

APPENDIX J

Progress Report and Current Status
of Revegetation Program

**PROGRESS REPORT
AND
CURRENT STATUS
OF
REVEGETATION PROGRAM**

**West Side/Old Quarry
Lexington Quarry
West Coast Aggregates, Inc.**

April 22, 2002

By
Malcolm Carpenter Associates

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Progress Report Exhibits:

1. Surface Mining Inspection Report, June 20, 1995.
2. Excerpts from June 1991 Approved Use Permit, Exhibit "A".
- 3a-e Revegetation Program Photographs of April 2002.
4. Soil Analysis Preparation, from J. Heid report of April 1991.

Background Documents:

1. June 1991 Approved Use Permit;
2. Surface Mining Inspection Report, June 20, 1995;
3. *"Plans for the Rehabilitation of Lexington Quarry"*, by Louis Bini Associates, sheets 1-3, dated 8/23/74, and sheet 4, dated 2/26/74;
4. *"Landscape Plan for Jared Dastrup"*, by Jeffrey Heid, dated 10/26/84;
5. *"Landscape Report for Lime Kiln Canyon Quarry"*, by Jeffrey Heid, dated 10/25/84; (and as amended in 1990 and 1991 and listed below)
6. *"Report of Progress and Current Status for the Revegetation Program for Lexington Quarry"*, by Jeffrey Heid, dated 8/90;
7. *"Report of Current Observations and Recommendations- Lexington Quarry"*, by Jeffrey Heid, dated 4/19/91.

PROGRESS REPORT And CURRENT STATUS OF REVEGETATION PROGRAM

Lexington Quarry, West Side – West Coast Aggregates, Inc.

I. BACKGROUND

The original Use Permit for the site was issued in January 1975; it has been subsequently renewed in July 1980, in March 1986, and again in June 1991. Under Use Permit Number 11 P 68.5, the west side of the quarry was excavation and revegetated. Trees were planted on the first bench prior to 1984. Excavation was completed in 1995 and the revegetation of benches 1 through 7 was completed and approved by the County in 1995 per the Surface Mining Inspection Report, dated June 20, 1995, Exhibit 1.

In June of 1991, the Use Permit, 3690 30 48 88F (11 P 68.5) was extended for a five year period by the County of Santa Clara Planning Commission with all of the conditions contained in Exhibit A of the Use Permit, and included as Exhibit 2 in this report. The approval also noted that all of the new conditions supersede all of those presently adopted for file 11 P 68.5.

II. CONDITIONS OF APPROVAL

The following conditions of approval are an excerpt from the 1991 Use Permit and only include those conditions which apply to the revegetation of the old quarry slopes and benches on the west side. The condition number is identified by the letter and number in parenthesis, i.e. **(A2)**, following the text.

1. The following reports and plans are part of the conditions: **(A1, a-c)**. All of these reports and plans are attached to this report as Background Documents.
 - a) "Plans for the Rehabilitation of Lexington Quarry", by Louis Bini Associates, sheets 1-3, dated 8/23/74, and sheet 4, dated 2/26/74;
 - b) "Landscape Plan for Jared Dastrup", by Jeffrey Heid, 10/26/84;
 - c) "Landscape Report for the Lime Kiln Canyon Quarry", by Jeffrey Heid, 10/25/84, and amended 8/1990, and 4/19/91.
2. Install water lines to benches to irrigate planting on benches **(D2)**;
3. Fencing is to be maintained at the ends of the benches **(D5)**;
4. All benches and slopes shall be landscaped in accordance with the approved plans in item number one above **(D6)**;
5. Preparation and seeding should be completed between September and November 15th after each bench is completed **(D7)**;
6. Planting materials to be used are specified in the plans dated October 1984 with amendments on August 1990 and April 19, 1991 **(D8)**.

III. REVEGETATION CRITERIA AND PROCEDURES IDENTIFIED IN THE APPROVED REPORTS & PLANS

The Conditions of Approval identified numerous reports and plans, which contain detailed criteria and procedures for revegetating the old quarried slopes and benches on the west side of the quarry. The criteria and procedures are presented below and their corresponding report or plan from which the information came is provided in parenthesis as the reports and plans are itemized in the Conditions of Approval above, i.e. (1a), or (1b), or (1c).

1. **PLANT LIST:**

The plants used to revegetate the quarry benches have evolved since the original report in 1974. Each subsequent report, 1990 and 1991 has made changes to the plant list in response to the successes and failures in revegetating the quarry benches and slopes on the west side of the quarry. The following Table: Planting List – Lexington Quarry presents all of the plants used and any changes to their use are included in the “Comment” column.

