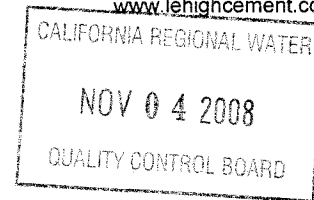


Lehigh Southwest Cement Company

Permanente Plant  
24001 Stevens Creek Boulevard  
Phone (408) 996-4000  
Fax (408) 725-1019  
[www.lehighcement.com](http://www.lehighcement.com)

October 31, 2008

Dale Bowyer  
California Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Ste. 1400  
Oakland, CA 94612



Re: Permanente Quarry  
September 18, 2008 Application for 401 Water Quality Certification  
RWQCB Site No. 02-43-C0596 (bkw)

Dear Mr. Bowyer:

Thank you for your October 17, 2008 comments regarding Lehigh Southwest Cement Company's ("Lehigh") application to the Regional Water Quality Control Board, San Francisco Bay Region ("Water Board") for 401 water quality certification. We have addressed your comments and, to the extent possible, incorporated your suggestions. This letter summarizes our responses and the actions we are taking to address the issues your comments raised.

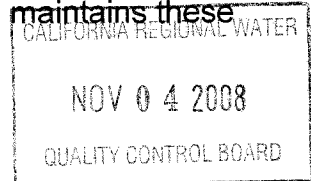
## **BACKGROUND**

### **Site overview**

The Permanente Quarry is a limestone and aggregate mining operation in the Santa Clara County foothills, west of the City of Cupertino's jurisdictional limits. Mining is documented in this location as early as 1903. In 1939, Hanson Permanente Cement, Inc.'s predecessor purchased the property and constructed a cement plant adjacent to the quarry. Mining and cement production of been continuous since that time. Hanson Permanente Cement, Inc. continues to own the site, and Lehigh manages mining and cement operations.

Permanente Creek flows through Hanson's property. Permanente Creek is a natural stream that has its headwaters in the higher elevations of the Coast Range and flows eastward until it reaches the floor of the Santa Clara Valley. Permanente Creek enters Mountain View Slough approximately where the creek crosses the I-280 freeway, and from that point flows eventually enter the South San Francisco Bay. Permanente Creek follows a natural course until approximately mid-way through Hanson's property,

when it reaches the first of a series of sedimentation basins, culverts and channelized segments intended to manage stormwater flow. Lehigh manages and maintains these facilities as part of its normal operations.



## Reclamation Plan

In 1976, the Surface Mining and Reclamation Act ("SMARA") became effective within California, and required mining operations statewide to develop reclamation plans to ensure that mined lands are reclaimed to facilitate post-mining uses. Following these requirements, the County approved the current reclamation plan for the Quarry in March 1985 (Exhibit 1).

The reclamation plan, as required by SMARA, proposed sedimentation basins designed to catch stormwater runoff. The County, additionally, placed conditions on the approval of the reclamation plan that required drainage controls to ensure that sediment was not washed into Permanente Creek and periodic cleanouts of sedimentation basins to ensure retention capacity. The County adopted these requirements and approved the reclamation plan based on a negative declaration.

We have been unable to find a copy of a Notice of Determination filed by the County for the reclamation plan approval. However, the County's environmental review and conditions are well documented in the documents supporting the negative declaration (Exhibit 2).

## Basin history

Ponds 13 and 14 have been in existence for many years. Pond 13 was built between 1983 and 1989 under the Santa Clara Valley Water District's direction. Pond 14 has been in existence since the 1950s. These ponds have been cleaned out and maintained since approximately 1985 with annual or near-annual authorizations from the Santa Clara Valley Water District and Department of Fish and Game.

Pond 22 was built in its current configuration in approximately 1997 under a permit from the Santa Clara Valley Water District. Pond 22 has since been the subject of regulatory approvals obtained from the Water Board, Army Corps of Engineers and Department of Fish and Game.

The remaining ten off-channel sedimentation basins, constructed in uplands, were initially constructed following a Cleanup and Abatement Order issued by the Water Board in 1999. The application materials submitted to the Water Board contain a more detailed permitting history for the current on-site sedimentation basins.

## **Cleanup and Abatement Order**

The Water Board issued Cleanup and Abatement Order No. 99-018 ("1999 CAO") on July 27, 1999. The Water Board issued the 1999 CAO to address sediment discharge in Permanente Creek resulting from site operations. The 1999 CAO required interim and long-term corrective measures for sediment control and specifically requires sediment cleanout of all existing sedimentation basins to maintain adequate retention volume. A copy of the 1999 CAO is attached as Exhibit 3.

## **CURRENT PROJECT**

The project is the approval of a long-term maintenance plan for the sedimentation basins at the Permanente Quarry. The plan would provide for a continuation of regular cleanout and maintenance of sedimentation basins and culverts with U.S. Endangered Species Act (ESA) Section 7 authorization from the U.S. Fish & Wildlife Service (USFWS) as the maintenance activity may affect federally-listed species. The project will ensure that such facilities maintain the capacity needed to handle sediment loads generated by storm events, and protect water quality in Permanente Creek.

Lehigh requires 401 a water quality certification from the Water Board in connection with the Clean Water Act Section 404 permit application pending with the Army Corps of Engineers. Section 404 approval is necessary in order to authorize the temporary placement of fill material in jurisdictional waters of the U.S., as required to conduct basin and culvert maintenance. The Corps has entered into an ESA Section 7 Consultation process with the USFWS and is currently waiting on a Biological Opinion from them.

The project also will address the temporary placement of fill in Permanente Creek in order to construct bridge abutments on either side, but outside of, Permanente Creek.

## **RESPONSES TO COMMENTS**

### **Comment 1**

The Water Board first comments that Lehigh should consider amending the project to remove ongoing maintenance of the in-channel sedimentation facilities. This change would remove ponds 13, 14 and 22 from the proposed sedimentation basin cleanout and maintenance procedures. Additionally, the Water Board suggested that if sedimentation removal was to occur within the three in-channel ponds, the activity should be evaluated to determine if there is a potential for destabilizing Permanente Creek.

Lehigh is preparing a long-term restoration plan for Permanente Creek, as required by the terms of the 1999 CAO. We have committed to providing the Water Board with a conceptual overview of the restoration by November 15 2008, and to giving the Water Board a draft plan for review and comment by April 15, 2009. As part of this plan, Lehigh will analyze whether, and on what time frame, the in-channel sedimentation basins may be removed. Lehigh will seek the Water Board's input throughout this process.

Notwithstanding the success of the Permanente Quarry's off-channel basins towards the improvement of water quality in Permanente Creek, Lehigh must assume for the present that in-channel basins remain necessary to meet the water-quality objectives for Permanente Creek in light of Lehigh's current and anticipated future operations. Maintenance of these basins also remains a requirement of the 1999 CAO. Lehigh will evaluate the future treatment of the in-channel basins as part of the long-term restoration plan that will soon be submitted to the Water Board.

We also appreciate the Water Board's comment regarding the potential for sediment removal to generate head cuts in in-channel ponds. Lehigh will, as recommended, evaluate this issue, make any necessary changes to our maintenance procedures, and reflect those changes in the revised materials to be submitted to the Water Board.

#### **Comment 2**

This comment indicates that it has not yet received the biological assessment. The biological assessment is being completed and we will provide it to the Water Board in short order.

#### **Comment 3**

The Water Board notes that Box 18 does not include calculations for the surface area of ponds and wetlands that will be affected by the project.

Box 18 includes the total surface area of the in-channel ponds that would be impacted by the sediment removal activity but it does not distinguish the area of wetlands within each in-channel pond that would be impacted. Based on the jurisdictional delineation, the area of wetlands that would be excavated (not filled) from Pond 13 equal 21,844 square feet (0.50 acre) and the area of wetlands excavated from Pond 22 equal 7,190 square feet (0.17 acre). Pond 14 was determined to be "open water" and did not contain wetlands. We will include this information in the revised materials to be submitted to the Water Board.

#### **Comment 4**

The Water Board comments that mitigation may be needed for excavating in-channel basins that may be characterized as wetlands. The comment also notes that maintenance activities could detrimentally impact the California Red-Legged Frogs ("CRLF") found on site through past surveys.

Lehigh consulted with Dr. Mark Jennings, an expert on CRLF familiar with the presence and habits of CRLF at the site. Dr. Jennings concluded the project would provide an overall benefit to CRLF (Exhibit 4). He confirmed that without maintenance, in-channel basins would continue to collect sediment and cease functioning as high-quality CRLF habitat. Dr. Jennings stated that deep pools are necessary to provide the best CRLF habitat, as they provide CRLF the opportunity to escape from predators. Due to the lack of recent maintenance, however, deep pools are disappearing through the collection of sediment. Pond 13, for example, is nearly completely filled with sediment. We note, in this regard, that Dr. Jennings' 2006 and 2008 protocol surveys did not find CRLF in Pond 13, and they were found in that location in past surveys.

We also take this opportunity to clarify that the sedimentation basins were constructed as open water ponds designed to capture and store sediment and are not natural features. To the extent that basins have developed wetlands indicators, it is because maintenance activities have been delayed due to the regulatory requirements resulting from the discovery of the presence of CRLF within Pond 13 in 2000 and Ponds 13, 14, and 22 in 2006. This has resulted in an accumulation of sediment due to lack of maintenance until a solution can be determined. Ponds 13, 14 and 22, in particular, are man-made facilities designed to capture sediment and when routinely maintained, these features are open water sedimentation basins. Further, maintenance of the sedimentation basins is a requirement of the 1999 CAO and of the site's SWPPP. We understand that mitigation for excavating sediment from these facilities is not required under federal or state policy.

The Water Board's comments also question whether the in-channel sedimentation basins remain necessary. As noted in response to Comment No. 1, Lehigh must assume for the present that in-channel basins remain necessary to meet the water-quality objectives for Permanente Creek. Nolan (1989)<sup>1</sup> measured total sediment load discharging for Permanente Creek between 1985 and 1987. Although most of this discharge came in one year, the average annual load was 23,000 tons. The amount of sediment removed from Pond 13, 14, and 22 on Permanente Creek was 7 to 23 times greater than the estimated watershed yield (URS 2000, p. 3-10)<sup>2</sup>. We are currently studying this issue in connection with the long-term creek restoration plan.

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<sup>1</sup> Nolan, M., K. and B.R. Hill. 1989. Effects of limestone quarrying and cement-plant operations on runoff and sediment yields in the Upper Permanente Creek Basin, Santa Clara County, California. Water Resources Investigation Report 89-4130. US Geological Survey, Sacramento, CA.

<sup>2</sup> URS. 2000. Hanson Permanente Cement Company, Inc. Long-Term Restoration Plan (Response to RWQCB 99-018, Item C9). Prepared for Hanson Permanente Cement Company, Inc., 24001 Stevens Creek Blvd. Cupertino, CA 95014-5659. Prepared by URS Corp., Oakland, California. Dated September 1, 2000.

### **Comment 5**

The Water Board's comment requests more detail to evaluate the potential impacts of the bridge abutments. Lehigh would be pleased to accommodate this request. We are currently developing more detailed plans regarding the abutments and will provide this information as soon as possible.

The Water Board also requests information regarding the need for an additional crossing, and why other designs were not chosen. The purpose of the bridge crossing is to improve access to Hanson's landholdings located south of Permanente Creek. The current design was selected for its load-bearing qualities. The abutments are included in the project because the in-creek work required to place the abutments (i.e., coffer dam using creek materials, flow diversion with HDPE piping) is similar in nature and extent to the maintenance for in-channel sediment facilities. Also, the overall project purpose is to address all currently-planned construction and maintenance activities that may affect Permanente Creek.

### **Comment 6**

The Water Board comments that CEQA's categorical exemptions may be unavailable to the extent that mitigation is required for special status species, referring to the decision in *Salmon Protection and Watershed Network v. County of Marin*. The project presents a different factual situation than was faced in that case. The project will benefit CRLF and as a result requires no mitigation for CRLF impacts. The Water Board may proceed under any of the categorical exemptions noted in the application materials consistent with the *Salmon Protection* decision.

This project is, additionally, supported by a prior CEQA analysis. As the application indicates, cleanout and maintenance of sedimentation basins are required by the County under the reclamation plan. The County adopted these requirements in March 1985 after CEQA review and pursuant to a negative declaration (see Exhibit 2). Basin maintenance also, as noted in the application materials, is required under the Water Board's waste discharge requirements, which were issued in compliance with CEQA.

### **Comment 7**

The Water Board asks that Lehigh recalculate the application fee. We have, as requested, recalculated the application fee and are submitting a check for the new amount with the revised materials to be submitted to the Water Board.

---

Mr. Dale Bowyer  
October 31, 2008  
Page 7

**LEHIGH**  
HEIDELBERGCEMENT Group

I thank the Water Board for its comments. Lehigh has requested a short, in person meeting to address these and additional questions and concerns. We look forward to finalizing the Permanente Creek restoration plan and long term maintenance plan in cooperation with the Water Board.

Sincerely,

 10-31-2008

Henrik Wesseling  
Lehigh Southwest Cement Company  
Permanente Plant – Cupertino, CA  
Plant Manager

cc. Scott Renfrew – LSCC  
Sean Hungerford – Dienpenbrock Harrison  
Robert Perrera – Huffman-Broadway Group  
Brian Wines – SFBRWQCB

## **Exhibit 1**

Santa Clara County approval of the current reclamation plan for the  
Quarry in March 1985



9

RECLAMATION PLAN  
KAISER CEMENT  
PERMANENTE QUARRY

FOR:  
SANTA CLARA COUNTY

OFFICE OF PLANNING

DEPARTMENT OF PLANNING AND DEVELOPMENT

PREPARED BY:

RUTH AND GOING, INC.

OCTOBER, 1984

JOB NO. 16803

COUNTY OF SANTA CLARA  
**PLANNING COMMISSION**  
 DEPARTMENT OF PLANNING AND DEVELOPMENT  
**APPROVAL**

Form No. \_\_\_\_\_

STAFF  COMPLETION DATE \_\_\_\_\_

APPROVED: \_\_\_\_\_

SUBMITTED: \_\_\_\_\_

RECEIVED: \_\_\_\_\_

REMOVED: \_\_\_\_\_

RECLAMATION PLAN  
KAISER CEMENT CORPORATION  
PERMANENTE QUARRY

I. BACKGROUND AND INTRODUCTION:

Background:

Kaiser Cement Corporation's Permanente Quarry and Cement plant is the major supplier of cement to the northern California area and major source of aggregate for Santa Clara County. The limestone quarry produces approximately 4 million tons of rock annually providing for an annual production capacity of 1.6 million tons of cement, and significant quantities of aggregates for highway, residential and industrial construction.

In conformance with County directives, the California Surface Mining and Reclamation Act, 1975, and the 1982 Santa Clara County Mining Regulations, Kaiser Cement Corporation has been, and continues to be involved in the development of reclamation plans. These plans incorporate reclamation activities into ongoing quarry operations to provide short term visual protection, and eventual long term reclamation.

Past reclamation and scenic protection activities include a landscaping plan and Ridgeline Protection Easement which were undertaken in 1972. Kaiser Cement Corporation granted a permanent easement to the County of Santa Clara to ensure the protection of the view of Permanente Ridge from the Los Altos area. This easement, granted in the form of a deed dated August 18, 1972, states that the ridge will not be lowered below the elevation of

1500 feet for the majority of its length, and not below 1650 feet for a specified area. Permanent fixed monuments physically located the easement in the field, and have been checked periodically by County staff. Work in the ridge area was successfully completed in 1975.

Several months after the Ridgeline Protection Easement was granted, Kaiser Cement prepared and implemented a landscape plan to screen the most visible areas of the Permanente quarry, and to stabilize quarried slopes. This plan, a detailed rehabilitation study prepared by Royston, Hanamoto, Beck and Abey was accepted by the County Board of Supervisors on November 28, 1982. Planting under the guidance of this plan is presently ongoing.

Introduction:

At this time, Kaiser Cement Corporation has prepared another reclamation plan to address the next 25 years of the quarry's operation. This plan will be reviewed and adopted by the County prior to its implementation. In addition to the features of the reclamation plan, this report discusses the quarry's environmental setting, and the operating characteristics of the mining operation. The entire Kaiser Cement site encompasses over 3200 acres, but the discussion in this document is focused only on portions of the 330 acre quarry area -- the location of the reclamation activity.

## II. LOCATION AND SETTING

### A. Location

The Kaiser Cement site is located at the western end of Permanente Road, approximately 1-1/2 miles west of the corporate limits of the City of Cupertino. The Kaiser property, including the cement plant and quarry, consists of 3268 acres situated in Sections 17 and 18, Township 7 South, Range 2 West, Mt. Diablo Base and Meridian. Of this acreage, the quarried area and subsequent reclamation comprises approximately 330 acres. The site location is shown in Figures 1 and 2.

### B. Environmental Setting

The Permanente Quarry is located in the eastern foothills of the Santa Cruz mountains at the western edge of the Santa Clara Valley. Elevations in the quarry area range from 950' to 1900' above sea level with terrain comprised of hilly grassland vegetated with oak and brush. The site experiences annual temperatures ranging from roughly 35 to 100 degrees (F), with precipitation averaging 32 inches a year. Permanente Creek, a perennial stream, is located on the Kaiser property but does not pass through the quarried area.

