan does not because the plan was approved prior to adoption of the new standards. The new SMARA standards provide for improved reclamation on mine sites. As such, this alternative may have greater impacts when compared to the proposed project, and would result in a significant impact.

ALTERNATIVE 2 – ELIMINATION OF OB-2

Overview of Alternative

Under Alternative 2, overburden site 2 (OB-2) would be eliminated from the project. This alternative would remove the impacts on the wetland features in this area. The overburden that would have been placed in this 13-acre site would be placed in OB-1 or OB-3, increasing the size and height of these areas. The elimination of OB-2 would also result in the reduction in size of the project area from 335.1 acres to 322.1 acres. The proposed project lists the total size of OB-1 as 31.9 acres and OB-3 as 3.0 acres. Assuming the overburden from the OB-2 site would be absorbed into OB-1 and OB-3 using the same proportional size, OB-1 is approximately 10.6 times the size of OB-3, OB-1 would increase to 43.7 acres and OB-3 to 4.3 acres in size. Additional changes to these overburden sites would also have to be incorporated into this alternative such as additional sedimentation basins or other drainage features and the re-contouring of OB-1 and OB-3 to accommodate the additional overburden, as well as the realignment of the on-site haul road to reach the White Ridge Quarry.

Comparative Impacts

As previously stated, the following analysis is based on the potentially significant environmental impacts and significant and unavoidable impacts identified in Sections 3.1 through 3.8, as well as the cumulative considerable impacts identified in Chapter 4.0. Impacts that were identified as being less than significant in Sections 3.1 through 3.8 were not included in this alternative analysis because the alternatives could not result in a lesser impact than the proposed project.

Aesthetics

Impact 3.1 Substantial Adverse Effect on a Scenic Vista and the Existing Visual Character

The proposed project results in a **significant and unavoidable** impact on scenic vistas and visual character.

Alternative 2 would result in greater visual impacts when compared to those identified for the proposed project. This alternative would still disturb land through the mining of limestone, creating a visual impact. Although like the proposed project, Alternative 2 would be required to provide for the reclamation of the disturbed area, the elimination of OB-2 would reduce the disturbed area by 13 acres, leaving that area in its natural state. However, while Alternative 2 would result in a slightly smaller project area, the visual impact caused by the mining of the limestone would create a larger visual impact. Currently, as proposed, the visual impacts of OB-1 and OB-3 are blocked by intervening hills. However, relocating overburden to OB-1 and/or OB-3 would result in a higher overburden, which could then be seen from residences in the area and

by travelers on local roadways. While the proposed project results in a significant and unavoidable impact, Alternative 2 would result in a greater impact on visual resources because a greater amount of quarry impacts could be observed from the surrounding area. Although similar to the proposed project, much of the scenic impact could be mitigated through resources identified in the reclamation plan, Alternative 2 would result in a significant and unavoidable impact.

Impact 4.1 Cumulative Impact on Aesthetics and Visual Resources

Implementation of the proposed project, in combination with other reasonably foreseeable mining projects in San Bernardino County, would contribute to the alteration of the visual character of the San Bernardino Mountains. There is no feasible mitigation to reduce this impact. Therefore, this is considered a **cumulatively considerable** and **significant and unavoidable** impact.

While Alternative 2 would disrupt a smaller area, the removal of OB-2 would result in more visual impacts identified for the OB-1 and/or OB-3 areas. Development of Alternative 2, along with other mining projects in the area, would also result in a cumulative impact on aesthetics and visual resources and result in a cumulatively considerable impact. Thus, Alternative 2 would have a similar result regarding this impact area when compared to the proposed project.

Air Quality

Impact 3.2.1: Emissions of Air Pollutants Resulting in Violation of Air Quality Standards or Contributing to Existing Violations

Implementation of the proposed project would result in **potentially significant** impacts regarding the violation of air quality standards. This impact would be mitigated to a less than significant level with incorporation of the measures listed under mitigation measure **MM 3.2.1**.

