

**Bonny Doon Limestone Quarry Boundary Expansion Project: Draft EIR**

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**APPENDIX A**

**ENVIRONMENTAL REVIEW INITIAL STUDY (November 19,  
2001  
NOTICE OF PREPARATION (September 4, 2002)  
AND COMMENTS  
County of Santa Cruz**

COUNTY OF SANTA CRUZ  
PLANNING DEPARTMENT

Date: November 19, 2001  
Staff Planner: Matt Baldzikowski

### ENVIRONMENTAL REVIEW INITIAL STUDY

|                 |   |                         |   |
|-----------------|---|-------------------------|---|
| APPLICANT:      | Marsha Shanle   | APN:                    | 063-251-03,<br>063-132-08,-09<br>058-122-09 |
| OWNER:          | RMC Pacific Materials   | Supervisorial District: | Fifth                                       |
| Application No: | 99-0561   |                         |   |
| Site Address:   | no situs  |                         |   |
| Location:       | Project located at the RMC Pacific Materials' limestone quarry, east side of Bonny Doon Road and shale quarry on west side of Bonny Doon Road, approximately 2 miles north of Highway 1 |                         |   |

#### EXISTING SITE CONDITIONS

|                     |  |
|---------------------|--|
| Parcel Size:        | 232 acres  |
| Existing Land Use:  | Quarry   |
| Vegetation:         | Coast live oak, Maritime chaparral, mixed evergreen, redwood forest, grassland, riparian |
| Slope:              | 0-15% <u>20</u> acres, 16-30% <u>150</u> acres, 31-50% <u>46</u> , 51% <u>16</u> acres   |
| Nearby Watercourse: | Middle and West Branches Liddell Creek   |
| Distance To:        | Within project area  |
| Rock/Soil Type:     | marble (limestone), granite, schist, Santa Cruz mudstone                                 |

#### ENVIRONMENTAL CONCERNS

|                         |   |                        |                                |
|-------------------------|---|------------------------|--------------------------------|
| Groundwater Supply:     | yes   | Liquefaction:          | Minimal potential              |
| Water Supply Watershed: | within mapped resource                                | Fault Zone:            | None mapped                    |
| Groundwater Recharge:   | Within mapped resource                                | Floodplain:            | Outside Floodplain             |
| Timber and Mineral:     | mapped mineral and timber                             | Riparian Corridor:     | Yes                            |
| Biotic Resources:       | Riparian corridor, Needlegrass                        | Solar Access:          | n/a                            |
| Fire Hazard:            | Portions mapped critical fire                         | Solar Orientation:     | n/a                            |
| Archaeology:            | Mapped Archaeologic Resource                          | Scenic Corridor:       | Smith Grade,<br>Bonny Doon Rd. |
| Noise Constraint:       | None mapped   | Electric Power Lines:  | for quarry only                |
| Erosion:                | None mapped   | Agricultural Resource: | None mapped                    |
| Landslide:              | landslide at entrance to quarry and at Liddell Spring |                        |                                |

#### SERVICES

|                  |                                   |                    |      |
|------------------|-----------------------------------|--------------------|------|
| Fire Protection: | CDF                               | Drainage District: | None |
| School District: | n/a                               |                    |      |
| Project Access:  | Private drive off Bonny Doon Road |                    |      |
| Water Supply:    | Plant Spring (Liddell Spring #2)  |                    |      |
| Sewage Disposal: | Hauled offsite                    |                    |      |

#### PLANNING POLICIES

|                      |  |
|----------------------|--|
| Zone District:       | M-3(Heavy Industrial), TP (Timber Production) CA(Commercial Agriculture) |
| Within USL:          | No   |
| General Plan:        | Mountain Residential (R-M), Agriculture                                  |
| Special Designation: | Quarry General Plan Base Layer   |
| Coastal Zone:        | Yes  |

## **PROJECT DESCRIPTION:**

The proposed project consists of

1: An amendment to Use Permit 3236-U (as modified by the Certificate of Compliance 89-0492) to expand the working area of the limestone mine into an adjacent area of approximately 17.5 acres that is outside of the current approved mining plan, but is within the maximum mining limit (as described by Use Permit 3236-U), and to fill approximately 17.5 acres within the existing mining pit with overburden material, and

2: Approval of revisions to the approved Mining Reclamation Plan for the limestone and shale quarries. Project requires a Development Permit to amend the existing Use Permit and the Mining Reclamation Plan and a Coastal Permit.

## **PROJECT SETTING AND HISTORY**

The following discussion refers to the map in Attachment 3. Note the following areas: (A) the boundary that defines the edge of the property; and (B) the maximum mining limit as described by Use Permit 3236-U. The legal limit boundary marks the area recognized by the County within which the owner has vested rights to mine. (C) The currently permitted active area as described in the approved mining plan. This is the area covered by the 1996 COC review; the currently active area is a sub-area within the maximum mining limit as described by Use Permit 3236-U. (D) Adjacent to the currently active area is the proposed "amendment area." This is the 17.5 acres into which the applicant proposes to expand the quarry operation. Note that this 17.5 acres, while outside the currently approved mining plan limits, is within the quarry's maximum mining limit as described by Use Permit 3236-U.

RMC operates the Bonny Doon Limestone Mine and Shale Mine near Davenport in Santa Cruz County. (The words "quarry" and "mine", and the words "limestone" and "marble" have been used interchangeably in the historic literature and permits. This document will continue that practice.) The ore (marble) extracted from the cut slopes of each quarry is transported three miles by a conveyor belt to the cement plant in Davenport for the manufacture of Portland cement (Attachment 1). The mining of marble at Bonny Doon has been occurring for over 100 years, initially from a subsurface mine and later from an open pit. The open pit mine was permitted under Use Permit 3236-U and pit mining began in 1970. Along with the shale quarry, the mine continues to supply all of the marble and shale used by the Davenport Cement Plant to produce Portland Cement.

The existing active limestone quarry pit occupies approximately 80 acres. The overall area of existing disturbance, which includes the limestone quarry, shale quarry, disposal areas, sediment basins, and roads, is approximately 240 acres. The quarry properties has a "Mountain Residential" General Plan designation, as do properties to the south and east. Properties with a General Plan designation of "Rural Residential" exist to the north and west of the limestone quarry (Zoning Map, Attachment 2). These rural residential properties vary from 2 to 20 acres in size. The closest residences to the quarry property are 900 and 950 feet from the northern property line. The proposed amendment area will decrease the distance between quarry activity and one residence in the northeast corner of the quarry, owned by RMC Pacific Materials (RMC), to approximately 500 feet.

A Mining Certificate of Compliance (COC) is a review of an existing mining operation to ensure compliance with the use permit conditions and relevant County standards. In accordance with the County Mining Regulations (Chapter 16.54) and State regulations of the Surface Mining and Reclamation Act (SMARA). RMC Pacific Materials (RMC) applied for, and received approval of, COC #89-0492 in July, 1997. The approval of the COC included approval of a Reclamation Plan for the Bonny Doon Limestone and Shale Quarries. An Environmental Impact Report (EIR) was prepared and circulated in 1996 for the COC and the Reclamation Plan ("Bonny Doon Quarries Certificate of Compliance and Reclamation Plan", Final EIR, Thomas Reid and Associates, October 1996, State Clearinghouse #90030038), with the County acting as lead

agency. The COC for Bonny Doon quarry was particularly focused on developing a comprehensive reclamation plan for the quarry. A reclamation plan consists of plans for revegetation, final grading and drainage plans, an end use statement, a financial assurance, and a statement of responsibility by the operator that the land will be reclaimed to a use consistent with the end use statement.

## PROJECT DISCUSSION

The two portions of the application are as follows:

1. The proposed expansion of the quarry into the 17.5 acres on the northeast side of the existing mine. The expansion is being sought by the applicant because the mine has nearly reached the mining limits permitted in the current mining approval, and the applicant is running out of limestone product to mine and process under that approval. The area into which operations are proposed to be extended is within the maximum mining limit boundary defined by the use permit. See Attachment #3.

Quarry development, as proposed, will continue to consist of working the benches outward towards the permit limits and dropping the pit floor from a current depth of 763 feet to the permitted maximum depth of 750 feet above the average mean sea level (amsl) in elevation. The working benches will maintain the current dimensions of approximately 40 feet in height and a minimum width of 20 feet. *Attachment 4* shows an approximate progression of mining for the life of the reserves in the permitted area.

2. The application also proposes revision of the approved Mining Reclamation Plan (Attachment #6). The revisions to the Reclamation Plan include changes in the species diversity from that proposed in the original plan. The diversity in the original plan was based on the assumption that later succession species, such as needlegrass grassland, northern maritime chaparral, and redwood forest, could be re-established on the site. This was the required mitigation pursuant to the 1996 EIR which was prepared for the COC. However, monitoring of test plots has shown that there are significant problems with achieving the full establishment of these vegetation communities given the highly altered site conditions. This concern is the basis for reevaluation of the plan, which included a third party review as recommended by the Office of Mine Reclamation (OMR) (Peer Review of RMC Lonestar Reclamation Plan, Bonny Doon Quarries, Jeffrey A. Hart, PhD, Habitat Assessment & Restoration Team, Inc.) (Attachment 6). This third party review indicated that given the significant disturbance of the areas to be reclaimed and the chemical changes to the soil, an early succession species mix would better achieve reclamation. The revised Reclamation Plan under consideration therefore proposes two broad species compositions which would be applied over a large area. The "early successional shrub/ mixed evergreen forest" composition is proposed to reclaim the limestone quarry and disposal areas 'B' and 'C'. "Coastal sage scrub" composition is proposed to reclaim the shale quarry. There is no change to the revised Reclamation Plan with regard to riparian reclamation areas, which will be treated as proposed in the approved original plan.

## ENVIRONMENTAL REVIEW CHECKLIST

### A. GEOLOGIC FACTORS

| Significant:<br>No or Unknown<br><u>Mitigation</u> | Potentially<br>Significant<br>Unless<br><u>Mitigated</u> | Less Than<br>Significant<br>~ <u>Impact</u> | No<br><u>Impact</u> |
|--|--|---|---------------------|
|--|--|---|---------------------|

Could the project, or its related activities affect, or be affected by, the following:

- |   |   |          |   |   |
|---|---|----------|---|---|
| 1. Geologic Hazards: earthquakes (particularly surface ground rupture, liquefaction, seismic shaking), landslides, mud slides or other slope instability, or similar hazards? | — | <u>X</u> | — | — |
|---|---|----------|---|---|

*Geological Hazards within the Amendment area: An engineering geology and geotechnical engineering report that addresses the amendment area has been prepared (Jo Crosby and Associates, dated June 1, 1999, Attachment 5. A). The County Geologist has reviewed the investigations and has concluded that no seismic, landslide, or other geologic impacts are expected in connection with extending mining into the Amendment area (Attachment 13).*

*Other relevant Geologic issues: During the COC review, a landslide was discovered on the north eastern slope above Liddell Spring, a water supply source for the City of Santa Cruz (see Attachment 3). As a condition of the COC, the slide was studied by the consulting firm of Woodward Clyde in order to determine whether there may be impacts from the slide on the spring (see Phase I report Woodward Clyde, dated 12-2-97, Attachment 5. L). The conclusion was that the risk of future movement of the landslide was considered relatively high, though the risk of the landslide impacting Liddell Spring improvements was relatively low. Phase 2 studies were recommended to further evaluate the landslide, requiring subsurface evaluations, and to evaluate the landslide for possible turbidity impacts to Liddell Spring. A draft of the Phase 2 study has been completed by Pacific Geotechnical Engineering (PGE), dated October 2001 (excerpts Attachment 5. K). PGE has identified the limits and characteristics of the landslide and is monitoring the landslide for movement.*

*The PGE study has concluded that there are two distinct sub-areas of the landslide (east and west). The eastern landslide is a feature which pre-dates quarry activities and is a large slow moving landslide. The City of Santa Cruz's Liddell Spring source is located outside (on the margin) of this slide feature. The main area of active deformity from this slide mass is focused downslope of the Liddell Spring source, where the Liddell Creek channel has been pushed up to thirty feet to the west. Pacific Geotechnical has concluded that "while there is a high potential for deep-seated sliding, it would most likely be directed primarily downstream, away from spring facilities, as indicated by the asymmetrical outline of existing landslide deposits" (Pacific Geotechnical, October 2001, pg 40). Shallow earthflow and debris flow landslides are also possible on the eastern landslide limb; however PGE has concluded that these have a low potential to very low potential to affect Liddell Spring facilities (ibid, pg 41).*

*The western landslide limb is composed of quarry spoils which have been placed on the slope above the spring and which have failed as debris flows. This material has impacted the Liddell Spring facility (ibid, Figure 2). PGE has concluded that there is a low potential for future debris flows to reach the Liddell Spring facilities (ibid); however, if debris flows did occur, they could impact the spring box. PGE offers some*



geologic or physical feature?                                                                          X                            

*No known unique geologic features are on the site. The site is a marble mine and the karst geology is similar to other areas of the Santa Cruz County north coast.*

5. Steep slopes (over 30%)?                                                                          X                            

*Mining will include the removal of natural slopes in excess of 30%. The proposed mining plan is in compliance with the requirements of the Mining Ordinance. Final slope configuration has been analyzed by the Quarry's consulting Geologist for stability (Crosby, June 1, 1999), and the geologic report has been reviewed and accepted by the County Geologist. The COC and County's Geologic Report Review require that actual final slopes will be reviewed, as established, by the project engineering geologist to assure that they are stable.*

6. Coastal cliff erosion?                                                                                                    X  

*Not applicable.*

7. Beach sand distribution?                                                                                                    X  

*Not applicable.*

8. Any increase in wind or water erosion of soils, either on or off site?                                                X                                                      

*The sediment pond system, in place to treat the existing quarry runoff water for sediment pollution, has been reviewed and approved by the County Senior Civil Engineer as adequate to accommodate the additional runoff from the proposed Amendment area (Attachment 11). Yearly erosion control treatment of exposed soil, and road watering/rocking will continue to reduce erosion impacts. Damage to the pond system has led to sedimentation events in Liddell Creek in the past. See section A-1.*

*There is also a concern that fill placed within the quarry pit may erode along the contact of the fill with the bedrock as water moves along the bedrock and down through cracks in the bedrock on the quarry floor, which may cause the cracks to be filled with quarry waste material. This could cause sediment impacts at Liddell Spring. However, this very process of fill working into cracks in the quarry floor has been used as a mitigation to prevent surface water and related sediment from entering the subsurface hydrologic system, and is a recommended mitigation by SECOR 1997 (attachment 5. E). In summary, the placement of fill might create turbidity in groundwater; the potential for this to occur has not been investigated to date. This is an unknown impact, but one which could be mitigated. Possible mitigations include placement of select grade of fill material, filter material or fabric, or an impervious surface at the base of the fill.*

*The 2001 Reclamation Plan does not include the phased reclamation of the proposed fill to be placed within the quarry pit, and does not phase the reclamation of the quarry benches. The Reclamation Plan should be revised to phase the reclamation of these areas per SMARA and to mitigate for the increase in erosion which will result from enlarging the area to be mined by 17.5 acres.*

**B. HYDROLOGIC FACTORS**

*The hydrogeology at the site is extremely complex. There are two general "zones" of groundwater present on site. These are defined by PGE as the vadose zone (above the water table) and the phreatic zone (zone of saturation) (PGE October 2001, pg 15, attachment 5. K). "Water in both the vadose and phreatic zones are flowing toward the current regional base level, which is below the elevation of the site. Phreatic waters tend to flow along fracture/joint sets, enlarging by solution. Vadose waters behave as streams flowing through 3-*





dated August 2, 2001 (Attachment 5. I). The purpose of the study was to assess if mining activities cause, or have caused, an adverse affect on water quantity or quality discharging at Liddell Spring (Farallon August 2, 2001). (It is important to study these aspects of the current mining operation in so far as this information will inform the understanding and identification of the potential impacts of mining the proposed amendment area). One of the specific issues of the Farallon study was to evaluate potential source areas that might be responsible for the turbidity increases at Liddell Springs. Pacific Geotechnical (October 2001, attachment 5. K) has also addressed turbidity at the spring, with an emphasis on the contribution from the landslide up slope of the spring.

*The groundwater studies in Attachment 5 have attempted to sort out a number of issues related to the groundwater at the site. These issues include: a better understanding of turbidity sources which affect Liddell Spring, a better understanding of the complexities of the karst geology of the site and groundwater movement, the relationship of quarry blasting to turbidity at Liddell Spring and to possible movement of the landslide above the spring, a better understanding of the nature of the landslide and the forces which drive it, and issues of groundwater separation from mining activities.*

#### A) TURBIDITY SOURCE AREAS

*There is no question that a source or sources of turbid surface water rapidly infiltrate the aquifer during rainfall events (Farallon August 2, 2001, July 11, 2000, March 7, 2000, PGE, October 2001). One of the main purposes of the third party hydrogeologic study, as required by the COC, was to investigate if the existing quarry was one of these source areas. EMKO Environmental (1999) concluded that the landslide above Liddell Spring, rather than the quarry pit, was the most likely source of high-turbidity water in the spring (Pg 35, Attachment 5. F). Farallon Consulting's Final Hydrogeologic Evaluation, dated August 2, 2001 states that "the landslide does not appear to be the sole source of excess flow and turbidity at Liddell Spring based on the increase in volume. The other source(s) of excess flow and turbidity have not been identified" (Attachment 5. I, pg. 2-15). PGE reached the same conclusion stating that "groundwater from the landslide complex would have a relatively small impact on springflow turbidity, indicating that there are other significant sources of turbidity" (PGE, October 2001, pg. 43, attachment 5. K). These expert opinions are important in that they recognize that while the landslide has some contribution to turbidity at Liddell Spring, other sources, possibly including the quarry pit, are also contributing to turbidity. An analysis of the provenance of the sediment which is delivered to Liddell Spring has not been conducted. Such an analysis may help identify potential source areas.*

*Because the uncertainty on the question of whether and to what degree the existing quarry operation contributes to turbidity at Liddell Spring has not been resolved, it follows that mining in the amendment area raises the same question. Extending operations into the amendment area may negatively impact Liddell Spring in a significant manner. The potential for the Amendment to adversely impact water quality at Liddell Spring remains unknown and potentially is significant.*

*Further, mining in the amendment area may expose hydrogeologic features that will intercept rainfall and runoff, such that turbidity in groundwater is increased. City of Santa Cruz staff have collected data at the spring that correlate significant increases in turbidity with rainfall events. This potential impact could be further understood with more detailed structural geologic mapping and tested by tracer tests and analyzing the suspended sediment. This mapping could include past and present locations of sinkholes and solution features. Utilizing this information, features within the quarry could be investigated as sources/conduits to Liddell Spring. However, tracer studies of features in the quarry pit have not been done to date, and the level of geologic mapping to date is inadequate. (M. Cloud, January 7, 2000, Attachment 14) (PGE October 2001, pg 60)*

Lastly, concerns have been raised by the City of Santa Cruz about decreasing water quality during overburden removal and major grading events. (Stewart, Dec 17, 1971, Stewart, March 15, 1978, from Watkins-Johnson 1992, attachment 5. D). Removal of overburden will eliminate the beneficial filtering of recharge water by the overburden, which may increase the potential for unfiltered turbid water to reach the aquifer (SECOR 1997, attachment 5. D). The removal of overburden in the Amendment area has the potential to impact ground water quality. Mitigations have been proposed which include: overburden stripping during the dry season only, directing surface runoff away from the quarry and to the detention basins, and identification and mapping of sinkholes, large voids, and other features that may provide a conduit for recharge to rapidly enter the subsurface (Ibid.). SECOR believes that if properly implemented, these measures would substantially reduce or eliminate the potential of mining activities to affect the turbidity of the marble aquifer and may provide important information on the quarry area hydrogeologic system (ibid.). The removal of overburden in the Amendment area therefore has the potential to negatively affect ground water quality at a municipal water source. It is considered a potentially significant impact although there may be mitigations available for at least a portion of this impact.

## B) CONTRIBUTION OF BLASTING

Quarry blasts have been monitored since 1997 to determine whether blast events are impacting water quality at Liddell Spring. Farallon's August 2, 2001 final report (attachment 5. I) concluded that 14% of the blasts monitored (11 of 80) correlated with turbidity increases which ranged from 2.8 to 43.7 nephelometric turbidity units (NTU). The report concludes that the turbidity was "very likely the result of a blast". An additional 21% (17 of 80) suggest that the turbidity increase is a possible response to a blast. Blasts which occurred in the lowermost benches (7,8, and 9) of quarry sectors A, E, and F (see figure 15 of report) were the most likely to result in a probable or confirmed increase in turbidity at Liddell Spring. These lower benches and sectors accounted for 64% (7 of 11) of the probable responses or confirmed increases in turbidity. The largest response (43.7 NTU's) was documented from the lowest bench, bench 9, of sector E. RMC has only mined down to their lowest permitted depth in a portion of the quarry floor, and has not fully mined the area closest to Liddell Spring in quarry sectors E and F. These areas have been approved for mining under the existing permit, and are the areas of most concern for potential water quality impacts. The proposed Amendment area would significantly expand sector E, and would significantly expand the excavation of the lowest quarry benches, areas which were noted as the most likely to increase turbidity at Liddell Spring as a result of blasting.

The Farallon report documents that there was an association between some quarry blasting and turbidity increases at Liddell Spring. The majority of the turbidity increases were below 10 NTU (7 of 11), a level which would not significantly affect water quality or treatment costs according to City Water Officials. Blast responses in excess of 10 NTU are of more concern, and the 43.7 NTU response is potentially significant with regard to water quality. The quarry has not fully mined the areas which are closest to the spring and which may be more likely to trigger turbidity increases. The one blast recorded from the lowest quarry bench sampled yielded the highest response. It is unknown whether this data is typical of the responses which could be expected as the quarry floor is dropped and expanded to the east as proposed under the Amendment. It is therefore possible that blasting extended into the amendment area might result in a significant impact on water quality.

The possibility of an indirect contribution of blasting to turbidity has also been considered. This indirect effect could result from blasting triggering movement in the landslide, which could then increase turbidity. Pacific Geotechnical Engineering (PGE) has concluded that ground accelerations associated with monitored blast events are not strong enough to trigger movement in the landslide (PGE, October 2001). There remains the possibility that if the spring includes voids in the toe of the landslide, that blasting could collapse such voids and could be a source of turbidity even with no landslide movement.

### C) MINIMUM SEPARATION BETWEEN MINING AND GROUNDWATER

*The County Mining Ordinance requires the maintenance of 20 feet of separation between mining activities and the peak groundwater elevation (16.54.050(c)(3)(iii)). Groundwater for this analysis is interpreted as the phreatic zone as defined by PGE (2001, pg 15). One hydrologic study of the proposed expansion (SECOR, 1997, attachment 5. E) evaluated whether the minimum required separation between groundwater and mining activity can be maintained. The SECOR study raised the concern that the last 5-year phase within the proposed amendment area may not retain the 20 foot separation from the deep marble aquifer when the quarry floor is mined down to the lowest elevation (750 foot amsl). RMC, at the request of the County Hydrologist, has drilled a number of deep monitoring wells which have established the approximate surface elevation of the deep marble aquifer. An analysis of the well data has been prepared by Mr. Rob Walker, Registered Geologist (RG), of RMC (Attachment 5). The County Hydrologist has reviewed the data and has concluded that with the exception of a small area, where there is a lack of data, the minimum separation of mining activities from the groundwater will be achieved (Attachment 14). The data deficiency in the northeast corner of the Amendment Area will require the installation of an additional monitoring well, to verify that the required separation exists in that area as well. (M. Cloud, April 2, 2001, Attachment 14)*

*SECOR (1997) and RMC have proposed a modified drilling program for blast holes that would provide additional assurance that groundwater separation will be maintained in this area. Blast holes are typically drilled to a depth of 40 feet below the ground surface, and the blast round consists of a series (in a row or rows) of blast holes which are detonated at one time. The proposed mitigation involves the drilling of two 60 foot deep drill holes, one on each end of the blast round, where the blast round will remove material to a depth that is within 20 feet of the potentiometric surface. If groundwater was encountered, a pump test would be conducted, and if the water level within the blast hole was maintained over a 12-24 hour period then it would be likely that the drill hole had encountered the marble aquifer and mining would be limited in that area to the elevation 20 vertical feet above the peak groundwater level.*

*Groundwater has been encountered by active quarry operations at the site. However, these waters have been interpreted as perched groundwater, which apparently does not have a hydrologic connection to Liddell Spring or the main phreatic aquifer, and the volume of water encountered has been small.*

*Given the mitigations of an additional monitoring well and the modified drilling program, it appears that the 20 feet of separation between mining operations and the deep aquifer (phreatic zone) will be maintained. Therefore this potential impact is considered to be less than significant at this time.*

### E) WATER QUANTITY

*A number of the reports included in Attachment 5 have addressed this issue. Some have concluded that mining, including mining into the new 17.5 acres, will not have a significant impact on flow rate or quantity of water at the spring. The 1999 EMKO report states that "There is no evidence that quarrying at the existing quarry has affected flow rates, or that quarrying in the future in the Amendment area will affect flow rates" (EMKO 1999, pg 34, attachment 5. F). The Todd (1963), EMKO (1999), and Brown and Caldwell (2000) studies all conclude that mining at the Bonny Doon Limestone Quarry, including the proposed amendment area, will not adversely decrease the quantity of water discharging at Liddell Spring, and that there had been no demonstrated decrease in flows from past quarry operations. Other studies indicate that mining in the vadose zone in the amendment area could alter discharge at the spring, especially if mining should intercept or collapse a fracture or cave system that has a hydrologic connection to Liddell Spring or the main aquifer, such that spring flow could decrease or increase. Cracks, fracture systems, and caves have been exposed by existing quarrying. SECOR's November 7, 1997 Hydrogeologic Evaluation of the Proposed Quarry Expansion (Attachment 5. E) identifies the exposure of direct conduits which may allow for rapid transport of surface water to the underlying aquifer as a potential impact. PGE states that "quarry enlargement could alter or interrupt vadose pathways for water that currently ends up at Liddell Spring, thus potentially altering spring*



Mitigation measures that decrease impacts from siltation can be developed for some or for each of these sources and/ or forms of siltation.