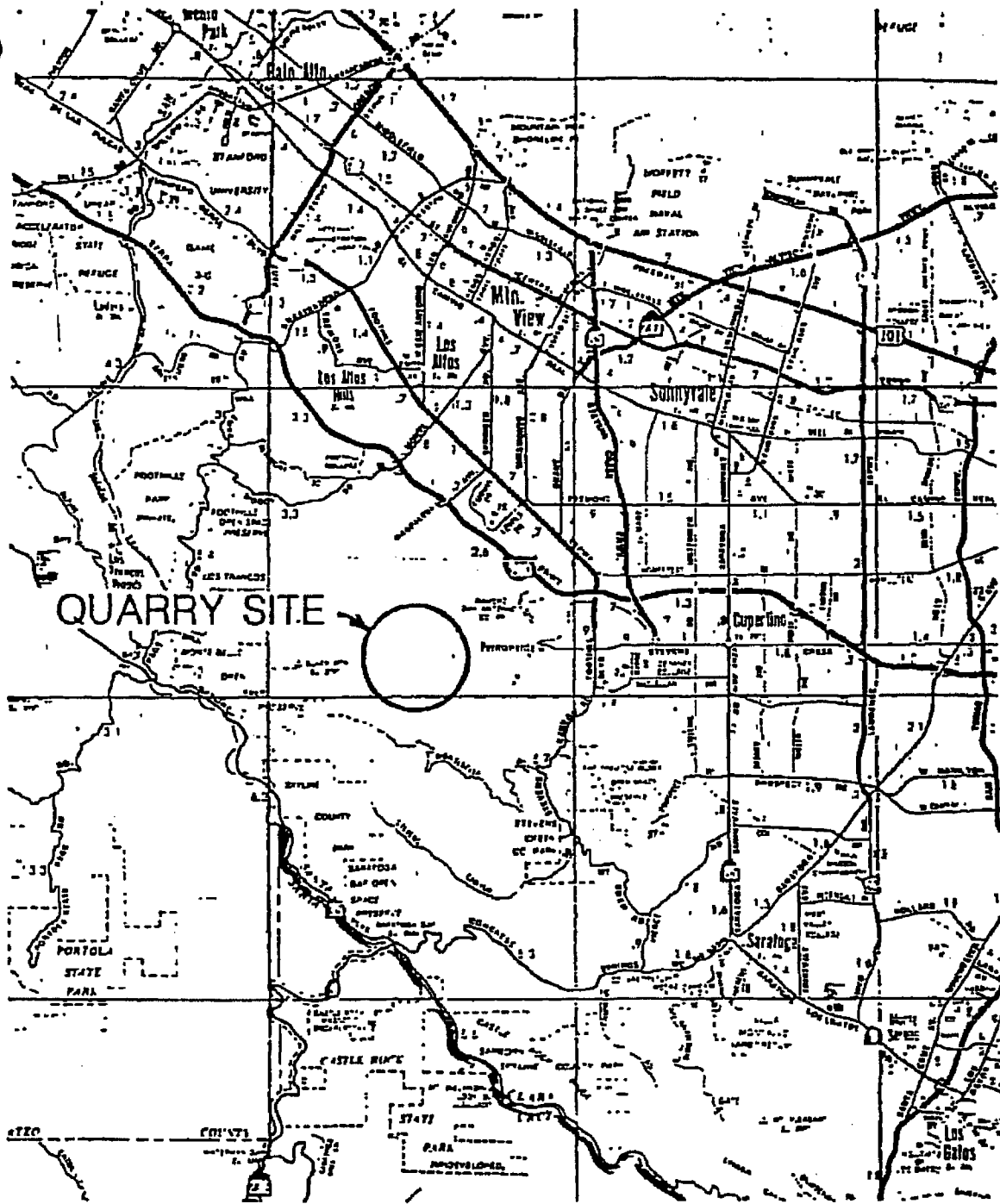
Vegetation: Varieties of vegetation on the site consist of oak woodland, oak savannah, woodland/chaparral, and chaparral habitats. The oak woodland habitat occurs on well drained slopes and flatlands, and consists of open to dense stands of oak trees with an understory of annual grasses, herbs, and low shrubs such as poison oak, coffee berry and coyote brush. The California live oak is one of the oak species on the site.

This species is a slow growing variety of oak, but one that can survive for hundreds of years.

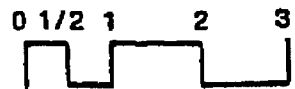
There are no rare or endangered plant species expected to be present in the area. The nearest recorded location of rare and endangered plant species is in the coastal foothills of the Santa Cruz mountains, some 15 miles away.

Wildlife: The oak woodland vegetative group provides a valuable habitat for a variety of birds, reptiles, and mammals, as well as refuge for larger animals such as deer and coyote. Known and expected wildlife on the site include the Mule deer, coyote, raccoon, bobcat, Red tailed hawk, California quail, Western fence lizard, and various snakes and amphibians.

No rare or endangered animal species are expected to inhabit the areas near the Permanente Quarry.

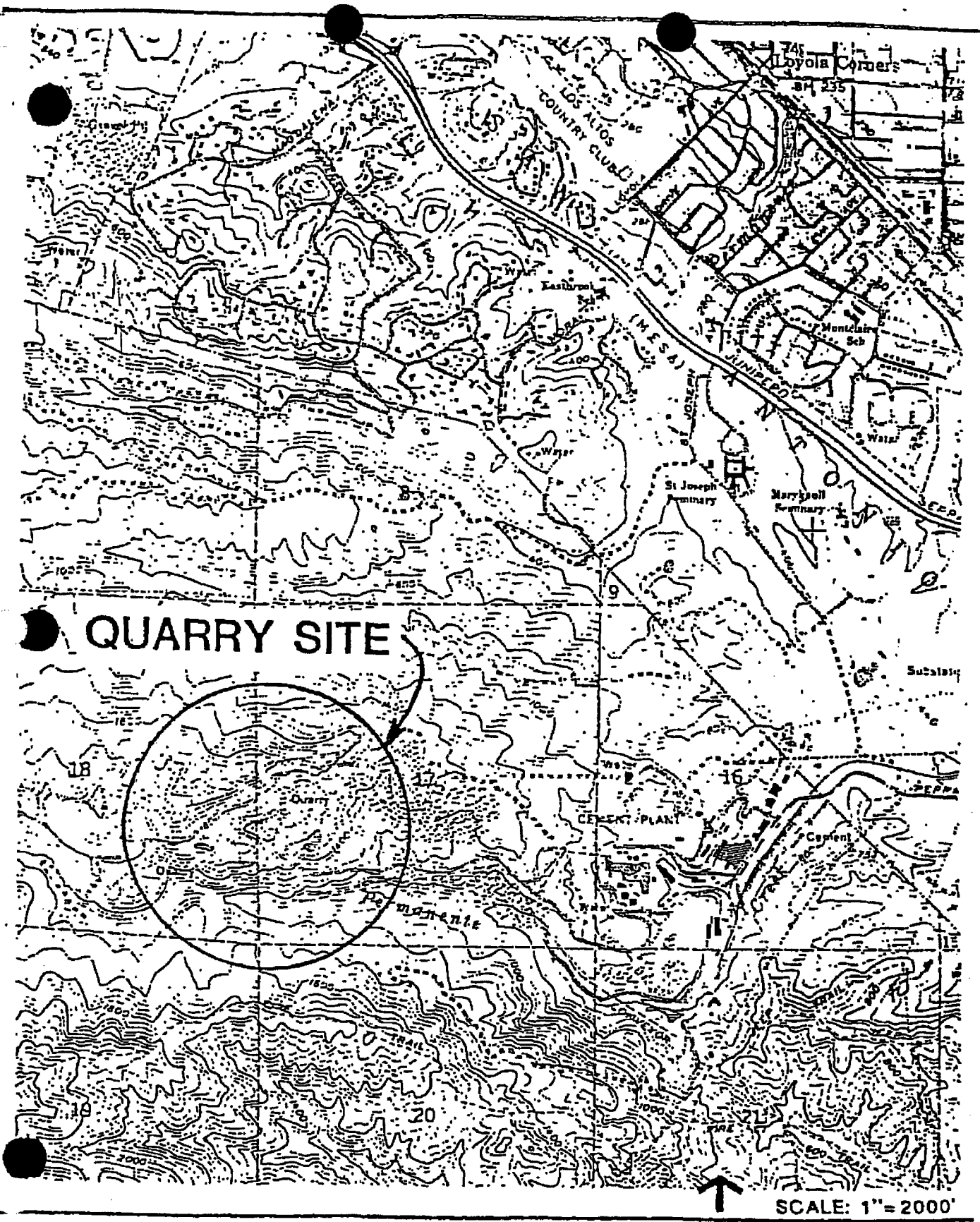


SCALE IN MILES



LOCATION MAP

FIG. 1



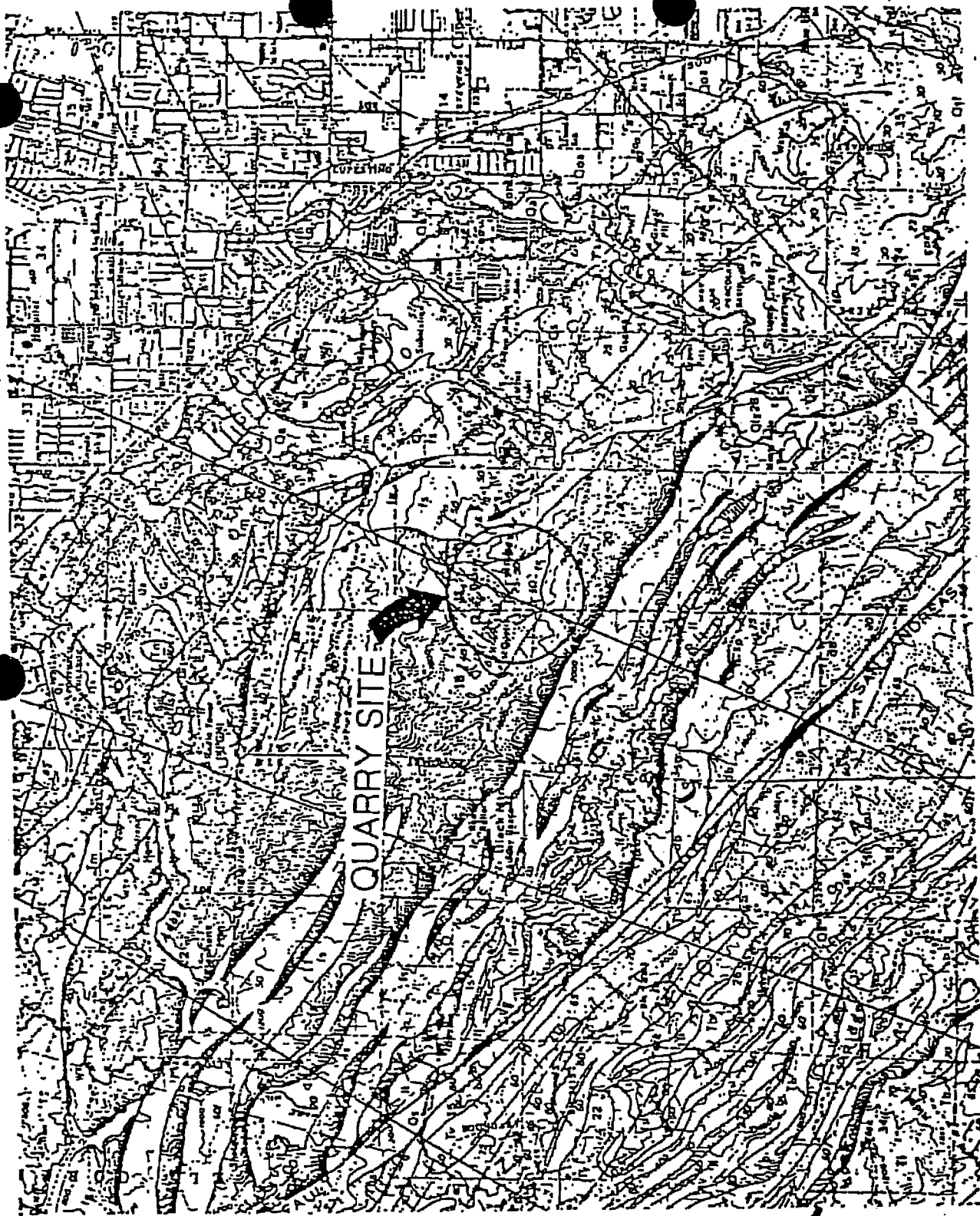
VICINITY MAP

FIG. 2

C. Geology

The limestone quarried at Permanente is considered to be one of the units of the Jurassic-Cretaceous age Franciscan Complex. The limestone unit is locally referred to as the Calera limestone. The Permanente deposit is by far the largest limestone body known to exist in a number of discontinuous masses of limestone that crop out along a northwest-southeast trending zone in the central and southern San Francisco peninsula area of the Coast Ranges. The limestone deposit in the quarry is associated with Franciscan graywacke, sandstone, red chert, diabase and greenstone, all of which are exposed in the quarry area. Further to the east, in the vicinity of the cement plant, the Franciscan is in contact with the younger Plio-Pleistocene Santa Clara Formation. As indicated on Figures 3A and 3B, the quarry areas pertaining to this reclamation plan are completely underlain by the Franciscan.





←  
SCALE: 1" = 4000'

GENERAL GEOLOGY MAP

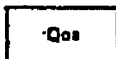
FIG. 3A

of FIGURE 1

Qs	Qm	Qls
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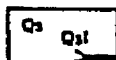
Surficial sediments  
 Qs, alluvium;  
 Qm, bay mud and clay;  
 Qls, landslide rubble.

UNCONFORMITY



Older alluvium

UNCONFORMITY



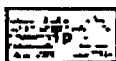
Santa Clara Formation  
 Qs, gravel;  
 Qsl, lake beds

UNCONFORMITY



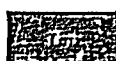
Merced(?) Formation

UNCONFORMITY

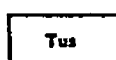


Purisima Formation

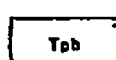
UNCONFORMITY



Monterey Shale



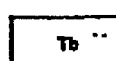
Unnamed sandstone



Page Mill Basalt



Mindego Basalt



Basalt and diabase



Lambert Shale

QUATERNARY

TERTIARY

Matineus

Pliocene

Miocene

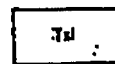
Oligocene

Franciscan

Cretaceous



Vaqueros Sandstone



San Lorenzo Formation



Butano Sandstone  
 T<sub>bu</sub>, sandstone;  
 T<sub>bs</sub>, shale;  
 T<sub>bc</sub>, basal conglomerate



Unnamed shale



Serpentine



Diabase

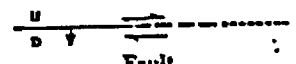


Franciscan Formation

fs, sandstone or graywacke;  
 fh, shale;  
 fl, limestone;  
 fc, chert;  
 fg, greenstone;  
 fu, undivided rocks (Shown in sections only)

Contact

Dashed where gradational or approximately located



Fault

Dashed where indefinite or of doubtful existence; dotted where concealed. U, upthrown side; D, downthrown side. Parallel arrows indicate relative lateral movement; single arrow indicates dip of fault plane

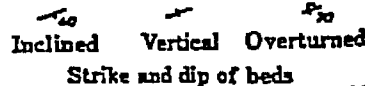


Anticline

Syncline

Fold, showing surface position of axis and direction of plunge

Dashed where approximately located



Inclined Vertical Overturned  
 Strike and dip of beds

CRETACEOUS

GENERAL GEOLOGY LEGEND

FIG. 3E

Geologic work has been performed in the Permanente quarry and surrounding area by Kaiser personnel, consultants, and outside interests such as universities and state and federal geologic surveys. A complete reference listing of geologic reports, published is presented as Appendix A to this report. In addition, there have been more than 700 exploratory test holes drilled at Permanente along with numerous "in-house" geologic maps and cross sections prepared since Kaiser Cement Corporation began operating this deposit in 1939.

Table 1 indicates the location of the Permanente quarry relative to active and potentially active faults in the region. Of the faults listed, the strike-slip San Andreas fault is considered capable of producing a great earthquake equal to the 1906 San Francisco Earthquake.