PLANTING LIST – LEXINGTON QUARRY					
PLANT TYPE	COMMON NAME	LATIN NAME	SIZE (gallon)	COMMENTS	REPORT REFERENCE
TREES					
	Arbutus menziesii	Madrone	5	1991 report recommended not using anymore	(1b, 1984); (1c, 1984); (1C, 1991)
	Quercus agrifolia	Coast Live Oak	5	1990; either do not use trees or substitute scrub oak for the Monterey Pine and Coast Live Oak.	(1b, 1984); (1c, 1984); (1c, 1990)
	Pinus radiata	Monterey Pine	5	1984, to be planted in a row of ±6 trees, 30' o.c. alternating with clusters of Madrone or Oaks. 1990, either do not use trees at all or substitute scrub oak for the Monterey Pine and Coast Live Oak.	(1b, 1984); (1c, 1984); (1c, 1990)
SHRUBS					
	Baccharis pilularis “Twin Peaks”	Coyote Brush	1		
	Heteromeles arbutifolia	Toyon	1	1990 over grazed by deer. 1991 report suggest not using anymore	(1c, 1984); (1C, 1991) (1c, 1990)
	Rhamnus californica	Coffeeberry	1		(1c, 1984);
	Arctostaphylos	Common Manzanita	1	1990, doing well	(1c, 1984); (1c, 1990)
	Baccharis pilularis consanguinea	Coyote Brush		1990 & 1991 report suggest to replace Toyon	(1C, 1991) (1c, 1990)
	Diplacus aurantiacus	Sticky Monkey Flower		1990 & 1991 report suggest to replace Toyon	(1c, 1990) (1C, 1991)
	Ceanothus cuneatus	Buckbrush		1990 & 1991 report suggest to replace Toyon	(1c, 1990) (1C, 1991)
	Quercus dumosa	Scrub Oak		1990, substitute in place of M. Pine & Coast Live Oak	(1c, 1990)
	Artemisia californica	Wormwood, aka Sage		1990, substitute in place Toyon	(1c, 1990)

2. **PLANTING PROCEDURES:**

- a) Shrubs shall be planted in groups of 10 between every other pine tree grouping. Each group of shrubs shall contain 3 Toyon, 3 Coffeeberry and 4 Coyote brush; with Manzanita as an alternative to one of these shrubs. **(1c, 1984)**
- b) Planting pits shall:
 - be one foot greater in diameter than the container and 6 inches deeper than the height of the container **(1c, 1984)**
 - be filled with soil and mulch around the rootball **(1c, 1984)**;
 - be thoroughly water after planting **(1c, 1984)**;
 - have a 6 inch high water basin around the planting pit **(1c, 1984)**;
 - have a 3 inch layer of redwood mulch placed in the water basin**(1c, 1984)**;
 - have an Agriform fertilizer tablet placed mid-depth of the root system in each planting pit for a shrub and two in each planting pit for a tree **(1c, 1984)**;
- c) The rootball of each tree and shrub shall be loosened before planting **(1c, 1984)**;
- d) Planting of trees and shrubs shall occur before hydroseeding **(1c, 1984)**;
- e) Trees and shrubs should be planted in natural form. **(1b, 1984)**;
- f) A new plan for soil preparation was suggested in 1991. The specifications call for a more detailed method of soil preparation with the use of organic material, fertilizer and the use of a polymer to retain moisture, Exhibit 4. **(1c, 1991)**
- g) Use established Pine trees to shield and protect young plants that will eventually take the place of the pines. **(1c, 1991)**
- h) Fencing should be placed at the ends of the benches to prevent deer from accessing the newly installed plants on the benches. **(1c, 1990) (1c, 1991)**
- i) Trees should be planted in groupings, not in a linear fashion. **(1c, 1990)**
- j) 1990 report suggest that 25% more trees and shrubs be installed than in prior years. **(1c, 1990)**

3. **IRRIGATION:**

- a) Planting shall occur during the winter rains **(1c, 1984)**;
- b) Plants shall be watered as soon as they are planted, and during extended periods of dry weather. During the initial watering, care should be used not to wash away the hydroseeding **(1c, 1984)**;
- c) Plants shall be deeply watered twice a month for the first year after installation **(1c, 1984)**;
- d) Two years after installation, plants shall be deeply watered every six weeks during the dry periods **(1c, 1984)**;
- e) An existing well at the top of the slopes shall be the source of water **(1c, 1984)**;
- f) In 1991, watering was “possibly being done by hand” and suggested observing the newly planted plants weekly or once every two weeks and watering the plants when appropriate during these observations. **(1c, 1991)**