5. Surface or ground water quality (contaminants including silt-urban runoff, nutrient enrichment, pesticides, etc.)?  X

(A) Impacts to ground water quality resulting from sediment entering the groundwater through the karst geology inside of the quarry pit. These potential impacts are discussed in section B 2 of this initial study, and are considered to be potentially significant impacts.

(B) The potential ground water quality impact resulting from the use of Ammonia Nitrate for blasting was studied under a third party study by Farallon Inc. in their study dated March 2000 (Attachment #5. I). Their water sample testing showed no significant increase in nitrate component at the Liddell Spring #1, or in the mine proper. Water quality sampling for nitrates taken from the quarry floor resulted in nitrate levels of 2.2-2.3 milligrams per liter. This is well below the drinking water standard of 45 milligrams per liter. The potential impact is less than significant.

(C) The removal of overburden will eliminate the beneficial filtering of recharge water by the overburden which may increase the potential for unfiltered turbid water to reach the aquifer. See section B-2 for discussion.

(D) Quarry ponds 3 and 4 are proposed to remain at the close of quarrying, pursuant to the 2001 Reclamation Plan. These ponds have substantial levee fills that were built within a tributary channel of Liddell Creek. The potential for future failure of the levees, particularly when given no maintenance after the Quarry closes, is extremely high. The majority of the levee fill should be removed from the channel and the channel reestablished at closure, to reduce the potential for future failures which would send sediment into Liddell Creek and into habitat for the sensitive species which exist there. The Reclamation Plan shall be revised to include the mitigation to remove these fills and to provide emergency overflow which will reduce the potential impacts from a levee or berm failure after closure.

6. Quantity of ground water supply, or alteration in the direction or rate of flow of ground waters?  X

Groundwater storage could be affected by the removal of overburden in the proposed amendment area or by the interception of fractures or groundwater conduits.

The overburden may store small amounts of perched groundwater, however none of the technical investigations have identified this as a significant source of groundwater, and is thus an impact which is considered less than significant.

The consequence of intercepting or collapsing a major groundwater conduit, on the other hand, is significant. Technical reports have concluded that the deep marble aquifer (phreatic zone) is not the only source of water to Liddell Spring (Farallon August 2001, PGE October 2001) and that multiple pathways are likely to occur in the vadose zone (PGE October 2001). The location of these vadose zone pathways is unknown, and they could be present in the Amendment area. The proposed mining plan for the Amendment area includes the mining of a previously approved portion of the quarry

*which is the mining area closest to Liddell Spring, potentially increasing the likelihood of interception of groundwater conduits. Given these uncertainties, and the potential effect on a municipal water supply, this is a potentially significant impact.*

*It is also possible that ground water recharge may increase as a result of overburden removal. Rain water may more rapidly recharge through the open fractured bedrock quarry surface given the removal of the overburden which would slow water movement to the bedrock and filter the water. Potential impacts associated with increased recharge include: changes in ground water chemistry which may accelerate erosion of fractures or cavities, increased sedimentation, and alterations in long-term flow patterns in the karst geology. Increased ground water levels could also potentially impact the slope stability of the landslide above Liddell Spring, and may alter the source elevation of the spring. These are all unknown but potentially significant impacts.*

7. Groundwater recharge?                      X

*See B-6 above.*

8. Watercourse configuration, capacity, or hydraulics?                      X

*Watercourse configuration, capacity, and hydraulics could be negatively affected if mining in the Amendment area collapsed or intercepted groundwater conduits that discharge to streams. These potential impacts have been discussed in Section B-6 of this study, and are considered potentially significant impacts.*

*The clearing of vegetation and overburden in the quarry Amendment area will increase the rate of runoff from the mining area. The County Senior Civil Engineer has accepted the findings of Bowman and Williams Engineers (November 19, 1999), that the increased runoff from stripping the Amendment area would be offset by the additional water retention within the fill that is proposed to be placed within the quarry pit (Attachment 11).*

9. Changes in drainage patterns or the rate and amount of runoff?                                              X

*See section B-8.*

10. Cumulative saltwater intrusion?                                                                                              X

*No affect on salt water intrusion is expected.*

11. Inefficient or unnecessary water consumption?                                                                      X

*Staff is not aware of any detailed analysis of the efficiency of water use at the quarry. "Plant Spring" (also known as Liddell Spring #2) is the water source for the quarry operation. The majority of water use is for dust control on the quarry roads and in the mining pits. This will be increased somewhat for mining the additional area; however, water consumption will likely be reduced by the implementation of the baserock road surface recommended in the revised 2001 Reclamation Plan. Baserock will reduce fugitive dust levels and decrease the necessity for dust suppression through watering. See also B-12.*

12. Change in the amount of surface water in any water body?  X

*RMC Pacific Materials diverts water from Plant Spring for quarry operations. The water source is located in the southeast corner of the Limestone Quarry property. RMC currently diverts up to 927,000 gallons of water a month at peak usage for both quarries. In wet months almost no water is used, and water use is therefore concentrated during the summer dry season. The water is used to cool the limestone crusher bearings, but is primarily used on the site for dust control. The quarry uses approximately 25,000 gallons of water per day (page IV-26, DEIR, April 1996) during periods of dry weather for dust suppression. The rocking of roads, as proposed in the revised Reclamation Plan, will likely reduce the amount needed for road related watering. This is a positive impact. See also B-11.*

*It is assumed that the mining and processing of material from the additional 17.5 acres will use water at approximately the same rate as the current operation. More specific projections of water use would benefit this analysis. If this water were not collected at the Plant Spring, it would supplement natural flows in Liddell Creek, where it would benefit spawning and rearing habitat for steelhead (*Oncorhynchus mykiss*), a Federally listed Threatened species, and habitat for the California red-legged frog (CRLF) (*Rana aurora draytonii*), also Federally listed as Threatened.*

*Even though the expansion of mining is not expected to increase water use on a monthly or annual basis, it will extend the life of the quarry, and therefore will extend the time during which flows will be diverted from habitat use. This is a potentially significant impact for which no mitigation has been identified at this time. For detailed discussion of potential habitat impacts, refer to section C-1,2 and 4.*

### C. BIOTIC FACTORS

Could the project affect, or be affected by, the following:

1. Known habitat of any unique, rare or endangered plants or animals (designate species if known)?  X

*The applicant has obtained a Habitat Conservation Plan (HCP) and Section 10(a)1(B) permit from the United States Fish and Wildlife Service (USFWS) for potential take of the California Red-legged frog during operations of the quarry. Control of drainage in the amendment area will rely upon ponds that have been identified as CLRF habitat. Repairs and maintenance of these ponds is allowed by the HCP, with conditions such as seasonal constraints and surveying by qualified biologists prior to work commencing. Therefore, potential impacts to CLRF are considered to be mitigated to a less than significant level by the existing HCP. Should unanticipated conditions cause activity that is beyond the scope of the HCP, the USFWS will be responsible for reviewing these unanticipated conditions, and possibly approving additional mitigations.*

*Steelhead are present in Liddell Creek, and steelhead and coho salmon are present in San Vicente Creek. These are the two watersheds affected by the proposed project. The proposed mining expansion has the potential to affect these salmonids by extending current water diversions and extending the potential for sediment releases into the watercourses. A watershed Analysis for San Vicente, Mill, and Liddell Creeks was required as part of an earlier use permit for the Bonny Doon Quarry and Cement Plant (Creegan & D'Angelo, 1984). The study highlights the association between diversion and adverse impact on protected species.*

It is important to note that which the current rate of use of water is not expected to change when the Amendment area is mined, the term of the diversion will be extended. Further, although the baseline for evaluating the proposed expansion is the current level of water use, it is important to note that the current level of use may be creating impacts that rise to the level of "take" of a Federally protected species. This has not been analyzed as part of the current proposal. See also section B-12.

Quarry ponds 3 and 4 are proposed to remain at the close of quarrying, per the revised Reclamation Plan. These ponds have substantial levee fills that were built within a tributary channel of Liddell Creek. The potential for future failure of the levees, particularly when given no maintenance after the Quarry closes, is extremely high. Therefore, as proposed, this is a potentially significant and unmitigated impact. The majority of the levee fill should be removed from the channel and the channel reestablished at closure, to reduce the potential for future failures which would send sediment into Liddell Creek and into habitat for the sensitive species which exist there. The mitigation to remove these fills and provide emergency overflow will reduce the potential impacts from a levee or berm failure after closure to a less than significant level. The Reclamation Plan shall be revised to include phased removal of the levees and the reestablishment of the stream channel. Ponds for Red-legged frog habitat could still be incorporated into the design.

Sediment impacts have recently occurred to Liddell Creek. In 2000 and 2001 there were pipe failures in the pond 3 and 4 system which drained the ponds into the watercourse. The pipe which failed has been completely replaced, and similar failures are not anticipated. RMC is actively working on mitigating these releases by an order of the Regional Water Quality Control Board (RWQCB).

Biotic surveys have been conducted for the presence of special status wildlife species in the amendment area. The first surveys of the Amendment area was done for the preparation of the 1996 EIR. A revised biotic report was submitted with the Amendment application (McGinnis, 1999) appears to rely on field work conducted in 1990 and 1993. Nine sensitive wildlife species were identified, in the two referenced documents, as known or potential users of the study area and vicinity, based on literature review, the California Natural Diversity Data Base (CNDDB), and the original field surveys of 1990 and 1993 (April 1996 DEIR, Thomas Reid Associates). These sensitive species include: California red-legged frog (*Rana aurora draytoni*), foothill yellow-legged frog (*Rana boylei*), golden eagle (*Aquila chrysaetos*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), merlin (*Falco columbarius*), long-eared owl (*Asio otus*), black swift (*Cypseloides niger*), and mountain lion. The 1999 McGinnis report concludes that "the study area is considered marginal for the above (nine) sensitive species. None are expected to make significant use of the terrestrial habitats within the study area (i.e., breed or occur regularly in the study area)."

Potential impacts on sensitive vegetation communities related to the proposed change in the approved Reclamation Plan are discussed in C-2 below.

2. Unique or fragile biotic community (riparian corridor, wetland, coastal grasslands, special forests, intertidal zone, etc)?

  X                                

Quarry settling ponds have potential to impact riparian corridors if the ponds are not properly operated and maintained. Ponds have experienced failures in the past (see A-1, A-2). The ponds have been repaired and vulnerable infrastructure has been replaced. Continued maintenance of the ponds will be key in preventing sedimentation impacts.

The RMC quarry areas contain areas of sensitive habitat as defined by the Santa Cruz County General Plan (5.1.2). The specific sensitive habitats are: coastal scrub, maritime chaparral, and mapped grasslands in the coastal zone. The 1996 EIR required the 1:1 replacement of each vegetation community affected by the mining operation, including the sensitive habitat communities above (Veg-5 in 1996 EIR). The required 1:1 replacement of all habitat types removed by mining was incorporated into the 1996 Reclamation Plan and approved by the Planning Commission in July 1997. The revised February 2001 Reclamation Plan proposes



to eliminate the replacement of these sensitive habitats. This is considered to be a significant impact for which no mitigation has been identified.

|    |  |          |   |   |          |
|----|--|----------|---|---|----------|
| 3. | Fire hazard from flammable brush, grass, or trees?                             | —        | — | — | <u>X</u> |
| 4. | Change in the diversity of species, or number of species of plants or animals? | <u>X</u> | — | — | —        |

Potential impacts to the California Red-legged frog, are discussed in section C-1.

Regarding final revegetation of the quarry after activity ceases see section C-2.

The species/ habitat changes proposed in the February 2001 Revised Reclamation Plan appear reasonable given the highly disturbed sites, and the lack of success of the originally approved 1996 Reclamation Plan. Overall, it is more likely that good coverage by native plants will be achieved using the simplified plan rather than using the original plan. The revised 2001 Reclamation Plan is the result of a third party review, undertaken at the request of the Office of Mine Reclamation. The revised plan has not been accepted by OMR..

However, while the 2001 Revised Reclamation Plan may utilize a species palette with a better chance of reclamation success, it no longer mitigates for the loss of sensitive habitat removed by quarrying. The RMC quarry areas contain areas of sensitive habitat as defined by the Santa Cruz County General Plan (5.1.2). The specific habitats are: coastal scrub, maritime chaparral, and mapped grasslands in the coastal zone. The 1996 DEIR required the 1:1 replacement of each vegetation community affected by the mining operation, including the sensitive habitat communities above. The required 1:1 replacement of all habitat types removed by mining was incorporated into the 1996 Reclamation Plan. The revised February 2001 Reclamation Plan has eliminated the replacement of these sensitive habitats, resulting in a loss of 4 acres of needlegrass grassland, 12 acres of mixed grassland, and 4.5 acres of maritime chaparral (1996 EIR, pg IV-68, 69). This is considered to be a significant impact.

**D. NOISE**

Will the project:

|    |   |   |   |          |   |
|----|---|---|---|----------|---|
| 1. | Increase the ambient noise level for adjoining areas? | — | — | <u>X</u> | — |
|----|---|---|---|----------|---|

The mining operation will continue to operate in the same manner as previously approved, with similar attendant noise levels that will be generated in the Amendment area as expansion occurs. 60dBA L25 is the maximum allowable limit for noise at the property lines, as specified by the County Mining Ordinance. The most recent annual report on noise conditions submitted to the Planning Department reported that for year 2000 operations at the Limestone and Shale Quarries did not exceed this threshold at the property lines (Fourth Annual Report on Noise Levels at RMC Pacific Material's Limestone and Shale Quarries in Bonny Doon, California, Consultants in Engineering Acoustics, December 5, 2000, (Attachment 9). However, the highest noise levels 160 feet south of the northern property line ranged between 54.2 and 59.1 dBA (L25). This is within, but very close to exceeding, the permitted level. In previous years noise at the property boundary has exceeded 60dBA L25 (RMC Lonestar Bonny Doon Quarries, Certificate of Compliance and Reclamation Plan Draft EIR, April 1996, Thomas Reid Associates).

The Amendment area will extend the quarry approximately 400 feet toward the nearest residence to the east, a property now owned by RMC. Given that final contours show quarrying within 100 feet of the northeast corner of the property, and that the quarry has at times exceeded the limit in the past, it is reasonable to expect that the noise threshold will be exceeded as operations move closer to the property line boundary. However, while there may be difficulty complying with the 60dBA threshold at the property line, the more

significant concern is the noise levels at nearby residences. A noise study will be required to document that the thresholds are not exceeded at the homes, or that appropriate mitigation measures can be developed to achieve compliance. The nearest home will be approximately 500' from the final configuration of mining activity.

- |   |   |   |   |          |
|---|---|---|---|----------|
| 2. Violate Title 25 noise insulation standards, or General Plan noise standards, as applicable? | — | — | — | <u>X</u> |
| 3. Be substantially affected by existing noise levels?  | — | — | — | <u>X</u> |

**E. AIR**

Will the project:

- |  |   |          |   |   |
|--|---|----------|---|---|
| 1. Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation? | — | <u>X</u> | — | — |
|--|---|----------|---|---|

A study of particulate emissions resulting from blasting at the Quarry was conducted from June, 1998 to September 1999 by the Desert Research Institute (DRI) ("Effects of Bonny Doon Limestone Quarry on Off-Site PM10 Concentrations") (Attachment 7). The study was initiated to investigate the contribution of blast-created particulate matter to ambient PM10 at nearby residences. The study consisted of a) intensive monitoring and analysis of data collected during three blast events, and b) continuous PM10 and meteorology monitoring over the one-year period ending in September 1999. The conclusion reported that blasting at the Quarry is in compliance with the COC, and has not exceeded State or Federal PM10 standards.

This issue of air quality was an item of concern to the Planning Commission in 1997 during consideration of the COC in 1997. The current project, the extension of work into the Amendment area, will extend mining closer to the residences which were of concern and which were previously monitored. Since the 1997 COC hearings the Quarry has adopted many of the mitigations recommended in the EIR to reduce potential impacts to air quality (watering blast areas, removing loose drill waste material prior to blasts, packing charge holes with coarser material, and delaying blasting on days with unfavorable wind speed). The only mitigation that was not implemented was the suggestion to work under a tarp, which is adverse to a safe working environment where there is heavy equipment which requires good visibility. The mitigations that were implemented will continue to be employed.

The quarry Amendment will decrease the distance between quarry operations and the nearest residences from approximately 900 and 950 feet to 500 and 550 feet. The PM10 concentrations recorded at these residences were well below the State standard (24 and 25 at residences, 50 is the State Standard, 150 Federal standard). Given the increased potential for impacts due to proximity, it is recommended that a monitoring program like the one completed by DRI be again implemented during the initial phase of the proposed amendment.

The research for the 1996 EIR on air quality did not reveal any other areas in which air quality impacts could be significant.

- |  |   |   |   |          |
|--|---|---|---|----------|
| 2. Expose sensitive receptors to substantial pollutant concentrations? | — | — | — | <u>X</u> |
|--|---|---|---|----------|

- |   |   |   |   |          |
|---|---|---|---|----------|
| 3. Release bioengineered organisms or chemicals to the air outside of project buildings?  | — | — | — | <u>X</u> |
| 4. Create objectionable odors?  | — | — | — | <u>X</u> |
| 5. Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect areas, or change the climate either in the community in the community or region? | — | — | — | <u>X</u> |

**F. ENERGY AND NATURAL RESOURCES**

Will the project:

- |   |   |   |          |   |
|---|---|---|----------|---|
| 1. Affect or be affected by timber resources? | — | — | <u>X</u> | — |
|---|---|---|----------|---|

*The Quarry Amendment area will be located in an area of mixed conifer forest. This 18 acres of timber resource will be eliminated as a result of quarrying. This impact is not significant given the small area of mixed conifer removed relative to the overall amount of this habitat in the surrounding area, which includes over 1000 acres in RMC's management.*

- |   |   |   |          |          |
|---|---|---|----------|----------|
| 2. Affect or be affected by lands currently utilized for agriculture or designated for agricultural use?                                | — | — | —        | <u>X</u> |
| 3. Encourage activities which result in the use of large amounts of fuel, water, or energy, or use of these in a wasteful manner?       | — | — | —        | <u>X</u> |
| 4. Have a substantial effect on the potential use, extraction, or depletion of a natural resource (i.e., minerals or energy resources)? | — | — | <u>X</u> | —        |

*This is an application for an amendment to a mining operation, which is by definition an extraction enterprise. At the conclusion of mining the limestone resources at the quarry will be depleted and are not renewable. The quarry is zoned specifically for mining activity.*

**G. CULTURAL/AESTHETIC FACTORS**

Will the project result in:

- |   |   |   |   |          |
|---|---|---|---|----------|
| 1. Alteration or destruction of historical buildings or unique cultural features? | — | — | — | <u>X</u> |
|---|---|---|---|----------|



|  | Significant:<br>No or Unknown<br><u>Mitigation</u> | Potentially<br>Significant<br>Unless<br><u>Mitigated</u> | Less Than<br>Significant<br><u>Impact</u> | No<br><u>Impact</u> |
|--|--|--|---|---------------------|
| water storage, mutual water systems, storm drainage, etc.) including expansion of service area boundaries? | ---  | ---  | ---                                       | <u>X</u>            |
| 3. A need for expanded governmental services in any of the following areas:                                |  |  |   |                     |
| a. Fire protection?  | ---  | ---  | ---                                       | <u>X</u>            |
| b. Police protection?  | ---  | ---  | ---                                       | <u>X</u>            |
| c. Schools?  | ---  | ---  | ---                                       | <u>X</u>            |
| d. Parks or other recreational facilities?   | ---  | ---  | ---                                       | <u>X</u>            |
| e. Maintenance of public facilities including roads?   | ---  | ---  | ---                                       | <u>X</u>            |
| f. Other governmental services?  | ---  | ---  | ---                                       | <u>X</u>            |
| 4. Inadequate water supply for fire protection?  | ---  | ---  | ---                                       | <u>X</u>            |
| 5. Inadequate access for fire protection?  | ---  | ---  | ---                                       | <u>X</u>            |

**I. TRAFFIC AND TRANSPORTATION**

Will the project result in:

|  |     |     |     |          |
|--|-----|-----|-----|----------|
| 1. An increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system? | --- | --- | --- | <u>X</u> |
|--|-----|-----|-----|----------|

*The permit requires that all materials from the mine be transported to the processing plant via a conveyor belt. The amendment will not change this requirement and therefore there are no impacts to local roads expected. Shipping levels from the plant are anticipated to be similar to existing shipping levels.*

|   |  |  |  |  |
|---|--|--|--|--|
| 2. Cause substantial increase in transit demand which cannot be accommodated by existing or |  |  |  |  |
|---|--|--|--|--|

|  | Significant:<br>No or Unknown<br><u>Mitigation</u> | Potentially<br>Significant<br>Unless<br><u>Mitigated</u> | Less Than<br>Significant<br><u>Impact</u> | No<br><u>Impact</u> |
|--|--|--|---|---------------------|
| proposed transit capacity?   | —  | —  | —   | <u>X</u>            |
| 3. Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities? | —  | —  | —   | <u>X</u>            |
| 4. Alterations to present patterns of circulation or movement of people and/or goods?                          | —  | —  | —   | <u>X</u>            |
| 5. Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?                                  | —  | —  | —   | <u>X</u>            |
| 6. Cause preemption of public mass-transportation modes?   | —  | —  | —   | <u>X</u>            |

**J. LAND USE/HOUSING**

Will the project result in:

|  |   |   |   |          |
|--|---|---|---|----------|
| 1. Reduction of low/moderate income housing?   | — | — | — | <u>X</u> |
| 2. Demand for additional housing?  | — | — | — | <u>X</u> |
| 3. A substantial alteration of the present or planned land use of an area?   | — | — | — | <u>X</u> |
| 4. Change in the character of the community in terms of terms of distribution or concentration of income, income, ethnic, housing, or age group? | — | — | — | <u>X</u> |
| 5. Land use not in conformance with the character of the surrounding neighborhood?   | — | — | — | <u>X</u> |

**K. HAZARDS**

Will the project:

|  |   |   |          |   |
|--|---|---|----------|---|
| 1. Involve the use, production or disposal of materials which pose hazard to people, animal or plant populations in the area affected? | — | — | <u>X</u> | — |
|--|---|---|----------|---|

|  | Significant:<br>No or Unknown<br><u>Mitigation</u> | Potentially<br>Significant<br>Unless<br><u>Mitigated</u> | Less Than<br>Significant<br><u>Impact</u> | No<br><u>Impact</u> |
|--|--|--|---|---------------------|
|--|--|--|---|---------------------|

*The site uses ammonia sulfate and other explosives for blasting to dislodge rock. These material are contained in secured buildings with explosives separated from ignition devises by one thousand feet. The facilities are permitted and inspected by the United States Department of Treasury Bureau of Alcohol, Tobacco, and Firearms. The mine's groundwater has been tested and has been found not to contain explosives residue.*

|   |     |     |     |          |
|---|-----|-----|-----|----------|
| Result in transportation of significant amounts of hazardous materials, other than motor fuel?                                      | --- | --- | --- | <u>X</u> |
| 3. Involve release of any bioengineered organisms outside of controlled laboratories?   | --- | --- | --- | <u>X</u> |
| 4. Involve the use of any pathogenic organisms on site?   | --- | --- | --- | <u>X</u> |
| 5. Require major expansion or special training of police, fire, hospital and/or ambulance services to deal with possible accidents? | --- | --- | --- | <u>X</u> |
| 6. Create a potential substantial fire hazard?  | --- | --- | --- | <u>X</u> |
| 7. Expose people to electro-magnetic fields associated with electrical transmission lines?  | --- | --- | --- | <u>X</u> |

**L. GENERAL PLANS AND PLANNING POLICY**

|  |          |     |     |     |
|--|----------|-----|-----|-----|
| 1. Does the project conflict with any policies in the adopted General Plan or Local Coastal Program? If so, how? | <u>X</u> | --- | --- | --- |
|--|----------|-----|-----|-----|

*The proposed project has the potential to conflict with General Plan Objectives 5.5a "To protect and manage the watersheds of existing and future surface water supplies to preserve the quality and quantity of water produced and stored in these areas to meet the needs of County residents, local industry, agriculture, and the natural environment" and 5.8a "To protect the quantity and quality of the County's groundwater resources through an integrated program of land use regulation and runoff management in groundwater recharge areas, careful water quality monitoring and management of extractions consistent with long-term sustainable water supply yields". The proposed expansion has the potential to degrade the water quality of a municipal water supply at Liddell Spring #1, owned by the City of Santa Cruz, which is a potentially significant impact. Refer to discussion in section B.2. In addition, Liddell Spring is designated as Water Supply Watershed (Policy 5.5.1). The protection of water quality, particularly municipal water supply, is of primary concern.*

*The February 2001 Revised Reclamation Plan has removed mitigation measures that would have replaced sensitive habitats as defined in General Plan policy 5.1.2. This loss of sensitive habitat is in conflict with General Plan policy 5.1.6 which states, "Sensitive habitats shall be protected against any significant*





- |   |          |          |
|---|----------|----------|
| 3. Does the project have impacts which are individually limited but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant. Analyze in the light of past projects, other current projects, and probable future projects.) | <u>—</u> | <u>X</u> |
| 4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?   | <u>X</u> | <u>—</u> |