Among the faults that may directly affect the subject area, the Sargent-Berrocal Fault Zone, as described in the literature, is a northwest trending zone of reverse and thrust faults extending from San Juan Bautista north to Permanente and then to Palo Alto, where it appears to join the San Andreas Fault. At Permanente, the main trace appears to trend northward under Permanente Creek where the creek forms a one-half mile N30W-trending, linear valley in a zone between the cement plant

ACTIVE AND POTENTIALLY ACTIVE FAULTS AND THEIR EARTHQUAKE CHARACTERISTICS

Causative Faults	Distance and Direction from Permanente Quarry	Maximum Historical Earthquake Magnitude (Richter Magnitude)	Maximum Probable Earthquake Magnitude (Richter Magnitude)	Est. Recurrence Interval of Max. Prob. Earthquakes
San Andreas System	San Andreas 2 Miles West	8.3 (last event: 1906)	8.3	50-200 Years
	Hayward 16 Miles East	7.0+ (Last event: 1868)	7.0	10-100 Years
	Calaveras 19 Miles East	6.0+	7.0	10-100 Years
Sargent-Terrocotal System	Berrocotal ½ Mile East (Main segment) (Branch exposed in quarry)	3.7 to 5.0	6.5 to 7.0	Data insufficient for estimating
	Monta Vista 1½ Miles East	2.0 to 3.0	6.5 to 7.0	Data insufficient for estimating

TABLE 1

SOURCE: Seismic Safety Element  
City of Cupertino

and the quarry. There is a significant difference between bedrock types on opposite sides of this linear valley, with the southeastern block predominantly Santa Clara formation and the northeastern block composed of Franciscan complex rocks. A northwesterly trending branch of this main Berrocal fault segment does appear to split off through the quarry. This is observed in the quarry as a series of northwest trending shear zones within the limestone.

The present activity of the Berrocal zone in the Permanente area is speculative. There is no evidence to date, that indicates the fault has offset recent sediments within the local area, although microseismicity near Stevens Creek Reservoir, about 2 miles southeast, suggest that the fault may be potentially active.

The possible seismic hazard to the Permanente quarry and surrounding area is the potential for severe ground shaking from a major event on the San Andreas. Secondary effects due to this strong ground motion would be ground failure such as landsliding, ground settlement, ground cracking and rock falls. Due to local differences in the geologic and topographic conditions, variations of ground shaking intensity are to be expected from place to place. If a significant earthquake event occurs on the San Andreas, effects in the quarry may include localized rock falls on quarry faces, ground cracking on benches close to adjacent quarry faces, or local slumping or sliding of less competent materials such as the serpentinized greenstone area in the upper northwest portion of the quarry. Due to the nature of the hard rock materials and existing pit slope angle of  $45^{\circ}$  in the quarry, it is unlikely that significant ground failure will occur. Effects to the

rock storage areas will most likely be ground settlement and local slumping of exposed faces. The very coarse rock material in these storage areas will preclude any failure due to liquefaction. Neither area (quarry or rock storage) supports any buildings or man-made structures.

D. Mineral Deposit










The Calera limestone at Permanente covers an irregular triangular area with an approximate exposed length of one mile and width of two-thirds of a mile. The limestone unit is tabular in nature with an exposed thickness of at least 800 feet. The section is composed of thin limestone beds and interbedded chert. The limestone is made up of continuous beds of uniform thickness that can be traced the entire length of outcrops. The thickness of most beds ranges from 2-6 inches. Chert lenses are of the same range in thickness but are not continuous. Over only a few feet of section, chert may be absent or form up to 50% of the rock.

The limestone deposit is divided into two units that include a lower black limestone and an upper white limestone. The lower unit is largely recrystallized and bituminous, with about 2% organic matter. Less recrystallized parts contain some nanofossils. Larger microfossils are radiolarian molds occurring in both limestone beds and chert lenses. The upper white limestone is stratigraphically above the lower black limestone (based on geopetal features and graded bedding). It is less recrystallized than the lower unit, lacks bituminous matter and contains more chert lenses, and has planktonic Foraminifera in addition to Radiolaria. No burrowing or primary sedimentary structures or megafossils are present. The

best estimate of the age range in the light limestone till now is mid-late Cretaceous (late Turonian, 88 million years) in the upper light limestone to late, lower Cretaceous (Albian, 105 million years) in the lower part of the light limestone, based on recent work by the U.S. Geological Survey. Dateable fossils have not been found in the lower, black limestone.

Stratigraphic relations of the two limestone units have been extensively studied. Problems with interpretations have been related to extensive thrust and high angle faulting causing repetition and omission of strata. Recent work, as indicated on Figure 4, suggests that the two limestone units, the upper white and lower black limestones, are repeated by thrust faulting into two blocks. The upper limestone unit is split by a diabase sill, approximately 80 feet thick. The sill occurs only in the upper thrust block. A few volcanic ash horizons 20-40 cm thick are found interbedded with the upper white limestone, although recent interpretations suggest that these layers may be a clayey fault gouge related to thrust faulting. The limestones are in fault contact, both at the top and bottom of the section with Franciscan rocks, greenstones, graywacke, and serpentized greenstone, which are exposed in the quarry.

STRATIGRAPHIC SECTION  
PERMANENTE QUARRY

Geologic Map Symbol	Approximate Thickness (ft)	Rock Name	Geologic Description
	30 - 70 (covered)	Providence Volcanics, Sandstone	Altered calcareous basalt, gneiss, and graywacke sandstone.
	20 - 30	Upper White, s/s shert	White to light gray, fine-medium crystalline limestone. Trace of shert lenses.
	110 - 115	Upper White, s/shert	White to medium gray, very fine-fine crystalline limestone. Numerous lenses and beds of medium dark gray shert.
	60 - 100	Mahara	Brownish gray, medium crystalline, massive, siliceous silt.
	100 - 150	Lower White	Light gray to brownish gray, fine crystalline limestone with varying amounts of banded gray to dark gray shert.
	200 - 250	Lower Black	Medium to dark gray, medium crystalline limestone with traces of dark gray shert bands. Siliceous silt.
Lenses			
	100 - 110	Upper White	White to medium gray, very fine-fine crystalline limestone, light gray to dark gray shert bands parallel to bedding.
	50 -	Lower Black	Medium to dark gray, medium crystalline brownish limestone with occasional shert bands.
Lenses			
	unknown thickness	Providence Volcanics, Sandstone, and siltstone	beds, soft, graywacke sandstone, and siltstone particles.

20/52 BAR



Structurally the limestone body is complicated by faults and folds, but generally dips  $25^{\circ}$  to  $35^{\circ}$  SE. The section is highly jointed and both types of limestone are strongly fractured. Joints are mostly perpendicular to bedding.

Exposures in the quarry indicate that at least three thrust faults roughly parallel to bedding slice the deposit. Subsequent high angle faulting, possibly related to the Berrocal Fault system trends generally NW.

The chemical quality of each limestone unit varies considerably. The upper, light limestone averages 80% calcium carbonate ( $\text{CaCO}_3$ ) or more, but varying amounts of chert lenses lowers the bulk  $\text{CaCO}_3$  to 70% or less when mined. The upper portion of this unit has lesser amounts of chert and has higher carbonate values. The lower, black limestone averages 87%  $\text{CaCO}_3$  ranging from more than 90% to less than 80% in individual layers. Variations also occur near contacts and where chert interbeds are common. Both limestone units exhibit a decrease in  $\text{CaCO}_3$  values in shear and fault zones that bisect the deposit. Four grades of rock are presently used for quarry development: (1) high grade - dark gray limestone unit with  $\text{CaCO}_3$  values greater than 85%; (2) medium grade - mixture of light and dark limestone running between 70 to 85%  $\text{CaCO}_3$ ; (3) low grade - mainly light gray limestone with chert lenses ranging 50-70%  $\text{CaCO}_3$ ; and (4) non-limestone rock types such as the diabase, Franciscan volcanics and sediments, fault gouge, and soil overburden. The high and medium grade limestone is principally used in the manufacture of cement while the low grade limestone and harder Franciscan rock types are used in the production of crushed rock for aggregate.

Small amounts of Franciscan volcanics and sedimentary rocks are used as a clay additive in the cement-making process, depending upon the respective chemistry of each rock type.

E. Historic Land Use

The earliest recorded activities on the site indicate that, by 1899, a wagon road had been constructed along much of the length of Permanente Creek to gain access to the limestone. The State Mineralogist's report of 1906 records that limestone quarrying along the creek took place at least as early as 1903. The sugar beet industry was an early stimulus for limestone extraction, later followed by the tremendous urban growth in the Bay Area.

The Kaiser Corporation acquired the site in the late 1930's and began quarrying and cement processing in 1939. The operation began as a two-kiln, wet process plant which expanded, after World War II to six kilns. In 1982, the original kilns were replaced with a single 1.6 million ton dry process kiln.

### III. MINING OPERATIONS

#### A. Mined Lands

For the next 25 years, the existing and planned excavation and storage areas will encompass approximately 330 acres.

The materials storage areas are located just west and east of the quarry. The west site is used for maintaining a supply of material which currently is not used for the production of cement. This material includes low-grade limestone, and other rock types excavated from the quarry. It is expected that these lower grade limestone and rock materials will be used in the future when scarcity of the materials increase their marketability. The east site is comprised of an existing pile of rock materials which will be relocated further to the east and revegetated. This will allow the limestone beneath to be excavated while maintaining a knoll as a visual buffer between the quarried area and the Santa Clara Valley area. Figure 5 shows the quarry and both material storage areas.



FIG. 5

QUARRY PIT AND STORAGE AREAS

## B. Operations

The Permanente Quarry utilizes an open pit technique to extract the limestone and associated rock materials. This procedure generally is: 1) any topsoil overburden is removed and stockpiled for future use, 2) haulage roads are developed to the planned benches, 3) blast holes are drilled in the rock with rotary blasthole drills, then controlled electric blasting loosens the rock at a benching interval of 50 feet, 4) front-end loaders and electric shovels load the broken rock into 65-ton off-highway haul trucks to be transported to the primary crusher located at the southeastern edge of the quarry. From there, the crushed rock is transported, for further processing, to the cement plant further to the east. Other rock types, and limestone not currently utilized in cement manufacture are either crushed and conveyed to the commercial rock plant or hauled directly to the materials storage area for potential use in the future.

The quarry operates year-round, five days a week, two shifts a day, although the schedule is subject to variations due to market conditions or maintenance periods.

The design for the reclamation plan is shown in Figure 6, which presents the excavation contours overlain on the existing topography. The overall pit slope for both the existing and future operations will be maintained at an angle of 45 degrees (1:1).

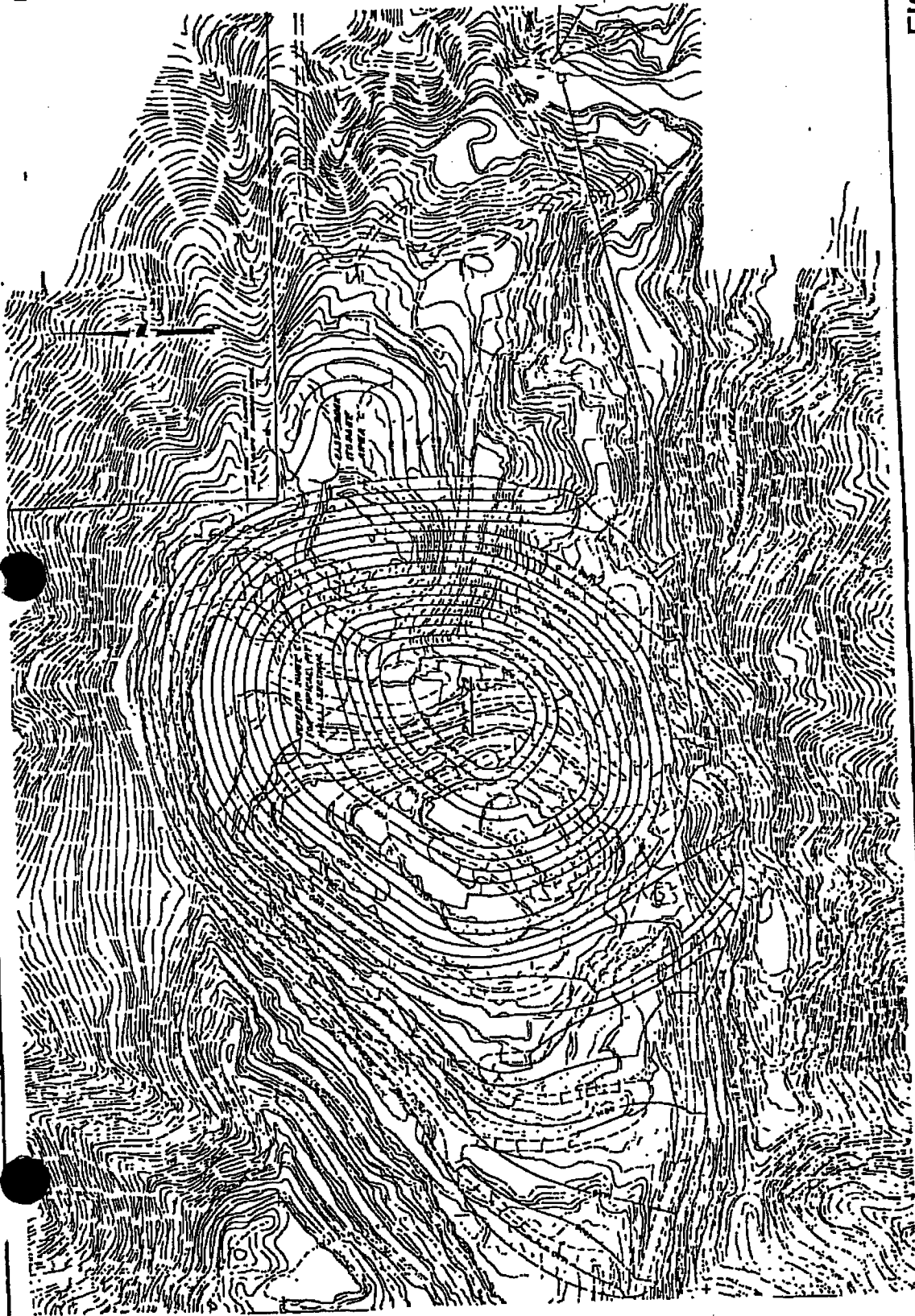


FIG. 6

QUARRY PIT DESIGN

A slope stability study for the quarry area, which is summarized in Appendix B, indicates that the 1:1 slope design is well within recommended features for slope stability.

The West Materials Storage area, contains the stockpiled rock materials and currently nonmarketable limestone. This material is maintained at a 3:1 gradient in order to achieve slope stability. Beyond the timeframe of this reclamation plan, it may eventually be sold or utilized in the reclamation process.

The East Materials Storage area will be similarly established.

C. Public Health and Safety

On-site dust related to mining operations is controlled by spraying the haul roads with water mixed with a commercial dust suppressant. Runoff collected in the quarry supplies some of the water for this use.

Blasting operations are conducted only by state licensed personnel to ensure that the procedures meet or exceed the requirements of Cal-OSHA.

For safety and security reasons, the public is barred access to the site by gates located on Permanente Road at the cement plant area.

#### IV. RECLAMATION

##### A. Timeframe

The reclamation plan presented is intended for a 25 year period. It addresses erosion control and maintenance of the West Materials Storage area, and reclamation and revegetation of the East Materials Storage area, allowing this area to serve as a visual buffer between the quarry and the Santa Clara Valley. Ultimate reclamation of the pit area, or treatment of future quarry operations, will be addressed in a revised reclamation plan to be submitted around the year 2005 when this reclamation phase nears completion. Since market demand for cement partly determines the rate of limestone extraction, this estimate may be subject to some modification in the future, in response to demand for the product.

Present mining plans for the quarry call for a 25 year period of operation. Inferred limestone reserves are estimated to support an operation of this magnitude for up to 50 years. Beyond this period the quarry could continue to operate as a crushed stone source for construction aggregate. Thus, the time span of the total life of the operation is only an estimate and is subject to future modification in response to actual market and quality conditions.

##### B. Phasing

###### West Materials Storage Area

The West Materials Storage area will be built up, contoured, and revegetated as quarrying operations generate overburden and



excess rock material. Within the storage area, the build up of material is expected to occur roughly in three phases: Phase 1 will bring the material pile up to the 1800 foot contour; Phase 2 will add another 100 feet in elevation to reach the 1900 foot level; Phase 3 will bring portions of the material to elevations of 1950 to 1975 feet, contoured to achieve both slope stability and a natural appearance in relation to the surrounding terrain.

All surfaces will be revegetated when they reach their ultimate grade. Phase 1, 2 and 3 are expected to be executed in 10, 20 and 25 years, respectively. Some modifications to the timing may result in relation to the rate of quarrying activity.

Runoff in the storage area is currently directed to catchment areas which collect sediment. The high percentage of rocks and granular material in the storage area allow rapid percolation by the runoff. As Phase 1 of the material storage nears final grade, the runoff will be directed along the new access road. The runoff will be caught in a sedimentation basin as shown on the reclamation plan. The basin and outfall will be constructed prior to the completion of Phase I.

#### East Materials Storage Area (Area C)

In this area the slope between contours 1400 and 1420 will be revegetated first, other areas will be planted as material becomes available for placement.

After the proposed grades have been reached for an area, 4 inches of soil will be added where practical and plant materials installed. The plant materials and planting

techniques used will be tailored to the specific area to be revegetated.

#### West Materials Storage Area (Area A)

The West Storage Area, because the rock material here may be used in the future, will be revegetated using seed material applied within a hydromulched slurry mixed together with fertilizer. No woody tree or shrub materials will be used in this mix, however tree species found on-site will establish themselves naturally over the 25 year period.