The proposed project's air quality impact is largely due to increase PM_{10} levels on the haul road. Alternative 2 would also include the haul road and result in similar air quality impacts. The removal of OB-2 would have little effect on PM_{10} levels. However, much like the proposed project, these impacts could be mitigated to a less than significant level. Therefore, this alternative is similar to the proposed project.

Impact 3.2.4: Exposure of Sensitive Receptors to Localized Criteria Pollutants

Implementation of the proposed project would result in **potentially significant** impacts on sensitive receptors as a result of increase PM_{10} levels. This impact would be mitigated to a less than significant level with incorporation of the measures listed under mitigation measure **MM 3.2.1**.

The proposed project's impacts on sensitive receptors are also largely due to increased PM_{10} levels on the haul road. Alternative 2 would result in similar air quality impacts because of the inclusion of the haul road in this alternative. However, much like the proposed project, these impacts could be mitigated to a less than significant level. Therefore, this alternative is similar to the proposed project.

Biological Resources

Impact 3.3-1 though Impact 3.3.10: Impacts on Candidate, Sensitive, or Special-Status Species

The species or species groups identified in Section 3.3 were determined to have the potential to be substantially adversely affected by project-related activities, either directly or through habitat modifications. Impacts on these species would be considered a **potentially significant** impact. However, mitigation measures **MM 3.3.1a** through **MM 3.3.1i, MM 3.3.2, MM 3.3.3a** and **MM 3.3.3b, MM 3.3.4, MM 3.3.5, MM 3.3.6, MM 3.3.9,** and **MM 3.3.10** would reduce the potential impacts to a less than significant level.

Alternative 2 would result in impacts on special-status species, although because of the smaller disturbed area of Alternative 2, the impacts on the special-status species' habitat may not be as extensive. Adoption of Alternative 2 would require an environmental review. It is assumed that as a part of the environmental review, the impacts on special-status species will be analyzed and mitigated to a less than significant level. However, the overburden that would have been placed in OB-2 would be relocated to OB-1 and OB-3. This relocation would cause an expansion of OB-1 and OB-3. Expansion of OB-3 could encroach into the sensitive habitat located to the north of the White Ridge Quarry site. Expansion of OB-1 by 11.8 acres would result in an encroachment on the sensitive habitat west of OB-1. The following special-status plants have been identified to exist in or adjacent to OB-1 and/or OB-3: Cushenbury oxytheca, San Bernardino Mountains dudleya, Parish's daisy, Cushenbury buckwheat, Parish's alumroot, Latimer's woodland-gilia (see **Figure 3.3-3** in Section 3.3). Expansion of these areas may create a greater impact on these plants. As such, Alternative 2 would have a greater impact on special-status species than those of the proposed project as is would have a greater impact area. However, the inclusion of the mitigation described above would result in a less than significant impact.

Impact 3.3.10: Impacts on Riparian Habitat or Sensitive Natural Communities

Sensitive habitats include those that are of special concern to resource agencies and those that are protected under CEQA, Section 1600 of the FGC, and Section 404 of the CWA. Project-related activities have the potential to substantially adversely affect riparian vegetation. Impacts on these resources would be considered a **potentially significant** impact. However, mitigation measure **MM 3.3.11** would reduce the potential impacts to a less than significant level.

Alternative 2 would also impact riparian vegetation, as this alternative would impact drainage areas identified as locations A, B1, B2, D, and E (see **Figure 3.3-2**), which are considered to have good habitat conditions for riparian vegetation in undisturbed areas. However, Alternative 2 would not impact the drainage identified as location C on **Figure 3.3-2**, as OB-2 would not be expanded into this area in Alternative 2. As previously stated, adoption of Alternative 2 would require an environmental review. It is assumed that as a part of the environmental review, the impacts on riparian vegetation will be analyzed and mitigated to a less than significant level. Because Alternative 2 would disturb a smaller area, impacts on potential riparian vegetation should be less on a quantitative scale. However, the overburden that would have been placed in OB-2 would be relocated to OB-1 and OB-3. This relocation would cause an expansion of OB-1 and OB-3. Expansion of OB-3 could encroach into the sensitive habitat located to the north of the White Ridge Quarry site. Expansion of OB-1 by 11.8 acres would encroach on the sensitive habitat west of OB-1. As such, Alternative 2 would have a greater environmental impact on riparian habitat as compared to the proposed project as is would have a greater impact area. However, the inclusion of the mitigation described above would result in a less than significant impact.