TECHNICAL REVIEW CHECKLIST

|   | <u>REQUIRED</u> | <u>COMPLETED*</u>  | <u>N/A</u> |
|---|-----------------|--------------------|------------|
| APAC REVIEW   | _____           | _____              | <u>X</u>   |
| ARCHAEOLOGIC REVIEW   | <u>X</u>        | <u>011/14/1990</u> | _____      |
| BIOTIC ASSESSMENT   | <u>X</u>        | <u>1996 EIR</u>    | _____      |
| GEOLOGIC HAZARD ASSESSMENT  | _____           | _____              | _____      |
| GEOLOGIC REPORT:<br><i>The following ground water and geologic studies of the quarry site and proposed amendment area are on file at the Planning Department:</i> |                 |                    |            |
| SEPTIC LOT CHECK  | _____           | _____              | <u>N/A</u> |
| SOILS REPORT<br><i>(See Geologic Report section, above)</i>   | _____           | _____              | _____      |

*Report on the Geology and Geotechnical Studies Regarding the Amendment to the Mining Plan for the Bonny Doon Limestone Quarry, Davenport, California," Jo Crosby and Associates, was completed on June 1, 1999,*

*Ground Water Hydrology of the Bonny Doon Quarry Site, Santa Cruz County, CA for Wisser and Cox, by David Todd, January 4, 1963, and*

*Shale and Limestone reserves, Bonny Doon Area, Santa Cruz County, CA Eugene Lindsey, Consulting Geologist, April 30, 1968, and,*

*Bonny Doon Area, Hydro-geologic Evaluation Report by Watkins-Johnson dated November 20, 1992, and,*

*Hydrologic Evaluation Of Proposed Quarry Expansion, Bonny Doon Quarry, Bonny Doon, California, November 7, 1997 and March 7, 2000, SECOR International Incorporation, et. al., and,*

*Hyrdogeologic Report For Mining Plan Amendment, Bonny Doon Quarry, Santa Cruz California, dated August 6, 1999 , and February 18, 2000, by EMKO Environmental; et. al., and,*

*Updated Hydrogeologic Report for Mining Plan Application, Bonny Doon Quarry, Davenport, California, Brown and Caldwell, October 9, 2000, and,*

*Revised Mining Plan, Robert Walker, R.G. February 2001, includes three sheet set of drawings of Potentiometric Surface, Feb 8 and 13, 2001.*

*Hydrogeologic Evaluation Summary Report, Bonny Doon Quarry Area ,Third Party Study,*

**Farallon Consulting, March 7, 2000, and August 2, 2001.**

**Interim Geologic and Hydrogeologic Report Liddell Spring Landslide, Bonny Doon Quarry, Pacific Geotechnical Engineering, January 2001.**

**Landslide Investigation Liddell Spring Landslide, Pacific Geotechnical Engineering, Draft, October 2001.**

**Phase 1 Geologic Investigation Evaluation of Landslide, Bonny Doon Limestone Quarry Santa Cruz County, California, Woodward-Clyde, December 2, 1997.**

List any other technical reports or information sources used in preparation of this initial study:

**Effects of Bonny Doon Limestone Quarry on Off-Site PM10 Concentrations, Desert Research Institute, November 19, 1999**

**RMC Lonestar Bonny Doon Quarries, Certificate of Compliance and Reclamation Plan Draft EIR, April 1996, Thomas Reid Associates.**

**Bonny Doon Quarries Certificate of Compliance and Reclamation Plan, Final EIR, October 1996, State Clearinghouse #90030038.**

**Bonny Doon Quarries Settlement Ponds Habitat Conservation Plan, June 1, 1998, Toyon Environmental Consultants, Inc., Biosearch Wildlife Surveys.**

**Planning Commission Staff Report, June 17, 1997, Susan Smith, with attached Statement of Overriding Consideration.**

**An Evaluation Of the Anadromous Fish Spawning and Parr Rearing Habitats Of the Liddell and San Vicente Creek Systems, Santa Cruz County, California, Dr. Samuel M. McGinnis, October 25, 1991.**

**Peer Review of RMC Lonestar Reclamation Plan, Bonny Doon Quarries, Jeffrey A. Hart, PhD, Habitat Assessment & Restoration Team, Inc.).**

**Fourth Annual Report on Noise Levels at RMC Pacific Material's Limestone and Shale Quarries in Bonny Doon, California, Consultants in Engineering Acoustics, December 5, 2000.**

**Watershed Analysis San Vicente Creek, Mill Creek, Liddell Creek, March 1984, Creegan and D'Angelo Consulting Engineers.**

## ENVIRONMENTAL REVIEW ACTION

On the basis of this initial evaluation:

— I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

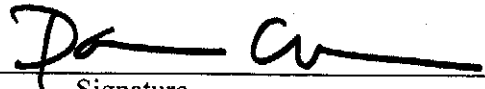
— I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described below have been added to the project. A NEGATIVE DECLARATION will be prepared.

**X** I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date

11/29/01

Signature



Paia Levine

For:

Environmental Coordinator

Attachments:

1. RMC Pacific Materials Application Narrative
2. Assessors Parcel Map
3. Location Maps
4. Mining Progression Plans, Drainage Plan, Disposal Area 'C' Plan, Bowman & Williams Engineers, revised 2/6/2001, 2/8/2001
5. Hydrogeologic Reports, Excerpts:
  - A) *Report on the Geology and Geotechnical Studies Regarding the Amendment to the Mining Plan for the Bonny Doon Limestone Quarry, Davenport, California," Jo Crosby and Associates, was completed on June 1, 1999,*
  - B) *Ground Water Hydrology of the Bonny Doon Quarry Site, Santa Cruz County, CA for Wisser and Cox, by David Todd, January 4, 1963, and*
  - C) *Shale and Limestone reserves, Bonny Doon Area, Santa Cruz County, CA Eugene Lindsey, Consulting Geologist, April 30, 1968, and,*
  - D) *Bonny Doon Area, Hydro-geologic Evaluation Report by Watkins-Johnson dated November 20, 1992, and,*
  - E) *Hydrologic Evaluation Of Proposed Quarry Expansion, Bonny Doon Quarry, Bonny Doon, California, November 7, 1997 and ~~March 7, 2000, SECOR International Incorporation, et al., and,~~*
  - F) *Hydrogeologic Report For Mining Plan Amendment, Bonny Doon Quarry, Santa Cruz California, dated August 6, 1999 , and February 18, 2000, by EMKO Environmental; et.*

*al., and,*

- G) Updated Hydrogeologic Report for Mining Plan Application, Bonny Doon Quarry, Davenport, California, Brown and Caldwell, October 9, 2000, and,**
  - H) Revised Mining Plan, Robert Walker, R.G. February 2001, includes three sheet set of drawings of Potentiometric Surface, Feb 8 and 13, 2001.**
  - I) Hydrogeologic Evaluation Summary Report, Bonny Doon Quarry Area ,Third Party Study, Farallon Consulting, March 7, 2000, and August 2, 2001.**
  - J) Interim Geologic and Hydrogeologic Report Liddell Spring Landslide, Bonny Doon Quarry, Pacific Geotechnical Engineering, January 2001.**
  - K) Landslide Investigation Liddell Spring Landslide, Pacific Geotechnical Engineering, Draft, October 2001.**
  - L) Phase I Geologic Investigation Evaluation of Landslide, Bonny Doon Limestone Quarry Santa Cruz County, California, Woodward-Clyde, December 2, 1997.**
6. Excerpts from the proposed Reclamation Plan, revised February 2001 (Entire plan is on file at the Planning Department)
  7. Desert Research Institute, PM10 Study, November 1999
  8. Preliminary Prehistoric Cultural Resource Reconnaissance Report
  9. 4<sup>th</sup> Annual Report, Consultants in Engineering Acoustics, December 5, 2000
  10. City of Santa Cruz Water Department Correspondence. Letters dated June 21, 1996, March 3, 1998, March 17, 1998, May 27, 1997, September 18, 2000, and letter of May 23, 1979 regarding Liddell Spring Arbitration.
  11. County Memo from Rachel Lather, Senior Civil Engineer to Suzanne Smith, Resource Planner, regarding acceptance of pond calculations relative to the proposed Amendment for expansion, March 7, 2000.
  12. Letter from Rachel Lather, County Senior Civil Engineer to Harry Reppert, RMC and Terry Tompkins, City of Santa Cruz Water Department, March 31, 1998.
  13. Memo from Joe Hanna, County Geologist regarding approval of proposed final slope configuration.
  14. County correspondence/ reviews of hydrogeologic reports, 2000, 2001.

file copy



# COUNTY OF SANTA CRUZ

## PLANNING DEPARTMENT

701 OCEAN STREET, SUITE 410, SANTA CRUZ, CA 95060  
(831)454-2580 FAX. (831)454-2131 TDD (831)454-2123  
ALVIN JAMES, DIRECTOR

### NOTICE OF PREPARATION

Date: September 4, 2002

TO: ALL RECIPIENTS ON  
THE ATTACHED LIST

FROM: PLANNING DEPARTMENT  
COUNTY OF SANTA CRUZ  
701 OCEAN STREET, 4<sup>TH</sup> FLOOR  
SANTA CRUZ, CA 95060

**SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT  
REPORT**

**PROJECT TITLE: BONNY DOON QUARRY EXPANSION**

**PROJECT APPLICANT: RMC PACIFIC MATERIALS**

The County of Santa Cruz will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by the County if your agency has to issue a permit or other approval for the project.

The project has two proposed components. First, the working area of the Bonny Doon Limestone Mine and Shale Mine would be expanded into an adjacent area of approximately 17.5 acres on the northeast side of the existing mine. The applicant has requested this expansion because the mine has nearly reached the mining limits permitted in the current mining approval, and the applicant is running out of limestone product to mine and process. The proposed expansion area is within the maximum limit boundary defined in the use permit. Overburden from the expansion would be deposited on approximately 17.5 acres within the existing mining pit.

The second project component is a proposal to revise the approved Mining Reclamation Plan, which was required mitigation pursuant to the 1996 EIR. These revisions include changing the vegetative communities to be re-established on a portion of the site. The original reclamation plan was based on the assumption that later succession plant communities, such as needlegrass grassland and northern maritime chaparral, could be established to reclaim the mine site. However, monitoring of test plots has shown that there are significant problems with achieving full establishment of these vegetative communities. Therefore, the applicant is proposing a revised reclamation plan that would use "early succession shrub/mixed evergreen forest" composition to reclaim the limestone quarry and disposal areas 'B' and 'C.' "Coastal sage

scrub" composition would be used to reclaim the shale quarry. There would be no changes to the reclamation plan with regard to riparian reclamation areas, which would be treated as proposed in the original plan.

A more detailed project description and initial analysis of anticipated project impacts are contained in the attached Initial Study. The supporting documents to the Initial Study are primarily technical reports, and are not included in this mailing. However, the reports are available for review at the County of Santa Cruz Planning Department.

The EIR will focus on those issues that have the potential for significant impacts including, but not necessarily limited to:

1. Potential impacts on groundwater quality and quantity, including water supply at Lidell Spring, which is a source of drinking water for the City of Santa Cruz.
2. Potential effects on surface water quality and quantity, and associated impacts on special status fish and wildlife species in Lidell Creek (e.g., California red-legged frog, steelhead trout, coho salmon).
3. Loss of sensitive plant communities.
4. Noise impacts on sensitive receptors.
5. Air quality effects, particularly increased particulate matter (PM10).
6. Consistency with applicable County Code and General Plan policies.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but no later than 30 days after receipt of this notice. We will need the name of a contact person for your agency. Please send your response to me at the address shown above. I can also be contacted at (831) **454-5175**.

Sincerely,



Claudia Slater  
Environmental Planner

Attachments: 1 - NOP Mailing List  
2 - General Location Map  
3 - Project Site Map  
4 - Initial Study

ATTACHMENT 1

BONNY DOON QUARRY EXPANSION PROJECT  
NOP MAILING LIST

STATE CLEARING HOUSE  
1400 TENTH STREET, ROOM 222  
SACRAMENTO, CA 95814

RMC PACIFIC MATERIALS, INC.  
(Satish Sheth)  
700 HIGHWAY 1  
DAVENPORT, CA 95017

CITY OF SANTA CRUZ  
CITY MANAGER  
809 CENTER STREET  
SANTA CRUZ, CA 95060

ZONE 4 DRAINAGE AND FLOOD  
CONTROL (Bruce Laclergue) -

CITY OF SANTA CRUZ  
WATER DEPARTMENT  
809 CENTER STREET  
SANTA CRUZ, CA 95060

U.S. FISH AND WILDLIFE  
SERVICE  
2493 PORTOLA ROAD, SUITE B  
VENTURA, CA 93003

NATIONAL MARINE FISHERIES  
SERVICE  
777 SONOMA AVE. ROOM 325  
SANTA ROSA, CA 95404

MBUAPCD  
24580 SILVER CLOUD COURT  
MONTEREY, CA 93940

AMBAG  
P.O. BOX 809  
MARINA, CA 93933

CALIFORNIA COASTAL  
COMMISSION (Dan Carl)  
725 FRONT STREET, SUITE 300  
SANTA CRUZ, CA 95060



Bar C  
Bar W  
Bar R  
Bar B  
Bar S  
Bar G  
Bar Y  
Bar K  
Bar N  
Bar D

Appendix A. Environmental Review Study/Notice of Preparation and Comments

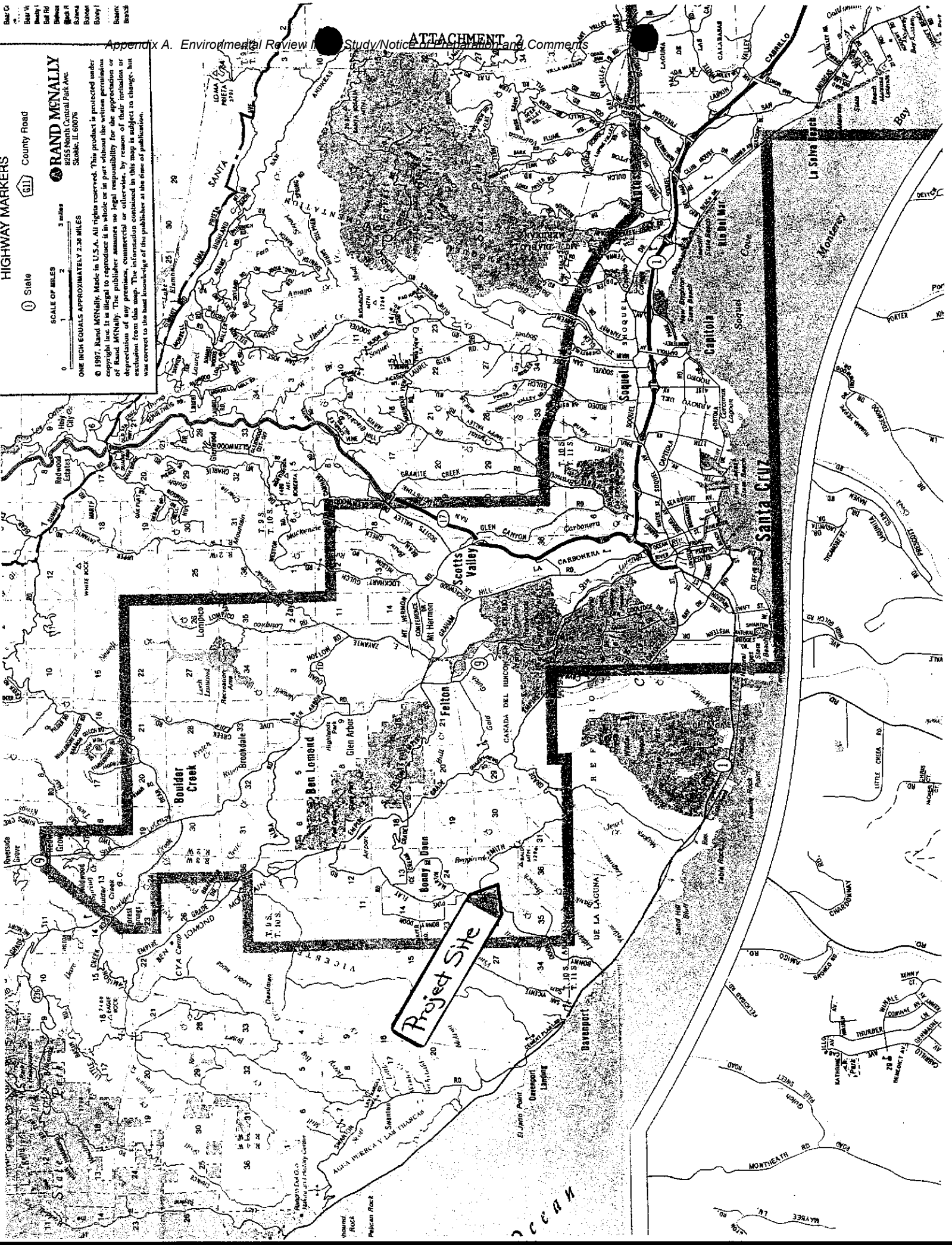
ATTACHMENT 2

HIGHWAY MARKERS  
State County Road

SCALE OF MILES  
0 1 2 3 miles

ONE INCH EQUALS APPROXIMATELY 2.38 MILES

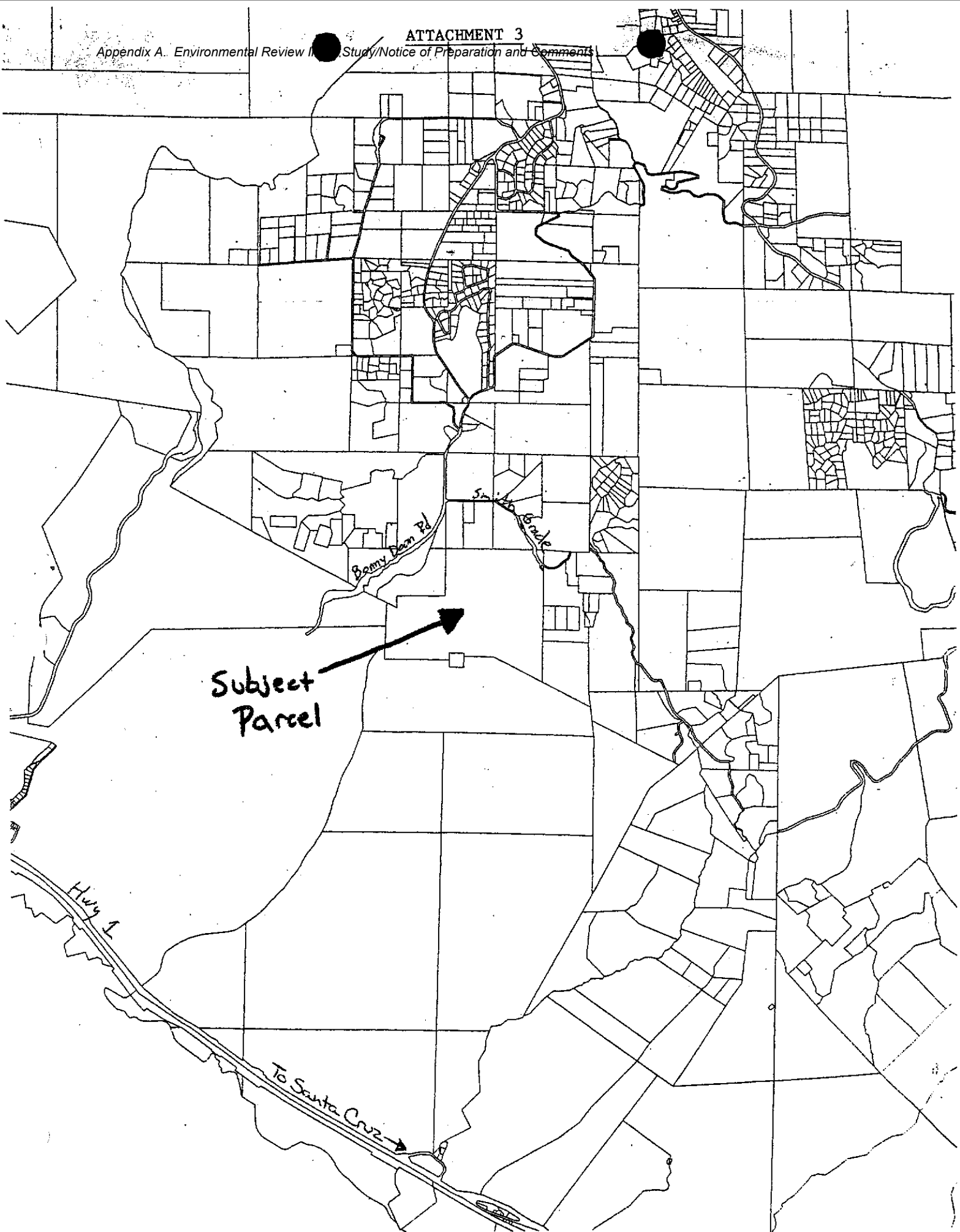
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Project Site

ATTACHMENT 3

Appendix A. Environmental Review II Study/Notice of Preparation and Comments





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Southwest Region  
777 Sonoma Avenue, Room 325  
Santa Rosa, California 95758

In Response Refer To:

OCT - 2 2002

151422SWR02SR6443:JMA

Ms. Claudia Slater  
Environmental Planner  
County of Santa Cruz Planning Department  
701 Ocean Street, Suite 410  
Santa Cruz, California 95060

Dear Ms. Slater:

Thank you for the opportunity to comment on an Environmental Impact Report (EIR) being prepared by the County of Santa Cruz (County) regarding the expansion of the Bonny Doon Quarry, Santa Cruz County, California, by RMC Pacific Materials. The County has requested input from the National Marine Fisheries Service (NOAA Fisheries) regarding the scope and content of information germane to our statutory responsibilities in connection to the proposed project.

The proposed project consists of two components; a 17.5 acre expansion of the Bonny Doon Limestone Mine and Shale Mine and revision to the approved Mining Reclamation Plan required pursuant to their 1996 EIR. NOAA Fisheries believes a thorough analysis of water supply is warranted for these operations. Lack of adequate flows in Liddell Creek are likely impairing listed anadromous salmonid species present, or historically present, within this watershed. Maintenance of adequate flows in San Vicente Creek is of particular concern to NOAA Fisheries due to the presence of both Central California Coast (CCC) Evolutionarily Significant Unit (ESU) steelhead trout (*Oncorhynchus mykiss*) and CCC ESU coho salmon (*Oncorhynchus kisutch*) both listed as threatened species pursuant to the Endangered Species Act. San Vicente Creek is the southern-most watershed coho salmon are known to be present, within the range of the species.

The adequacy of flows sufficient to support all life stages of these species, as well as sufficient to provide channel forming flows during the winter period should be addressed. NOAA Fisheries recommends the draft EIR include an analysis of impacts to base flows within both Liddell and San Vicente Creeks in order to fully evaluate potential impacts of these activities. Although the expected rate of water use is not anticipated to increase with quarry expansion the current level of used may be adversely affecting CCC ESU coho salmon and CCC ESU steelhead trout. This



analysis may require an IFIM study. To facilitate this evaluation we have enclosed NOAA Fisheries and California Department of Fish and Game's 17 June, 2002, draft of guidelines for maintaining instream flows to protect fisheries resources downstream of water diversions.

Thank you for the opportunity to provide input to the County of Santa Cruz's EIR for the Bonny Doon Quarry expansion. If you have any question regarding this letter please contact Mr. Jonathan Ambrose at (707) 575-6091 or via email at [jonathan.ambrose@noaa.gov](mailto:jonathan.ambrose@noaa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick J. Rutten". The signature is fluid and cursive, with a large initial "P" and "R".

Patrick J. Rutten  
Northern California Supervisor  
Protected Resources Division

Enclosure

cc: Jim Lecky - NOAA Fisheries  
David Johnston - CDF&G, Monterey



**MONTEREY BAY**  
**Unified Air Pollution Control District**  
serving Monterey, San Benito, and Santa Cruz counties

24580 Silver Cloud Court • Monterey, California 93940 • 831-647-8500 • FAX: 831-647-8501



AIR POLLUTION CONTROL OFFICER  
Douglas Quetin

September 13, 2002

Claudia Slater  
Santa Cruz County Planning Department  
701 Ocean Street, 4th Floor  
Santa Cruz, CA 95060

**SUBJECT: NOP FOR BONNY DOON QUARRY EXPANSION**

Dear Ms. Slater:

Staff has reviewed the referenced document and has the following recommendations for the air quality analysis:

1. Direct and indirect source emissions (ROG, NO<sub>x</sub>, PM<sub>10</sub> and TACs) from all proposed operational activities should be quantified and assessed. These emissions should reflect maximum operational daily activity.
2. If project or cumulative traffic would cause LOS to decline from D or better to E or F, dispersion modeling should be undertaken to determine if carbon monoxide concentrations would violate ambient air quality standards at sensitive receptor locations.
3. Project construction and operational PM<sub>10</sub> emissions should be quantified. If emissions would exceed 82 lb/day, the project would have a significant impact on air quality. However, PM<sub>10</sub> modeling could be undertaken to verify or dispute this finding per the District's CEQA Air Quality Guidelines.
4. If the project might expose sensitive receptors to air quality problems such as odors or toxic air contaminants (e.g., diesel exhaust, prescribed burns) from adjacent land uses, the DEIR should include an assessment of these impacts.
5. Mitigation measures should be identified for any significant impacts on air quality. The EIR should quantify the emission reduction effectiveness of each measure, identify agencies responsible for implementation and monitoring, and conclude whether mitigation measures would reduce impacts below significance levels.
6. Project consistency with the 2000 Air Quality Management Plan for the Monterey Bay Region should be addressed. Consistency is used by the District to determine a project's cumulative impact on regional air quality (i.e., ozone levels). The District should be contacted for a consistency determination.