The purpose of the seven species of grass and wildflower seed within this mix is to stabilize the slopes and prevent erosion. Use of the seed materials selected promotes reseeding and does not require the use of supplemental irrigation.

Revegetation of the East Storage Area will utilize significantly more plant materials and different planting techniques. More extensive tree and shrub plantings will be used to incorporate the new hill into the surrounding natural setting. These plantings will include two types of oak seedlings, coyote brush, ceanothus and buckwheat seedlings, as well as a seed mix containing four different grass and wildflower species. Figure 7 presents the proposed revegetation scheme in this area.

To insure survival of the tree and shrub seedlings, protective screening is proposed to protect the vegetation from deer and rodents. Six-foot high "Poultry Net" fencing will be used to protect seedlings from deer. In addition, a portion of the oak seedlings will be protected individually by fine mesh screening to prevent damage from rodents.

Although native plant species have been selected for revegetation, some supplemental, temporary irrigation will be required due to conditions at this particular location. The high porosity of the soil, and the predominance of southern and western exposures contribute to a very dry environment for seedlings to develop. Therefore, supplemental irrigation will be provided for approximately 5 years, until the plants are fully established. An existing irrigation system will be expanded and utilized to provide water to the East Storage Area revegetation.

LEGEND	
[Symbol]	AREA TO BE REVEGETATED
[Symbol]	SOURCE OF TOP DRESSING MATERIAL
[Symbol]	DEER FENCING
PLANT LEGEND	
[Symbol]	COMMON BUCK BRUSH 210
[Symbol]	COYOTE BRUSH 180
[Symbol]	GOLD CHP OAK 210
[Symbol]	LEATHER OAK 210
[Symbol]	COYOTE BRUSH WILD BUCKWHEAT 468
[Symbol]	HYDROSEED MIX
	TOTAL 1210

**NOTE**  
 EACH PLANT GROUPING WITHIN FENCED AREA CONTAINS 40 BUSHINGS.  
 EACH PLANT GROUPING OUTSIDE FENCED AREA CONTAINS 80 BUSHINGS PER ACRE 60'.  
 COST AND TIME TO BE REVEGETATED SHALL BE PLANTED AS PER OPERATIONS ARE COMPLETED.

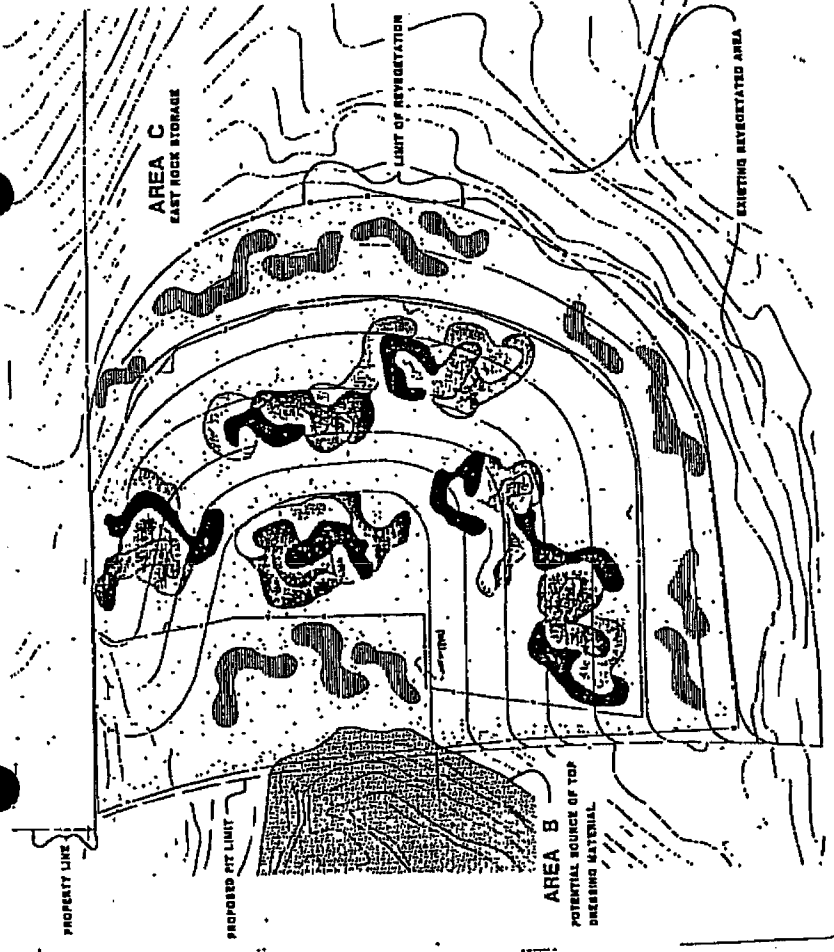


FIG. 7

REVEGETATION PLAN EAST MATERIALS STORAGE AREA

In addition to fencing protection and irrigation, all revegetation materials will be fertilized. For hydroseeded/mulched materials a totally organic, water soluble fertilizer will be used within the slurry. In the case of seedlings, slow release, long term tablets will be placed within the root zone to provide fertilization over the following two years.

The overall intent of the revegetation plan proposed is to provide the proper conditions to promote healthy mature plantings that will be similar to the surrounding native vegetation.

To further insure that the revegetated plantings will survive and grow to mature sizes, the Kaiser Cement Corporation intends to monitor all installations and conduct periodic maintenance. In this way the proper plant materials, irrigation and fertilization will be insured any potential problems can be addressed early on, providing every chance for the successful revegetation of these areas.

C. Ultimate Conditions

At the end of this 25 year reclamation program the following conditions will exist. The West Materials Storage area will have reached a maximum elevation of 1975 feet. Its slopes will be established at a 3:1 gradient and planted with native grasses to control erosion.

The East Materials Storage area will have reached a maximum elevation of 1475 feet, with slopes at a 3:1 gradient. It will be revegetated with native grasses, shrubs, and trees.

The quarry pit area will be excavated at an overall gradient of 1:1 in conformance with the slope stability investigation. Any future alternatives, including revegetation and continued operation, will be addressed in another reclamation plan to be prepared in approximately 20 years.

APPENDIX A  
BIBLIOGRAPHY

Contents of file kept in Permanente (Office) - Revised August 25, 1951 to include additions indicated by \*.

SUMMARY - GEOLOGICAL REPORTS AND MEMORANDA ON PERMANENTE PROPERTY

DATE	TITLE	AUTHOR	CONTENT
1888	Eighth Annual Report of the State Mineralogist, "Santa Clara County"	California State Mining Bureau	Historical notes on Guadalupe deposit, Mentions bituminous limestone.
1890	Tenth Annual Report of the State Mineralogist, "Santa Clara County"	California State Mining Bureau	Historical notes: Guadalupe and Los Gatos deposits.
1894	Twelfth Annual Report of the State Mineralogist, "Santa Clara County"	California State Mining Bureau	Historical notes: Los Gatos, Guadalupe, and Wright's Ranch deposits.
1896	Thirteenth Annual Report of the State Mineralogist, "Santa Clara County"	California State Mining Bureau	Historical notes: Guadalupe and Los Gatos deposits.
1906	Structural and Industrial Materials of California, "Santa Clara County"	California State Mining Bureau	Historical notes: El Dorado Sugar Company's Quarry (Permanente) and Los Gatos Line Quarry.
1908	Map showing distribution of apparent intensity, known faults, routes examined	Lawson, A.C., ed., 1908 Atlas, U. S. G. S.	1:125,000 scale
1921	Report XVII of The State Mineralogist "Santa Clara County"	California State Mining Bureau Huguenin, E. & Catefor, W.O.	Historical notes: Minship Property.
1930	San Francisco Field Division Santa Clara County	California Division of Mines Frank, H.A.	Brief Regional Description - Historical Notes - Bond and Minship Properties.
1933	Limestone Deposits of the San Francisco Region	California Division of Mines Echel, E.C.	Distribution, Composition, Historical Notes.
1933	Limestone Weathering and Plant Associations of the San Francisco Region	California Division of Mines Kelly, J.W.	Limestone soils, Plants, Vegetation.



SUMMARY - GEOLOGICAL REPORTS AND MEMORANDA, PERMANENTE PROPERTY

<u>DATE</u>	<u>TITLE</u>	<u>AUTHOR</u>	<u>CONTENT</u>
Apr 1944	Tonnage Available In The North Ridge of The Upper Quarry	Grimm, K.E., Chief Geologist, Knuth, W.J., Permanente Corporation	Notes on mining aspect.
Feb 21, 1945	Development and Operations Program For The Permanente Cement Company Quarries for the Years 1945, 1946, 1947, 1948, and 1949	Grimm, K.E., Chief Geologist, Knuth, W.J., Permanente Corporation	Mining plan, recommendations to strip and beneficiate to extend life of property.
Aug 27, 1945	Memo to J. W. Sharp	Jack, O.E., Permanente Laboratory	Drill hole analysis from Black Mountain
Sep 1945	Geological Report of McCaughern Property	Grimm, K.E., Chief Geologist Permanente Corporation	Report on surrounding properties, particularly Black Mountain region.
Nov 1945	Insoluble Residues of The Calera Limestone In Santa Clara County, California	Pantin, J.H., Stanford University M.S. Thesis	Stratigraphic correlations, Permanente geologic map and section.
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Feb 28, 1947	Memo to Sharp, Hall, Jack, Knuth	Zimmerman, Jr., John, Chief Geologist, Permanente Corporation	Report on outside areas to supplement limestone supplies - Guadalupe Dam, Los Gatos, Monte Bello, etc.
Apr 14, 1947	Letter to Lewis Timpany	Zimmerman, Jr., John, Chief Geologist, Permanente Corporation	No interest.
Jun 1947	Insoluble Residues of the Calera Limestone from Its Type Locality, Calera Valley, San Mateo County, California.	Miranda, L.J., Stanford University M.S. Thesis	Stratigraphic correlations.

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<u>DATE</u>	<u>TITLE</u>	<u>AUTHOR</u>	<u>CONTENT</u>
Jul 1947	California Journal of Mines and Geology, "Limestone in California"	California Division of Mines Logan, C.A.	Description of limestone deposits. Permanente's operations.
Aug 6, 1950	Letter to H. J. Kaiser	Timpany, Lewis	Promotional description of limestone on property south of Permanente.
Aug 22, 1950	Letter to Lewis Timpany	Marsh, W.A., General Manager, Permanente Corporation	No interest.
Dec 1950	The Calera Limestone in San Mateo and Santa Clara Counties, California	California Division of Mines Walker, G.W.	Special report on Calera Limestone.
" 1952	Cretaceous Foraminifera from the Franciscan Calera Limestone of California	Church, C. C.	Assigns middle to basal upper Cretaceous age to Calera.
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Jan 15, 1958	Memo to W. A. Marsh	Stilbolt, C.B.	Crocker lands:
Apr 6, 1961	Permanente Quarry Stratigraphic Section	Towse, D.	With CaCO <sub>3</sub> percent.
Jul 20, 1961	Memo to R. G. Hohnsbeen	Kennedy, J.R.	Ref to planning & development in Palo Alto/Foothills area.
Jan 9, 1963	Memo to E. B. Connors	Towse, D.	Ref to pit development to south.
" 1964	Floating Limestone at Permanente	Kleiber, J.C. & Weisel, G.M.	Beneficiation of low grade limestone.

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DATE	TITLE	AUTHOR	CONTENT
Jun 26, 1939 and Oct 13, 1939	Report on Tonnage & Composition of Limestone Available in Proposed Quarries A and B, Permanente Corporation, and Superficial Residuary Clay on The Property of The Permanente Corporation	Toleman, Prof. C. F. and Neuman, Jr., J.V., Stanford University	Original evaluation Permanente property confined to area above 1500' e.l. Although, limestone was recognized at lower elevations. First detail mapping of rock units and structures, description of sampling, and tonnage calculation.
1941	Milling at the Permanente Cement Plant	Kivari, A. H.	Early quarrying and milling; short summary of Tolman and Neuman report.
1942	Geologic History and Correlation of the Jurassic of Southwestern Oregon and California	Talliaferro, M. L.	Early ideas on origin and age of Franciscan and relationship to other formations of same age.
1942	Uppercretaceous Age of the "Franciscan" Limestone near Laytonville, Mendocino County, California	Thalman, H.E.	Assigns same age to Laytonville and Calera limestones.
Nov 1, 1942	Geological Report and Discussion of Reserve Rock Permanente Quarry Areas	Grimm, K.E., Chief Geologist, Permanente Corporation	Update on Tolman, Neuman report with new information available from operations. Further identification of limestone units. References to south side of creek.
Dec 5, 1942	Memo to Rhodes	Grimm, K.E., Chief Geologist, Permanente Corporation	Ref to Parcel 2 of Perrone Property.
1943	Franciscan-Knoxville Problem	Talliaferro, M.L.	Urges narrowing of definition of Franciscan. States that Knoxville is an upperphase of Franciscan. Discusses lithology.
Jul	Black Mountain Prospect #1	Grimm, K.E., Chief Geologist, Permanente Corporation	Report - Geology, Economic Geology, plus map and section.
Oct 27, 1943	Geological Report & Discussion of Reserve in The Quarries of The Permanente Cement Company	Grimm, K.E., Chief Geologist, Permanente Corporation	Update and general confirmation of previous work.
Mar 15, 1944	Memo to B131 Sharp	Grimm, K.E., Chief Geologist, Permanente Corporation	Limestone on McLaughern Properties and adjacent area (Black Mountain).

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1967	Electron Microscopy of Limestones in the Franciscan Formation of California	U. S. Geological Survey Garrison, R.E. & Bailey, E. H.	Distribution, characteristics, and origins of Franciscan limestones. Recognized organic origins.
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1973	Preliminary Report 12 "Environmental Geologic Analysis of the Monte Bello Ridge Mountain Study Area Santa Clara County" Maps: Plate 1, 1-A, 2, 3, & 4	California Division of Mines and Geology, Rogers, T.H. and Armstrong, C.F.	Tests: Areal geology, Permanente deposit rock descriptions. Maps: Bedrock, surficial, fault activity and mineral resources stability.
1973	Limestone and Dolomite Resources of California	California Division of Mines and Geology, Bowen, D.E.	Occurrences, characteristics, and economics.
1973	Petrology & Depositional History of Limestones in the Franciscan Formation of California	Wachs, Daniel, U.C. Santa Cruz, Ph.D.	Electron and Petrographic microscopy of Calera Limestone at Permanente, and Laytonville

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Mar 29, 1974	Letter to J. K. Walker	Ellis, V.C.	Review of J. F. Swell's quarry reserve estimates.
May 24, 1974	Memo to J. K. Lucas	McCloud, J.P.	Recommends geologic mapping of ridge across Permanente Creek from quarry.
1975	Geologic Map of the Sargent-Berrucci Fault Zone	U. S. Geological Survey, Sorg, D.H. & McLaughlin, R.J.	1:50,000 scale map; descriptions of faults, earthquakes, landslides, mineral springs.
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Feb	Franciscan Limestone Geology and Resources at Permanente and New Almaden, Santa Clara County, California	Kunferman, Steven A., Geological Engineer, Kaiser-Cement Corporation	Stratigraphy, structure, origin, economic potential.
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May 28 1982	Geology of the Permanente Property, KCC	Nathanson, E.L., Associate Geologist, KCC	Geology of KCC's Permanente property, including quarry and plant areas.

APPENDIX B  
SLOPE STABILITY STUDY

## Slope Stability

Pit Area - Based upon a 1975 investigation of slope stability of the Permanente quarry by Golder, Brawner & Associates, recommended overall slope angles for the pit are listed below:

<u>Pit Area</u>	<u>Recommended Overall Slope Angle</u>	<u>Bench Angle (Min.)</u>
1. Slopes on south side Facing 00° (North)	Theoretically stable up to 75°.	62 degrees
Facing 020°	Theoretically stable up to 75°.	62 degrees
Facing 090°	Theoretically stable up to 57°.	----
2. Northern slopes from western end of pit-eastern end of serpentine slide area		
Facing 090°	60 Degrees	----
Facing 130°	46 Degrees	----
3. Northern slopes from eastern end of serpentine slide area to western end of pit		
Facing 130°	44 Degrees	

<u>Pit Area</u>	<u>Recommended Overall Slope Angle</u>	<u>Bench Angle (Min.)</u>
4. East face	Theoretically stable up to 72°	52 Degrees
Facing 130°		
Facing 200°	Theoretically stable up to 90°.	52 Degrees
5. Southern and southeastern faces excluding 1. above		
Facing 230°	48 Degrees	----
Facing 295°	46 Degrees	----

The existing and design overall pit slope angle of 45° (1:1) is within these recommendations.