Impact 4.0.3: Cumulative Impacts on Biological Resources

The proposed project in combination with other reasonably foreseeable projects could result in mortality and loss of habitat for special-status species, as well as biologically sensitive habitats. Therefore, this impact is considered **cumulatively considerable**. Implementation of avoidance, minimization, and mitigation measures **MM 3.3.1a** through **MM 3.3.1i, MM 3.3.2, MM 3.3.3a** and **MM 3.3.3b, MM 3.3.4, MM 3.3.5, MM 3.3.6, MM 3.3.9,** and **MM 3.3.10** will reduce potentially cumulative impacts to a less than cumulatively considerable level.

Alternative 2 would also result in cumulative impacts on biological resources, although because of the smaller disturbed area associated with Alternative 2, the impacts on biological resources may not be as extensive in OB-2. However, the overburden that would have been placed in OB-2 would be relocated to OB-1 and OB-3. This relocation would cause an expansion of OB-1 and OB-3. Expansion of OB-3 could encroach into the sensitive habitat located to the north of the White Ridge Quarry site. Expansion of OB-1 by 11.8 acres would encroach on the sensitive habitat west of OB-1. As such, Alternative 2 would have a greater environmental impact on cumulative biological resources when compared to the proposed project.

Cultural and Paleontological Resources

Impact 3.4.1: Substantial Adverse Change in the Significance of an Archaeological or Historical Resource

Implementation of the proposed project would result in a **potentially significant** impact on archaeological or historical resources. Processing of the quarries may result in the unearthing of unknown historical or archaeological resources. This impact would be reduced to a less than significant level with incorporation of mitigation measure **MM 3.4.1**.

Alternative 2 may result in impacts on historical or archaeological resources. Processing of the quarries would still have the potential to unearth unknown resources. The exclusion of OB-2 as part of this alternative would not lessen the potential to unearth unknown historical or paleontological resources. Because the placement of overburden in the OB-2 site would not involve the removal of soil from that site, the potential to unearth cultural resources on that site is negligible. As such, the potential to unearth historical or paleontological resources for Alternative 2 is similar to the proposed project.

Impact 3.4.3: Destroy a Unique Paleontological Resource or Geologic Feature

Implementation of the proposed project would result in a **potentially significant** impact on paleontological resources because of the undetermined potential for the project site to contain significant nonrenewable paleontological remains, primarily invertebrate fossils. Implementation of mitigation measure **MM 3.4.3** would ensure that any previously unknown unique paleontological resources or geologic features resources inadvertently discovered during project implementation are protected and would reduce this impact to a level that is less than significant.

Alternative 2 could also result in impacts on paleontological resources. Processing of the quarries would still have to potential impact unknown unique paleontological resources or geologic features. However, as discussed above, the placement of overburden in the OB-2 site would not involve the removal of soil from that site, so the potential to unearth cultural resources on that site is negligible. The remainder of the project site will be quarried, and the potential to destroy a unique paleontological resource or geologic feature as a part of the quarrying process is possible. As such, the potential to discover and destroy an unknown paleontological resource or

geologic feature for Alternative 2 is similar to the proposed project and could be mitigated to a less than significant level.

Geology and Soils

Impact 3.5.3: Rock and Soil Talus Erosion

The proposed project's rock and soil talus on the northwest slope and within the Western Drainage could impact the Ruby Springs area, resulting in a **potentially significant** impact. Past mining operations at White Knob Quarry allowed white talus overburden material to fall onto the northwest slope. An intense rain storm event could cause some of this talus material to reach the Western Drainage. As such, mitigation measure **MM 3.5.3** is included in this Draft EIR to remove impacts on the drainage. Implementation of the mitigation measure would reduce the impact to a less than significant level.