**DISTRICT BOARD MEMBERS**

**CHAIR:**  
Edith Johnsen  
Monterey County

**VICE CHAIR:**  
Ellen Pirle  
Santa Cruz County

Jack Barlich  
Del Rey Oaks

Anna Caballero  
Salinas

Lou Calcagno  
Monterey County

Tony Campos  
Santa Cruz County

Bob Cruz  
Santa Cruz County

Tony Gualtieri  
Capitola

John Myers  
King City

Judy Pennycook  
Monterey County

Keith Sugar  
Santa Cruz

7. The EIR should describe District rules that would apply to the project, and the District should be identified as a responsible agency.

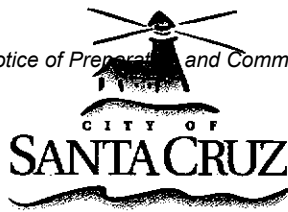
The District's CEQA Air Quality Guidelines can be used to help prepare the air quality analysis. The Guidelines were recently amended, and an updated copy is available at the District's website - [www.mbuapcd.org](http://www.mbuapcd.org). Please do not hesitate to call if you have any questions. In the future, we would appreciate receiving copies of the NOP and Initial Study.

Sincerely,



Janet Brennan  
Supervising Planner  
Planning and Air Monitoring Division

c: Nicolas Papadakis, AMBAG



W A T E R   D E P A R T M E N T

Ms. Claudia Slater  
County of Santa Cruz  
Planning Department  
701 Ocean Street, 4<sup>th</sup> Floor  
Santa Cruz, CA 95060

October 2, 2002

RE: Notice of Preparation for the Bonny Doon Quarry Expansion

Dear Ms. Slater,

Thank you for the opportunity to comment on the scope of the Environmental Impact Report (EIR) for the Bonny Doon Quarry Expansion. As you are aware Liddell Spring, which is immediately down slope of the Bonny Doon Marble Quarry, is a critical part of the City of Santa Cruz (City) water supply system. The City has consistently raised concerns regarding quarry related impacts to Liddell Spring. Many of these concerns have been documented in the November 20, 1992 Watkins-Johnson Report, and the County Initial Study for the proposed expansion dated November 19, 2001 (including correspondence from the City in Attachment 10). It is imperative that current and future mining operations be conducted so as to ensure that every possible safeguard be incorporated to avoid any additional impacts on the spring. We offer the following comments, which we hope, will help the County scope the EIR.

**Level of Hydrogeologic Understanding of Quarry and Liddell Spring.**

There remains an inadequate understanding of the hydrogeologic conditions, which exist beneath the existing quarry and proposed expansion area, which supply Liddell Spring. Even with the list of Hydrogeologic Reports in Attachment 5 of the Initial Study, the most recent of these studies still conclude that the hydrogeologic system at the quarry remains poorly understood, and make numerous recommendations for further study. Expansion of mining, and protection of the City's Liddell Spring, must be based on a sound understanding of the hydrogeologic system underlying the quarry and expansion area which supplies the spring. This issue is still outstanding from the 1996 Certificate of Compliance EIR for the Bonny Doon Quarry, and Planning Commission Certification of the EIR.

The City concurs with the recommendations of the February 28, 2002 Pacific Geotechnical Engineering (PGE) investigation and the August 2, 2001 Farallon Consulting report. These reports recommend: a detailed structural geologic mapping of quarry exposures; that potential linkages of sinkholes and solution features in the quarry and expansion area be investigated as sources/ conduits for the observed turbidity at Liddell Spring, including investigation with tracer studies or other appropriate methods;

that sediment delivered to Liddell Spring during major storm events be analyzed by x-ray diffraction and other techniques available to aid in identifying source areas for the turbid flow; and that Liddell Spring be continuously monitored for flow rate, turbidity, specific conductance, and water temperature. Additionally, monitoring of rainfall, blasting events, and groundwater level and quality should be continued.

### **Turbidity**

Turbidity and sedimentation events at Liddell Spring have increased in frequency and severity immediately upon initiation of quarry activities, then stabilized, and since the late 1980's have again increased. Significant sedimentation events, which have filled the spring box and pipeline, have occurred almost annually since 1996. The source area(s) of the turbidity and sediment have not been identified, and therefore are not yet possible to mitigate. These events, and associated annual maintenance purging the City system of sediments, not only affect water quality and City water infrastructure, but also translate down stream to potential impacts to listed, protected species. The source areas for these events must be identified, and the likelihood of the expansion area as an existing or future source area thoroughly investigated in the EIR.

The proposed overburden/fill placement within the existing quarry pit is also of concern. This material could pose an additional future turbidity/ sedimentation source. A thorough evaluation of the fill placement methods and potential impacts should be evaluated in the EIR. The removal of the overburden from the expansion area must also be analyzed in the EIR for the potential to affect spring water quality and quantity. Significant increases in turbidity at Liddell Spring occurred following the initial stripping of overburden at the quarry in the late 1960's and early 1970's. Possible chemical and/or flow alterations associated with overburden removal could also lead to accelerated solution rates in the karst geology potentially resulting in long-term changes to the hydrogeologic system and in particular Liddell Spring. This potential impact should also be thoroughly evaluated in the EIR.

### **Nitrates**

While the Initial Study concludes that nitrate levels at Liddell Spring are a less than significant issue given that levels are significantly lower than the drinking water standard, the City remains concerned. The levels of nitrates appear to be increasing, and it is not clear whether mining is having an effect on the path of the nitrate to Liddell Spring. We request that this be further evaluated in the EIR.

### **Landslides**

The landslides adjacent to Liddell Spring are of great concern to the City. The ability of the proposed expansion to affect water table elevations and the stability of the landslide must be investigated in the EIR. The existing geotechnical and hydrologic monitoring should continue since this information is critical in determining the level of significance of this potential impact in the EIR. The Conceptual Mitigation and Monitoring



Alternatives, and Recommendations of the PGE report (Sections 6 and 7) should be evaluated in the EIR.

### 1964 Agreement

Finally, the permit conditions for the quarry operation adopted the 1964 Agreement between the City of Santa Cruz and Pacific Cement and Aggregates. This Agreement established minimum water volumes and water quality parameters for Liddell Spring. PCA agreed to indemnify the City against diminution of water quality or quantity from the spring, if PCA could not conclusively demonstrate that quarry activities were not responsible for decreased water quantity or quality. Weber, Hayes and Associates completed an analysis of two turbidity data sets. These were the data sets of October 10, 1997 through March 30, 1998, and March 29, 1999 through April 30, 2000, with reports dated May 24, 2001 and April 8, 2002 respectively. The conclusion of the report for the earlier data set was that all 104 days monitored exceeded the minimum standards established for turbidity in the 1964 Agreement, and the most recent data set exceeded the turbidity baseline of the Agreement 317 of the total of 398 days monitored. A reevaluation of the 1964 Agreement, and the original purpose for the agreement should be included in the EIR, including addressing issues of ongoing non-compliance with existing permit conditions.

The City of Santa Cruz appreciates the opportunity to convey our concerns to the County for consideration and inclusion into scope the EIR for the Bonny Doon Quarry Expansion. Mr. Terry Tompkins is the City contact for the project and can be reached at (831) 420-5454, at the Water Department Administration Office at 809 Center Street, Room 102, Santa Cruz, CA 95060.

Sincerely,



Bill Kocher  
Water Director

**References:**

Landslide Investigation Liddell Spring Landslide Bonny Doon Quarry Santa Cruz County, California, Pacific Geotechnical Engineering, Balance Hydrologics Inc., February 28, 2002

Hydrogeologic Evaluation Summary Report for April 1999 to April 2000, Farallon Consulting, August 2, 2001

Liddell Spring Turbidity Data Analysis (October 10, 1997 through March 30, 1998), Weber, Hayes & Associates, May 24, 2001

Liddell Spring Turbidity Data Analysis (March 29, 1999 through April 30, 2000), Weber, Hayes & Associates, April 8, 2002

Bonny Doon Area Hydro-geologic Evaluation Report, Watkins-Johnson, November 20, 1992



**APPENDIX B**

**COUNTY PLANNING POLICIES**

- 1. Mining Regulations 16.54.050**
- 2. Mining Regulations 16.54.055**
- 3. 1997 Conditions of Approval for Certificate of Compliance and Reclamation Plan Approval 89-0492**

## APPENDIX B

### SANTA CRUZ COUNTY MINING ORDINANCE

---

#### **16.54.050 Required conditions and standards for mining approval, certificate of compliance, reclamation plan approval only or amendment thereof.**

(a) Each recommended condition set forth in any statement, report, plan or other informational document submitted by the applicant pursuant to the application requirements of Section 16.54.040, as modified and/or approved by the Planning Commission, shall be incorporated as a condition of the related approval.

(b) Each property owner of a mining site, the applicant and the operator shall execute, date and return to the Planning Director two copies of a Declaration of Restrictions binding each to comply with each and every term and condition of the Mining Approval, Certificate of Compliance, or Reclamation Plan Approval only. Each such Declaration of Restrictions regarding an approval, shall be executed by each signatory in such manner and formality as shall enable it's recordation with the County Recorder, binding each and any successor(s) to comply with each such approval, and every term and condition thereof. Said Declaration of Restrictions shall be in the form prepared by the Planning Director and shall be filed for recordation within 90 days of the effective date of said approval. No map larger than 8-1/2 inches by 11 inches shall be recorded as part of said Declaration of Restrictions; rather, any such map may be referred to in the Declaration of Restrictions as being on file in the County Planning Department.

(c) The standards and/or conditions set forth in this subsection shall be imposed on each Mining Approval, Certificate of Compliance, (to the extent lawfully required pursuant to Section 16.54.100), or Reclamation Plan Approval only, or any amendment of such Approval or Certificate and to establishment, operation and maintenance of the uses approved or certified thereby.

**(1) Noise and Vibration.** All facilities and equipment shall be constructed, maintained and operated in compliance with the Industrial Performance Standards of Section 13.10.445 and County General Plan Section 3.6.1. Maximum noise level measured at property boundaries shall be no greater than 60 dBA for a cumulative period of 15 minutes during any hour of operation. A lower noise level may be required by the Planning Commission if a health or safety effect or nuisance related to noise level is demonstrated. A higher noise level may be authorized by the Planning Commission if the increase in noise level is from construction related activity, the noise is generated only on a specified temporary basis and all neighbors, within 1,000 feet of the property, have been notified in writing of the increase in noise level by the operator.

#### **(2) Air Pollution**

(i) Each mining operation and reclamation activity shall be conducted in compliance with the requirements of the Monterey Bay Unified Air Pollution Control District.

(ii) Removal of vegetation shall only be permitted in accordance with the approved phasing plan.

(iii) Each mining operation shall be conducted so as to minimize dust, particulate matter (PM10), crystalline silica, and any other potentially significant effect of wind erosion.

- (iv) Each interior road within the mining site shall be surfaced, treated or watered frequently enough to preclude wind and traffic generated dust from creating a nuisance affecting any nearby property or public road.
- (v) Each exterior entrance road shall be maintained reasonably free of dust and debris resulting from any mining operation. Each truck departing the mining site shall be loaded, wetted down or tarped in such a manner so as to comply with all state or federal laws and minimize spillage on any haul route.
- (vi) In a dry weather period during high wind conditions, each mining operation on an exposed slope shall be curtailed. Stockpiled sand products shall be watered or treated in a manner approved by the Planning Director during periods of high wind conditions so as to minimize off-site dust nuisance to nearby property.
- (vii) Each area vegetated with native species or communities, in either existing or reclaimed portions of any mining site shall be protected from dust nuisance by a method approved by the Planning Director.
- (viii) Each unvegetated disturbed area not actively involved in a mining operation, including any interim slope which does not meet final contours, shall be hydromulched, hydroseeded or otherwise treated by the start of the rainy season each year by a method and in a manner approved by the Planning Director so as to minimize off-site dust nuisance.

### **(3) Water**

- (i) The use and discharge of water shall be conducted in compliance with all applicable Water District, County, State and Federal laws.
- (ii) Unless specifically described in a drainage and/or erosion control plan as required by Section 16.54.040 and approved by the Regional Water Quality Control Board and the Planning Director, no runoff from the mining site shall be discharged into any natural watercourse.
- (iii) The lowest elevation of any mining operation at any time shall be 20 feet above the peak groundwater elevation unless the Planning Commission determines that a lower or higher elevation will ultimately benefit the recharge of the aquifer.
- (iv) The groundwater recharge capacity of each aquifer or spring within the mining site shall be maintained at a pre-approval level.
- (v) If the Planning Director determines that reasonable cause exists to suspect adverse impacts from a mining operation on groundwater supply, aquifer, sole source aquifer or spring, a complete hydrogeological report pursuant to Section 16.54.040(c)(11) shall be prepared. However, if the potential impacts are limited, the Planning Director may limit the report to address only the limited impacts identified.

### **(4) Drainage and Erosion Control**

- (i) Drains, facilities and devices to control storm water runoff shall be constructed and maintained as required in order to prevent erosion and prevent the deposit of sand, silt or other materials into any natural watercourse or onto any property not owned or controlled by any owner or operator of a mining site. Prior to the construction of any settling pond, slurry pond, water reservoir, or storm drainage facility, engineered drainage plans (based on a 10-year storm [six hour duration]), which conform with the requirements of each applicable approval shall be submitted to the Planning Director for review and approval.
- (ii) Each settling basin, drainageway, culvert, pump, pipeline and other drainage and erosion control features shall be maintained as necessary to assure that each is functioning properly as designed.

- (iii) Runoff originating from the mining site, stockpiles, unpaved on-site roads or other disturbed areas shall be contained on-site except as permitted under the Mining Approval, Certificate of Compliance, Reclamation Plan Approval only or amendment thereof. Runoff leaving any mining site shall comply with the requirements of the Regional Water Quality Control Board. Monitoring of runoff discharged by an independent laboratory, and/or installation of a continuous monitoring device, may be required as a condition of such Mining Approval, Certificate of Compliance, Reclamation Plan Approval only or amendment thereof. The results of such required monitoring shall be submitted to the Planning Director within thirty (30) days after the monitoring results are obtained and shall also be included in the annual report.
- (iv) All necessary measures shall be taken to prevent access to the mining site by off road vehicles and persons not associated with the mining operation or authorized by any approval.
- (v) Each Operator shall minimize the surface area of the mining site which is stripped, mined or otherwise disturbed at any given time to the greatest extent compatible with reasonable mining and marketing requirements.
- (vi) Mining operation and reclamation shall be conducted to protect on-site and downstream beneficial uses of water in accordance with State and Federal law, including (without limitation) Porter-Cologne Water Quality Control Act, California Water Code Section 13000, et seq., and the Federal Clean Water Act, 33 USC Section 1251, et seq., and their respective successor laws.
- (vii) The quality of water, recharge potential, and storage capacity of groundwater aquifers which are the source of water for domestic, agricultural, or other uses dependent on the water, shall not be diminished, except as allowed in the applicable Mining Approval, Certificate of Compliance, Reclamation Plan Approval only or amendment thereof.
- (viii) Erosion and sedimentation shall be controlled during construction, operation, reclamation, and closure of a mining operation to minimize siltation of lakes and watercourses, and to ensure that land and water resources are protected from erosion, gullying, sedimentation and contamination.
- (ix) Where natural drainages are covered, restricted, rerouted, or otherwise impacted by a mining operation, mitigation measures and/or alternatives shall be required in the Mining Approval, Certificate of Compliance, Reclamation Plan Approval only or amendment thereof to assure that runoff shall not cause increased erosion or sedimentation, or other adverse environmental impacts.
- (x) When stream diversions are required, they shall be constructed in accordance with:
- (A) The requirements and State law, including (without limitation) the stream and lake alteration agreement between the operator and the Department of Fish and Game; and
- (B) The requirements of the federal law, including (without limitation) Federal Clean Water Act, Sections 301 (33 U.S.C. 1311) and Section 404 (33 U.S.C. Section 1344) and/or Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
- (C) When no longer needed to achieve the purpose for which they were authorized, all temporary stream channel diversions shall be removed and the affected land reclaimed.

## **(5) Setbacks**

- (i) Each building, structure, facility and mining operation shall be located no closer to property boundaries than as shown on the applicable approved mining plan. The minimum setback (excepting entrance roads) shall be 150 feet.
- (ii) Notwithstanding (i) above, no crushing plant or other apparatus for the processing of any material shall be located within 200 feet of the boundary line of any property in a residential

zoning district. However, if such a facility is placed below contiguous ground level, it may be located not less than 100 feet from such boundary line.

(iii) Prior to excavating, clearing, or otherwise disturbing the land within 200 feet of a mining site boundary, a licensed surveyor or civil engineer employed by the operator shall provide survey markers at 200 foot intervals along both the mining site boundary line and the 150 foot setback line. Each marker shall be maintained in place until a clear, readily identifiable, working face is established at an approved setback line.

#### **(6) Sensitive Habitat Protection**

(i) Each sensitive habitat for rare, endangered, threatened, or unique wildlife or plants or communities thereof, located on the mining site shall be mapped and appropriate conditions imposed to assure that mining operation and reclamation reasonably preserve such sensitive habitat(s).

(ii) Mining operation and reclamation shall be conducted to protect sensitive habitats in accordance with the California Endangered Species Act, California's Fish and Game Code Section 2050, et seq., and the Federal Endangered Species Act, 16 U.S.C. Section 1531, et seq., or the respective successor laws.

**(7) Days and Hours of Operation.** The Planning Commission may limit the hours and days of any mining operation except in the following situations:

- (i) Where otherwise required by a public authority having superior jurisdiction;
- (ii) Where otherwise necessary due to a declared public emergency;

**(8) Off-Street Parking Requirements.** Off-street parking shall be provided on the mining site for all equipment and for all employee vehicles. Each mining operation in the "M-3" or "TP" zone shall be exempt from any other off-street parking requirements prescribed by this Code.

**(9) Screening.** The Planning Commission shall require each mining operation and facility to be screened from any other property or any public road in the vicinity when such screening is necessary to block an unsightly operation or facility from view, or to insulate surrounding properties from noise from such mining operation. All types of screen shall be continuously maintained so as to carry out the intent of this Section.

A screen shall consist of one or a combination of the following types, the design of which shall be subject to prior approval by the Planning Commission:

- (i) Wall: A wall shall consist of concrete, stone, brick or similar solid masonry material.
- (ii) Berm: A berm shall be constructed of earthen materials and it shall be landscaped.
- (iii) Fence: A fence shall be an open weave or mesh type and shall be combined with plant materials to form an opaque screen. Additional fencing requirements are set forth at Sections 16.54.050(c)11 and 16.54.055(j)1(v).
- (iv) Planting: Plant materials, when used for visual screening, shall consist of evergreen plants or trees of a native variety together with any necessary irrigation facility(ies) so as to establish the viability of the plants.

**(10) Haul Routes.** The Planning Commission may establish each truck haul route to and from the mining site.

**(11) Posting of Signs and Construction of Fence.** Within 90 days after a Mining Approval, Certificate of Compliance, or Reclamation Plan Approval, has been granted and continuously thereafter, the outer boundaries of the mining site shall be posted with signs providing notice of approved mining operations to the public. Each sign shall state in letters of not less than four inches in height: “MINING APPROVAL NUMBER \_\_\_\_\_” and in letters of not less than one inch in height: “THIS PROPERTY MAY BE USED FOR THE MINING AND PROCESSING OF ROCK, SAND, GRAVEL OR MINERALS. THE HOURS OF OPERATION AND MAINTENANCE ARE AS FOLLOWS: \_\_\_\_\_”. Each sign shall be maintained in legible condition at all times. The entire mining site shall be fenced for safety and maintained by the owner or operator, to the extent and in the manner required by the Planning Commission.

**(12) Construction of Buildings and Processing Plants.** In addition to the Mining Approval, Certificate of Compliance, or Reclamation Plan Approval, obtained pursuant to this Chapter, a building permit shall be required for the construction of new buildings, processing plants and other mining related permanent structures.

**(13) Timing of Mining Operation and Reclamation.** A time schedule including a final completion date for reclamation shall be specified.

**(14) Reclamation Access.** Access for County or State to the mining site to perform reclamation if the operator does not comply with the requirements of the reclamation plan shall be granted by the owner and/or Operator in the Approval. (Ord. 1749, 8/1/72; 3333, 11/23/82; 3448, 8/23/83; 3637, 3/26/85; 3923, 6/28/89; 4421, 6/18/96)

#### **16.54.055 Reclamation Standards**

**(a) Time Limitation:** Reclamation shall in all cases be completed within the time schedule set forth in the conditions for Mining Approval, Certificate of Compliance, Reclamation Plan Approval only or amendment thereof. All recontouring, revegetation and reclaiming efforts shall be phased to commence immediately upon completion of mining operation in any given area.

**(b) Applicability of Standards.** Reclamation of mined lands shall be implemented in conformance with the standards in this Section. The standards set forth in subsections 16.54.055 (d) through (m) shall apply to each mining operation for which a Reclamation Plan was approved on or after January 15, 1993, to the extent that:

- (1) They are consistent with required mitigation identified in conformance with California Environmental Quality Act, provided that such mitigation is at least as stringent as the standards specified in this Section; and
- (2) They are consistent with the planned or actual subsequent use or uses of the mining site; and
- (3) Where an applicant demonstrates to the satisfaction of the Planning Director that an exception to the standards specified in this section is necessary based upon the approved end use, the Planning Director may approve a different standard for inclusion in the approved Reclamation Plan. Where the Planning Director allows such an exception, the approved Reclamation Plan shall specify verifiable, site-specific standards for reclamation. The Planning Director may set standards which are more stringent than the standards set forth in this section;



however, in no case may the Planning Director approve a Reclamation Plan which sets any standard which is less stringent than the comparable standard specified in this section.

(4) When substantial amendment is proposed to a Reclamation Plan which was approved prior to January 15, 1993, the standards set forth in this section shall be applied by the Planning Director in approving or denying approval of the amended Reclamation Plan.

**(c) Mined lands for which a Reclamation Plan was approved** between September 1, 1972, and January 15, 1993, shall be reclaimed pursuant to standards of the approved Reclamation Plan, including any amendments thereto authorized by Section 16.54.074 or Section 16.54.100.

**(d) Performance Standards for Wildlife Habitat:** Wildlife and wildlife habitat shall be protected in accordance with the following standards:

(1) Rare, threatened or endangered species as listed by the California Department of Fish and Game (California Code of Regulations, Title 14, sections 670.2-670.5), the U.S. Fish and Wildlife Service (50 CFR 17.11 and 17.12), or species of special concern as listed by the California Department of Fish and Game in the Special Animal List, Natural Diversity Data Base, shall be protected and their respective habitat conserved as prescribed by the Federal Endangered Species Act, 16 USC Section 1531, et seq., and the California Endangered Species Act, Fish and Game Code Section 2050, et seq. If avoidance cannot be achieved through the available alternatives, mitigation shall be proposed by the owner(s) and/or operator(s) in accordance with the provisions of the California Endangered Species Act, Fish and Game Code section 2050 et seq., and the Federal Endangered Species Act, 16 USC Section 1531, et seq.

(2) Wildlife habitat shall be established on disturbed land in a condition at least as good as that which existed before the lands were disturbed by the mining operation, unless the proposed end use precludes its use as wildlife habitat or the approved Reclamation Plan establishes a different habitat type than that which existed prior to mining.

(3) Wetland habitat shall be avoided. Any wetland habitat impacted as a consequence of mining operations shall be mitigated at a minimum of one to one ratio to wetland habitat acreage and wetland habitat value.

**(e) Performance Standards for Backfilling, Regrading, Slope Stability, and Recontouring:**

(1) Where backfilling is proposed for urban uses (e.g., roads, building sites, or other improvements sensitive to settlement), the fill shall be compacted in accordance with Section 7010, Chapter 70 of the 1991 edition of the Uniform Building Code published by the International Conference of Building Officials, standards set forth in the County's Grading Ordinance (whichever standard is stricter), as appropriate for the approved end use.

(2) Where backfilling is required for resource conservation purposes (e.g., agricultural, fish and wildlife habitat, wildland conservation), fill material shall be backfilled to the standards required for the resource conservation use involved.

(3) Piles or dumps of mining waste products, by-products or overburden shall be stockpiled in such a manner as to facilitate phased reclamation. Such piles or dumps shall be segregated from topsoil and topsoil substitutes or growth media salvaged for use in reclamation.

(4) Final reclaimed fill slopes, including permanent piles or dumps of mining waste products, by-products, rock and over-burden, shall not exceed 2:1 (horizontal: vertical), except when a site-specific geologic and engineering analysis demonstrates that the proposed final slope will have a minimum factor of safety that is suitable

for the proposed end use, and when the proposed final slope can be successfully revegetated.

(5) At closure, all fill slopes, including permanent piles or dumps of mining waste products, by-products and overburden shall conform with the surrounding topography and/or approved end use.

(6) Final cut slopes, including highwalls or quarry faces of a sand mining operation, shall have a minimum slope stability factor of safety that is suitable for the proposed end use with a stability factor of safety not less than 1.2, and shall be no steeper than 1.5:1. (33 degrees) and shall be benched at a 30-foot vertical interval, and shall conform with the surrounding topography and/or approved end use. Final cut slopes, including highwalls and quarry faces of a hard rock mining operation, may be steeper than 1.5:1 (33 degrees) and have a greater bench interval than 30 feet if it can be demonstrated that a steeper slope or different bench interval is geologically stable, has a minimum slope stability factor of safety that is suitable for the proposed end use with a stability factor of safety not less than 1.2, and conforms with the surrounding topography and/or approved end use, does not create a threat to public health and safety, adversely affect a natural resource or reduce the feasibility of reclamation of a mining site.