The 1975 study was primarily concerned with the stability of the "serpentine slide area" located on the north-northwest side of the pit. No final recommendations were made concerning stabilization of this "serpentine" slide mass. However, in 1978 and 1979 approximately 440,000 cubic yards of material was removed from this area. The slope was graded and cut back to an overall angle of approximately 26°. Terraces, drainage



ditches, and revegetation were installed for drainage and erosion control. The regrading work to remove the driving force on the slide along with the fact that a block of limestone remains in the pit below the "serpentine slide area" acting as a buttress, has mitigated the previous problem of gross instability in this area. Since 1979, and probably due to recent wet winters, an area of localized surface slumping has occurred in the lower portion of the "serpentine" slope. This area does not reflect any gross instability in the slope and will be re-graded in order to restore drainage along terraces.

Groundwater seepage has not been observed in quarry faces except for isolated seepage zones on the "serpentine" slope. This seepage occurs seasonally, during wet weather in the winter and usually dries up in the summer. There are no uniform geologic structures in the serpentine unit and it appears that seepage follows random fractures and shear zones.

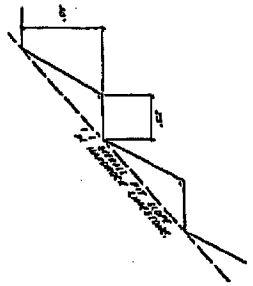
Rock Storage Areas - Rock fill slopes of 3 (horizontal) :1 (vertical) in the rock storage areas are shallow and should be stable. Existing rock fill slopes at slope angles 1-1/2:1 located just east of the main pit shown no sign of instability. Design fill slopes in the rock storage areas will be terraced and revegetated in order to control drainage and erosion.



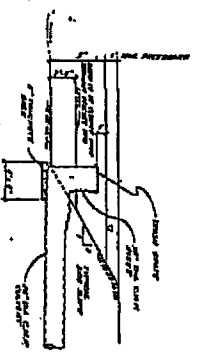
- NOTES**
1. IMPROVEMENTS MADE SUBJECT TO KASNER CEMENT CORPORATION.
  2. DITCHES, ALL REVISIONS ARE SHOWN ON THIS & C-1 SHEET.
  3. PROPOSED CONTOUR FOR 100 FT. IS SHOWN IN AREA AND KASNER CEMENT CORPORATION.
- ABBREVIATIONS**
- PL. PLANTING  
C. CONCRETE  
M. MASONRY  
S. SANDSTONE

Received by  
DEPARTMENT OF CONSERVATION  
JUN 20 1994

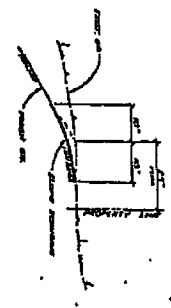
Office of Mine Reclamation



PIT WALL SECTION  
7/2



BASIN AND OUTLET SECTION  
7/2



TYPICAL SLOPE, ROUGHNESS FOR TOP OF SLOPE.

**INDEX**

1	GENERAL
2	CONTOUR
3	PROPOSED CONTOUR
4	PROPOSED CONTOUR
5	PROPOSED CONTOUR
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8	PROPOSED CONTOUR
9	PROPOSED CONTOUR
10	PROPOSED CONTOUR
11	PROPOSED CONTOUR
12	PROPOSED CONTOUR
13	PROPOSED CONTOUR
14	PROPOSED CONTOUR

91-13-0004

<b>R+G</b> Ruth and Goings, Inc. architecture engineering planning 210 THE ALAMO SAN JOSE CALIFORNIA 95128 TEL: (415) 281-1100 FAX: (415) 281-1101	<b>RECLAMATION PLAN</b> <b>PERMANENTE QUARRY</b>		<b>REVISIONS</b> DATE BY DESCRIPTION															
	DESIGN BY: <i>DRG</i> CHECKED BY: <i>DRG</i> SCALE: 1" = 500' DRAWN BY: <i>DRG</i> NO. NO. 22222	KASNER CEMENT CORPORATION SANTA CLARA COUNTY, CALIFORNIA	JUN 20 1994	<table border="1"> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>														



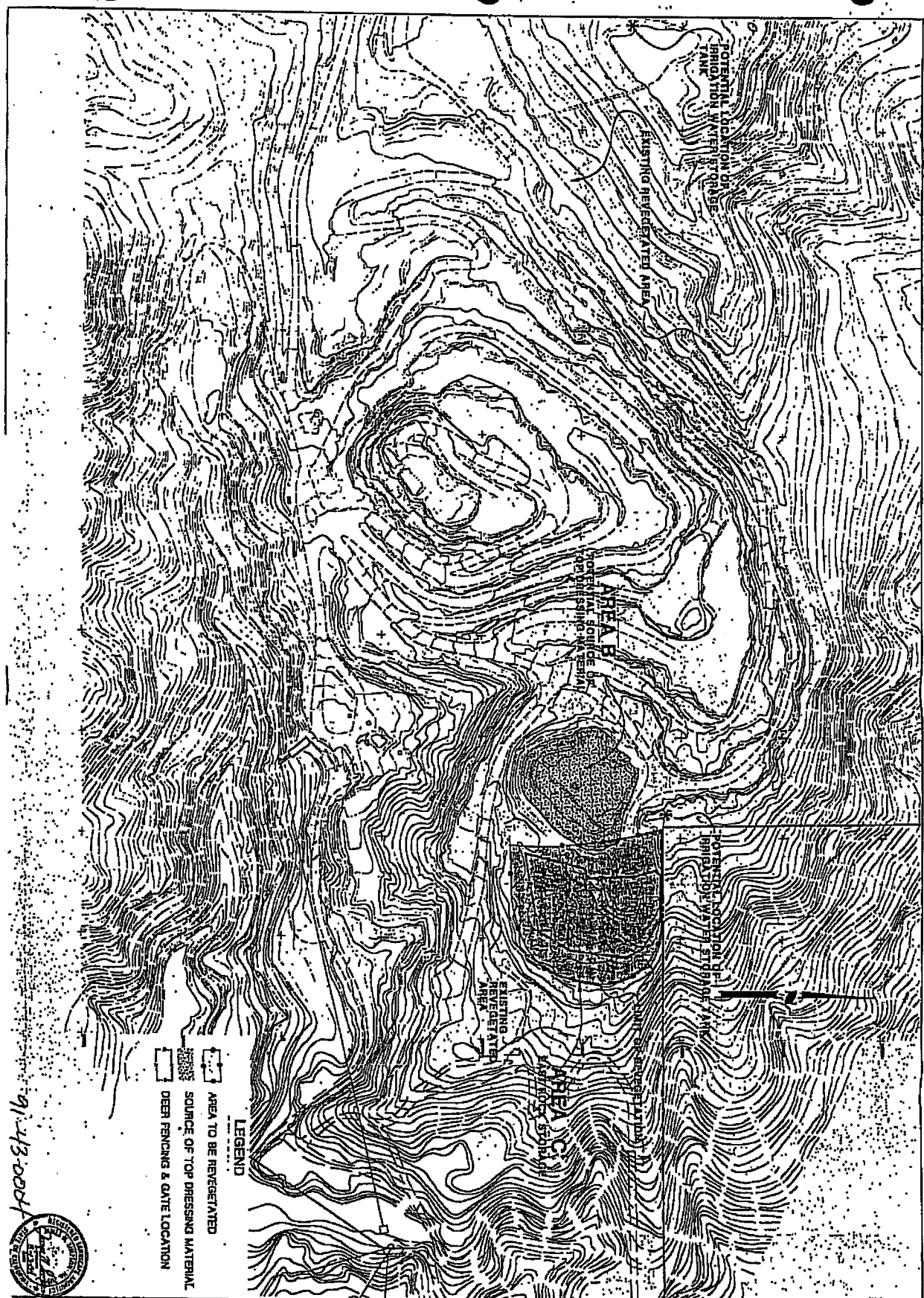
91-113-015004

<b>C2</b> <small>SCALE 1" = 100'</small>	<b>R.G. Ruth and Goings, Inc.</b> <small>architects engineers planners</small>		<b>RECLAMATION PLAN</b>		<b>REVISIONS</b>	
	<small>FOR THE CLIENT:</small> REGION <i>S&amp;L</i> CITY <i>San Jose</i>	<small>DATE:</small> SCALE <i>1" = 100'</i>	<small>PROJECT NO.:</small> <i>21111</i>	<b>PERMANENT QUARRY</b>		<small>DATE:</small> 
<small>1000 CALIFORNIA ST. SAN JOSE, CALIF. 95128</small>			<small>KAZNER CEMENT CORPORATION</small>		<small>SANTA CLARA COUNTY, CALIFORNIA</small>	



71-413-0004

<b>CS</b>	<b>R-G</b> Ruth and Going, Inc. architects engineers planning	<b>RECLAMATION PLAN</b>	<b>REVISIONS</b>
	SANTA CLARA COUNTY, CALIFORNIA	<b>PERMANENTE QUARRY</b>	DATE OF DESCRIPTION
DRAWN BY: <i>W. J. ...</i>	SCALE: 1" = 100'	KATHEN CEMENT CORPORATION	SANTA CLARA COUNTY, CALIFORNIA



91-43-0004

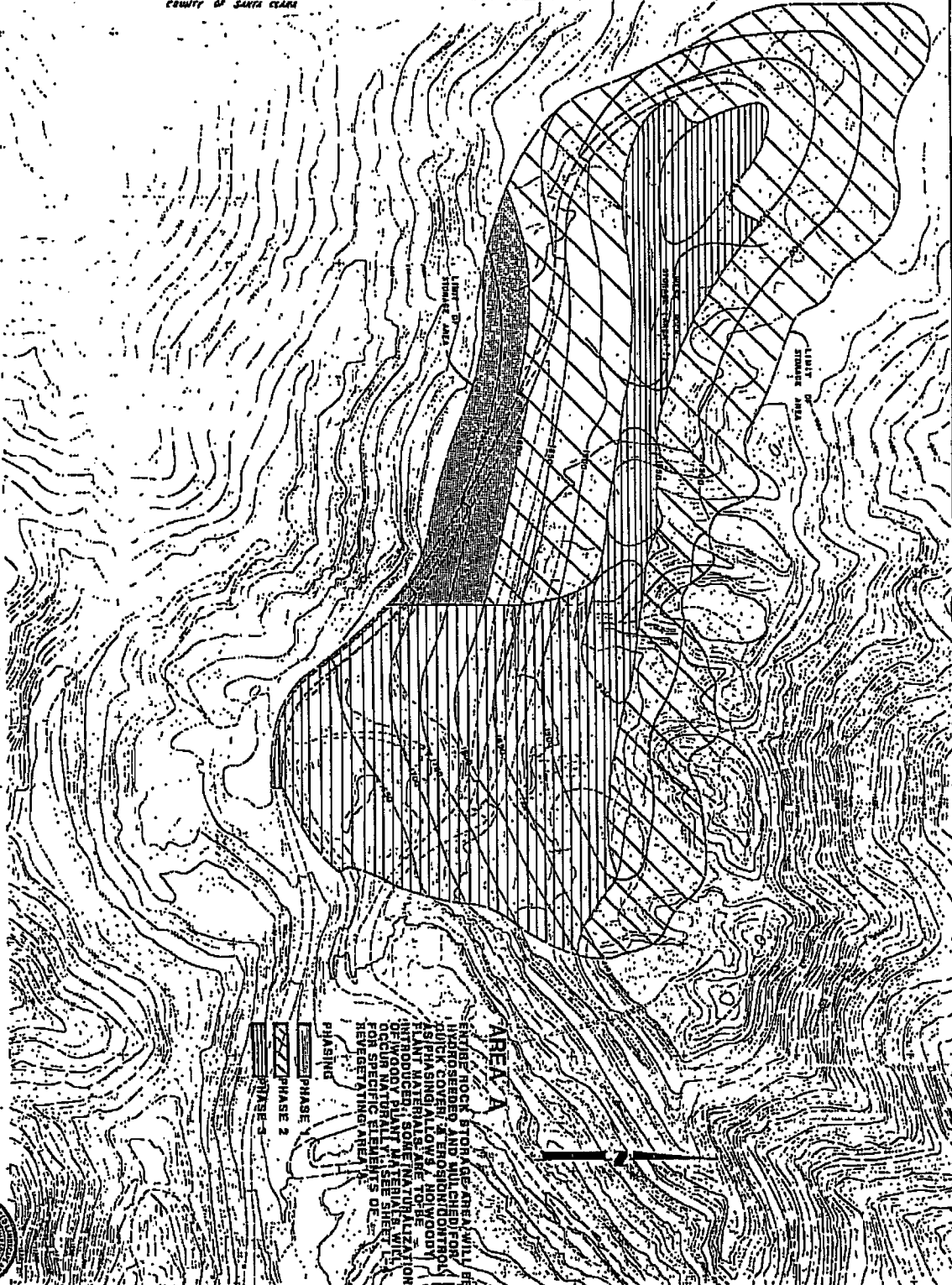


**R-G** Ruth and Going, Inc.  
 architects engineers planners  
 275 THE ALAMITOS  
 SAN JOSE, CALIFORNIA 95128  
 TEL: 438-1111  
 FAX: 438-1112

**REVEGETATION PLAN**  
**PERMANENT QUARRY**  
 HAUSER CEMENT CORPORATION  
 SANTA CLARA COUNTY, CALIFORNIA

REVISIONS			
NO.	DATE	BY	DESCRIPTION

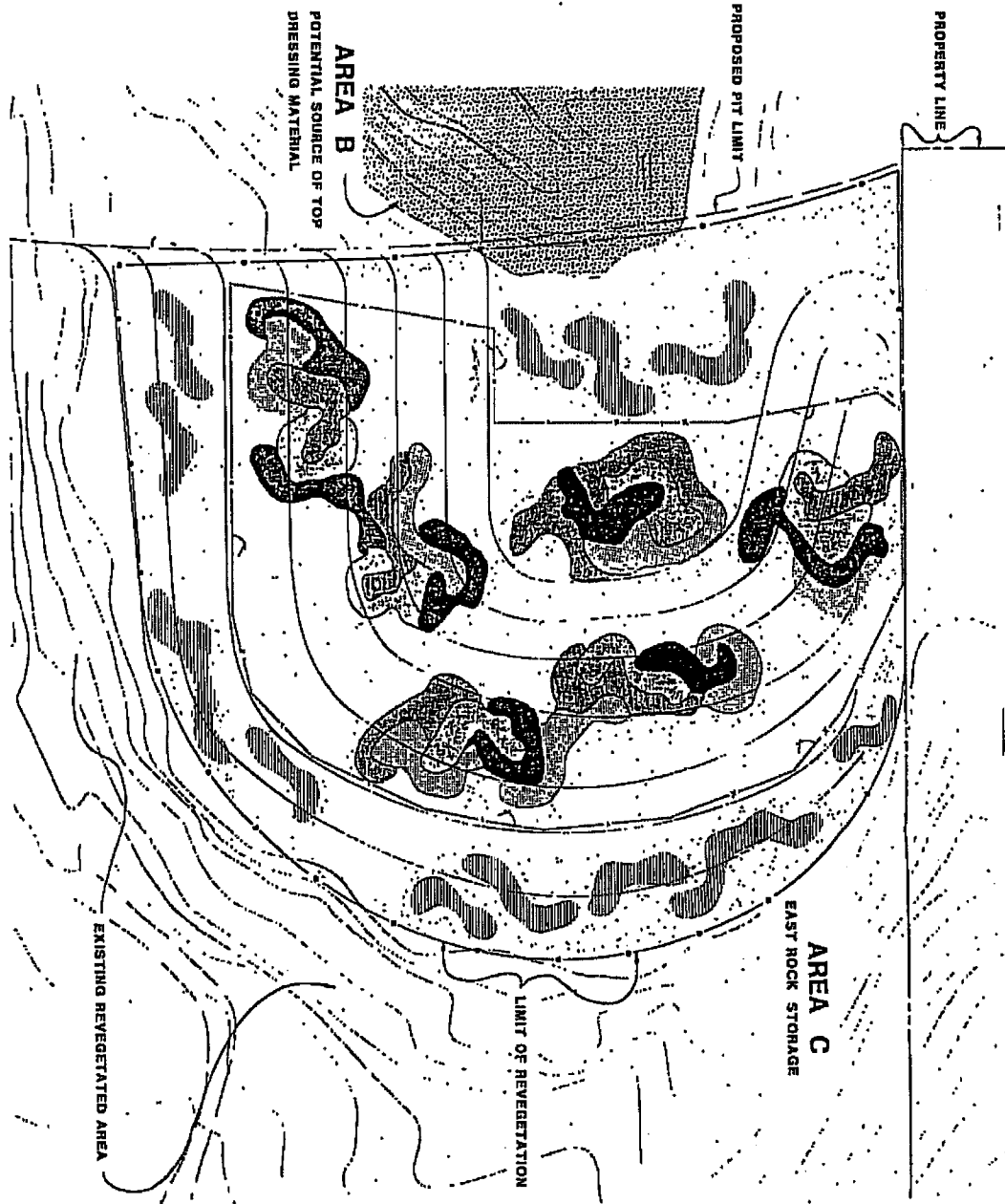
CITY OF PALO ALTO  
COUNTY OF SANTA CLARA



01-48-60



<p><b>R+G</b> Ruth and Going, Inc. architecture engineering planning</p> <p>510 1st Avenue San Jose, California 95113</p> <p>DATE: 01/15/82</p> <p><b>12</b></p>	<p><b>REVEGETATION PLAN</b></p> <p>PERMANENTE QUARRY</p> <p>KAISER CEMENT CORPORATION SANTA CLARA COUNTY, CALIFORNIA</p>		<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	BY	DESCRIPTION																
	NO.	DATE	BY	DESCRIPTION																			
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**LEGEND**

— AREA TO BE REVEGETATED  
 --- SOURCE OF TOP DRESSING MATERIAL  
 [ ] OTHER FENCING

**PLANT LEGEND**

[Symbol]	COMMON BUCK BRUSH	210
[Symbol]	COYOTE BRUSH	180
[Symbol]	GOLD CUP OAK	210
[Symbol]	LEATHER OAK	210
[Symbol]	COYOTE BRUSH WILD BUCKWHEAT	400
[Symbol]	HYDROSEED MIX	
		<b>TOTAL 1210</b>

**NOTE**

EACH PLANT GROUPING WITHIN FENCED AREA CONTAINS 40 SEEDLINGS.  
 EACH PLANT GROUPING OUTSIDE FENCED AREA CONTAINS 25 SEEDLINGS FOUR HAVE 50.  
 FIRST AREA TO BE REVEGETATED SHALL BE CONTOUR 1400 TO 1420 OTHER AREAS SHALL BE PLANTED AS FULL OPERATIONS ARE COMPLETED.