Alternative 2 would also result in impacts in the Ruby Springs/Western Drainage area as a result of rock and soil talus. This is an existing condition. In April 20, 2011, a Settlement Agreement between the BLM and Omya relating to activities at the White Knob Quarry included six separate components (Parts A–F). The Part A component deals with Ruby Springs and the Western Drainage by requiring an analysis and monitoring of Ruby Springs. Alternative 2 will continue to require this monitoring. Exclusion of OB-2 would have no impact in this area, as it is not located in the northwest slope area. As such, Alternative 2 is similar to the proposed project, and with incorporation of **MM 3.5.3**, this impact would be less than significant.

Hydrology and Water Quality

Impact 3.7.1: Substantially Alter Drainage Pattern

The project will substantially alter the existing drainage pattern in the quarry area, while maintaining the existing haul road drainage, thereby increasing the potential for sedimentation and erosion. This would result in a **potentially significant** impact. Implementation of mitigation measure **MM 3.7.1** would reduce this impact to less than significant.

Alternative 2 is the proposed project without OB-2. This alternative was proposed because of the potential impacts on the drainage and wetlands on the OB-2 site. The removal of OB-2 would result in no impact on the drainage in this area. However, other drainages that are to be altered in the project would be included in Alternative 2. Overburden that would have been placed in OB-2 would have to be located to OB-1 and OB-3 with this alternative. This would cause the expansion of these two areas. Expansion of OB-3 could encroach into the sensitive habitat located to the north as well as intrude on land that is currently not within the project. Expansion of OB-1 by 11.8 acres has the potential to create the need for additional sedimentation basins and drainage improvements. This would not only increase the height of this overburden site, but would also result in a larger impact area to accommodate the new overburden. This expansion may result in substantially altering the existing drainage and encroach on the sensitive habitat west of OB-1. As such, Alternative 2 would have a greater environmental impact on drainage as compared to the proposed project.

ALTERNATIVE 3 – BACKFILL CENTRAL WHITE KNOB AND ANNEX QUARRIES

Overview of Alternative

Alternative 3 would include the backfilling of the White Knob and Annex Quarries. This alternative would be similar to the proposed project except that upon reclamation the OB-1 overburden storage area and central portions of the White Knob and Annex Quarries would be much higher because material placed in the White Ridge Quarry would now be placed in the White Knob and Annex Quarries. This would require that the final backfill elevation of OB-1 and the White Knob and Annex Quarries be raised to accommodate the additional fill, depending on slope stability. Under the proposed project, design of overburden fill slopes in all three disposal areas was found to have adequate slope stability; however, Alternative 3 would remove the fill in OB-3, the upper portions of OB-2, and some portion of the toe of OB-1, thereby reducing the potential for the mining-related fill slopes to fail or otherwise become unstable, and reducing the area of disturbance in the central and eastern drainages. The amount of fill that can be placed in each quarry would be restricted by the stability of the final fill, i.e., the slope angle and height. Overburden that could not be placed in the White Knob and Annex Quarries would continue to be placed in OB-1.

The height of the backfill at OB-2 would be reduced, leaving more of the drainage in a natural condition. However, additional drainage control structures would likely be needed to collect and control the additional runoff because the project's White Knob sedimentation basin would not be constructed and the Annex Quarry would no longer capture quarry rainfall. The drainage east of the White Ridge Quarry would not be filled with overburden, and the need for drainage control structures in that area would be lessened or eliminated.

Comparative Impacts

As previously stated, the following analysis is based on the potentially significant environmental impacts and significant and unavoidable impacts identified in Sections 3.1 through 3.8, as well as the cumulative considerable impacts identified in Chapter 4.0. Impacts that were identified as being less than significant in Sections 3.1 through 3.8 were not included in this alternative analysis because the alternatives could not result in a lesser impact than the proposed project.