(7) Permanent placement of piles or dumps of mining waste and overburden shall not occur within wetlands unless mitigation acceptable to the County and California Department of Fish and Game has been proposed to offset wetland impacts and/or losses.

**(f) Performance Standards for Revegetation:**

(1) Revegetation shall be part of the approved Reclamation Plan, unless it is not consistent with the approved end use. A native species vegetative cover suitable for the proposed end use and capable of self-regeneration without continued dependence on irrigation, soil amendments or fertilizer shall be established on disturbed land (including roads, ponds, streambeds, and other areas used in the mining operation) unless introduced species are consistent with the approved Reclamation Plan or unless native species prove infeasible. Vegetative cover or density, and species-richness shall be, where appropriate, sufficient to stabilize the surface against effects of long-term erosion and shall be similar to naturally occurring habitats in the surrounding area. The vegetative density, cover and species richness of naturally occurring habitats shall be documented in baseline studies carried out prior to the initiation of mining activities. However, for areas that will not be reclaimed to prior conditions, the use of data from reference areas in lieu of baseline site data is permissible.

(2) Test plots conducted simultaneously with mining shall be required to determine the most appropriate planting procedures to be followed to ensure successful implementation of the proposed revegetation plan. The Planning Director may waive the requirement to conduct test plots when the success of the proposed revegetation can be documented from experience with similar species and conditions or by relying on competent professional advice based on experience with the species to be planted.

(3) Where surface mining activities result in compaction of the soil, ripping, disking, or other means shall be used in areas to be revegetated to eliminate compaction and to establish a suitable root zone in preparation for planting. When it is not necessary to remove roadbase materials for revegetative purposes, the Planning Director may set a different standard pursuant to Subsection 16.54.055(b)(3).

(4) Prior to closure, all access roads, haul roads, and other traffic routes to be reclaimed shall be stripped of any remaining roadbase materials, prepared in accordance with Subsection 16.54.055(f)(7), covered with suitable growth media or top soil, and revegetated.

(5) Soil analysis shall be required to determine the presence or absence of elements essential for plant growth and to determine those soluble elements that may be toxic to plants, if the soil has

been chemically altered or if the growth media consists of other than the native topsoil. If soil analysis suggests that fertility levels or soil constituents are inadequate to successfully implement the revegetation program, fertilizer or other soil amendments may be incorporated into the soil. When native plant materials are used, preference shall be given to slow-release fertilizers, including mineral and organic materials that mimic natural sources, and shall be added in amounts similar to those found in reference soils under natural vegetation of the type being reclaimed.

(6) Temporary access for exploration or other short-term uses on arid lands shall not disrupt the soil surface except where necessary to gain safe access. Barriers shall be installed when necessary to prevent unauthorized vehicular traffic from interfering with the reclamation of temporary access routes.

(7) Native species shall be used for revegetation, except when introduced species are consistent with the approved Reclamation Plan or native species prove infeasible. Areas to be developed for industrial, commercial, or residential use shall be revegetated for the interim period, as necessary, to control erosion. In this circumstance, non-native plant species may be used if they are not noxious weeds and if they are species known not to displace native species in the area.

(8) Planting shall be conducted during the most favorable period of the year for plant establishment.

(9) Soil stabilizing practices shall be used where necessary to control erosion and for successful plant establishment. Irrigation may be used when necessary to establish vegetation.

(10) If irrigation is used, the operator must demonstrate that the vegetation has been self-sustaining without irrigation for a minimum of two years prior to release of the financial assurances by the Planning Director, unless an artificially maintained landscape is consistent with the end use.

(11) Noxious weeds shall be managed: (i) When they threaten the success of the proposed revegetation; (ii) To prevent spreading to nearby areas; and (iii) To eliminate fire hazard.

(12) If recommended by the botanist, horticulturist or plant ecologist, plants and seed shall be propagated from sources on the site. If purchased, seed should be from a local source. A local source is defined as being as close as possible to the same geographic location or watershed, elevation, aspect, and soil type as the project.

(13) The revegetation plan shall provide for re-establishing or enhancing any rare and endangered, or locally unique plant communities disturbed by any mining operation.

(14) Success of revegetation shall be judged based upon the effectiveness of the vegetation for the approved end use, and by comparing the quantified measures of vegetative cover, density, and species-richness of the reclaimed mined lands to similar parameters of naturally occurring vegetation in the area. Either baseline data or data from nearby reference areas may be used as the standard for comparison. Quantitative standards for success and the location(s) of the reference area(s) shall be set forth in the approved Reclamation Plan. Comparisons shall be made until performance standards are met provided that, during the last two years, there has been no human intervention, including, for example, irrigation, fertilization, or weeding. Standards for success shall be based on expected local recovery rates. Valid sampling techniques for measuring success shall be specified in the approved reclamation plan. Sample sizes must be sufficient to produce at least an 80 percent confidence level. Standard statistical methods in commonly available literature may be utilized for determining an 80 percent confidence level on a site-by-site basis. Examples of such literature include (without limitation) D. Mueller-Dombois and H. Ellenberg, 1978 "Aims and Methods of Vegetation Ecology," John Wiley & Sons, Inc., or D.D. Bonham 1988 "Measurement for Terrestrial Vegetation."

(15) Protection measures, such as fencing of revegetated areas and/or the placement of cages over individual plants shall be used in areas where grazing, trampling, herbivory, or other causes threaten the success of the proposed revegetation. Fencing shall be maintained until revegetation efforts are successfully completed.

**(g) Performance Standards for the Removal of Buildings, Structures and Equipment:** All equipment, supplies, and other materials shall be stored in designated areas (as shown in the Mining Approval, Certificate of Compliance, or Reclamation Plan Approval). All mining waste shall be disposed of in accordance with State and Local health and safety ordinances. All buildings, structures, and equipment shall be dismantled and removed prior to final mine closure or within six months of termination of the mining operation (whichever is earlier) except those buildings, structures, and equipment approved in the reclamation plan as necessary for the end use.

**(h) Performance Standards for Topsoil Salvage, Maintenance, and Redistribution.** When the approved Reclamation Plan calls for revegetation or cultivation of disturbed lands, the following performance standards shall apply to topsoil salvage, maintenance, and redistribution activities:

(1) All salvageable topsoil suitable for revegetation shall be removed as a separate layer from areas to be disturbed by mining operations. Topsoil and vegetation removal shall not precede surface mining activities by more than one year, unless a longer time period is approved by the Planning Director.

(2) Topsoil resources shall be mapped prior to stripping and the location of topsoil stockpiles shall be shown on a map in the Reclamation Plan. If the amount of topsoil needed to cover all surfaces to be revegetated is not available on site, other suitable material capable of sustaining vegetation (such as subsoil) shall be removed as a separate layer for use as a suitable growth media. Topsoil and suitable growth media shall be maintained in separate stockpiles. Test plots may be required to determine the suitability of growth media for revegetation purposes.

(3) Soil salvage operations and phases of reclamation shall be carried out in accordance with a schedule that: (i) is set forth in the approved Reclamation Plan; (ii) minimizes the area disturbed; and (iii) is designed to achieve maximum revegetation success allowable under the mining plan.

(4) Topsoil and suitable growth media shall be used to phase reclamation as soon as can be accommodated by the mining schedule presented in the approved reclamation plan following the mining of an area. Topsoil and suitable growth media that cannot be utilized immediately for reclamation shall be stockpiled in an area where it will not be disturbed until needed for reclamation. Topsoil and suitable growth media stockpiles shall be clearly identified to distinguish them from mine waste dumps. Topsoil and suitable growth media stockpiles shall be planted with a vegetative cover or shall be protected by other equally effective measures to prevent water and wind erosion and to discourage weeds. Relocation of topsoil or suitable growth media stockpiles for purposes other than reclamation shall require prior written approval from the Planning Director.

(5) Topsoil and suitable growth media shall be redistributed in a manner that results in a stable, uniform thickness consistent with the approved end use, site configuration, and drainage patterns.

**(i) Performance Standards for Tailing and Mining Waste Management.** State Water Resources Control Board hazardous mining waste disposal regulations in Article 7 of Chapter 15

of Title 23, California Code of Regulations, shall govern mine waste and tailings, and mine waste disposal units shall be reclaimed in conformance with this Chapter.

**(j) Performance Standards for Closure of Surface Openings, Excavations or Hazardous Areas**

(1) Except those used solely for blasting or those that will be mined through within one year, all drill holes, water wells, and monitoring wells shall be completed or abandoned in accordance with each of the following:

(i) Water Code Sections 13700, et seq., and 13800, et seq.;

(ii) The applicable local ordinance adopted pursuant to Water Code Section 13803;

(iii) The applicable Department of Water Resources report issued pursuant to Water Code Section 13800; and

(iv) Subdivisions (1) and (2) of Section 2511(g) of Chapter 15 of Title 23 regarding discharge of waste to land.

(v) Prior to closure, all portals, shafts, tunnels, excavations or hazardous areas, or other surface openings to underground workings shall be fenced and gated or otherwise protected from public entry in a manner approved by the Planning Director in order to eliminate any threat to public safety and to preserve access for appropriate wildlife habitat. The mining operator and/or owner shall maintain said fencing, gating and/or other protective device(s) during mining operations and thereafter.

**(k) Performance Standards for Surface Drainage Control**

(1) All final surface drainage control measures shall be designed for a 10-year storm, 6-hour duration and shall be incorporated into the Reclamation Plan. Passive drainage control measures such as broad berms and swales are encouraged.

(2) Surface mining and reclamation activities shall be conducted to protect on-site and downstream beneficial uses of water in accordance with the Porter-Cologne Water Quality Control Act, Water Code Section 13000, et. seq., and the Federal Clean Water Act, 33 USC Section 1251, et seq.

(3) The quality of water, recharge potential, and storage capacity of ground water aquifers which are the source of water for domestic, agricultural, or other uses dependent on the water, shall not be diminished, except as allowed in the approved Reclamation Plan.

(4) Erosion and sedimentation shall be controlled during all phases of construction, operation, reclamation, and closure of a surface mining operation to minimize siltation of lakes and watercourses, as required by the Regional Water Quality Control Board or the State Water Resources Control Board.

(5) Surface runoff and drainage from surface mining activities shall be controlled by berms, silt fences, sediment ponds, revegetation, hay bales, or other erosion control measures, to ensure that surrounding land and water resources are protected from erosion, gulying, sedimentation and contamination. erosion control methods shall be designed to handle runoff from not less than the 10 year/6 hour intensity storm event.

(6) Where natural drainages are covered, restricted, rerouted, or otherwise impacted by surface mining activities, mitigating alternatives shall be proposed and specifically approved in the reclamation plan to assure that runoff shall not cause increased erosion or sedimentation.

(7) When stream diversions are required, they shall be constructed in accordance with:

(i) The stream and lake alteration agreement between the operator and the Department of Fish and Game; and

(ii) The requirements of the Federal Clean Water Act, Section 301 (33 USC 1311) and Section 404 (33 USC 1344) and/or Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403).

(8) When no longer needed to achieve the purpose for which they were authorized, all temporary stream channel diversions shall be removed and the affected land reclaimed.

**(l) Mining is prohibited on agricultural lands** by County regulation; nevertheless if any mining occurs in agricultural lands, reclamation standards for agricultural lands shall comply with Sections 3707 and 3708 of the California Code of Regulations.

**(m) Mining is prohibited in riparian areas** by County regulation; nevertheless if any mining occurs in riparian areas, reclamation standards for streambed mining operations shall comply with Section 3710 of the California Code of Regulations. (Ord. 4421, 6/18/96)

**Bonny Doon Quarry  
CA Mine ID# 91-44-0005  
SMARA Lead Agency: Santa Cruz County  
Operator: Cemex  
Certificate of Compliance and Reclamation Plan Approval 89-0492  
1997 Conditions of Approval**

I. Exhibits

All mining operations shall conform to the following Exhibits, which are incorporated as conditions of this Certificate of Compliance, except as modified by specific conditions set forth below:

- A. Mitigation Monitoring Program, as amended in November 1996 by the State Mines and Geology Board, dated June 1997, prepared by Thomas Reid Associates for the Santa Cruz County Planning Department (Attached as Exhibit A).
- B. Use Permit 3236-U and Exhibits
- C. Bonny Doon Quarries Reclamation Plan Volumes I and II
- D. Exhibit "A", pages III-13 and -14, Bonny Doon Quarries Draft Environmental Impact Report, Thomas Reid Associates, April 1996.
- E. Bowman and Williams, June 6, 1997, Sheet 1 of 1: Design for culvert from tributary of Basin 5 to San Vicente Creek, and Filter Berm at conveyor junction at West Liddell Creek.
- F. Paul Kephart, Rana Creek Habitat Restoration, "Mitigation Measure VEG-7, Settlement basin Vegetation and Reclamation," 1997.
- G. Letter, Jo Crosby and Associates, Review of GEO-6 Mitigation Measure Item, May 27, 1997.
- H. Bonny Doon Quarries, Certificate of Compliance and Reclamation Plan Draft Environmental Impact Report, Thomas Reid Associates, April, 1996 (and Appendix A through G, November, 1993).
- I. Bonny Doon Quarries, Certificate of Compliance and Reclamation Plan Final Environmental Impact Report, Thomas Reid Associates, October, 1996.

Exhibits B, C, D, E, F, G, H and I are on file with the Planning Department.

II. General Provisions

- A. This Certificate of Compliance for Use Permit 3236-U, Parts III and IV only, is for the extraction, processing, storage and transfer of quarried materials from the

**Bonny Doon Quarry  
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Quarry sites to the Davenport Cement Plant and for reclamation of existing, proposed and previously mined lands as shown in the approved Reclamation Plan and Mitigation Monitoring Plan.

All provisions of Parts III and IV Use Permit 3236-U shall remain in effect. The conditions of this Certificate of Compliance shall augment, and supersede where in conflict with, the provision of Use Permit No. 3236-U.

- B. This Certificate of Compliance is limited to a portion of the following County Assessor Parcel Numbers: 063-132-08 & 09, 063-251-03, 058-122-09 & 10. For specific area of mining and reclamation within the boundaries of these parcel numbers please refer to the above listed Exhibits, as amended.
- C. All mining and reclamation activities shall conform with the Conditions of Approval and the regulations of the following agencies as they apply to the mining operations. Mitigation Measures included in approvals from the following agencies are included by reference as conditions of approval of this Mining Certificate of Compliance:
  - 1. Regional Water Quality Control Board
  - 2. Monterey Bay Unified Air Pollution Control District
  - 3. California Coastal Commission
  - 4. U. S. Fish and Wildlife Service
  - 5. U. S. Army Corps of Engineers

The mining operator shall provide the County with copies of any permits, orders, or agreements issued by these agencies and any permit amendments, within 30 days of approval receipt.

- D. All mining operations shall be in compliance with the State Surface Mining and Reclamation Act (SMARA) and Chapter 16.54 of the County Code.
- E. Each property owner of the mining site, the applicant and operator shall execute, date and return to the Planning Director two copies of a Mining Declaration of Restrictions binding each to comply with each and every term and condition of the Mining Certificate of Compliance pursuant to the requirements of Section 16.54.050. Failure to sign the Mining Certificate of Compliance or record the Declaration as described above shall render this Certificate of Compliance null and void and all mining operations shall cease at the quarry site except reclamation and revegetation work in accordance with the approved Reclamation Plan.
- F. In conjunction with the annual report to the State Geologist required by the State Surface Mining and Reclamation Act (SMARA), an annual report to the Planning Director shall be prepared by a professional determined by the Planning Director as qualified to prepare such report. The report shall be submitted by the mining



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operator to the Planning director by April 1 of each year, except, however, a current photogrammetric topographical map prepared from current aerial photographs (1"=200', 10-foot contour interval) showing all property and lease lines, facilities, striped areas, and vegetated areas shall be submitted to the Planning Director within 90 days of approval of this Certificate of Compliance. If the Planning Director determines the need for an independent consultant with specialized expertise, such report and its review shall be paid by the mining operator. The annual report to the Planning Director shall include the information required by Section 16.54.073 of the County Code and the following additional material:

1. The results from all monitoring of surface water runoff.
  2. Results of all hydrogeologic investigating of the ground water flow system at the quarry site.
  3. Water diversion amounts from Liddell Spring #2 for each month during summer and fall (June through October).
  4. A copy of the maintenance log of dust control devices on stationery equipment.
  5. A copy of the log of calls made to neighbors notifying them of blasting.
  6. Summary report by a qualified professional of the results from all monitoring of air blasts and ground vibration.
  7. Results of air quality monitoring under Section III.G of these conditions of this Mining Certificate of Compliance pursuant to the requirements of Mitigation Measure AIR-1. A report shall be prepared by a qualified professional and additionally report on results from all monitoring of dust emissions and report of all dust control measures implemented.
  8. All biotic reports required in conjunction with permits or other approvals from U. S. Fish and Wildlife, California Department of Fish and Game, Army Corps of Engineers, and/or the Regional Water Quality Control Board.
  9. Annual inspection reports regarding stability and any changes to environmental conditions to Settlement Basin 2X and/or any changes to environmental conditions within the Waste Disposal Area C Extension.
- G. This Certificate of Compliance shall be reviewed by the Planning Commission within five years from the date of issuance. In connection with such review, the Planning Commission shall take public testimony and shall otherwise investigate the permittee's compliance with the conditions of this Certificate of Compliance and Use Permit 3236-U, and shall be empowered to amend the conditions of this

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Certificate of Compliance if necessary to eliminate nuisance conditions or to mitigate problems resulting from a change of circumstances pursuant to Section 16.54.074.

- H. If, at any time, the Planning Director determines that there is a substantial noncompliance with any of these conditions, and/or Exhibits, the Planning Director shall forward a recommendation to the Planning Commission to set a hearing to consider revocation of the Certificate of Compliance in accordance with the provisions of County Code Section 18.10.136, or enforcement measures as provided in Sections 16.54.090 through 16.54.098.
- I. All costs for the County's inspection and review of annual reports and other reports submitted by the mining operator shall be paid by the quarry within 30 days after billing. In the event that future County inspections of the subject property disclose noncompliance with any conditions of this Certificate of Compliance or use Permit 3236-U or any violation of the County Code, the operator shall pay to the County the full cost of such County inspections, including any follow-up inspections an/or necessary enforcement actions, up to and including permit revocation.
- J. Minor mining approval amendments to this Certificate of Compliance as defined in County Code Section 16.54.020, and requested by the quarry or staff may be approved in writing by the Planning Director following review and recommendation by the County's Environmental Coordinator, pursuant to the requirements of Section 16.54.032.

III. Operating Conditions

A. Mining

(References to GEO, VEG, etc. throughout these conditions are to the Mitigation Monitoring Program in Exhibit A and, unless otherwise specified incorporate all of the requirements set forth therein.)

1. All mining activities, including clearing, excavation or other disturbances shall be done in conformance with the above Exhibits.
2. A benchmark shall be established in the Limestone Quarry floor upon establishment of the 750-foot elevation. Prior to excavation, clearing, or otherwise disturbing the land within 200 feet of a site boundary, a licensed surveyor or civil engineer employed by the operator shall provide survey markers at 200 foot intervals along both the mining site boundary line and the mining setback line. Each marker shall be maintained in place until a clear, readily identifiable, working face is established at an approved setback line.

3. Waste disposal slopes in Areas A, B and C shall not exceed 1.5 horizontal to 1 vertical (1.5H:1V) (GEO-1). Waste disposal slopes within Area C Extension shall not exceed 2H:1V unless they otherwise comply with Section 16.54.055(e)(4) of the County Code; but in all cases such slopes shall have a pseudostatic safety factor greater than or equal to 1.0 (Exhibit G) (GEO-6). Any expansion of waste disposal areas shall require a major amendment to the mining permit.
4. Improvements to Settlement Basin 4 shall be implemented pursuant to the design requirements of GEO-3 of the Mitigation Monitoring Program and shall be incorporated into the Reclamation Plan. Designs shall demonstrate prevention of rapid drawdown failure of the inboard slopes of Settlement basin 4 by regular maintenance and use of multi-level dewatering gates as recommended in the E-S Erosion Control Plan (1991) and as modified by the EMCON Associates (1994) recommendations. Designs for implementation shall be prepared by a California Engineering Geologist, Geotechnical Engineer, or a Registered Civil Engineer and submitted for review and approval to the County Planning Director within 90 days of issuance of this Certificate of Compliance. (GEO-3) (GEO-5)
5. Improvements to the levee for Settlement Basin 7 shall be implemented pursuant to the design requirements of GEO-4 of the Mitigation and Monitoring program and shall be incorporated into the Reclamation Plan. Designs for implementation shall be prepared by a California Engineering Geologist (CEG) or a Registered Civil Engineer and submitted for review and approval to the County Planning Director within 90 days of issuance of this Certificate of Compliance. (GEO-4)
6. Construction of or modifications to Settlement Basin 2-X shall be monitored by a Certified Engineering Geologist to ensure implementation of necessary modifications for stability of side slopes and the adjacent fill slope. Within 90 days of approval of this Certificate of Compliance a letter from the CEG overseeing implementation shall be submitted to the Planning Director verifying design stability. (GEO-7)
7. Within 90 days of approval of this Certificate of Compliance, the Quarry shall submit a report prepared by a Certified Engineering Geologist demonstrating: (1) that all final cut slopes are in compliance with the conclusions and recommendations contained in the "Geotechnical Study for the County Certificate of Compliance, Limestone and Shale Quarries," by Geoconsultants, Inc., dated November, 1988; and, (2) all final cut slopes completed after September 12, 1996 shall have a stability factor of safety not less than 1.2 as required by Section 16.54.055(e)(6) of the County Code.
8. Upon Limestone Quarry closure, public safety shall be protected by trimming rock slopes to remove loose rock. A fence with warning signs posted shall be

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maintained around the perimeter of the Limestone Quarry for as long as the property is owned or leased by the Quarry operators. (GEO-8)

9. A plan for long term maintenance of the waste fill slope in Waste Disposal Area C and its related drainage system required under Streambed Alteration Agreement # 849-95, shall be submitted to the Planning Director for review and approval within 90 days of approval of this Certificate of Compliance and incorporated into the Reclamation Plan. (GEO-9) All work shall be implemented in conformance with the approved plans.

B. Drainage and Erosion Control

1. Recommendations identified in the Drainage and Erosion Control Plan by Engineering Science, 1991, and EMCON Associates, 1994, or comparable alternative measures approved by the Planning Director, shall be implemented by October 15, 1997, or as approved by U.S. Fish and Wildlife Service. Improvements requiring an engineered design shall be prepared by a qualified professional, and be reviewed and approved by the Planning Director prior to implementation and incorporated into the Reclamation Plan. (GEO-1, HYD-3)
2. Basin capacities of the settlement ponds shall be increased as specified in the reports referenced in Condition III.B.1 above. The required settlement basin capacities may be reduced if the quarry operator can demonstrate lower capacity requirements. Such analysis shall include measuring rainfall/infiltration rates and developing a better balance model, which takes infiltration into account and reduces basin volume requirement. These measurements shall be made by a registered Civil Engineer. Existing capacity measurements shall be submitted to the Planning Director for review and approval within 90 days of approval of this Certificate of Compliance. Existing capacity measurements which include infiltration rates for support of a request for reduction in capacity requirements shall be submitted on or before July 1, 1998. (HYD-2)
3. The remnant channel of the Middle Branch of Liddell Creek west of Waste Disposal Area B shall be protected from sedimentation by implementing erosion control measures for this area contained in the Drainage and Erosion Control Plan (E-S, 1991) and shall be enhanced with additional planting of native riparian vegetation. (HYD-4, VEG-2)
4. The Quarry shall provide drainage controls approved by County Planning where the western intermittent tributary from Settlement Basin 5 enters San Vicente Creek. Culverts shall be properly sized to receive flash peak flows from runoff produced from cleared slopes in the quarried areas above. Work shall be completed in conformance with the plans (Bowman and Williams, June 6, 1997, sheet 1 of 1) and calculations for implementation that were

submitted to the Planning Director on 6/12/97 (EXHIBIT E) and within 180 days of the approval of this Certificate of Compliance or as approved by U. S. Fish and Wildlife Service and the California Department of Fish and Game. (HYD-5)

5. The Quarry shall construct a filter berm on the outboard side of the conveyor junction at West Liddell Creek to prevent sediments from entering the creek and shall manually clear all debris from this area as needed. Work for installation of the filter berm shall be completed in conformance with the plans (Bowman and Williams, June 6, 1997, Sheet 1 of 1) submitted to the Planning Director on 6/12/97 (EXHIBIT E) and within 180 days of the approval of this Certificate of Compliance. (HYD-6)
6. The Quarry shall annually remove loose shoulder material from quarry roadbeds, which could wash into the creek. Permanent berms required for truck safety shall be treated with erosion control methods prior to October 15 of each year. If a chronic situation in a given area exists, a gutter system should be constructed which will shunt all road edge run off into a roadside collector basin for periodic sediment removal. (HVO-7)
7. Runoff originating from the mining site, stockpiles, unpaved onsite roads or other disturbed areas shall be contained on-site except as permitted under this Certificate of Compliance. Runoff leaving the mining site shall comply with the requirements of the Regional Water Quality Control Board. Monitoring of runoff discharge by an independent laboratory, and/or installation of a continuous monitoring device shall be required at all discharge points. Results from monitoring shall be submitted to the Planning Director within thirty (30) days after the monitoring results are obtained and shall also be included in the annual report. (Section 16.54.050(c)(4)(iii) and (4)(ix))
8. Six months prior to proposed construction, plans for implementation of Basins 8 and/or 9, designed by a certified California Civil Engineering Geologist or a registered Civil Engineer shall be submitted to the Planning Director for review, and approval. Basins shall be designed for a 10-year six-hour event. If Basin 8 and/or 9 is to be deleted, revised plans showing drainage areas and calculations shall be submitted to the Planning Director for review and approval. All work shall be implemented in conformance with the approved plans.
9. Within 90 days of approval of this Certificate of Compliance the Landscape Program section of the Reclamation Plan, "Grading and Erosion Control Plan for Overburden and Waste Deposits Sites" for the Limestone Quarry shall be modified to reflect the "Proposed Erosion Control and Revegetation Plan for Disposal Area C" which has been incorporated into the conditions of the Streambed Alteration Agreement with the California Department of Fish and

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- Game. Any revisions necessary to incorporate the proposed Habitat Conservation Plan/Section 10a Permit for the Red-legged frog and/or Coho Salmon shall be incorporated as needed into the Reclamation Plan and submitted to the Planning Director for review and approval. (HYD-9) All work shall be implemented in conformance with the approved plans.
10. Verification of compliance with HYD-5, HYD-6, HYD-7 shall be submitted to the Planning Director within 90 days of approval of this Certificate of Compliance for incorporation into the Reclamation Plan. (HYD-10)
  11. Within 90 days of approval the Quarry shall submit a plan for post-closure on-going maintenance and monitoring of drainage structures for 5-years or until runoff levels and sediment loads have been sufficiently reduced as determined by the Planning Director. (HYD-8)
  12. Approved Regional Water Quality Control Board permits or orders for the Limestone and Shale Quarries shall be on file with the County Planning Department within 90 days of approval of the Certificate of Compliance.