91-45-00043



<b>R+G</b> Ruth and Going, Inc. architects engineers planners		<b>REVEGETATION PLAN</b> <b>PERMANENTE QUARRY</b>	
DESIGN: [ ] CHECK: [ ]	DRAWN: [ ] SCALE: [ ]	PROJECT NO.: [ ] DATE: [ ]	LOCATION: SANTA CLARA COUNTY, CALIFORNIA CLIENT: KAISER CEMENT CORPORATION
SHEET NO. <b>13</b> OF [ ]		REVISIONS	





County of Santa Clara

California

RECLAMATION PLAN APPROVAL

File No: 2250 13 66 84P  
Grantee: KAISER CEMENT CORPORATION  
Applicant: KAISER CEMENT CORPORATION  
For: Approval of a Reclamation Plan  
Location: Westerly end of Permanente Road, approximately 1.5 miles west of the City of Cupertino

Having filed a reclamation plan as required by Section 2772 of the State Surface Mining and Reclamation Act, and Section 36-4.3 of the Zoning Ordinance of the County of Santa Clara, the Planning Commission having reviewed such a plan hereby grants approval subject to the following conditions:

See Exhibit "A" attached hereto and made a part hereof.

This approval shall be effective on March 22, 1985 provided that the grantee has signed ACCEPTANCE STATEMENT and has filed it with the Secretary of the Planning Commission.

Lucas S. Stamos (EB)  
Lucas S. Stamos, Secretary

March 7, 1985  
Date

ACCEPTANCE STATEMENT

The undersigned understands and accepts this approval and the conditions therein set forth, including the schedule for periodic inspection, agrees to comply with all conditions of the approval, understands that failure to comply therewith will render the approval subject to revocation, and acknowledges receipt of the copy of this approval.

E. Green  
Signature of Grantee

4/4/85  
Date

E. Green  
Signature of Applicant

4/7/85  
Date

cc: Central Permit Office

PLEASE SIGN AND RETURN THIS  
FORM IN THE ENCLOSED ENVELOPE  
THANK YOU

ad#1-1(2);RECLAM FORM

EXHIBIT "A"

CONDITIONS OF APPROVAL for Reclamation Plan for Permanente Quarry,  
File No. 2250-13-66-84P

The following conditions are based on the environmental assessment for this project, and to comply with County and State requirements governing reclamation plans for surface mines. Those marked with an asterisk are necessary for mitigation of potential adverse impacts.

- \*1. The following plans and reports as prepared by Ruth and Going, Inc., are hereby made a part of the conditions of this permit.
  - a. Report entitled, "Reclamation Plan, Kaiser Cement Permanente Quarry by Ruth and Going, Inc., dated October 1984.
  - b. Sheets C-1, C-2, C-3 - Reclamation Plan dated August 13, 1984.
  - c. Sheet L-1, L-2, L-3, L-4 - Revegetation Plan dated August 13, 1984.
- \*2. Comply with the conditions by Santa Clara Valley Water District, January 16, 1985. Obtain permit and install outfall structure by Permanente Creek by October 15, 1986.
3. The applicant shall submit a report every two years for the life of the plan, which describes and evaluates compliance with conditions of the reclamation plan. Following the report, the County representative shall inspect the site. The first report shall be submitted no later than April 1, 1987.
4. Submit a copy of plan Sheet C-3 depicting the location of the easement line which was dedicated to the County of Santa Clara in 1972.
5. This reclamation plan is limited to a period of 25 years and shall expire on April 1, 2010, unless extended or renewed by the Planning Commission.
- \*6. Final fill slopes in Area "A" (west materials storage area) shall be no closer than 30' distant from the Palo Alto city boundary line.
- \*7. Final cut slopes shall not be closer than 25 feet distant from any property line and shall not violate the ridgeline easement granted to the County of Santa Clara from Kaiser Corp.
- \*8. The maximum height of deposition in Area "A" shall not exceed the top of the ridgeline bordering to the north.

9. Existing barbed wire fencing shall be maintained along the northerly, and property lines in areas of general proximity to the final cut slopes. Permanent signs warning proximity of extreme slopes shall be posted along these fence lines.
- \*10. Reclamation shall be carried out regardless of extent of excavation of quarry areas. Should the quarry not be excavated to the final stage, reclamation shall be still completed to the extent possible in accordance with the plan.
- \*11. Revegetation shall be carried out prior to the onset of the winter rainy season (Nov. 1) for each particular phase level which has been completed in that year.
- \*12. Provide adequate drainage controls to insure that sediments from deposition areas shall not be washed into the Permanente Creek system.
  - a. Phasing of drainage facility installation shall occur as outlined on plans submitted.
  - b. Sediment basin to be periodically cleaned to insure maintenance of its capacity.
13. Upon completion of Phase II portion of Area "A", an engineering geologist shall review the area and submit a report to the County which evaluates the adequacy from a geologic stability standpoint of the reclamation plan.
14. Top soils in Area "B" of quarry pit area to be retained to the extent possible for use in revegetation process of Area 'C', (East Rock Storage Area").
- \*15. Revegetation of excavated areas shall take place as shown on revegetation plans and details sheet. The revegetation, hydro-seeding and placement of container plants to be carried out in full, generally prior to November 1st in order to take advantage of warm days and rains for good germination.
16. Prior to installation, submit plans for irrigation water storage tank to Secretary of Architectural and Site Approval for review and approval. Include in plans proposed screening of tank.

RB:ad

ad#1PC/2250ExbA

## **Exhibit 2**

Santa Clara County's environmental review and conditions supporting the  
negative declaration

**County of Santa Clara  
California**

Department of Planning and Development  
Office of Planning  
County Government Center, East Wing  
70 West Hedding Street  
San Jose, California 95110  
(408) 299-2521

**ENVIRONMENTAL ASSESSMENT**

File No.: 2250-13-66-84P Sponsor: Kaiser Cement Corp.  
Date: March 1, 1985 Project: Reclamation Plan for Kaiser  
Cement Permanente Quarry  
Prepared by: Ransom Bratton  
Reviewed by: Hugh H. Graham

**RECOMMENDED ENVIRONMENTAL DETERMINATION:**

- CATEGORICALLY EXEMPT.** Project is within a class of projects determined not to have a significant effect on the environment.
- NEGATIVE DECLARATION.** The proposed project could not have a significant effect on the environment, or, although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case if the mitigation measures are added to the project. (In this case, if mitigation does not occur through: (1) a change in plans; or (2) an enforceable commitment from the applicant, an EIR would be required).
- ENVIRONMENTAL IMPACT REPORT IS REQUIRED.** The proposed project may have significant effects on the environment. These significant effects, as determined by the Initial Study and other sources, will be evaluated in an EIR.

**ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED**

- |  |  |
|--|--|
| <input type="checkbox"/> Land Use/General Plan                 | <input type="checkbox"/> Safety                      |
| <input checked="" type="checkbox"/> Geologic                   | <input type="checkbox"/> Air Quality                 |
| <input checked="" type="checkbox"/> Resources/Parks            | <input type="checkbox"/> Noise                       |
| <input checked="" type="checkbox"/> Waste/Sewage/Water Quality | <input checked="" type="checkbox"/> Aesthetic        |
| <input checked="" type="checkbox"/> Flora and Fauna            | <input type="checkbox"/> Energy                      |
| <input type="checkbox"/> Transportation                        | <input type="checkbox"/> Historical/Archaeological   |
| <input type="checkbox"/> Housing                               | <input type="checkbox"/> Public Services & Utilities |

**DISCUSSION** (continued on back)

**Staff Conclusion:** (SEE ATTACHED SHEETS)

## DISCUSSION

### Staff Conclusion

A Negative Declaration is recommended for this project. The proposed reclamation plan can be carried out without adverse permanent impacts on the environment. The reclamation plan's conditions of approval being established by the Planning Commission will provide adequate protection for surface waters, slope stability, flora, aesthetic and to public health and safety. No environmental factors were found which were incapable of mitigation by the conditions of approval. There will be a period during the expansion of the quarry pit towards the east when the East Rock Storage area will be visible from off the property, but this situation will be eventually eliminated by the revegetation process is implemented by the plan. There is a community benefit from approval of this reclamation plan as there is currently no such plan in effect for the quarry site.

### Environmental Setting

The project area is located west of the Kaiser Cement plant area approximately 1-1/2 miles west of the City of Cupertino and 1/2 mile west of the cement plant. The area of the reclamation plan comprises approximately 330 of the 3268 acres owned by Kaiser Cement Corporation. The quarry and reclamation area are accessed by the private road system extending west from Permanente Road.

The site is located in the eastern foothills of the Santa Cruz Mountains at the western edge of the valley with elevation ranging from 950 to 1900 feet. The terrain's vegetation has been heavily modified as a result of years of quarry operation along with subsequent revegetation. Varieties of the more native vegetation types include oak woodland, oak savannah, woodland/chaparral and chaparral habitats. There no known rare or endangered plant or animal species to be found in the area of the reclamation plan. The total reclamation area, with the exception of the quarry pit, drain into the headwaters of Permanente Creek. Except for the extreme northeasterly corner of the top of the eventual pit and adjacent rock storage area the project area is totally surrounded by lands owned by Kaiser Cement Corporation, which acts as a buffer to neighboring properties.

## Background and Project Description

The proposal is for the approval of a reclamation plan for an existing quarry under the provisions of Section 36-4.3 of the County's Zoning Ordinance. The quarry has no use permit, being a legal non-conforming use, however, it is required by State and local regulations to have a reclamation plan. On July 13, 1982, the County Board of Supervisors adopted regulations that all quarries in the unincorporated County which have been in operation since January 1, 1976 obtain approval of a reclamation plan from the County Planning Commission. This reclamation is limited to that portion of the quarry site which has occurred since January 1, 1976, per the limitations spelled out in the State Mining and Geology Act. The project area covers approximately 330 acres of the 3268 acres owned by Kaiser Cement Corporation, the remainder of the site being occupied by the cement plant facilities and open lands buffering this use form adjacent properties.

This reclamation plan has been prepared to address the site's reclamation needs for approximately the next 25 year. At the end of that time, a subsequent plan similar to this will need to be prepared. A previous landscape plan was prepared by Kaiser Cement and implemented in the early 1970's to screen the most visible areas of the quarry and stabilize some of the slopes. However it is not comprehensive enough to comply with the State and local requirements for current and future reclamation needs on the site.

The proposed plan shows excavation of the main quarry pit area in a series of 25' feet wide benches 50 feet in height. This eventual expansion will require the relocation of an existing pile of rock materials which will be relocated further to the east and revegetated, see Figures 6 & 7 of Reclamation Plan report. This will allow mining of the limestone beneath while maintaining a knoll as a visual barrier between the main quarry area and the valley floor to the east. The plan also deals with a second major material storage area west of the quarry. The materials deposited here are not used for the production of cement or aggregate. However, it is expected that at some future date, when the market demands they may be so utilized. Until that time the area will be reclaimed with proper slope, installation of drainage controls and revegetation. For a more complete background and project description, the Reclamation Plan prepared for Kaiser Cement Corp. by Ruth & Going, dated October 1984, should be consulted.

## DISCUSSION OF IMPACTS

### 1. Geologic

The Reclamation Plan Report by Ruth and Going includes a full section on the geology and potential impacts upon the local environment by the results of the quarrying activity in the event of seismic activity. This chapter is based on numerous geologic works performed in the Permanente quarry and surrounding area by Kaiser personnel, consultants, and outside parties such as universities, and State and Federal geologic surveys. Numerous test holes along with geologic maps and cross-sections have been prepared since Kaiser began operating here in 1939.

Numerous faults lie in the vicinity of the quarry. The San Andreas, the fault which would likely have the greatest impact resulting from movement lies approximately 2 miles to the west. The Monta Vista Fault, part of the Sargent-Berrocal System lies 1-1/2 miles to the east. The Berrocal Fault main trace appears to trend northwest across Kaiser property under Permanente Creek where it forms a linear valley between the cement plant and the quarry. The fault does not appear to be active within the Permanente area, although micro-seismicity near Stevens Creek Reservoir, approximately 2 miles southeast, suggests it may be potentially active.

In the event of a major quake it is unlikely that a significant ground failure would occur in the quarry because of the hard rock materials and the pit slope angle of 45°. Any failure would impact the interior area of the quarry pit and no surrounding property. Earth shaking effect on rock storage areas would likely be restricted to ground settlement and local slumping. The coarse nature of the rock in these storage areas will preclude any failure due to liquefaction. Neither area supports any structures or buildings. The revegetation provided and installation of drainage facilities will reduce the potential for erosion during and following completion of the deposition activities in the materials storage areas.

### 2. Resources/Parks

This quarry currently produces approximately four million tons of rock annually, providing for an annual production of 1.6 millions tons of cement. It acts as a significant source in the Bay Area for high quality crushed stone. Estimated reserves are in excess of 130 million tons. Materials now being deposited in the West Materials Storage Area will possibly be utilized as a source for additional crushed stone for aggregate in response to future market and quality conditions.



The quarry and materials storage areas are bordered on the north by lands of the Mid-Peninsula Open Space District. The existing ridgeline will be maintained by means of the easement agreement and conditions of this reclamation plan to insure neither the quarry pit nor materials storage area will be visible towards the north and east. There will be a 30' minimum setback of the most outward point of the eventual pit area from the nearest property line.

The revegetation process will provide new plant species more similar to what exists in the surrounding area than what now exists on some of the rehabilitated slopes. The long-term effect will be beneficial to the area when those revegetation plantings take hold.

### 3. Water Quality

One of the main purposes for a reclamation plan is to insure that no degradation of surface waters adjacent to the quarry site occurs during and after completion of this reclamation plan. The engineering consultants feel that the porous material of the deposits of Storage Area "A" & "B" will result in a very high infiltration capacity and low erosion potential, and that revegetation of the slopes will insure that the erosion potential will be adequately mitigated. The materials storage areas will be maintained at a 3:1 gradient in order to maintain stability. The phasing plan provides for installation of revegetation plant materials as soon as each level is deposited in each materials area. Runoff in the materials storage is currently directed to catchment areas which collect sediments. The high percentage of rock and granular materials result in rapid percolation of rainwaters. As Phase "1" of materials storage in west storage area nears final completion a new sediment basin will be installed, the design of which is subject to review and approval by the Santa Clara Valley Water District personnel. Sediment basins will be installed whenever necessary to insure no sediments will be deposited in Permanente Creek. The revegetation plan and drainage controls should adequately mitigate any potential impacts from the proposed use on the local area's surface waters.

### 4. Flora and Fauna

Both the East and West Material Storage areas will receive revegetation treatment. The west area will be hydro-mulched while the East Area will utilize more plant materials and more intensive type planting techniques. That is because this area is more visible from the valley floor thus requiring a greater degree of treatment to mitigate any permanent visual impacts. The main purpose of revegetation in the west materials area is to stabilize the slopes and prevent erosion. The types of materials being proposed for both areas are native to the surrounding environment and should blend well into the hillsides.

The plantings shall occur in phases so soon as a particular phase of deposition is completed, so that revegetation process will be occur at the same time the period of quarrying is taking place. The natural habitat will be restored once the quarry activity is completed and the selected species of plants will have a beneficial effect on the overall quality of flora on the site. The inner quarry pit area and its operational future and eventual rehabilitation will be addressed in a future plan to be prepared approximately 20 years from now.