Aesthetics

Impact 3.1 Substantial Adverse Effect on a Scenic Vista and the Existing Visual Character

The proposed project results in a **significant and unavoidable** impact on scenic vistas and visual character.

Alternative 3 would result in similar visual impacts when compared to those identified for the proposed project. This alternative would still disturb land through the mining of limestone creating visual impact, although like the proposed project, Alternative 3 would be required to provide for the reclamation of the disturbed area. However, the OB-1 overburden storage area and central portions of the White Knob and Annex Quarries would be much higher because material placed in the White Ridge Quarry would now be placed in the White Knob and Annex Quarries. This additional height would increase the potential for scenic impacts because areas which would be blocked from view by intervening mountains in the proposed project would be seen in Alternative 3. While the proposed project results in a significant and unavoidable impact, Alternative 3 would result in a greater impact on visual resources because a greater amount of quarry impacts could be observed from the surrounding area. Although, similar to the proposed

project, much of the scenic impact could be mitigated through resources identified in the reclamation plan, Alternative 3 would result in a significant and unavoidable impact.

Impact 4.1 Cumulative Impact on Aesthetics and Visual Resources

Implementation of the proposed project, in combination with other reasonably foreseeable mining projects in San Bernardino County, would contribute to the alteration of the visual character of the San Bernardino Mountains. There is no feasible mitigation to reduce this impact. Therefore, this is considered a **cumulatively considerable** and **significant and unavoidable** impact.

While Alternative 3 would disrupt an equal amount of area as the proposed area, backfilling of the quarries would result in higher backfill and OB-1 elevations, which could then be seen. Development of Alternative 3, along with other mining projects in the area, would also result in a cumulative impact on aesthetics and visual resources and result in a cumulatively considerable impact. Thus, Alternative 3 would have a similar result regarding this impact area when compared to the proposed project, as it would result in a cumulatively considerable and significant and unavoidable impact.

Air Quality

Impact 3.2.1: Emissions of Air Pollutants Resulting in Violation of Air Quality Standards or Contributing to Existing Violations

Implementation of the proposed project resulted in **potentially significant** impacts regarding the violation of air quality standards. This impact would be mitigated to a less than significant level with incorporation of the measures listed under mitigation measure **MM 3.2.1**.

The proposed project air quality impact is largely due to increase PM_{10} levels on the haul road. Alternative 3 would also include the haul road and result in similar air quality impacts. The backfilling of the quarries would have little effect on PM_{10} levels. However, much like the proposed project, these impacts could be mitigated to a less than significant level. Therefore, this alternative is similar to the proposed project.

Impact 3.2.4: Exposure of Sensitive Receptors to Localized Criteria Pollutants

Implementation of the proposed project resulted in **potentially significant** impacts on sensitive receptors as a result of increase PM_{10} levels. This impact would be mitigated to a less than significant level with incorporation of the measures listed under mitigation measure **MM 3.2.1**.

The proposed project's impacts on sensitive receptors is also largely due to increased PM_{10} levels on the haul road. Alternative 3 would result in similar air quality impacts because of the inclusion of the haul road in this alternative. However, much like the proposed project, these impacts could be mitigated to a less than significant level. Therefore, this alternative is similar to the proposed project.

Biological Resources

Impact 3.3-1 though Impact 3.3.10: Impacts on Candidate, Sensitive, or Special-Status Species

The species or species groups identified in Section 3.3 were determined to have the potential to be substantially adversely affected by project-related activities, either directly or through habitat

modifications. Impacts on these species would be considered a **potentially significant** impact. However, mitigation measures **MM 3.3.1a** through **MM 3.3.1i, MM 3.3.2, MM 3.3.3a** and **MM 3.3.3b, MM 3.3.4, MM 3.3.5, MM 3.3.6, MM 3.3.9,** and **MM 3.3.10** would reduce the potential impacts to a less than significant level.