**C. Hydrology**

1. As a condition of this Certificate of Compliance and in order to ensure compliance with Conditions III.7, 25, and 26 of Use Permit 3236-U and with Section 16.54.050(c)(4)(vii) of the County Code, within 90 days the Quarry, the Santa Cruz City Water Department, the County, and a certified hydrogeologic consultant shall enter into a contract for an independent hydrogeologic study and report to be prepared pursuant to Section 16.54.050(C)(3)(v) of the County Code, with the consultant's primary responsibilities to be to the County. The Scope of Work for such study shall be agreed upon by all parties to the contract prior to its initiation. (HYD-1A) The study shall also include assessment and recommendation for the placement of the monitoring well discussed in HYD-1 of the adopted Mitigation Measures. Water elevations from all existing monitoring wells shall be submitted to County Planning quarterly. (HYD-1)
2. As a condition of this Certificate of Compliance and in order to ensure compliance with Conditions III.7, 25, and 26 of Use Permit 3236-U and with Section 16.54.050(c)(4)(vii) of the County Code, within 90 days the Quarry, the Santa Cruz City Water Department, the County, and a Certified Engineering Geologist, shall enter into a contract for an independent geologic study and report analyzing the geologic conditions at the site of the slide upslope of Liddell Spring #1, to be paid for by Quarry and with the consultant's primary responsibilities to be to the County. The Scope of Work for such study and report shall be agreed upon by all parties to the contract prior to its initiation (HYD-1A). The study and report shall include an analysis of factors contributing to reactivation of the slide, which shall include but not be limited to the quarry road above the slide and crusher vibrations as well as

other site-specific factors. If the analysis demonstrates that quarry operations are contributing to instability, then a proposal for stabilization of the slide or amelioration of the effects of the Quarry operations on the slide, which Liddell Spring #1 shall be prepared. The report shall be prepared by a professional qualified to prepare such a report and submitted to the Planning Director for review and approval.

3. If the studies and reports provided in paragraphs 1 and/or 2 of this condition III.C-Hydrology determine that the Quarry operations adversely affect the quantity and/or quality of water from Liddell Spring #1, the Quarry shall implement those mitigation measures recommended by the consultants and agreed to by the City of Santa Cruz Water Department and the County Planning Department. In the event that either 1) no feasible mitigation measures are recommended by the consultants, and/or 2) the Quarry, the City and the Planning Department cannot agree on the implementation of mitigation measures, this Certificate of Compliance shall be returned to the Planning Commission for further hearing to review and determine the Quarry's compliance with Conditions III.7, 25, and 26 of Use Permit 3236-U and Section 16.54.050(c)(4)(vii) of the County Code and to consider adoption of a Statement of Overriding Considerations for this environmental impact.

#### D. Vegetation

1. All reclamation and revegetation work shall be implemented in accordance with the approved Reclamation Plan (EXHIBIT C) and the Mitigation Monitoring Program (EXHIBIT A).
2. The Quarry shall consult with CDFG and if required obtain a Streambed Alteration Agreement prior to removal of riparian vegetation above Settlement Basins 6 and 7 in the Shale Quarry. The Quarry shall replace lost riparian and wetland habitat values, at an on-site or off-site location at a minimum 3:1 ratio as adopted by the State Mining and Geology Board and in accordance with CDFG recommendations. (VEG-2)
3. Any riparian habitat removal at either the Limestone or Shale Quarries shall be replaced at a 3:1 replacement ratio per the requirements of the State Mining and Geology Board. Replacement habitat shall be shown on a revised Reclamation Plan and submitted to the Planning Director within 90 days of approval of this Certificate of Compliance. (VEG-1, VEG-2)
4. The Landscape Program for the Shale and Limestone Quarries shall be revised to include a non-native tree and shrub removal program within 90 days of approval of the Certificate of Compliance. The program shall include identification of the trees to be removed and replacement with native evergreen plants suitable for visual screening. The herbaceous seed mixes of the Landscape Program shall be reformulated to eliminate non-native

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- species. If a non-native erosion control mix must be used, a nurse crop shall be one that does not persist beyond the first year or two. (VEG-3)
5. A revegetation report prepared by a botanist, horticulturist or plant ecologist retained by the Operator and approved by the Planning Director shall be included in the Quarry's annual report to the Planning Director pursuant to Section 16.54.073 of the County Code. All reclamation and revegetation work shall be implemented in accordance with the approved Reclamation Plan as supplemented by the Mitigation Monitoring Plan (November, 1996) and the requirements of the County Mining Ordinance and SMARA.
  6. The Shale and Limestone Quarries Landscape Program shall include changes, planting methods, replacement of lost native plant communities, and test plot program as identified in the Mitigation and Monitoring Program, VEG-4, VEG-5, and VEG-6. Revisions to drawings shall include revegetation of all areas impacted by mining activities, roadways, and settlement basins (see III.D.7 below), needlegrass grasslands, and sensitive plant replacement and be submitted to the Planning Director for review and approval within 90 days of approval of this Certificate of Compliance.
  7. The Shale and Limestone Quarries shall implement the Landscape Program including the reclamation and revegetation of the settlement basins upon quarry closure consistent with the requirements of Condition III.B.11 (post closure maintenance and monitoring of settlement ponds) and in accordance with the plans by Paul Kephart, Rana Creek Habitat Restoration, "Mitigation Measure VEG-7, Settlement Basin Vegetation and Reclamation," 1997) that were submitted to the Planning Director for review and approval on 6/12/97 (EXHIBIT F). The Program shall describe any structural changes to the settlement ponds (e.g. fill the pond, breach the levee, etc.) and shall specify a planting plan with native riparian/wetland plant species. Revised drawings required by Condition III.D.6 above, shall include pond areas final revegetation. (VEG-7)
  8. The revegetation plan for Waste Area C Extension shall be revised consistent with "as built," and as required in the Mitigation and Monitoring Program VEG-7, and VEG-8. (VEG-8)
  9. A Reclamation Phasing Map shall be incorporated into the Reclamation Plan. The phasing map shall delineate 1) areas ready for immediate reclamation (e.g. completed quarry areas, waste disposal area, abandoned roads), 2) areas to be reclaimed in phases as mining progresses and 3) areas reclaimed only upon quarry closure. Acreages of these areas shall be identified. Reclamation of ready areas shall begin immediately upon reclamation plan approval. (VEG-9)



10.A Maintenance and Monitoring program shall be prepared for the Shale and Limestone Quarries as a component of the Landscape Program, The Maintenance and Monitoring Program shall be consistent with the components of the Mitigation and Monitoring Program VEG-10 components and Section 16.54.055(f) of the County Mining Ordinance and shall be submitted to the Planning Director for review and approval within 90 days of approval of this Certificate of Compliance. (VEG-10) The Maintenance and Monitoring program shall become a condition of this Certificate of Compliance upon approval by the Planning Director. Annual monitoring reports shall be prepared by a qualified biotic consultant and submitted to the Planning Director for review and approval. The annual report shall include monitoring of vegetation (quantitative data such as survival, vigor, percent species composition, percent cover, etc.) wildlife habitat values, and erosion control. Photo documentation is required to be included in the report

#### E. Wildlife

1. The Quarry shall comply with the provisions of the United States Endangered Species Act regarding the California red-legged frog, Coho Salmon, and other federally listed species. No take shall occur unless authorized by a Section 10(a) permit from the U. S. Fish and Wildlife Service (USFWS). Until such time a Section 10(a) permit is issued by USFWS for the Habitat Conservation Plan currently in preparation for the red-legged frog, the operator shall consult with USFWS prior to conducting operations in areas where frog presence is known or anticipated in either the Limestone or Shale Quarries and shall proceed only as approved by USFWS. Communications with USFWS regarding monitoring procedures as approved by USFWS and implementation by the operator shall be submitted to the Planning Director. Once the Habitat Conservation Plan/Section 10(a) permit is issued, the County shall retain a copy of said permit, and requirements shall be incorporated in the Reclamation Plan as required. Within 90 days of approval of this Certificate of Compliance, the Quarry shall submit written verification of compliance with the U. S. Fish and Wildlife Service and the Endangered Species Act, and written verification of the compliance with the California Department of Fish and Game Streambed Alteration Agreement (#849-95). (WIL-1)
2. Within one year of any new federal listing of a rare, threatened, or endangered species, the Quarry shall comply with County Code Section 16.54.050(c)(6)(i).

#### F. Fisheries

1. The Quarry shall comply with its Streambed Alteration Agreement (# 849-95) with the California Department of Fish and Game (CDFG) in order to satisfy CDFG requirements and mitigate impacts to steelhead habitat in the Liddell Creek. (FSH-1)

2. The Quarry shall continue implementation of water conservation measures to reduce summer diversions at Liddell Spring #2. (FSH-2)

#### G. Air Quality

1. At the Limestone Quarry, a series of at least two particulate samplers shall be established at the site perimeter, or more off-site with landowner cooperation. Samples shall be taken on days with and without blasting and on non-operation days to discern typical background PM10 levels. The protocol for the samplers shall be submitted for review and approval by the MBUAPCD prior to implementation, but shall be within 90 days of approval of this Certificate of Compliance. Approved protocol shall be kept on file at the Planning Department. Sample frequency should be sufficient to resolve Quarry impact, two or three times per month. Data can be collected by the Quarry, but raw data shall be provided to the County with a log sheet of what control measures are in use. In one year, if compliance is demonstrated, monitoring may be terminated. However, if noncompliance continues, additional review by the Planning Commission shall be required to determine compliance with the Mining Regulations.

If exceedances continue beyond the one year monitoring program, the program to control dust emissions from blasting shall include the following elements, implemented in progressive order of difficulty and cost until a performance standard of no exceedance of the state PM10 standard is attained:

- a. Implementation of blasting recommendations in the EIR (Thomas Reid and Associates, 1996).
- b. Use of fabric curtains or water mist.
- c. Removal of drill waste from bench and use of coarse base rock fill.
- d. Delay of blasting if wind speed and direction would lead to high off-site impact.
- e. Other amelioration measures recommended by an approved professional in dust measurements and control measures as approved by the Planning Director. (AIR-1)

If implementation of the above program does not result in obtaining a performance standard of no exceedance of the state PM10 standard, this Certificate of Compliance shall be returned to the Planning Commission for further hearing to review and determine the Quarry's compliance with condition 111.23 of Use Permit 3236-U and Section 16.54.050(~)2 of the County Code and to consider adoption of a Statement of Overriding Considerations for this environmental impact.

2. In dry weather, watering shall be done each morning before operations begin and then continue periodically, as needed throughout the day. The frequency of watering shall be increased during drier periods and when wind speeds exceed 15 miles per hour. Lignin sulfonate or other U. S. Fish and Wildlife Service approved surfactant may be used as needed. (AIR-2)
3. At least monthly maintenance of the dust control devices on stationary equipment in each quarry shall be performed and kept in a maintenance log by the Quarry. The maintenance log shall be submitted to the Planning Director in the Quarry's annual report. (AIR-3)
4. At the time that compliance with Mitigation Measure AIR-1 (Condition III.G.1 above) is shown, the Quarry may request an amendment to Use Permit 3236-U, Condition III.23, citing State ambient air quality standards be the measurement for compliance. (AIR-4)
5. Each unvegetated disturbed area not actively involved in a mining operation, including interim slopes which does not meet final contours, shall be hydromulched, hydroseeded, or otherwise treated to reduce off-site dust nuisance. (Section 16.54.050( c) (2)(vii))
6. Removal of vegetation shall be only permitted in accordance with the approved phasing plan. Section 16.54.050(c)(2)(ii)

#### H. Noise

1. Whenever feasible, rock-breaker equipment shall be located more than two levels below the Limestone Quarry rim, and use shall be limited to minimum necessary to allow safe transfer of rocks to the crusher. (NOI-1)
2. Annual noise report to the Planning Director shall include a description of equipment maintenance verifying equipment is in proper working order and not generating noise levels higher than was used as the basis of the EIR. Noise reports shall verify noise levels while heavy equipment (i.e., rock-breaker, etc.) is operating at highest bench closest to the Limestone property line during that year's operations. (NOI-2)
3. Prior to blasting, the Quarry shall notify neighbors. A written log of calls made and whether contact was made at the residence shall be maintained by the Quarry and submitted with the Quarry's Annual Report to the Planning Director. (NOI-3)

#### I. Blasting

1. The blasting design for the Limestone Quarry shall be modified as follows:

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- a. Timing between holes in a row shall be a minimum of 1.8 msec per foot of spacing.
  - b. Timing between rows shall be a minimum of 3.0 msc per foot of burden. If blast design parameters, explosives, and/or material mass blasted change considerable, new single hole signature analysis may be required to estimate delay interval. (BLS-1)
2. The Limestone Quarry shall conduct monitoring of airblast and ground vibration at adjacent residences as deemed necessary by the Planning Director. However, monitoring shall be conducted for each blast during the first three years following approval of the Certificate of Compliance. Information collected during monitoring shall be submitted in the Quarry's Annual Report to the Planning Director. (BLS-2)
3. Limestone Quarry blasting practices shall include the following to mitigate for dust and fumes from drifting offsite:
  - a. Wherever practical maintain increased stemming length at 18 feet.
  - b. Water trucks and hoses shall moderately wet down all bench floors in the direction where blasted material is anticipated. (BLS-3)
4. At the time any future amendment to the mining area is applied for, the Quarry shall consider wider bench widths and changing blast direction to shoot sideways or 90 degrees to the current blasting directions. Analysis of potential impacts of implementation of above blasting practices shall be included in the amendment package submitted to the Planning Department. (BLS-4)
5. To mitigate for potential nitrate contamination due to blasting, the following practices shall be employed at the Limestone Quarry: (BLS-5)
  - a. A back up initiation system.
  - b. In severe wet hole conditions, only water resistant explosives for the entire length of the explosive column.
  - c. In holes containing small amounts of water, use water resistant cartridge explosives as a bottom load to a height above the water level. The last cartridge shall be slit to form a fully coupled plug, which acts as a barrier for the top load of ANFO explosive from coming into contact with the water.
  - d. To aid in identifying ANFO spillage during loading operations in the blast area, the red, orange or pink dye currently in use shall continue to be used in the fuel oil. This will also act as a good quality control measure to indicate that the ammonium nitrate has been properly sensitized before use.
  - e. Detonate the blast on the same day in which it was loaded to minimize potential for ground water seepage coming in contact with ANFO.
  - f. Utilize an anti-static plastic or not-sparking funnel to assist in hole loading.

J. Visual Resources

1. The Landscape Program for the Shale Quarry shall be implemented concurrently as mining areas are completed. The visible north central portion of the site shall be reclaimed as soon as possible with appropriate native species as shown in the above Exhibit. (VIS-1)

K. Financial Assurances

1. Within 90 days of approval of this Certificate of Compliance a revised Financial Assurance proposal shall be submitted to the Planning Director for review pursuant to Section 16.54.061 of the County Code. Once the Financial Assurance proposal is approved, RMC Lonestar shall post a security payable to both the County of Santa Cruz and the State of California Department of Conservation in the approved amount. (POL-2)

L. Protection of Paleontological Resources

1. In the event that potentially significant paleontological resources (i.e., significant skeletal remains that might substantially contribute to knowledge of prehistory) are found during mining operations, all work shall be halted within 200 feet of the find and the Planning Director shall be notified immediately. A qualified paleontologist, as approved by the Planning Director, shall be retained to assess the significance of the find and implement mitigation measures recommended as a result of such assessment, consistent with the County's Paleontological Resource Protection Ordinance.

IV. Mitigation Monitoring Program

The mitigation measures contained in Exhibit A of this permit have been incorporated into the conditions of approval for this project in order to mitigate or avoid significant effects on the environment. Exhibit A of this permit specifies which mitigation measure are the responsibility of the applicant. As required by Section 21081.6 of the California Public Resources Code, the monitoring is to ensure compliance with the environmental mitigations during project implementation and operation. Failure to comply with the conditions of approval, including the terms of the adopted monitoring program, may result in permit revocation pursuant to Section 18.10.136 of the County Code.

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As used in any part of the use permit:

1. P.C.A. means the applicant for the use permit, Pacific Cement and Aggregates Division of Lone Star Cement Corporation, and includes its successors and assigns.
2. Particulate Matter shall be defined according to the definition of particulate matter contained in Regulation 2 of the Bay Area Air Pollution Control District as revised January 1, 1962.

**Part III Bonny Doon Limestone Quarry**

This part of the use permit authorizes and permits the establishment by permittee of a quarry for the mining of the limestone within parcels C and D, as shown on Exhibit B and described in Exhibit A attached hereto; permits the installation and operation of facilities incidental to the mining and quarrying of limestone on parcels C, D, and E, also on Exhibit B and described in Exhibit A, as follows: A crusher building or buildings to house a rock crushing system; a rock crushing system; a covered storage building to hold the rock for transportation from the quarry; a covered conveyor belt system for the transportation of limestone to the cement mill; all equipment necessary to dislocate, excavate and transport reduced rock to the crushing system; a small shop to make minor adjustments and repairs; and other auxiliary buildings; a water wagon to keep quarry floor free from dust and other equipment incidental to servicing quarrying operations; and further permits the deposit of overburden within the portions of parcels 13, 14, 15, 16 and 17, as shown on Exhibit E, all subject to the following conditions:

1. Subject to other conditions of this part of the use permit, permittee shall have until March 1, 1972, to exercise this part of the use permit. The exercise of any rights granted in Part I and Part II of the use permit shall not be deemed as a commencement of operation of Part III.
2. Transportation of mined materials shall be solely by covered belt conveyor system to be constructed in accord with plans and specifications approved by the Board of Zoning Adjustment. Said plans shall include; precise location of right-of-way, grading plans, drainage and erosion control plans, to be submitted to the Board of Zoning Adjustment for approval not later than December 31, 1968. Review of said plans by the Board of Zoning Adjustment shall be made within sixty (60) days after submittal. Failure to file said plans prior to December 31, 1968, shall cause permittee or its successors in interest, to acquire additional use permit for the covered belt conveyor system.

3. No overburden shall be stripped and no limestone mining shall commence on parcels C or D until such time as permittee has recorded in the official records of the County of Santa Cruz a Record of Survey of the area to be quarried within the limits of said parcels.
4. No overburden shall be stripped or deposited and no mining shall take place on any portion of parcels C and D within 500 feet of the Bonny Doon Road, as it now exists or as it may here after be realigned.
5. No overburden shall be stripped from the site nor shall any quarrying operation commence until such time as permittee has filed a map with the Board of Zoning Adjustment delineating specific sites for the deposit of overburden and waste materials in areas which shall be more clearly defined and more limited in scope than those shown on Exhibit E, hereof. This permit specifically prohibits the use of the southerly 1/2 of Sections 35 and 36, T 10 S, R 3 W, M. D. B. & M. and those portions of Section 26 and 35, T 10 S, R 3 W, M. D. B. & M., lying westerly of Bonny Doon Road for the purpose of depositing overburden or waste materials. Moreover, overburden and waste materials shall not be deposited within 500 feet of the Bonny Doon Road except when used as fill material for the construction of covered conveyor belt system in accord with plans to be filed as required by this permit.
6. No excavation shall be permitted to penetrate lower than an elevation of seven hundred-fifty (750) feet above mean sea level.
7. Protection of the waters of Liddell Spring from detrimental effects of mining operations shall be in accord with terms of an agreement between permittee and the City of Santa Cruz; said agreement is attached hereto as Exhibit Z.
8. Final cut slopes shall not exceed the normal angle of repose of the natural materials. In any case, when cut slopes steeper than one to one (1:1) exceed sixty (60) feet vertically, they shall be stepped at intervals not exceeding sixty (60) feet vertically and such steps shall be at least thirty (30) feet wide.
9. In any event, the top of any cut slope in no case shall be brought closer than twenty-five (25) feet to any exterior property line of the actual site to be excavated.
10. Finished excavation shall in all cases be graded in such a manner as to prevent the accumulation of storm waters or natural seepage.
11. Finished grades in all cases shall have slopes not less than one and one-half percent (1-1/2%).
12. The entire north boundary and the northerly two-hundred (200) feet of the east and west boundaries of the quarry site shall be fenced by a substantial six (6)

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foot fence with posts spaced at fifteen (15) feet center to center and barbed wire spaced one (1) foot apart. Said fence shall not be closer than ten (10) feet to the top edge of any cut slope.

13. Signs shall be conspicuously posted along the required fence at intervals not to exceed one hundred (100) feet. The signs shall give reasonable notice of the matter contained in such notice by stating in letters not less than four (4) inches in height, "Property Subject to Commercial Excavation of Natural Materials Under County of Santa Cruz Use Permit No. 2863-U". Permittee may use such additional warning language as it may desire.
14. A landscape-management program shall be initiated on the lands owned or leased by PCA within the visual corridor partially described on Exhibit X of the conveyor route and the Bonny Doon limestone and shale quarries which shall be operative as an overall program during the operational life of quarries and conveyor system. The purpose of this program is to insure the preservation, conservation and management of this vegetative resource for the general benefit of the community and specifically as an element in a program to minimize the environmental impact of this industrial use upon adjacent rural properties and the public in general.
15. The management program shall be developed and implemented utilizing the criteria and guidelines set forth in Exhibit L attached hereto.
16. Operations within the quarry shall take place on Mondays through Fridays only and shall not commence before 7:30 a. m., nor extend beyond 5:00 p. m.; provided, however, that the transport of limestone from stockpiles may take place between the hours of 7:30 a. m. and 11:30 p. m., on each day Monday through Friday.
17. Any blasting which shall take place at the quarry site shall be solely for the purpose of the primary dislocation of rock.
18. A rock crushing system within parcel E, as shown on Exhibit B attached hereto, is permitted by terms of this use permit only as a component of the system for the manufacture of cement at Davenport.
19. The covered conveyor belt system constructed for transport of mined material on or above the surface of the ground shall be removed by permittee when quarrying operations are terminated by exhaustion of the quarry or by economic or physical unfeasibility of further quarrying.
20. Not more than two (2) blasts shall be permitted per working week. Time for blasting shall be set at approximately 12:25 p. m. and 3:25 p. m.



21. No public road shall be used to haul limestone, overburden or waste products from quarry site.
22. Overburden or waste materials to be excavated from this quarry site shall not be stockpiled for the purpose of recapture, recovery or retaking.
23. Dust or other such materials originating from operations, including covered belt conveyor system, shall be held to a minimum by the use of dust arresting equipment on the conveyor system and the use of water wagons or other dust control devices and in no case shall dust be permitted to blow onto adjacent land or in any way accumulate on public roads in the vicinity.
24. Noise and ground vibration shall be reduced to a minimum.
25. The operation of Part III of this permit shall not cause a diminution, in either quantity or quality of any water supply.
26. Drainage facilities and devices to control storm water runoff shall be constructed as required in order to minimize erosion and prevent pollution of natural water courses or the Pacific Ocean by sand, silt, or other materials, that in any way will result in damage to fish, aquatic or marine life.
27. Prior to the construction of settling ponds, slurry ponds, water reservoirs, or storm drainage facilities, final plans based on design by a Registered Civil Engineer shall be approved by the Department of Public Works.
28. All requirements of the Regional Water Quality Control Board and Department of Fish and Game shall be met.
29. Noncompliance with any of the foregoing conditions shall be cause for revocation of Part III of this use permit pursuant to provisions of Santa Cruz County Code, Sections 13.04.324, and 13.04.332.

#### Part IV Bonny Doon Shale Quarry

This part of the use permit authorizes and permits the quarrying, crushing and storage of shale and uses incidental thereto, and the construction of a covered belt conveyor system for transportation of quarried materials from the quarry site to Davenport Cement Plant, all as shown on Exhibit M as outlined in red.

1. The exercise of this part shall not occur until or unless permittee exercises Part III hereof (i.e., Bonny Doon Limestone Quarry).
2. No overburden shall be stripped from the site nor shall any quarrying operation commence until such time as a Record of Survey of the specific site to be quarried has been recorded and a copy filed with the Planning Department. Said

**Bonny Doon Quarry  
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site shall be selected from within the boundary of parcel B, as shown outlined in red on Exhibit M.