4. **HYDROSEEDING:** . Hydroseeding shall occur on both the benches and the slopes. However, hydroseeding shall be done after the trees and shrubs are installed. Standard hydroseeding procedures shall be used. **(1b & c, 1984)**

The hydromulch slurry, as suggest in 1984, included:

ITEM	POUNDS/ACRE
Seed Mixture	
Bromus mollis "blando" – 85%	60 lbs/ac
Crimson clover- 15%	
Fertilizer	
16-6-8 complete	400 lbs/ac
Mulch	
Sterile Wood fiber	1800 lbs/ac
Glue Binder	
R-binder-organic	40 lbs/ac

IV. CURRENT OBSERVATION OF PLANTING ON OLD QUARRY SLOPES AND BENCHES

This report describes the current status of revegetation of the old quarry benches and slopes on the west side of the quarry. The observations made the week of April 8th, 2002 show both successes and failures. Benches one through three have more mature plantings as they were planted about eighteen years ago by the prior quarry operator. The lower benches, benches four through seven were planted more recently by West Coast Aggregates, and have less mature vegetation. Our overall impression is that the revegetation program is succeeding for a variety of reasons as illustrated in the attached photographs and described below.

PLANT MATERIALS:

1. **PLANT SPECIES – DIVERSITY.** There are a large variety of trees, shrub, grasses and herbaceous plants growing on the benches, and included on the plant list. Over the life of the revegetation program there have been 5 different kinds of trees on the plant list including Redwood Trees, Monterey Pines, Douglas Fir, Madrone and Coast Live Oaks. Overtime the planting of the Redwood trees and Douglas Fir has stopped due to their failure to survive, and more recent reports have suggested that the Madrone be eliminated from the planting list. The 1990 report suggests either eliminating the use of trees entirely or to use the Scrub Oak in place of the Pine and Oak trees. Some of the thinking behind this is that while the Monterey Pine is doing well here it is not native to this area. An alternative concept in the previous progress reports was that the Pines should continue to be planted to provide shade and shelter for the native plants that eventually will be allowed to overtake the Pines.

Presently, the Monterey Pine trees are found in the largest quantities because earlier planting programs installed larger numbers of Pines than any other kind of tree. Coast Live Oaks have been planted on the more recently planted benches 6 and 7, and are thriving. Several other trees appear to have established themselves as volunteers; such as Black Acacias and Willows. There are nine different shrub types that have been planted over the last two decades. The Manzanita and Coyote Brush are flourishing and occur more frequently than the other shrub types. The Sticky Monkey Flower and Sage are also doing quite well in the locations where they were planted. There also are some

shrubs that have volunteered such as the Bush Lupine and Chamise. The Toyons are few and far between, as noted in earlier reports, because the deer graze heavily on these shrubs. Scrub Oak was planted in limited numbers; however, very few have survived. The Scrub Oaks probably did not survive because they were not sufficiently established when the well stopped functioning. There are numerous kinds of grasses and herbaceous plants growing. The Crimson Clover and Brando Bloom are prevalent as their seed was included in the hydroseed mix that was applied to the benches and side slope. Other herbaceous plants that are evident include plants such as : California Poppies, Lupine, and Vetch.

2. **PLANT COVERAGE:** On the older more established benches, benches 1-3, there is good plant coverage, "species density", as shown in photograph numbers 1 and 2. The tree and shrub canopies project over the ground surface and covers it. Photograph number 4 was taken standing underneath a twenty foot tall pine tree which had grasses, herbaceous plants and shrubs under its canopy. Even the grasses and herbaceous plants serve to cover the ground as shown in photograph numbers 6 to 8. On the newer benches 4-7 there is less coverage, but this is expected as these benches were planted more recently than the upper benches, photograph number 10. The plant coverage in the planting holes on the lower benches is typically quite good, as illustrated in photograph number 10; however, the coverage on these benches is sparse in between the planting holes. This is expected as it takes time for plants to get established and then regenerate and spread into new areas.

The quarry side slopes (between benches 3 and 7) have been hydroseeded in the past. Some grasses and herbaceous plants have established themselves on these slopes but the coverage is thin. Photograph numbers 9 and 10 illustrate the difference between lush vegetative coverage and those with less growth. The planting on the lower benches was more impacted by the lack of water from the irrigation system being out of service than the upper benches, photograph number 12. This is because the newer plants were not as established and consequently did not have a large root system like the plants on the older benches had to ensure survival. Benches four and five have the least coverage, which is due to several factors including: the plants were installed in planting pits (1 foot wider than the container and 6 inches deeper than the container height) carved out of solid rock. In these conditions it will take plants longer to grow and survival rate will be impacted because of the harsher conditions. The plants on benches 6 and 7 are larger and more established than those on benches 4 and 5. The reason for this is that the planting areas for benches 6 and 7 were overexcavated (larger planting holes: 8 feet deep and 14 feet wide) and filled with sediment, fines and water from the processing plant. When the plants on the two lowest benches were installed, soil amendments were added to each planting pit.