Alternative 3 would result in the same level of impact on candidate, sensitive, or special-status species as the proposed project. However, this alternative would have a smaller amount of disturbance area compared to the proposed project as a result of a slightly smaller area for OB-2 and OB-1, and the removal of OB-3. The areas around OB-1 and OB-3 are known locations of special-status plant species. All special-status species impacts would require mitigation, and it is assumed that this mitigation would result in a less than significant impact, as it does with the proposed project. Impacts resulting from implementation of Alternative 3 would be less compared to those of the proposed project.

Impact 3.3.10: Impacts on Riparian Habitat or Sensitive Natural Communities

Sensitive habitats include those that are of special concern to resource agencies and those that are protected under CEQA, Section 1600 of the FGC, and Section 404 of the CWA. Project-related activities have the potential to substantially adversely affect riparian vegetation. Impacts on these resources would be considered a **potentially significant** impact. However, mitigation measures **MM 3.3.11** would reduce the potential impacts to a less than significant level.

Alternative 3 would also impact riparian vegetation, as this alternative would impact all drainage areas identified in **Figure 3.3-2**. However, this alternative would have the smaller amount of disturbance area compared to the proposed project as the result of a slightly smaller area for OB-2 and OB-1, and the removal of OB-3. Adoption of Alternative 3 would require an environmental review. It is assumed that as a part of the environmental review, the impacts on riparian vegetation will be analyzed and mitigated to a less than significant level. As such, Alternative 3 would result in less impact on riparian vegetation when compared to the proposed project and also result in a less than significant impact with mitigation.

Impact 4.0.3: Cumulative Impacts on Biological Resources

The proposed project in combination with other reasonably foreseeable projects could result in mortality and loss of habitat for special-status species, as well as biologically sensitive habitats. Therefore, this impact is considered **cumulatively considerable**. Implementation of avoidance, minimization, and mitigation measures **MM 3.3.1a** through **MM 3.3.1i, MM 3.3.2, MM 3.3.3a** and **MM 3.3.3b, MM 3.3.4, MM 3.3.5, MM 3.3.6, MM 3.3.9,** and **MM 3.3.10** will reduce potentially cumulative impacts to a less than cumulatively considerable level.

Alternative 3 would also cumulatively impact biological resources, as this alternative would impact all drainage areas identified in **Figure 3.3-2**, as well as species or species groups identified in Section 3.3. However, this alternative would have the smaller amount of disturbance area compared to the proposed project as the result of a slightly smaller area for OB-2 and OB-1, and the removal of OB-3. Adoption of Alternative 3 would require an environmental review. It is assumed that as a part of the environmental review, the impacts on biological resources will be analyzed and mitigated to a less than significant level and therefore reduce the potential for cumulative impacts on biological resources. As such, Alternative 3 would result in similar cumulative impacts on biological resources when compared to the proposed project.

Cultural and Paleontological Resources

Impact 3.4.1: Substantial Adverse Change in the Significance of an Archaeological or Historical Resource

Implementation of the proposed project would result in a **potentially significant** impact on archaeological or historical resources. Processing of the quarries may result in the unearthing of unknown historical or archaeological resources. This impact would be reduced to a less than significant level with incorporation of mitigation measure **MM 3.4.1**.

Alternative 3 may also result in impacts on historical or archaeological resources. Processing of the quarries would still have to potential to unearth unknown resources. Alternative 3 does not decrease the amount of disturbed area when compared to the proposed project. The backfilling of quarries would not lessen the potential to unearth unknown historical or paleontological resources. As such, the potential to unearth historical or paleontological resources for Alternative 3 is similar to the proposed project.

Impact 3.4.3: Destroy a Unique Paleontological Resource or Geologic Feature

Implementation of the proposed project would result in a **potentially significant** impact on paleontological resources because of the undetermined potential for containing significant nonrenewable paleontological remains, primarily invertebrate fossils. Implementation of mitigation measure **MM 3.4.3** would ensure that any previously unknown unique paleontological resources or geologic features resources inadvertently discovered during project implementation are protected and would reduce this impact to a level that is less than significant.