3. Transportation of mined material shall be solely by covered belt conveyor system to be constructed in accord with plans and specifications approved by the Board of Zoning Adjustment. Said plans shall include precise location of right-of-way, grading plans, drainage and erosion control plans, to be submitted to the Board of Zoning Adjustment for approval not later than December 31, 1968. Review of said plans by the Board of Zoning Adjustment shall be made within sixty (60) days after submittal. Failure to file said plans prior to December 31, 1968, shall cause permittee, or its successors in interest, to acquire an additional use permit for the covered belt conveyor system.
4. Final cut slopes shall not exceed the normal angle of repose of the natural materials. In any case, when cut slopes steeper than one to one (1:1) exceed sixty (60) feet vertically, they shall be stepped at intervals not exceeding sixty (60) feet vertically and such steps shall be at least thirty (30) feet wide.
5. In any event, the top of any cut slope in no case shall be brought closer than twenty-five (25) feet to any exterior property line of the actual site to be excavated.
6. Finished excavation shall in all cases be graded in such a manner as to prevent the accumulation of storm waters or natural seepage.
7. Finished grades in all cases shall have slopes not less than one and one-half percent (1-1/2%).
8. The entire north boundary and the northerly two-hundred (200) feet of the east and west boundaries of the quarry site shall be fenced by a substantial six (6) foot fence with posts spaced at fifteen (15) feet center to center and barbed wire spaced one (1) foot apart. Said fence shall not be closer than ten (10) feet to the top edge of any cut slope.
9. Signs shall be conspicuously posted along the required fence at intervals not to exceed one-hundred (100) feet. The signs shall give reasonable notice of the matter contained in such notice by stating in letters not less than four (4) inches in height, "Property Subject to Commercial Excavation of Natural Materials Under County of Santa Cruz Use Permit No. 2863-U". Permittee may use such additional warning language as it may desire.
10. A landscape-management program shall be initiated on the lands owned or leased by PCA within the visual corridor partially described on Exhibit X of the conveyor route and the Bonny Doon limestone and shale quarries which shall be operative as an overall program during the operational life of quarries and conveyor system. The purpose of this program is to insure the preservation,

conservation and management of this vegetative resource for the general benefit of the community and specifically as an element in a program to minimize the environmental impact of this industrial use upon adjacent rural properties and the public in general.

11. The management program shall be developed and implemented utilizing the criteria and guidelines set forth in Exhibit L attached hereto.
12. Operations within the quarry shall take place on Mondays through Fridays only and shall not commence before 7:30 a. m., nor extend beyond 5:00 p. m.; provided, however, that the transport of shale and limestone from the stockpiles may take place between the hours of 7:30 a. m. and 11:30 p. m., on each day Monday through Friday.
13. Any blasting which shall take place at the quarry site shall be solely for the purpose of the primary dislocation of rock.
14. Not more than two (2) blasts shall be permitted per working week. Time for blasting shall be set at approximately 12:25 p. m. and 3:25 p. m.
15. A rock crushing system within the quarry site is permitted by terms of this use permit only as a component of the system for the manufacture of cement at Davenport.
16. The covered conveyor belt system constructed for transport of mined material on or above the surface of the ground shall be removed by permittee when quarrying operations are terminated by exhaustion of the quarry or by economic or physical unfeasibility of further quarrying.
17. No public road shall be used to haul shale, overburden or waste products from this quarry site.
18. Overburden or waste materials to be excavated from this quarry site shall not be stockpiled for the purpose of recapture, recovery or retaking.
19. Dust or other such materials originating from operations, including covered belt conveyor system, shall be held to a minimum by the use of dust arresting equipment on the conveyor system and the use of water wagons or other, dust control devices and in no case shall dust be permitted to blow onto adjacent land or in any way accumulate on public roads in the vicinity.
20. Noise and ground vibration shall be reduced to a minimum.
21. The operation of Part IV of this permit shall not cause a diminution in either quantity or quality of any water supply.

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22. Drainage facilities and devices to control storm water runoff shall be constructed as required in order to minimize erosion and prevent pollution of natural water courses or the Pacific Ocean by sand, silt, or other materials, that in any way will result in damage fish, aquatic or marine plant life.
23. Prior to the construction of settling ponds, slurry ponds, water reservoirs, or storm drainage facilities, final plans based on design by a Registered Civil Engineer shall be approved by the Department of Public Works.
24. All requirements of the Regional Water Quality Control Board and State Department of Fish and Game shall be met.
25. Noncompliance with any of the foregoing conditions shall be cause for revocation of Part IV of this permit pursuant to provisions of Santa Cruz Code, Section 13.04.324 and 13.04.332.

**APPENDIX C**

**PLANT AND WILDLIFE SPECIES LISTS**

**TRA Environmental Sciences, Inc.**

## APPENDIX C

TABLE 1: VASCULAR PLANT SPECIES OBSERVED WITHIN THE BONNY DOON QUARRY BOUNDARY EXPANSION AREA, SANTA CRUZ COUNTY, CALIFORNIA

Note:

\* - Non-native plant species

| FAMILY NAME                    | SCIENTIFIC NAME                   | COMMON NAME        |
|--------------------------------|-----------------------------------|--------------------|
| <b>Aceraceae</b>               | <i>Acer macrophyllum</i>          | Big-leaf maple     |
| <b>Anacardiaceae</b>           | <i>Toxicodendron diversilobum</i> | Poison-oak         |
| <b>Apiaceae (Umbelliferae)</b> | <i>Foeniculum vulgare</i>         | Fennel *           |
|                                | <i>Lomatium dasycarpum</i>        | Lomatium           |
|                                | <i>Osmorhiza chilensis</i>        | Sweet-cicely       |
|                                | <i>Sanicula crassicaulis</i>      | Pacific sanicle    |
|                                | <i>Torilis arvensis</i>           | Torilis            |
| <b>Asteraceae (Compositae)</b> | <i>Achillea millefolium</i>       | Yarrow             |
|                                | <i>Adenocaulon bicolor</i>        | Trail plant        |
|                                | <i>Anaphalis margaritacea</i>     | Pearly everlasting |
|                                | <i>Artemisia douglasiana</i>      | Mugwort            |
|                                | <i>Aster chilensis</i>            | Aster              |
|                                | <i>Baccharis pilularis</i>        | Coyote brush       |
|                                | <i>Centaurea melitensis</i>       | Tocalote *         |
|                                | <i>Cirsium vulgare</i>            | Bull thistle *     |
|                                | <i>Conyza canadensis</i>          | Canadian horseweed |
|                                | <i>Erechtites minima</i>          | Fireweed           |
|                                | <i>Helenium puberulum</i>         | Sneezeweed         |
|                                | <i>Heterotheca grandiflora</i>    | Telegraph weed     |
|                                | <i>Hieracium albiflorum</i>       | Hawkweed           |
|                                | <i>Hypochaeris glabra</i>         | Smooth cat's ear * |
|                                | <i>Lactuca serriola</i>           | Prickly lettuce *  |
|                                | <i>Leontodon taraxacoides</i>     | Hawkbit            |
|                                | <i>Madia elegans</i>              | Slender tarweed    |
|                                | <i>Madia madioides</i>            | Common tarweed     |
| <i>Madia sativa</i>            | Tarweed                           |                    |
| <i>Picris echioides</i>        | Ox-tongue daisy *                 |                    |
| <i>Senecio</i> sp.             | Butterweed                        |                    |
| <i>Sonchus oleraceus</i>       | Sow thistle *                     |                    |
| <b>Betulaceae</b>              | <i>Corylus cornuta</i>            | Hazelnut           |
| <b>Boraginaceae</b>            | <i>Myosotis discolor</i>          | Forget-me-not *    |

| <b>FAMILY NAME</b>               | <b>SCIENTIFIC NAME</b>  | <b>COMMON NAME</b>  |
|----------------------------------|---|---|
| <b>Brassicaceae (Cruciferae)</b> | <i>Cardamine oligosperma</i><br><i>Raphanus sativus</i>   | Bittercress<br>Wild radish *  |
| <b>Campanulaceae</b>             | <i>Campanula prenanthoides</i>  | Harebell  |
| <b>Caprifoliaceae</b>            | <i>Lonicera hispidula</i><br><i>Lonicera subspicata</i> var. <i>denudate</i><br><i>Sambucus racemosa</i><br><i>Symphoricarpos mollis</i>  | Honeysuckle<br>Honeysuckle<br>Black elderberry<br>Snowberry   |
| <b>Caryophyllaceae</b>           | <i>Cerastium glomeratum</i>   | Mouse-ear chickweed   |
| <b>Cyperaceae</b>                | <i>Carex</i> sp.  | Sedge   |
| <b>Dennstaedtiaceae</b>          | <i>Pteridium aquilinum</i>  | Bracken fern  |
| <b>Dryopteridaceae</b>           | <i>Athyrium filix-femina</i><br><i>Polystichum munitum</i>  | Lady fern<br>Sword fern   |
| <b>Ericaceae</b>                 | <i>Arbutus menziesii</i><br><i>Vaccinium ovatum</i>   | Pacific madrone<br>Black huckleberry  |
| <b>Equisetaceae</b>              | <i>Equisetum arvense</i>  | Common horsetail  |
| <b>Fabaceae (Leguminosae)</b>    | <i>Cytisus scoparius</i><br><i>Lathyrus odoratus</i><br><i>Lathyrus vestitus</i> var. <i>vestitus</i><br><i>Lotus purshianus</i> var. <i>pursh.</i><br><i>Lotus scoparius</i><br><i>Medicago polymorpha</i><br><i>Melilotus albus</i><br><i>Trifolium</i> spp.<br><i>Vicia sativa</i> | Scotch broom<br>Sweet pea *<br>Native pea<br>Trefoil<br>California broom<br>Bur-clover<br>White sweet-clover *<br>Clover<br>Vetch |
| <b>Fagaceae</b>                  | <i>Lithocarpus densiflorus</i><br><i>Quercus agrifolia</i><br><i>Quercus chrysolepis</i>  | Tan oak<br>Coast live oak<br>Canyon live oak  |
| <b>Gerianaceae</b>               | <i>Erodium cicutarium</i>   | Filaree   |
| <b>Iridaceae</b>                 | <i>Iris douglasiana</i>   | Douglas iris  |
| <b>Juncaceae</b>                 | <i>Juncus balticus</i><br><i>Juncus bufonius</i><br><i>Juncus effusus</i><br><i>Juncus patens</i>   | Baltic rush<br>Toad rush<br>Common rush<br>Rush   |
| <b>Lamiaceae</b>                 | <i>Satureja douglasii</i><br><i>Stachys ajugoides</i> var. <i>ajugoides</i>   | Yerba buena<br>Hedge nettle   |

| <b>FAMILY NAME</b>             | <b>SCIENTIFIC NAME</b>           | <b>COMMON NAME</b>          |
|--------------------------------|----------------------------------|-----------------------------|
| <b>Liliaceae</b>               | <i>Disporum smithii</i>          | Fairy bells                 |
|                                | <i>Chlorogalum pomeridianum</i>  | Soap plant                  |
|                                | <i>Clintonia andrewsiana</i>     | Clintonia                   |
|                                | <i>Smilicina racemosa</i>        | False Solomon's seal        |
|                                | <i>Trillium chloropetalum</i>    | Wakerobin                   |
| <b>Linaceae</b>                | <i>Linum bienne</i>              | European flax *             |
| <b>Myricaceae</b>              | <i>Myrica californica</i>        | California waxmyrtle        |
| <b>Onagraceae</b>              | <i>Epilobium ciliatum</i>        | Fireweed                    |
| <b>Orchidaceae</b>             | <i>Cypripedium sp.</i>           | Coralroot                   |
|                                | <i>Epipactis gigantea</i>        | Streamside orchid           |
|                                | <i>Piperia transversa</i>        | Piperia                     |
| <b>Oxalidaceae</b>             | <i>Oxalis oregana</i>            | Redwood sorrel              |
| <b>Pinaceae</b>                | <i>Pinus attenuata</i>           | Knobcone pine               |
|                                | <i>Pinus ponderosa</i>           | Ponderosa pine              |
|                                | <i>Pseudotsuga menziesii</i>     | Douglas-fir                 |
| <b>Plantaginaceae</b>          | <i>Plantago coronopifolia</i>    | Cut-leaved plantain *       |
|                                | <i>Plantago lanceolata</i>       | European plantain *         |
| <b>Poaceae (Gramineae)</b>     | <i>Aira caryophyllea</i>         | European silver hairgrass * |
|                                | <i>Avena barbata</i>             | Wild oats *                 |
|                                | <i>Briza maxima</i>              | Large rattlesnake grass*    |
|                                | <i>Briza minima</i>              | Small rattlesnake grass*    |
|                                | <i>Bromus diandrus</i>           | Ripgut *                    |
|                                | <i>Bromus hordeaceus</i>         | Soft chess *                |
|                                | <i>Bromus sterilis</i>           | Sterile brome *             |
|                                | <i>Calamagrostis koeleriodes</i> | Reedgrass                   |
|                                | <i>Cortaderia jubata</i>         | Pampas grass *              |
|                                | <i>Cynosurus echinatus</i>       | Dogstail grass *            |
|                                | <i>Elymus glaucus</i>            | Blue wildrye                |
|                                | <i>Festuca occidentalis</i>      | Western fescue              |
|                                | <i>Holcus lanatus</i>            | Velvet grass *              |
|                                | <i>Lolium multiflorum</i>        | Annual ryegrass *           |
|                                | <i>Melica imperfecta</i>         | Oniongrass                  |
| <i>Nassella cernua</i>         | Nodding needlegrass              |                             |
| <i>Polypogon monspeliensis</i> | Rabbitsfoot grass *              |                             |
| <i>Vulpia microstachys</i>     | Annual fescue                    |                             |
| <b>Polemoniaceae</b>           | <i>Navarretia squarrosa</i>      | Skunkweed                   |
| <b>Polygonaceae</b>            | <i>Rumex acetosella</i>          | Sheep sorrel *              |
|                                | <i>Rumex crispus</i>             | Curly dock                  |



| <b>FAMILY NAME</b>      | <b>SCIENTIFIC NAME</b>   | <b>COMMON NAME</b>   |
|-------------------------|--|--|
| <b>Primulaceae</b>      | <i>Anagallis arvensis</i><br><i>Trientalis latifolia</i>   | Scarlet pimpernel *<br>Starflower  |
| <b>Pteridaceae</b>      | <i>Pentagramma triangularis</i>  | Goldback fern  |
| <b>Ranunculaceae</b>    | <i>Actaea rubra</i>  | Baneberry  |
| <b>Rhamnaceae</b>       | <i>Ceanothus integerrimus</i><br><i>Ceanothus thyrsiflorus</i><br><i>Rhamnus californica</i><br><i>Rhamnus purshiana</i>   | Deer brush<br>Blue blossom<br>California coffeeberry<br>Cascara  |
| <b>Rosaceae</b>         | <i>Fragaria vesca</i><br><i>Heteromeles arbutifolia</i><br><i>Rosa gymnocarpa</i><br><i>Rubus discolor</i><br><i>Rubus leucodermis</i><br><i>Rubus parviflorus</i><br><i>Rubus ursinus</i> | Woodland strawberry<br>Toyon<br>Wood rose<br>Himalaya berry *<br>Blackcap raspberry<br>Thimbleberry<br>California blackberry |
| <b>Rubiaceae</b>        | <i>Galium porrigens</i><br><i>Galium sp.</i>   | Climbing bedstraw<br>Bedstraw  |
| <b>Salicaceae</b>       | <i>Salix lasiandra</i><br><i>Salix lasiolepis</i><br><i>Salix sitchensis</i>   | Shining willow<br>Arroyo willow<br>Sitka willow  |
| <b>Scrophulariaceae</b> | <i>Digitalis purpurea</i><br><i>Mimulus aurantiacus</i><br><i>Mimulus guttatus</i><br><i>Scrophularia californica</i><br><i>Verbascum thapsus</i>  | Foxglove<br>Sticky monkeyflower<br>Common monkeyflower<br>California beeplant<br>Mullein                                     |
| <b>Taxodiaceae</b>      | <i>Sequoia sempervirens</i>  | Coast redwood  |
| <b>Urticaceae</b>       | <i>Hesperocnide tenellus</i><br><i>Urtica dioica</i>   | Dwarf nettle<br>Stinging nettle  |
| <b>Verbenaceae</b>      | <i>Verbena lasiostachys</i>  | Vervain  |

Source: TRA Environmental Sciences, Inc. 2006.

## APPENDIX C

TABLE 2: WILDLIFE SPECIES OBSERVED OR EXPECTED TO OCCUR WITHIN THE BONNY DOON QUARRY BOUNDARY EXPANSION AREA, SANTA CRUZ COUNTY, CALIFORNIA

Notes:

# - Species observed during field surveys

\* - Special status species

|                                | SCIENTIFIC NAME                      | COMMON NAME                |
|--------------------------------|--------------------------------------|----------------------------|
| <b>Amphibians</b>              | <i>Hyla regilla</i>                  | Pacific tree frog          |
|                                | <i>Taricha granulosa</i>             | Rough-skinned newt         |
|                                | <i>Taricha torosa</i>                | California newt            |
|                                | <i>Aneides lugubris</i>              | Arboreal salamander        |
| <b>Reptiles</b>                | <i>Gerrhonotus multicarinatus</i>    | Southern alligator lizard# |
|                                | <i>Pituophis catenifers</i>          | Gopher snake               |
|                                | <i>Sceloporus occidentalis</i>       | Western fence lizard       |
|                                | <i>Thamnophis couchii atratus</i>    | Santa Cruz garter snake#   |
|                                | <i>Thamnophis sirtalis</i>           | Common garter snake        |
|                                | <i>Thamnophis elegans terrestris</i> | Coast garter snake         |
| <b>Birds</b>                   | <i>Accipiter cooperii</i>            | Cooper's hawk*             |
|                                | <i>Accipiter striatus</i>            | Sharp-shinned hawk*        |
|                                | <i>Aquila chrysaetos</i>             | Golden eagle*              |
|                                | <i>Cathartes aura</i>                | Turkey vulture             |
|                                | <i>Buteo jamaicensis</i>             | Red-tailed hawk            |
|                                | <i>Buteo lineatus</i>                | Red-shouldered hawk        |
|                                | <i>Circus cyaneus</i>                | Northern harrier           |
|                                | <i>Elanus leucurus</i>               | White-tailed kite*         |
|                                | <i>Falco sparverius</i>              | American kestrel#          |
|                                | <i>Callipepla californica</i>        | California quail#          |
|                                | <i>Zenaida macroura</i>              | Mourning dove              |
|                                | <i>Asio otus</i>                     | Long-eared owl*            |
|                                | <i>Bubo virginianus</i>              | Great horned owl           |
|                                | <i>Tyto alba</i>                     | Barn owl                   |
|                                | <i>Calypte anna</i>                  | Anna's hummingbird         |
|                                | <i>Salpinctes obsoletus</i>          | Allen's hummingbird#       |
|                                | <i>Picoides nuttallii</i>            | Nuttall's woodpecker       |
|                                | <i>Melanerpes formicivorus</i>       | Acorn woodpecker#          |
|                                | <i>Colaptes auratus</i>              | Northern flicker           |
|                                | <i>Contopus cooperi</i>              | Olive-sided flycatcher     |
|                                | <i>Empidonax difficilis</i>          | Pacific-slope flycatcher#  |
|                                | <i>Myiarchus cinerascens</i>         | Ash-throated flycatcher    |
|                                | <i>Sayornis nigricans</i>            | Black phoebe               |
| <i>Tachycineta thalassina</i>  | Violet-green swallow                 |                            |
| <i>Aphelocoma coerulescens</i> | Scrub jay                            |                            |
| <i>Baeolophus inornatus</i>    | Oak titmouse                         |                            |

|                             | <b>SCIENTIFIC NAME</b>            | <b>COMMON NAME</b>                   |
|-----------------------------|-----------------------------------|--------------------------------------|
| <b>Birds (continued...)</b> | <i>Psaltriparus minimus</i>       | Bushtit#                             |
|                             | <i>Sitta carolinensis</i>         | White-breasted nuthatch              |
|                             | <i>Certhia americana</i>          | Brown creeper#                       |
|                             | <i>Vireo huttoni</i>              | Hutton's vireo#                      |
|                             | <i>Corvus americanus</i>          | American crow                        |
|                             | <i>Corvus corax</i>               | Common raven#                        |
|                             | <i>Poecile rufescens</i>          | Chestnut-backed chickadee#           |
|                             | <i>Thryomanes bewickii</i>        | Bewick's wren#                       |
|                             | <i>Troglodytes troglodytes</i>    | Winter wren                          |
|                             | <i>Chamaea fasciata</i>           | Wrentit#                             |
|                             | <i>Regulus calendula</i>          | Ruby-crowned kinglet#                |
|                             | <i>Turdus migratorius</i>         | American robin                       |
|                             | <i>Mimus polyglottos</i>          | Northern mockingbird                 |
|                             | <i>Vermivora celata</i>           | Orange-crowned warbler#              |
|                             | <i>Dendroica coronata</i>         | Yellow-rumped warbler                |
|                             | <i>Dendroica townsendi</i>        | Townsend's warbler#                  |
|                             | <i>Wilsonia pusilla</i>           | Wilson's warbler#                    |
|                             | <i>Pipilo crissalis</i>           | California towhee#                   |
|                             | <i>Pipilo maculatus</i>           | Spotted towhee#                      |
|                             | <i>Melospiza melodia</i>          | Song sparrow                         |
|                             | <i>Zonotrichia leucophrys</i>     | White-crowned sparrow                |
|                             | <i>Junco hyemalis</i>             | Dark-eyed junco#                     |
|                             | <i>Icterus bullockii</i>          | Bullock's oriole                     |
|                             | <i>Sturnella neglecta</i>         | Western meadowlark                   |
| <i>Molothrus ater</i>       | Brown-headed cowbird              |                                      |
| <i>Carpodacus mexicanus</i> | House finch                       |                                      |
| <i>Carduelis psaltria</i>   | Lesser goldfinch                  |                                      |
| <b>Mammals</b>              | <i>Didelphus virginiana</i>       | Opossum                              |
|                             | <i>Lepus californicus</i>         | Black-tailed jackrabbit              |
|                             | <i>Sylvilagus bachmannii</i>      | Brush rabbit                         |
|                             | <i>Spermophilus beecheyi</i>      | California ground squirrel           |
|                             | <i>Sciurus griseus</i>            | Western grey squirrel#               |
|                             | <i>Sorex ornatus</i>              | Ornate shrew                         |
|                             | <i>Thomomys</i> sp.               | Pocket gopher                        |
|                             | <i>Peromyscus californicus</i>    | California mouse                     |
|                             | <i>Peromyscus maniculatus</i>     | Deer mouse                           |
|                             | <i>Neotoma fuscipes annectens</i> | San Francisco dusky-footed woodrat#* |
|                             | <i>Rattus rattus</i>              | Black rat                            |
|                             | <i>Microtus californicus</i>      | California vole                      |
|                             | <i>Eptesicus fuscus</i>           | Big brown bat                        |
|                             | <i>Myotis evotis</i>              | Long-eared myotis                    |
|                             | <i>Myotis volans</i>              | Long-legged myotis                   |
|                             | <i>Myotis thysanodes</i>          | Fringed myotis                       |
|                             | <i>Tadarida brasiliensis</i>      | Mexican free-tailed bat              |
|                             | <i>Lasiurus blossevillii</i>      | Western red bat                      |
|                             | <i>Canis latrans</i>              | Coyote                               |
|                             | <i>Urocyon cinereoargenteus</i>   | Gray fox                             |
| <i>Procyon lotor</i>        | Raccoon                           |                                      |

| <b>SCIENTIFIC NAME</b>     | <b>COMMON NAME</b> |
|----------------------------|--------------------|
| <i>Lynx rufus</i>          | Bobcat             |
| <i>Felis concolor</i>      | Mountain lion      |
| <i>Odocoileus hemionus</i> | Black-tailed deer  |

Source: TRA Environmental Sciences, Inc. 2006.