5. Aesthetic

One of the purposes of the reclamation plan is to reduce any permanent adverse visual impact of this land use upon the surrounding environment and provide adequate mitigation measures to do so. The East Materials Area is visible from the urbanized areas of Cupertino to the east and south. The Permanente ridgeline and its easement dedication will insure no exposure of the quarry or its material area towards the north and northeast. At the request of the County, the applicant's engineer has prepared cross-sections to judge the quarry's impacts upon Cupertino. These cross-sections show that East Materials Storage Area will be visible during and after deposition and revegetation. Extensive tree and shrubbery planting will be used in this area to incorporate the new hill surface into the surrounding natural setting. To insure survival of plant species protective measures are planned to attempt to protect plantings from deer and rodents. Also because of the southern and westerly exposure and high porosity of the soils temporary watering devices are planned to provide supplemental water to this East Storage Area revegetation. Thus the revegetation plan should reduce the permanent visual impact from the effects of quarrying to less than a significant level.

Persons Consulted

- o Sue Tippetts, Santa Clara Valley Water District
- o Jim Berkland, County Geologist

RB:ad

ad#1/PC/2250EA

County of Santa Clara

California

Planning Commission  
County Government Center, East Wing  
70 West Hedding Street  
San Jose, California 95110  
299-2521 Area Code 408

STAFF REPORT

P/C Meeting: March 7, 1985

Prepared by: Ransom Bratton

Reviewed by: Hugh H. Graham

FILE: 2250-13-66-84P APPLICANT: Kaiser Permanente Corp.

LOCATION: Western end of Permanente Road, approximately 1.5 miles west of City of Cupertino ADDRESS: none

ZONING: HS GP DESIGNATION: Hillside LOT SIZE: Site area: 330<sup>+</sup> Ac. Kaiser prop. 3268Aa

PRESENT LAND USE: Quarry SUPERVISORIAL DISTRICT: SD-5

PROPOSAL: Approval of a reclamation plan for an existing surface mining operation

PROJECT DETAILS

The proposed reclamation plan addresses the reclamation needs for the next 25 years for the limestone quarry pit at Kaiser Permanente. This quarry produces approximately 4 million tons of rock annually both for cement manufacture and significant quantities of aggregate. The application by Kaiser Cement Company is in direct response to the State and local regulations that all quarries which have been in operation since January 1, 1976, be required to obtain approval of a reclamation plan from the County Planning Commission. It should be noted by the Commission that this approval is for reclamation aspects of the quarry area and not the operational activity nor does it include the area of the cement plant. Consequently, the plans and recommended conditions of approval are limited to the reclamation aspects of the quarry site as spelled out by the State Mining and Geology Act and County surface mining regulations. State law makes it mandatory for this land use to have a reclamation plan approved by the lead agency. (County of Santa Clara).

ACTION ON ENVIRONMENTAL ASSESSEMENT & PROJECT

1. Approve the Negative Declaration on the project.
2. Approve the reclamation plan subject to the recommended conditions as contained in Exhibit "A".

FINDINGS SUPPORTING RECOMMENDATION

1. The proposed reclamation plan is in conformance with Section 2772 of the State Mining and Reclamation Act and County Regulations regarding surface mining and land reclamation.
2. The proposed project would not have a significant effect on the environment if the recommended conditions of approval are included which will mitigate any potential impacts.

3. The approval of the reclamation plan provides the County an opportunity to apply needed conditions for reclamation of the property following completion of this land use.

#### BACKGROUND

State records indicate that limestone quarrying along Permanent Creek in the subject area began as early as 1906. Kaiser Corp. acquired the site in 1930's and began quarrying and cement processing in 1939. The quarrying activity has been continuous since that time.

In 1972, Kaiser Cement prepared and implemented landscape plans for the more visible areas of the quarry in order to provide screening and to stabilize the quarried slopes; plantings under the guidance of this plan is presently ongoing. At the same time Kaiser granted a permanent easement to the County of Santa Clara to ensure the protection of the Permanent ridge line view in order to screen the quarrying from view towards the north and northwest. The proposed reclamation plan takes this easement line into consideration. The Plan being proposed at this time focuses on those portions of the 330 site quarry area which need to be addressed under State and Local regulations for the next 25 years. It deals with erosion control and maintenance, including revegetation of the West Material Storage Area, and reclamation and revegetation of the East Materials Storage area which serves as a visual buffer between the quarry and the valley to the east. The ultimate reclamation of the pit area and future quarry operation will be dealt with in a revised reclamation plan which would be submitted around 2005 as this reclamation phase has neared completion. The present mining plan project assumes at least a 25 year period of operation, although limestone reserves are estimated to support the current operations for a period of up to 50 years. Beyond that period, the quarry site could serve as a source for crushed rock for aggregate. The total life of the quarry is only an estimate and subject to changes in market demand for its products.

The Reclamation Plan report for Kaiser Cement Permanente Quarry prepared by Ruth & Going October 1984 provides a much more detailed picture of the quarry environmental setting, operational characteristics of the mining operation along with the reclamation aspects of the project.

#### AB 884 DEADLINES:

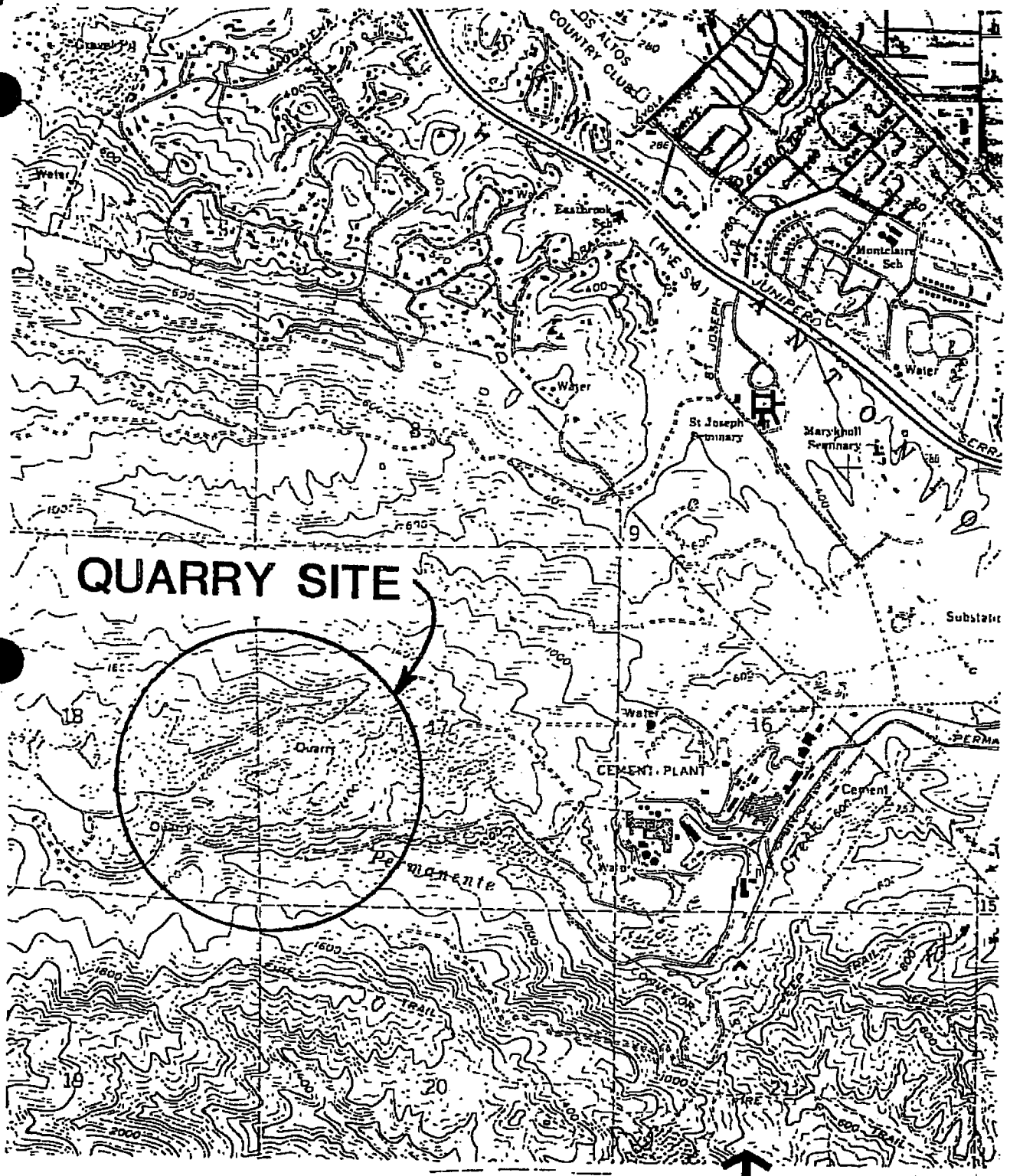
File completion date February 17, 1985, Planning Commission must act on item by August 1985 Commission meeting.

PROCEDURES:

Following approval by the Planning Commission of the reclamation plan, Staff will file the plan and associated documents with the State Mines and Geology office in Sacramento.

RB:ad

ad#1PC/2250StR



**QUARRY SITE**

SCALE: 1" = 2000'

**LOCATION MAP:**

**2250-13-66-84P**

**KAISER PERMANENTE CORP**

5c

EXHIBIT "A"

RECOMMENDED CONDITIONS OF APPROVAL for Reclamation Plan for  
Permanente Quarry, File No. 2250-13-66-84P

The following conditions are based on the environmental assessment for this project, and to comply with County and State requirements governing reclamation plans for surface mines. Those marked with an asterisk are necessary for mitigation of potential adverse impacts.

- \*1. The following plans and reports as prepared by Ruth and Going, Inc., are hereby made a part of the conditions of this permit.
  - a. Report entitled, "Reclamation Plan, Kaiser Cement Permanente Quarry by Ruth and Going, Inc., dated October 1984.
  - b. Sheets C-1, C-2, C-3 - Reclamation Plan dated August 13, 1984.
  - c. Sheet L-1, L-2, L-3, L-4 - Revegetation Plan dated August 13, 1984.
- \*2. Comply with the conditions by Santa Clara Valley Water District, January 16, 1985. Obtain permit and install outfall structure by Permanente Creek by October 15, 1986.
3. The applicant shall submit a report every two years for the life of the plan, which describes and evaluates compliance with conditions of the reclamation plan. Following the report, the County representative shall inspect the site. The first report shall be submitted no later than April 1, 1987.
4. Submit a copy of plan Sheet C-3 depicting the location of the easement line which was dedicated to the County of Santa Clara in 1972.
5. This reclamation plan is limited to a period of 25 years and shall expire on April 1, 2010, unless extended or renewed by the Planning Commission.
- \*6. Final fill slopes in Area "A" (west materials storage area) shall be no closer than 30' distant from the Palo Alto city boundary line.
- \*7. Final cut slopes shall not be closer than 25 feet distant from any property line and shall not violate the ridgeline easement granted to the County of Santa Clara from Kaiser Corp.
- \*8. The maximum height of deposition in Area "A" shall not exceed the top of the ridgeline bordering to the north.

9. Existing barbed wire fencing shall be maintained along the northerly, and property lines in areas of general proximity to the final cut slopes. Permanent signs warning proximity of extreme slopes shall be posted along these fence lines.
- \*10. Reclamation shall be carried out regardless of extent of excavation of quarry areas. Should the quarry not be excavated to the final stage, reclamation shall be still completed to the extent possible in accordance with the plan.
- \*11. Revegetation shall be carried out prior to the onset of the winter rainy season (Nov. 1) for each particular phase level which has been completed in that year.
- \*12. Provide adequate drainage controls to insure that sediments from deposition areas shall not be washed into the Permanente Creek system.
  - a. Phasing of drainage facility installation shall occur as outlined on plans submitted.
  - b. Sediment basin to be periodically cleaned to insure maintenance of its capacity.
13. Upon completion of Phase II portion of Area "A", an engineering geologist shall review the area and submit a report to the County which evaluates the adequacy from a geologic stability standpoint of the reclamation plan.
14. Top soils in Area "B" of quarry pit area to be retained to the extent possible for use in revegetation process of Area 'C', (East Rock Storage Area").
- \*15. Revegetation of excavated areas shall take place as shown on revegetation plans and details sheet. The revegetation, hydro-seeding and placement of container plants to be carried out in full, generally prior to November 1st in order to take advantage of warm days and rains for good germination.
16. Prior to installation, submit plans for irrigation water storage tank to Secretary of Architectural and Site Approval for review and approval. Include in plans proposed screening of tank.

RB:ad

ad#1PC/2250ExbA



### **Exhibit 3**

The Regional Water Quality Control Board issued Cleanup and Abatement Order No. 99-018 ("1999 CAO") on July 27, 1999



# California Regional Water Quality Control Board

## San Francisco Bay Region



Winston H. Hickox  
Secretary for  
Environmental  
Protection

Internet Address: <http://www.swrcb.ca.gov>  
1515 Clay Street, Suite 1400, Oakland, California 94612  
Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis  
Governor

Date: JUL 27 1999  
File No. 2188.22 (JRW)

Mr. Stewart Smith  
Vice President, Operations  
Hanson Permanente Cement Company  
24001 Stevens Creek Boulevard  
Cupertino, CA 95014

RE: Cleanup and Abatement Order No. 99-018

Dear Mr. Smith:

Enclosed is a copy of Order No. 99-018. This Order directs Hanson Permanente Cement Company to immediately address the discharge of concrete and other wastes into Permanente Creek, Cupertino, Santa Clara County. The discharge has permanently impacted the creek and its functions in violation of the California Water Code.

I urge you to take measures necessary to comply with this Order. In view of the seriousness of the problem and lack of appropriate measures to prevent further impacts to waters of the State, I will not hesitate to pursue further enforcement action should this Order be violated.

As specified in Finding 14 of Order No. 99-018, the Regional Board is entitled to recover reasonable costs actually incurred by staff from responsible parties to oversee cleanup of unauthorized discharges which have adversely impacted or threaten to effect waters of the State. To assure that sufficient Regional Board staff resources are available to conduct the necessary reviews and approvals, we intend to include this site in this Region's Spills, Leaks, Investigations, and Cleanups (SLIC) Cost Recovery Program, more fully described in the attached Reimbursement Process for Regulatory Oversight enclosure. Please acknowledge in writing your intent to reimburse the State for cleanup oversight work as stated in the enclosure. You may use the enclosed sample acknowledgment letter. **Please return the enclosed letter or its equivalent by August 23, 1999.**

*California Environmental Protection Agency*

Stewart Smith

- 2 -

July 1999

If you have any questions relating to this Order, please contact John West of my staff at (510) 622-2438, or at e-mail JRW@rb2.swrcb.ca.gov.

Sincerely,



Loretta K. Barsamian  
Executive Officer

Enclosures:            Cleanup and Abatement Order No. 99-018  
                             Reimbursement Process for Regulatory Oversight  
                             Attachment 1 - Acknowledgment Letter  
                             Attachment 2 - Billing Rates

cc:

Beth Hamilton, SMMF&F  
Diane Mims,URS Greiner  
Clyde Davis,US Army Corps  
Brent Calhoun, SCVWD  
Curt McCasland, USF&WS  
Deborah Johnston,CDF&G  
Dorothy Humphrey,Creeks of Los Altos

STATE OF CALIFORNIA  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

CLEANUP AND ABATEMENT ORDER NO. 99-018  
HANSON PERMANENTE CEMENT COMPANY, INC.  
(FORMERLY KAISER CEMENT CORPORATION)  
CUPERTINO, SANTA CLARA COUNTY, CALIFORNIA

The California Regional Water Quality Control Board, San Francisco Bay Region (the Board) finds that:

1. The Hanson Permanente Cement Company, Inc. (Hanson), owns and operates a cement plant and rock quarry (the Facility) adjacent to Permanente Creek (the Creek) in the City of Cupertino, Santa Clara County, California.
2. Hanson is currently regulated under Cleanup and Abatement Order Nos. 92-001 and 95-207, and operates under the State Board's General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit), Waste Discharger Identification Number 2 43S006267.
3. Section 411.32 of 40 C.F.R. prohibits the discharge of storm water with more than 50 mg/l of Total Suspended Solids from cement manufacturing facilities for all storms of an intensity equal to or less than the 25-year, 24-hour storm.
4. The discharge of silt, sand, clay or other earthen materials from any activity in quantity sufficient to cause deleterious bottom deposits, turbidity or discoloration in surface waters or to unreasonably affect or threaten to affect beneficial uses (Table 4-1, Discharge Prohibitions, Item No.9) is prohibited by the San Francisco Bay Water Quality Control Plan (Basin Plan) and the General Permit. Slide areas and stream banks that remain unstable during the rainy season are a significant source of sediment discharge. In addition to increased sediment loading, historic activities at the Facility have also impacted creek dynamics (e.g., biological, hydraulics, hydrology, sedimentation and deposition, etc.). Changes to creek dynamics can affect physical and chemical changes in water quality and, thus, the beneficial uses of the Creek.
5. Board staff inspected the Facility on several occasions during dry and wet weather months in 1998 and 1999 and observed sediment-laden water discharging to the Creek from various locations at the Facility. During these inspections, water clarity in the Creek was generally observed to be significantly more turbid downstream than upstream of the Facility.