Alternative 3 could also result in impacts on paleontological resources. Processing of the quarries would still have to potential impact unknown unique paleontological resources or geologic features. Alternative 3 does not reduce the potential impact area, and the potential to destroy a unique paleontological resource or geologic feature as a part of the quarrying process is possible. As such, the potential to discover and destroy an unknown paleontological resource or geologic feature for Alternative 3 is similar to the proposed project and would be mitigated to a less than significant level.

Geology and Soils

Impact 3.5.3: Rock and Soil Talus Erosion

The proposed project's rock and soil talus on the northwest slope and within the Western Drainage could impact the Ruby Springs area, resulting in a **potentially significant** impact. Past mining operations at White Knob Quarry allowed white talus overburden material to fall onto the northwest slope. An intense rain storm event could cause some of this talus material to reach the Western Drainage. As such, mitigation measure **MM 3.5.3** is included in this Draft EIR to remove impacts on the drainage. Implementation of the mitigation measure would reduce the impact to a less than significant level.

Impacts on geology and soils under Alternative 3 would be similar to those described under the analysis of the project, except that upon reclamation the OB-1 overburden storage area and central portions of the White Knob and Annex Quarries would be much higher than the proposed project because material placed in the White Ridge Quarry would now be placed in the White Knob and Annex Quarries. Alternative 3 would not reduce impacts on the Western Drainage or Ruby Springs during project operation.

Alternative 3 would also result in impacts in the Ruby Springs/Western Drainage area as a result of rock and soil talus. Alternative 3 will continue to require monitoring of the Ruby Springs/Western Drainage area per the BLM/Omya Settlement Agreement. As such, Alternative 3 is similar to the proposed project, and with incorporation of **MM 3.5.3**, this impact would be less than significant.

Hydrology and Water Quality

Impact 3.7.1: Substantially Alter Drainage Pattern

The project will substantially alter the existing drainage pattern in the quarry area, while maintaining the existing haul road drainage, thereby increasing the potential for sedimentation and erosion. This would result in a **potentially significant** impact. Implementation of mitigation measure **MM 3.7.1** would reduce this impact to less than significant.

Under the proposed project, design of overburden fill slopes in all three disposal areas was found to have adequately minimized erosion and control runoff; however, Alternative 3 would remove the fill in OB-3 and the upper portions of OB-2, along with some portion of the toe of OB-1. However, disturbance of existing drainage will, as with the proposed project, be substantially altered. This alternative does not change the amount or area of disturbance, only the way the site is reclaimed. While this would reduce the potential for the mining-related fill slopes to fail or otherwise become unstable, and reduces the area of disturbance in the central and eastern drainages, the potential impacts are shifted to the White Knob and Annex Quarries. The amount of fill that can be placed in each quarry would be restricted by the stability of the final fill slopes, i.e., the slope angle and height. If the final fill slope heights and grades are greater and steeper than currently analyzed, additional slope stability analysis would be required. Overburden that could not be placed in the White Knob and Annex Quarries would continue to be placed in OB-1.

The height of the backfill at OB-2 would be reduced, leaving more of the drainage in a natural condition. The relocation of overburden storage would reduce potential impacts related to erosion and soil loss because of a reduction in the total surface area of the fills and the fill slopes compared to the project. However, additional drainage control structures would likely be needed to collect and control the additional runoff because the project's White Knob sedimentation basin would not be constructed and the Annex Quarry would no longer capture quarry rainfall. The drainage east of the White Ridge Quarry would not be filled with overburden, and the need for drainage control structures in that area would be lessened or eliminated.

Compared to the proposed project, Alternative 3 may reduce the potential for and intensity of impacts related to hydrology and water quality, but not to a level that would be substantial enough to change the overall CEQA significance determinations.

5.4 ALTERNATIVES COMPARISON

Table 5.0-3 provides a summary of the potential impacts of the EIR alternatives evaluated in this chapter, as compared with the potential impacts of the proposed project. The impact significance is identified for the alternatives, as is the ranking of the impact as compared to the proposed project. A "B" ranking means that the alternative would be "better" or would have less of an environmental impact than the proposed project, while a "W" ranking means the alternative would result in a "greater" impact. An "S" ranking identifies where the alternative has a "similar" impact as the proposed project. Based on the evaluation described in this section, the proposed project would be the environmentally superior alternative. It should also be noted that the proposed project, although large in size and disturbance area, would have less

environmental impact than Alternative 1, the No Project Alternative. This is mainly due to the more stringent requirements of SMARA that were not in place at the time of the currently approved Mine and Reclamation Plan.