## APPENDIX C

### TABLE 3: SPECIAL-STATUS SPECIES AND HABITATS CONSIDERED

The following table includes a list of all of the special status species and habitats that are known to occur or potentially occur in the Biological Study Area, with an assessment of their potential to occur in the Boundary Expansion Area.

| Species   | Listing Status Federal/ State/ CNPS Listing | General Habitat   | Potential to Occur in the Boundary Expansion Area  | Period of Identification / Blooming Period |
|---|---|---|--|--|
| <b>Fish</b>   |   |   |  |  |
| Central Coast steelhead ( <i>Onchorhynchus mykiss irideus</i> ) (Central Coast ESU) | FT/--/--                                    | Ranges from the Russian River, south to Soquel Creek and to, but not including the Pajaro River. Also occurs in the San Francisco and San Pablo Bay basins.   | No habitat present within the Expansion Area; however, this species occurs in the lower reaches of Liddell Creek downstream of the project.  | September-February                         |
| Coho salmon ( <i>Onchorhynchus kisutch</i> ) (Central California ESU)               | FE/--/--                                    | Ranges from Punta Gorda in Humboldt County, south to the San Lorenzo River in Santa Cruz County.  | Habitat, not present in the Expansion Area. Not known to occur in Liddell Creek (NMFS, 2004) downstream of the project. Occurs in San Vicente Creek downstream of the Shale Quarry.  | September-February                         |
| <b>Reptiles</b>   |   |   |  |  |
| Western pond turtle ( <i>Clemmys marmorata</i> )                                    | --/CSC/--                                   | Rivers and streams with some canopy cover.  | No habitat occurs in the Expansion Area. Limited habitat occurs within the Study Area in sediment ponds associated with mining activities. The species has not been observed in the Study Area.  | Year round, excluding winter               |
| <b>Amphibians</b>   |   |   |  |  |
| California red-legged frog ( <i>Rana aurora draytonii</i> )                         | FT/CSC/ --                                  | Occurs in a broad range of freshwater and associated upland habitats throughout the Coast Range, Sierra Nevada and foothills, often found in perennial to seasonal drainages with dense vegetation                      | Suitable breeding or harbor habitat is not present in the Expansion Area; however, CRLF are documented to use settlement ponds in the Limestone Quarry for breeding.   | April-October                              |
| Foothill yellow-legged frog ( <i>Rana boylei</i> )                                  | FSC/CSC/--                                  | Occurs in and around streams, creeks and other aquatic habitats   | No habitat present in the Expansion Area. Has been observed approximately one mile downstream of the Shale Quarry in San Vicente Creek, and thus is expected in the watershed of the Shale Quarry (McGinnis, 1999).                      | Year-round                                 |
| <b>Birds</b>  |   |   |  |  |
| Marbled Murrelet ( <i>Brachyramphus marmoratus</i> )                                | FT/CE/--                                    | Forages along coastline and offshore, nests in older stands of coastal redwood and Douglas-fir forest within approximately 30 miles of the coast. Nests are created in moss and leaf litter on large diameter branches. | Low, though the Expansion Area supports redwood forest vegetation, the size of these trees is not large enough for this species to nest. The species was not observed during wildlife surveys. Could occur in the biological study area. | Year round                                 |

| Species  | Listing Status Federal/ State/ CNPS Listing | General Habitat  | Potential to Occur in the Boundary Expansion Area   | Period of Identification / Blooming Period |
|--|---|--|---|--|
| Cooper's hawk<br>( <i>Accipiter cooperii</i> )                         | --/CSC/--                                   | Dense stands of live oak, riparian deciduous, or other forest habitats near water used most frequently   | Low. Forest habitat suitable, but not adjacent to a water source. Expected to occur in the study area.  | Year-round                                 |
| American peregrine falcon<br>( <i>Falco peregrinus anatum</i> )        | FE/--/--                                    | Forages in marshes and grasslands. Nesting habitat includes high, protected cliffs and ledges near water.  | Low. No suitable nesting habitat within the Expansion Area. Suitable habitat may occur in the study area.   | May-August                                 |
| Tricolored blackbird<br>( <i>Agelaius tricolor</i> )                   | FSC/CSC/--                                  | Nomadic resident of Sacramento-San Joaquin Valley and low foothills; nests in colonies within vicinity of fresh water/ marshy areas. Colonies prefer heavy growths of cattails and tules.  | Suitable habitat not present in the Expansion Area. Limited nesting and foraging habitat occurs for this species in the study area. Species occurs within 2 miles of the project. | Year round                                 |
| White-tailed kite<br>( <i>Elanus leucurus</i> )                        | FSC/CP/--                                   | Nests in dense oak, willow, or other tree stand near open grasslands meadows, farmlands, and emergent wetlands.  | Low, nesting and foraging habitat occurs in the coast live oak forest in the Expansion Area. Species not observed during field surveys.   | Year-round                                 |
| Little willow flycatcher<br>( <i>Empidonax trailii brewsteri</i> )     | FSC/SE/--                                   | Nests in dense riparian cover. Summer migrant in the project area. Suitable habitat is present in the biological study area.   | None. Habitat not present in the Expansion Area.  | Summer                                     |
| Saltmarsh common yellowthroat<br>( <i>Geothlypis trichas sinuosa</i> ) | --/CSC/--                                   | Fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging, tall grasses and willows for nesting   | Low. No suitable habitat present in the Expansion Area. Possible habitat at the Settlement Basins and riparian habitat in the Study Area.   | Year-round                                 |
| Golden Eagle ( <i>Aquila chrysaetos</i> )                              | CNDDB<br>G5, S3                             | Rolling foothills, mountain areas, sage-juniper flats and desert. Cliff-walled canyons and large trees in open areas provide nesting habitat in most parts of its range.   | Low. Forest habitat suitable, Expected to occur in the study area.  | Year-round                                 |
| Long-eared owl ( <i>Asio otus</i> )                                    | CNDDB<br>G5, S3                             | Mature riparian bottoms that have grown to tall willows and cottonwoods; also belts of live oak paralleling creeks. Requires adjacent open land and the presence of old nests of crows, hawks, and magpies for breeding. Suitable habitat is present in the biological study area. | Low. Riparian habitat is not present in the Expansion Area., but known from the study area; could forage in the Expansion Area.   | Year-round                                 |
| Sharp-shinned hawk<br>( <i>Accipiter striatus</i> )                    | CNDDB<br>G5, S3                             | Ponderosa pine, black oak, riparian, mixed conifer and Jeffrey pine habitats. Prefers riparian areas. North facing slopes with plucking perches are critical requirements. Usually nest within 275 feet of water. Suitable habitat is present in the biological study area.        | Low. Riparian habitat and water sources not available; could forage in the Expansion Area.  | Year-round                                 |

| Species  | Listing Status Federal/ State/ CNPS Listing | General Habitat   | Potential to Occur in the Boundary Expansion Area   | Period of Identification / Blooming Period |
|--|---|---|---|--|
| <b>Mammals</b>   |   |   |   |  |
| Townsend's big-eared bat ( <i>Coryrhinus townsendii</i> )                | FSC/CSC/--                                  | Occurs throughout California in a wide variety of habitats. Most common in mesic sites. Colony roosts in the open, hanging from walls and ceilings in caves, buildings. Often associated with mines. Identified on the Big Basin quadrangle in an association of second growth redwood, Douglas fir, madrone, tanoak, live oak and Manzanita. Could occur in the biological study area. | Low. Extremely rare in Santa Cruz County, however the Expansion Area contains suitable habitat. No roost sites (buildings, caves) were found during site surveys.   | Year-round                                 |
| San Francisco dusky-footed woodrat ( <i>Neotoma fuscipes annectens</i> ) | --/CSC/--                                   | Deciduous and mixed woodlands, scrub  | Present in the Expansion Area.  | Year-round                                 |
| American badger ( <i>Taxidea taxus</i> )                                 | --/CSC/--                                   | Friable soils and relatively open, uncultivated ground. Grasslands, savannas, and mountain meadows near timberline are preferred.   | Low. Grassland occurs adjacent to the Expansion Area.   | Year-round                                 |
| <b>Plants</b>  |   |   |   |  |
| Robust spineflower ( <i>Chorizanthe robusta</i> var. <i>robusta</i> )    | FE/--/1B                                    | Cismontane woodland openings, coastal dunes, coastal scrub/ typically on sandy or gravelly sites  | Low. Marginal habitat in the coast live oak and mixed evergreen forest in the Expansion Area. The species may have been observed in grasslands near the Shale Quarry during surveys conducted for the previous (1996) EIR. Not observed during surveys of the Expansion Area. | April-September                            |
| Santa Cruz cypress ( <i>Cupressus abramsiana</i> )                       | FE/CE/1B                                    | Closed-cone coniferous forests, chaparral, lower montane coniferous forest, typically sandstone or granitic. Suitable habitat occurs in the study area.   | None. The species was not observed in the study area during historic or current surveys.  | Year-round                                 |
| Santa Cruz wallflower ( <i>Erysimum teretifolium</i> )                   | FE/CE/1B                                    | Chaparral, lower montane coniferous forest/inland marine sands. Occurs in nearby Bonny Doon Ecological Preserve.  | Low. Limited marginal habitat in Expansion Area; species not observed during surveys.   | March-July                                 |
| Santa Cruz tarplant ( <i>Holocarpha macradenia</i> )                     | FT/CE/1B                                    | Coastal prairie, coastal scrub, valley and foothill grassland, often on clay or sand  | Low. Though limited habitat for this species occurs in the Expansion Area, the species was not observed during surveys conducted in the blooming period.  | June-October                               |
| Santa Cruz manzanita ( <i>Arctostaphylos andersonii</i> )                | --/--/1B                                    | Open sites and edges of chaparral, coniferous and evergreen forests. Suitable habitat may occur in the study area.  | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.  | November-April                             |
| Pajaro manzanita ( <i>Arctostaphylos pajaroensis</i> )                   | --/--/1B                                    | Chaparral (sandy). Suitable habitat may occur in the study area.  | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.  | December-March                             |

| Species  | Listing Status Federal/ State/ CNPS Listing | General Habitat   | Potential to Occur in the Boundary Expansion Area  | Period of Identification / Blooming Period |
|--|---|---|--|--|
| Bonny Doon manzanita ( <i>Arctostaphylos silvicola</i> )                             | --/--/1B                                    | Closed-cone coniferous forest, chaparral  | Low. Limited marginal habitat in the Expansion Area; species was not found during surveys.   | February-March                             |
| San Francisco collinsia ( <i>Collinsia multicolor</i> )                              | --/--/1B                                    | Closed-cone coniferous forest, sometimes serpentinite. Suitable habitat occurs in the study area.   | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.   | March-May                                  |
| Kellogg's horkelia ( <i>Horkelia cuneata</i> spp. <i>sericea</i> )                   | --/--/1B                                    | Closed-cone coniferous forest, chaparral (maritime), sandy or gravelly, open  | Low. Limited marginal habitat in Expansion Area; species not found during surveys.   | April-September                            |
| Marsh microseris ( <i>Microseris paludosa</i> )                                      | --/--/1B                                    | Closed cone forest, valley and foothill grasslands. Suitable habitat present in the study area.   | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.   | April-July                                 |
| Santa Cruz Mountains beardtongue ( <i>Penstemon rattanii</i> var. <i>kleei</i> )     | --/--/1B                                    | Chaparral. Habitat occurs in the study area.  | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.   | May-June                                   |
| Schreiber's manzanita ( <i>Arctostaphylos glutinosa</i> )                            | --/--/1B                                    | Closed-cone coniferous forest, chaparral  | Low. Limited marginal habitat in Expansion Area; species not found during surveys.   | November                                   |
| Santa Cruz Mountains pussypaws ( <i>Calyptridium parryi</i> var. <i>hesseae</i> )    | --/--/3                                     | Chaparral. . Habitat occurs in the study area.  | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.   | May-July                                   |
| Mt. Diablo cottonweed ( <i>Micropus amphibolus</i> )                                 | --/--/3                                     | Broadleaf upland forest, chaparral, valley foothill grassland. . Habitat occurs in the study area.  | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.   | March-May                                  |
| Choris's popcorn flower ( <i>Plagiobothrys chorizianus</i> var. <i>chorisianus</i> ) | --/--/1B                                    | Chaparral. . Habitat occurs in the study area.  | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.   | March-June                                 |
| San Francisco campion ( <i>Silene verecunda</i> spp. <i>verecunda</i> )              | --/--/1B                                    | Coastal bluff scrub, chaparral, valley foothill grassland. . Habitat occurs in the study area.  | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.   | March-August                               |
| Santa Cruz microseris ( <i>Stebbinsoseris decipiens</i> )                            | --/--/1B                                    | Broadleafed upland forest, chaparral, valley foothill grassland area, sometimes serpentinite. . Habitat occurs in the study area.                             | None. Habitat for this species is not present in the Expansion Area; species was not found during surveys.   | April-May                                  |
| <b>Habitats</b>  |   |   |  |  |
| North Central Coast California Roach/Stickleback/Steelhead Stream                    | CNDDB Unranked                              | Associated with native fish including: steelhead, coho salmon (rare), California Roach, 3-spine stickleback, Pacific lamprey, and ruffle and prickly sculpin. | This habitat does not occur in the Expansion Area, but does occur downstream of the project. Steelhead occur in the lower reaches of Liddell Creek below the project area.   | Year-round                                 |
| North Central Coast Short-Run Coho Stream  | CNDDB Unranked                              | Usually coho salmon and steelhead spawning streams. Also found with stickleback, sculpin spp. and Pacific lamprey.  | No suitable habitat in the Expansion Area. Coho salmon is known to spawn in San Vicente Creek, approximately 1 mile north of the project area. Known to occur in Scott and Waddell Creeks. The species is not known to occur in Liddell Creek. (NMFS, 2004). | Year-round                                 |



| Species                     | Listing Status Federal/ State/ CNPS Listing | General Habitat   | Potential to Occur in the Boundary Expansion Area  | Period of Identification / Blooming Period |
|-----------------------------|---|---|--|--|
| Northern Maritime Chaparral | CNDDDB G1, S1.2                             | Scrub oak sole or dominant shrub in canopy; blue blossom, California coffeeberry, chamise, chaparral pea, chaparral whitethorn, hollyleaf redberry, interior live oak, manzanita, poison oak, red shank, and/or toyon may be present. | None. This habitat was not found in the Expansion Area during field surveys and habitat mapping. | Year-round                                 |
| Coastal Scrub               | County of Santa Cruz                        | Plants are generally under six feet tall and include buckwheat, sagebrush, yarrow, lupine, coyote bush, poison oak, coffeeberry.  | Present in the northern portion of the Boundary Expansion Area.                                  | Year-round                                 |
| Native Grassland            | County of Santa Cruz                        | Grassland dominated by native needlegrass, fescue, melic, wildrye, and bluegrass species. Occurs in the study area.   | None. Not present in the Expansion Area.   | Year-round                                 |

**United States Fish and Wildlife Service classifications:**

FE = Species in danger of extinction throughout all or significant portion of its range.  
 FT = Species likely to become endangered within foreseeable future throughout all or significant portion of its range.  
 PE = Species proposed endangered.  
 PT = Species proposed threatened.  
 FC = Candidate information now available indicates that listing may be appropriate with supporting data currently on file.  
 FSC = Species of special concern.

**California Department of Fish and Game classifications:**

CE = State listed as endangered. Species whose continued existence in California is jeopardized.  
 CT = State listed as threatened. Species, although not presently threatened with extinction, may become endangered in the foreseeable future.  
 CR = State listed as rare. Plant species, although not presently threatened with extinction, may become endangered in the foreseeable future.  
 CSC = California species of special concern. Animal species with California breeding populations that may face extinction in the near future.  
 CP = Fully protected by the State of California under Section 3511 and 4700 of the CDFG Code.

**California Native Plant Society classifications:**

List 1A = Plants that are presumed extinct in California.  
 List 1B = Plants that are Rare, Threatened, or Endangered in California and elsewhere.  
 List 2 = Plants that are Rare, Threatened or Endangered in California but more common elsewhere.  
 List 3 = Plants for which more information is needed.  
 List 4 = Plants of limited distribution.

**California Natural Diversity Rankings:**

Global rank (G) reflects overall condition (rarity and endangerment) of an element throughout its range.  
 G1 = Less than 6 Element Occurrences (EO) OR less than 1,000 individuals OR less than 2,000 acres  
 G2 = 6 - 20 EOs OR 1,000 - 3,000 individuals OR 2,000 - 10,000 acres  
 G3 = 21 - 100 EOs OR 3,000 - 10,000 individuals OR 10,000 - 50,000 acres  
 State rank (S) reflects overall condition (rarity and endangerment) of an element within the State of California.  
 S1 = Less than 6 Element Occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres:  
 S1.1 = Very threatened  
 S1.2 = Threatened  
 S2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres:  
 S2.1 = Very threatened  
 S2.2 = Threatened  
 S3 = 21-100 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres:  
 S3.2 = Threatened

**County of Santa Cruz,**

Section 16.32 of the County Code, Sensitive Habitat Protection.

Sources: CDFG, 2007; CNPS, 2001; USFWS, 2003, County of Santa Cruz 1994.

**Bonny Doon Limestone Quarry Boundary Expansion Project: Draft EIR**

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**APPENDIX D (Bound Separately)**

**BONNY DOON QUARRIES**

**ALTERNATIVE REGEVETATION PLAN 2005**

**Madrone Landscape and Biotic Resources Group and**

**Biotic Resources Group, November 2005 (Revised February 2006)**

**Available for review at the County of Santa Cruz Planning Department**

**Bonny Doon Limestone Quarry Boundary Expansion Project: Draft EIR**

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**APPENDIX E**

**BONNY DOON PLANNING AREA PROJECT LIST (May 2007)**  
**County of Santa Cruz**

## APPENDIX E

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### BONNY DOON PLANNING AREA PROJECT LIST (MAY 2007)

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Regionally, the cumulative effects of the Proposed Project were considered in conjunction with other development proposals. The projects listed below were compiled for the entire Bonny Doon planning area as per Section 15130(b)(1)(A) of the State CEQA Guidelines.

- **Bonny Doon Quarry Certificate of Compliance and Reclamation Plan (Past)**

**Location:** Immediately east of Bonny Doon Road, approximately 1.5 miles east of Davenport in the coastal mountains of Santa Cruz County, California.

**APN:** 063-132-08

**Project Description:** In accordance with County of Santa Cruz mining regulations, RMC Lonestar submitted an application to the County of Santa Cruz for a Certificate of Compliance for the Bonny Doon Quarries. The Bonny Doon Quarries include a shale and a limestone quarry. The purpose of the certificate requirement was to enable County review of the existing mining operations to ensure that they are in compliance with their Use Permit conditions and relevant County standards. RMC Lonestar also submitted a Reclamation Plan for approval in accordance with the County mining regulations and the California Surface Mining and Reclamation Act.

- **Application Number:** 04-0350

**Location:** 31 Country Estates Drive, Santa Cruz, California 95060

**APN:** 063-181-13

**Project Description:** The project proposes the following: (1) the construction of a detached, one-story 896 square foot 3 car garage with an attached covered 640 square foot patio enclosed on two sides; (2) recognition of a 6-foot high swimming pool barrier fence built in the front and street side yards and in the right of way of the front yard; (3) the reconstruction of two well shed walls near the property line at an existing well site; (4) recognition of an existing swimming pool; and (5) recognition of two existing non-habitable sheds of about 320 and 100 square feet which are to be relocated outside the required 20 foot side yard and rear yard setbacks. The project requires a Coastal Development Permit, a Residential Development Permit to exceed the maximum 3-foot fence height limitation and to exceed the 1,000 square foot non-habitable accessory structure size limitation; and a Variance to reduce the required 20 foot side yard to about zero feet for well shed wall reconstruction. No adverse environmental impacts are anticipated.

- **Application Number:** 04-0479

**Location:** 831 Smith Grade Road, Santa Cruz, California 95060

**APN:** 062-251-01

- Project Description:** The project proposes to reinforce the streambank along Cojo Creek and install a drainage swale along a portion of the access driveway that was previously widened. Requires a riparian exception. No adverse environmental impacts are anticipated.
- **Application Number:** 06-0172  
**Location:** 6333 Bonny Doon Road, Santa Cruz, California 95060  
**APN:** 080-121-10  
**Project Description:** Proposal to transfer about 0.20 acre from APN 80-121-10 to APN 063-021-35, and in equal exchange to transfer about 0.20 acre from APN 63-021-35 to APN 80-121-10. Purpose is to correct a structural encroachment. Results in 2 parcels of 2.97 acres (80-121-10) and 92.9 acres (063-021-35), no net acreage change. Requires a Minor Lot Line Adjustment. No adverse environmental impacts are anticipated.
  - **Application Number:** 06-0368  
**APN:** 062-081-09  
**Location:** 2190 Empire Grade Road, Santa Cruz, California 95060  
**Project Description:** The project proposes to modify the approved parking and circulation plan to accommodate a 40 foot bus, ADA, and path of travel improvements, and to grade approximately 300 additional cubic yards of earth. The project includes some accessibility improvements around the interior of the school campus, and revisions to the tree removal plan. Requires a Minor Variation to Commercial Development Permit 94-0608. No adverse environmental impacts are anticipated.
  - **Application Number:** 07-0123  
**Location:** 2190 Empire Grade Road, Santa Cruz, California 95060  
**APN:** 062-081-09  
**Project Description:** The project proposes a one year time extension for Waldorf School (Commercial Development Permit #94-0608) extending the deadline for exercising the permit from March 10, 2007 to March 10, 2008, and extending the March 10, 2009 deadline for completion of Phase I buildings to March 10, 2010. (Note: separate deadline for construction of traffic safety improvements will remain unchanged.) Requires a Commercial Development Permit Time Extension. No adverse environmental impacts are anticipated.  

Note: Permit #94-0608 involves increasing student enrollment from 160 to 245 students and constructing related site improvements, including new buildings, traffic improvements (both internal and external), and additional parking.
  - **Application Number:** 06-0662  
**Location:** Corner of Westdale Drive and Pine Flat Road, Santa Cruz, California 95060

**APN:** 080-282-29

**Project Description:** Proposal to construct a 3016 square foot single family dwelling with an 880 square foot attached garage, on a parcel where a Second Unit will also be built. Requires a Coastal Development Permit, and a Residential Development Permit to increase the maximum 28-foot height limit to about 30 feet by increasing the required 30 foot front yard (on Pine Flat) to 40 feet, the 15 foot street side yard (on Westdale) to 25 feet and the 15 foot side yard and 15 foot rear yards to 25 feet. Includes grading of about 380 cubic yards. No adverse environmental impacts are anticipated.

- **Application Number:** 06-0672:

**Location:** Corner of Empire Grade and Ice Cream Grade, Santa Cruz, California 95060

**APN:** 080-241-21

**Project Description:** The project proposes to construct a 4949 square foot two-story single family dwelling with an attached 3-car garage. The project also proposes to construct a detached 3-car garage with a second unit as a second story over the detached garage, and two 5000 gallon water tanks. Requires a Coastal Development Permit. No adverse environmental impacts are anticipated.

Building Permit Applications in Process:

- **Application Number:** 62564G:

**Location:** 250 Tassett Court, Santa Cruz, California 95060

**APN:** 063-113-01

**Project Description:** The project proposes to recognize a 1,660 square foot shop/office (141 square foot interior) and a 160 square foot storage container; the demolition of an existing 1600 square foot second unit/shop, a 136.5 square foot addition to office/shop, a 240 square foot storage/shed, and a 497 square foot deck. Results in an existing single-family dwelling with a detached non-habitable accessory structure. No adverse environmental impacts are anticipated.

- **Application Number:** 61535G

**Location:** 385 Comstock Lane, Santa Cruz, California 95060

**APN:** 080-131-19

**Project Description:** The project proposes to construct a 650 square foot addition to an existing single-story single-family dwelling to include: new master bedroom, master bath, dressing area and hallway. The project would results in a single-story single-family dwelling with 3 bedroom, 2 baths, dining room, kitchen, living room and covered entry. The site includes an existing detached garage, agricultural building and second unit. The project also proposes to construct a 1,050 square foot concrete block garden wall/fence, and a 482 square foot garage addition to include retaining wall. No adverse environmental impacts are anticipated.

- **Application Number:** 62739H  
**Location:** 775 Brisa del Mar, Santa Cruz, California 95060  
**APN:** 063-071-08

**Project Description:** The project proposes to construct a 2,680 square foot 2-story single-family dwelling with 2 bedrooms, 2 1/2 baths, family room, dining room, living room, laundry room and decks, with a 528 square foot attached garage with rooftop deck. No adverse environmental impacts are anticipated.
- **Application Number:** 62757H  
**Location:** 12500 Empire Grade Road, Santa Cruz, California 95060  
**APN:** 080-021-28

**Project Description:** The project proposes to construct a 3,488 square foot 2-story single-family dwelling to include: 4 bedrooms (1 called den) 3.5 bathrooms, kitchen, family room, living room, dining room pantry, attached 934 square foot garage and 859 square foot deck, and a 576 square foot detached garage. The project also proposes to construct a four-foot high 54 linear foot RW (216 square foot) requiring 730 cubic yards of cut and fill (remainder to be spread on site). No adverse environmental impacts are anticipated.
- **Application Number:** 62033H:  
**Location:** 150 McGivern Way, Santa Cruz, California 95060  
**APN:** 080-251-28

**Project Description:** The project proposes to construct a 1,132 square foot second unit to include 1 bedroom, 1 bath, living room, kitchen, dining room and deck on site with an existing single-family dwelling. 166 cubic yards of grading would be required. No adverse environmental impacts are anticipated.
- **Application Number:** 62804G  
**Location:** 4611 Bonny Doon Road, Santa Cruz, California 95060  
**APN:** 063-081-08

**Project Description:** The project proposes the recognition of a 600 square foot non-habitable accessory structure (shop) on site with an existing single-family dwelling and garage, and the removal of a non-permitted addition to an existing garage on site with existing single-family dwelling and non-habitable accessory structure. No adverse environmental impacts are anticipated.
- **Future Bonny Doon Limestone Quarry Expansion Project (future)**  
**Location:** Immediately east of Bonny Doon Road, approximately 1.5 miles east of Davenport in the coastal mountains of Santa Cruz County, California.  
**APN:** 063-132-08

**Project Description:** The project would propose to expand the existing mining boundary by 9.4 acres encompassing the entire remaining legal limit that is

subject to vested rights. This project would also require an amendment to the Use Permit (3236-U), Certificate of Compliance, Mining Plan, and a Coastal Development Permit. Impacts would be similar to those of the Proposed Project.



**Bonny Doon Limestone Quarry Boundary Expansion Project: Draft EIR**

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**APPENDIX F (Bound Separately)**

**GEOLOGIC, HYDROLOGIC, AND HYDROGEOLOGIC  
TECHNICAL APPENDIX FOR EIR, BONNY DOON QUARRY  
PROPOSED EXPANSION (February 13, 2007)  
Nolan Associates and Nicholas M. Johnson, Ph.D.**

**Available for review at the County of Santa Cruz Planning Department**