6. On June 22, 1998, Board staff met with representatives from California Department of Fish and Game (DF&G), U.S. Army Corps of Engineers (Corps), U.S. Fish and Wildlife Service (F&WS), Santa Clara Valley Water District (SCVWD) and Hanson at the Facility to discuss appropriate alternatives for Pond-14. Pond-14 is an in-stream pond and is located at the furthest downgradient point of the Facility. It was generally agreed that it would be beneficial to install a mechanism that would divert stream flows away from Pond-14 while increasing riparian and wetland habitat and using Pond-14 for emergency use as a sedimentation basin.
7. Pond-22, located immediately upstream of Pond-14 at the downstream end of the Facility, is believed to have been constructed in 1997 without appropriate regulatory permits. On September 2, 1998, The Board issued a Waiver of Waste Discharge Requirements and Water Quality Certification for the excavation of approximately 2,000 cubic yards of sediment from instream settlement Ponds-13 and -14, and for repair of an approximately 10-foot wide by 20-foot length section of the Creek. Pond-22 was specifically excluded from authorization in the waiver because of the concern that it was constructed without appropriate regulatory permits.
8. On September 17, 1998, the Board issued a Notice of Violation (NOV) for discharges of sediment laden storm water into the Creek in violation of Board Order No. 95-207 and the General Permit. The NOV was issued in response to citizen complaints and subsequent Board staff inspections and observations at the Facility indicating a significant increase in turbidity through the Facility and increased sediment deposition downstream of Facility operations.
9. The NOV required Hanson to develop interim and long term measures to eliminate discharge of sediment laden water into the Creek, to perform a storm water discharge outfall consolidation study to improve storm water monitoring, and to provide its findings in a report to Board staff.
10. Hanson has implemented interim measures as required by the NOV, and submitted two reports documenting the progress made to date. As part of the long-term goals, Hanson has performed a sediment source identification exercise to pinpoint and prioritize the potential source areas within the Facility.
11. Board staff met with Hanson representatives on February 16, 1999, to discuss the source areas identified during the inspections described in Finding 5, and possible interim and long-term measures for each of the six areas identified as having the highest priority for erosion control.
12. Based on the above facts, Hanson has caused or permitted storm water to be discharged into waters of the State and created and threatened to continue to

create pollution. This Order, therefore, sets forth tasks for investigating and mitigating existing and potential future impacts to the Creek.

13. This Order is an action to enforce the Basin Plan and as such is exempt from the California Environmental Quality Act, pursuant to Section 15321(a)(2) of Title 14, California Code of Regulations.
14. Pursuant to Section 13304 of the Water Code, Hanson is hereby notified that the Board is entitled to, and may seek reimbursement for all reasonable costs actually incurred by the Board to investigate the unauthorized discharges and to oversee cleanup and abatement of the effect thereof, or other remedial action, required by this Order.

IT IS HEREBY ORDERED, pursuant to Section 13304, of Division 7 of the California Water Code, that Hanson shall abate the effects of the discharges, and take other remedial actions to control as follows:

A. Prohibitions

1. The discharge, or creation of potential for discharge, of any earthen materials, fresh concrete, cement, silt, clay, sand, organic material or any other pollutants that will significantly degrade water quality, and adversely affect beneficial uses of waters of the State is prohibited.
2. No work shall be performed in the Creek that may contribute to sediment discharges, including stabilization of banks and sediment removal, without advance authorization from this Board and other appropriate permitting agencies.

B. Interim/Annual Corrective Measures

1. Stabilize all disturbed slopes at the Facility which are not being actively mined and which contribute to sediment discharges. Stabilization to prevent erosion may be in the form of either hydro-seeding, mulching or other erosion control measures.
2. Intercept all sediment laden storm water in excess of 50 mg/l Total Suspended Solids before the storm water enters the Creek for all storms of an intensity equal to or less than the 25-year, 24-hour storm. Hanson may propose to treat that storm water before allowing it to enter the Creek.
3. To the extent feasible, clean out all sediment from existing permitted sedimentation basins to achieve adequate retention volume. The removal of earthen materials must be in accordance with all DF&G, Army Corps of Engineers, SCVWD, and Board permits, requirements and conditions, and

may occur on an annual basis (or more frequently if necessary), and must be scheduled and performed in a manner that minimizes impacts to the Creek.

4. Adequate erosion control measures shall be implemented and maintained at the Facility to prevent discharge of earthen materials and other pollutants to waters of the State from disturbed or stockpiled area.
5. All surplus and waste materials shall be contained or disposed of in an appropriate manner and location sufficient to prevent erosion or washout and subsequently discharging to waters of the State.
6. Drainage and surface flows from the Facility shall be controlled to prevent onsite and downstream erosion and pollutant discharge. **By August 31, 1999** Hanson shall submit a technical report containing an Interim Corrective Action Plan acceptable to the Executive Officer, that complies with the Prohibitions of this Order and provides a schedule for complying with all the Interim/Annual Corrective Measures specified in Provisions B.1. through B.5. above. The Interim Corrective Action Plan shall be in place until the permanent corrective measures outlined below have been implemented.

C. Remedial and Long Term Measures

1. **By August 15, 1999** Hanson shall submit a technical report containing an updated storm water monitoring plan, acceptable to the Executive Officer, to assess the effectiveness of the source control measures implemented.  
The monitoring plan must include a map delineating all disturbed areas at the Facility, Facility-wide storm water sampling locations, sampling frequency, sampling schedule, laboratory analyses, and reporting schedule. The report must include an evaluation of the data collected, and recommendations for additional source control options if the monitoring demonstrates that the source control options implemented were not successful. The plan should be responsive to changing conditions at the Facility, and monitoring locations should be deleted or added accordingly.
2. **By September 15, 1999** Hanson shall submit a technical report containing a work plan and an implementation schedule, acceptable to the Executive Officer, to restore the Creek to a natural flowing condition by-passing Pond-14, the farthest downstream sedimentation pond at the Facility. This shall be done in such a manner that adequate water is allowed to flow into Pond-14 to maintain a wetland habitat as discussed with Board staff during the June 22, 1998, meeting at the Facility. The restoration shall provide for a mechanism that is capable of diverting all flows back to Pond-14 in the event of an upgradient sediment discharge or other necessary

condition. The work plan shall be prepared and implemented by a creek restoration specialist.

3. **By September 15, 1999** Hanson shall submit a technical report containing a proposal, acceptable to the Executive Officer, to either restore Pond-22 to a natural flowing condition or obtain appropriate "after the fact" regulatory permits for its construction. Any proposal to obtain permits shall include a plan and schedule for mitigating both temporal and permanent impacts caused by its construction.
4. **By November 15, 1999** Hanson shall submit a technical report containing a work plan, acceptable to the Executive Officer, outlining the corrective measures to control sediment discharges to the Creek from Upper and Lower Quarry Road. The work plan shall contain a detailed description of the source areas contributing to the runoff entering the Creek from Quarry Road, a map depicting those areas, a plan outlining the specific sediment control measures to be implemented per source area identified, and an implementation schedule.
5. **By November 1, 1999** Hanson shall submit a technical report containing a work plan and an implementation schedule, acceptable to the Executive Officer, outlining a plan to control sediment runoff from the Primary Crusher and from the Ore Feeder to the Primary Crusher. The work plan will include the design of a containment system to control overland flow of sediment laden water over the embankment directly into the Creek, and a storm water drainage plan for the water contained by the new system. In addition, the plan shall include a sediment management plan for the water contained in the existing concrete containment structure adjacent to the Primary Crusher. The sediment management plan must include a training component to ensure all Facility personnel follow the procedures outlined within the plan.
6. **By November 15, 1999** Hanson shall submit a technical report containing a work plan, acceptable to the Executive Officer, for the containment of storm water and aggregate wash water containing elevated levels of sediment from Screen Tower No. 4. The work plan must include the design of a containment system and water management plan for this area, and the stockpiles adjacent to the Creek to the west of Screen Tower No. 4. The work plan must provide for source removal activities, sediment removal, drainage improvements, or a combination of these activities, and an implementation schedule.
7. **By December 15, 1999** Hanson shall submit a technical report containing a work plan, acceptable to the Executive Officer, for slope stabilization and re-vegetation of the former overburden stockpile area. This plan shall



be in addition to the annual hydro-seeding program that Hanson currently performs. The slope stabilization and re-vegetation plan must include specific areas to be re-vegetated, a phased planting plan, and implementation schedule for the stabilization and planting program. The plan must specify the types of vegetation to be planted within each area and performance criteria to determine whether the re-vegetation plan implemented for a particular area is successful. A contingency plan for areas where re-vegetation is not successful must also be included.

8. **By February 1, 2000** Hanson shall submit a technical report containing a work plan, acceptable to the Executive Officer, for slope stabilization of the Creek embankment adjacent to Screen Tower No. 4. The work plan must be prepared by a creek restoration specialist and include a review of potential slope stabilization alternatives, including biotechnical stabilization alternatives and discussion of the benefits and disadvantages of each alternative. A recommendation for the selected alternative and a schedule for its implementation must be included in the technical report.

9. **By September 1, 2000** Hanson shall submit a technical report containing a proposal for a long term creek restoration plan (plan), acceptable to the Executive Officer, for all areas of the Creek area affected by the Facility. A creek restoration specialist must prepare the plan. This plan should build upon previous work including the tasks required above and be performed in three phases. The plan shall fully describe each phase, which should, at a minimum, include the following components:

Phase 1: A system wide field reconnaissance (fluvial geomorphology), that includes problem(s) identification (determine cause/mode of failure), and data collection and analysis (e.g., biological, geotechnical, hydraulics & hydrology, sedimentation, survey and mapping, etc.). Properly performed field reconnaissance and problem identification should result in a good qualitative understanding of erosion and bank stability problems on a watershed scale. The purpose of this reconnaissance is to identify sites along the Creek that would ideally require some form of stabilization and/or restoration;

Phase 2: Prioritization of candidate sites and a description of identified and potential solutions and design alternatives that incorporate information from Phase 1. Such a plan should consider appropriate fluvial geomorphologic design and the degree to which biotechnical measures and creek restoration design can be included as the solution; and,

Phase 3: Submittal of implementation schedules for candidate sites and their associated design alternative(s) and solutions from Phase 2.

10. If Hanson is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, Hanson shall promptly notify the Executive Officer in writing and request revised completion dates.

D. Reporting Requirements

1. Hanson shall immediately notify the Board by telephone at (510) 622-2300 whenever an adverse water quality condition occurs as a result of Facility related activities. A written confirmation to the Board on the incident shall follow within five working days by certified mail.
2. In addition, Hanson shall submit to the Board reports acceptable to the Executive Officer on compliance with the requirements of this Order and status reports that contain descriptions and results of the work and analysis performed. These reports are to be submitted according to the program outlined below:

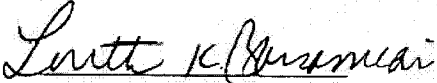
On a quarterly basis, Hanson shall submit status reports, which may be prepared in letter format, documenting compliance with this Order, commencing on October 1, 1999. Thereafter, reports shall be due quarterly on the 1st of each ensuing October, January, and April, and July until the tasks have been completed. Each quarterly report shall cover the previous calendar quarter and include, at a minimum, the following information:

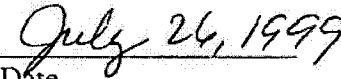
- a. Summary of the work completed since the submittal of the previous report, and work projected to be completed before the submittal of the next report.
- b. Identification of obstacles that may threaten compliance with the schedule set forth by this Order, or by plans and reports submitted in response to this Order, and what actions are being taken to overcome these obstacles.

With appropriate justification and written request from Hanson, the Executive Officer may agree to delete this reporting requirement, or amend the reporting requirements for content and frequency, when all or most of the required tasks are completed satisfactorily.

E. Other Provisions

1. On an annual basis by April 30, Hanson shall apply for Waste Discharge Requirements and/or Water Quality Certification for all scheduled and/or planned work in the Creek and its tributaries, including stabilization of banks, sediment removal, and all other work scheduled and/or planned to be undertaken in implementing the measures under Provisions B. and C. in that calendar year. For all such work scheduled and/or planned prior to February 1, 2000, only, Hanson shall submit the above application by August 23, 1999.
2. As described in Finding 14 above, upon receipt of a billing statement for costs incurred pursuant to Section 13304 of the Water Code, Hanson shall reimburse the Board.
3. Pursuant to California Water Code Sections 13304 and 13350, if Hanson fails to comply with the provisions of this Order, the Board may schedule a hearing to consider assessing civil monetary penalties and to consider requesting the Attorney General to take appropriate enforcement action, including injunctive and civil monetary remedies.

  
Loretta K. Barsamian  
Executive Officer

  
Date

## **Exhibit 4**

Dr. Mark Jennings letter concluding the Permanente Creek pond maintenance project would provide an overall benefit to CRLF

RANA RESOURCES  
P.O. 2185  
Davis, CA 95617-2185

(530) 753-2727  
[RanaResources@aol.com](mailto:RanaResources@aol.com)

#13,840  
October 31, 2008

Mr. Henrik Wesseling  
Plant Manager  
Lehigh Southwest Cement Company  
24001 Stevens Creek Blvd  
Cupertino, CA 95014-5659

Subject: Response to Comment 4 of Regional Water Quality Control Board Letter dated October 17, 2008.

Dear Mr. Wesseling:

This letter report is in response to a letter sent by the Regional Water Quality Control Board (Water Board) staff dated October 17, 2008, commenting on the application for water quality certification for the Permanente Plant Stormwater Management Facilities Maintenance Project. Specifically, this letter report addresses the California red-legged frog (*Rana draytonii*; CRLF) comments outlined in the second paragraph of Comment 4 on page 3 of the Water Board letter. My comments are based on 24 years of professional experience with CRLFs and over 20 peer-reviewed, scientific publications dealing with these species (some of which have been utilized in major court cases regarding CRLFs).

The benefit to CRLFs in the sedimentation basins (ponds) listed depends on the current conditions of each pond. Ponds (such as 13 and 21) are almost completely silted in and are covered with dense stands of marshland vegetation. Previously, frogs were observed here—but they haven't been noted during more recent surveys due to the siltation of the ponds. The dense stands of marshland vegetation is still CRLF habitat, but it is of marginal quality; not the high quality CRLF habitat where you have clumps of vegetation next to deep water (e.g., see Jennings 1988, Jennings and Hayes 1994, and Jennings 2000). The former allows raccoons (*Procyon lotor*) [which are very abundant at this location], gartersnakes (*Thamnophis* spp.), wading birds (such as herons (Ardeidae)), and other predators to get relatively close to frogs to be able to eat them, while the latter offers frogs a better chance to catch their own prey, sun themselves, successfully reproduce and escape from predators—especially for adults. In the “natural world,” stream channel ponds are modified more or less during most years in Peninsular streams by flood events which change the make-up of riparian vegetation, banks, pool depth, sediment input, etc. Inevitably, a mosaic is created which allows for the most frogs of all age classes to utilize the habitat.

In Hayes and Jennings (1988), we stated that the best habitat for the species was a band of emergent vegetation (such as cattails (*Typha* spp.) beneath a stand of riparian vegetation (such as willows (*Salix* sp.)). Similar goals can be reached with sediment removal in the ponds. Since Hanson Permanente proposes to remove sediment annually and leave a ring of riparian and wetland vegetation around the edge of the pond (or one side of the pond), this would mimic what could reasonably happen in a natural process. This same idea has been previously used for determining the method of cleaning out ditches utilized by the threatened giant gartersnake (*Thamnophis gigas*) where State and Federal agencies suggest removing the riparian vegetation from one side of the canal one year, and then the other side of the canal the next years so there is always suitable cover for the snakes (U.S. Fish and Wildlife Service 1999). Similar activities can be done with this project to maintain suitable conditions for CRLF.

CRLFs are resilient as long as you don't degrade their habitat by removing all surface and vegetative cover, introducing herbicides, pesticides and exotic aquatic predators. There are a number of successful reintroductions of this species into artificial habitats (like at Golden Gate Park) once the source of the original extinction (e.g., introduced aquatic predators and herbicides/pesticides) was eliminated. In short, the project should result in an improvement to CRLF foraging and breeding habitat compared to the conditions that will result, over time, if the ponds are not maintained.

Please let me know if you have any questions on the above. Thanks again for allowing me to be involved with this project.

Sincerely,

Robert T. Penner.  
For

Mark R. Jennings  
President and  
Herpetologist/Fisheries Biologist

## LITERATURE CITED

- Hayes, M. P., and M. R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylei*): implications for management. Pages 144-158 In: R. C. Szaro, K. E. Severson, and D. R. Patton (technical coordinators). Management of Amphibians, Reptiles, and Small Mammals in North America. Proceedings of the Symposium, July 19-21, 1988, Flagstaff, Arizona. U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. General Technical Report (RM-166):1-458.
- Jennings, M. R. 1988. Natural history and decline of native ranids in California. Pages 61-72 In: H. F. De Lisle, P. R. Brown, B. Kaufman, and B. McGurty (editors). Proceedings of the Conference on California Herpetology. Southwestern Herpetologists Society, Special Publication (4):1-143.
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- U.S. Fish and Wildlife Service. 1999. Draft recovery plan for the giant garter snake (*Thamnophis gigas*). U.S. Fish and Wildlife Service, Portland, Oregon. ix+192 p.