TABLE 5.0-3
SUMMARY COMPARISON OF ALTERNATIVES

Project Environmental Impacts	Alternative 1 No Project/ Existing Approval	Alternative 2 Elimination of OB-2	Alternative 3 Backfill Central White Knob and Annex Quarries
Aesthetics			
Substantial adverse effect on a scenic vista and the existing visual character	No increase in a significant and unavoidable impact	No increase in a significant and unavoidable impact	Potential increase in a significant and unavoidable impact
Cumulative impact on aesthetics and visual resources	No increase in a significant and unavoidable impact	No increase in a significant and unavoidable impact	No increase in a significant and unavoidable impact
Ranking	S	S	W
Air Quality			
Emissions of air pollutants resulting in violation of air quality standards or contributing to existing violations	No new or more severe significant impact	No new or more severe significant impact	No new or more severe significant impact
Exposure of sensitive receptors to localized criteria pollutants	No new or more severe significant impact	No new or more severe significant impact	No new or more severe significant impact
Ranking	L	S	S
Biological Resources			
Impacts on Candidate, Sensitive, or Special-Status Species	No new or more severe significant impact	Potentially more severe significant impact	No new or more severe significant impact
Impacts on Riparian Habitat or Sensitive Natural Communities	No new or more severe significant impact	Potentially more severe significant impact	No new or more severe significant impact
Cumulative impacts on biological resources	No new or more severe significant impact	Potentially more severe significant impact	No new or more severe significant impact
Ranking	S	W	L
Cultural Resources			
Substantial adverse change in the significance of an archaeological or historical resource	No new or more severe significant impact	No new or more severe significant impact	No new or more severe significant impact
Destroy a unique paleontological resource or geologic feature	No new or more severe significant impact	No new or more severe significant impact	No new or more severe significant impact
Ranking	S	S	S

Project Environmental Impacts	Alternative 1 No Project/ Existing Approval	Alternative 2 Elimination of OB-2	Alternative 3 Backfill Central White Knob and Annex Quarries
Geology and Soils			
Rock and soil talus erosion	Potentially more severe significant impact	No new or more severe significant impact	No new or more severe significant impact
Ranking	W	S	S
Hydrology and Water Quality			
Substantially alter drainage pattern	Potentially more severe significant impact	Potentially more severe significant impact	No new or more severe significant impact
Ranking	W	W	S

Notes:

L: Alternative would result fewer or less severe environmental impacts than the proposed project.
S: Alternative would result in similar impacts as the proposed project.
W: Alternative would result in greater or more severe environmental impacts than the proposed project.

Environmentally Superior Alternative

Of the three Alternatives, Alternative 3, the Backfill Central White Knob and Annex Quarries Alternative, is considered to be the environmentally superior alternative. Alternative 3 would have fewer adverse environmental impacts than the other two alternatives. However, Alternative 3 would have a greater impact to aesthetics due to the additional height requirements for OB-1 and the central portions of the White Knob and Annex Quarries, but fewer impacts to biological resources than the proposed project because less area would be disturbed in OB-3 and OB-2. As with the proposed project, impacts to biological resources could be reduced to less than significant by incorporating mitigation measures, but impacts to aesthetics would remain significant and unavoidable.

While this alternative may technically meet most of the project's primary objectives, the backfilling of the White Knob and Annex Quarries present logistical problems during operation of the quarries as the backfilling of the White Knob and Annex quarries could not occur until those quarries cease operation. This would require the placing of overburden material in areas temporarily until the material can be moved, which may in itself, increase the potential for environmental impacts. The reductions in environmental impacts under this alternative may therefore be temporary.