The survival rate varies from bench to bench, but the average survival rate is 57 percent. In October 2001 each bench was surveyed for the number of trees that were alive and dead. Bench numbers 3 and 4 had the lowest survival rate, for trees, of 32 and 44 percent. Benches 6 and 7, with the over excavated planting pits, had the highest survival rates of trees of 85 and 72 percent, respectively. These figures confirm that the majority of the trees are surviving.

The amount of vegetative cover on the old quarry slopes as seen from the quarry floor and adjacent property will appear to be smaller, thinner and sparser than it really is from these locations. This perception is caused by several factors: 1) The distance reduces

plant size and the grasses will not even be evident, especially in the summer months when most of the grasses and herbaceous plants are dried out (brown) and dormant. From the quarry floor the twenty foot tall Monterey Pine trees on the first bench appear to be about 4 or 5 feet tall and due to the angle and placement of the shrubs toward the rear of the bench, the shrubs are not even visible. 2) The size and height of the quarried hillside, compared to the size of the plant materials also serves to dwarf the plants. The quarry slopes rise about five hundred feet from the quarry floor which makes a 5 to 20 foot tall tree and a 2 to 5 foot tall shrub look like they are small green blobs and not something larger than a bathtub or breadbox. As mentioned earlier, the grasses, especially when they are dried out in the summer months won't even be visible. 3) The contrast between the light quarry slopes and the dark densely vegetated surrounding hillsides also makes the quarry slopes appear to be more sparsely vegetated than they really are. The attached photographs taken this spring illustrate the extent of coverage on the benches and slopes.

3. PLANT DENSITY: Plant density refers to the number of plant stems per square foot. The plant density is high on the older benches one through three as is illustrated in photograph numbers 2, 8 and 9. The plant density on the newer benches, 4 through 7, is more sparse compared to the older benches, photographs 9 and 10, but this is to be expected as it takes time for plants to get established and re-seed the adjacent areas.
4. HYDROSEEDING: Hydroseeding has been done on the benches and sideslopes between the top of the quarry down to bench number 7. West Coast Aggregates has hydroseeded these areas several times since they took over the mining operation in 1989.

PLANTING PROCEDURES:

1. Plants are placed into planting pits which are one foot wider than the container, and 6 inches deeper than the depth of the container;
2. Benches 6 and 7 were overexcavated to create a 14 foot wide and 8 foot deep depression in the rock bench. These large planting beds were then filled with sediment, silts, fines and water pumped up from the processing plant at the quarry. At the time of planting soil amendments were added to each planting pit.
3. Soils were amended using the recommended soil amendments;
4. Plants were either 1 or 5 gallon in size;
5. Fertilizer was used;
6. All other recommended or specified procedures in previous reports were used.

IRRIGATION PROGRAM:

1. The well was recently repaired and the quarry operator is in the process of installing an irrigation system to ensure that both the existing plants and new plantings have sufficient water to survive and thrive.
2. Historically, the irrigation system was a drip system that provided water directly to each individual planting pit.

V. SUMMARY

The planting program for benches one through seven, on the west side of the quarry (aka north slope), was approved and deemed finished by the County of Santa Clara in June of 1995, Exhibit 1. In the County's Surface Mining Inspection Report, Exhibit 1, the inspector stated "Operator has complete excavation and reclamation phases of North slope portion of quarry.." While the Quarry has finished revegetating the quarried benches and slopes on the west side of the quarry (benches 1 to 7) and obtained approval from the County for completing the revegetation program for this area they have had this report prepared to respond to the request from the Santa Clara Valley Water District of August 2001.

In summary, the field observation in April 2002 found that the existing plantings on the quarried benches and slopes were growing and regenerating, and that some volunteers were even growing there. With the restoration of the watering program the plants survival rate, growth rate and rate of regenerating will be further enhanced. While it is not required, the quarry operator in response to neighbors concerns has committed to replacing those plants on the approved planting list that have died since West Coast Aggregates has taken over the operation of the quarry.

LEXINGTON QUARRY

WEST COAST AGGREGATES

REVEGETATION PROGRAM
PHOTOGRAPHS



1. LUSH GROWTH ON OLDER BENCHES & SIDE SLOPES



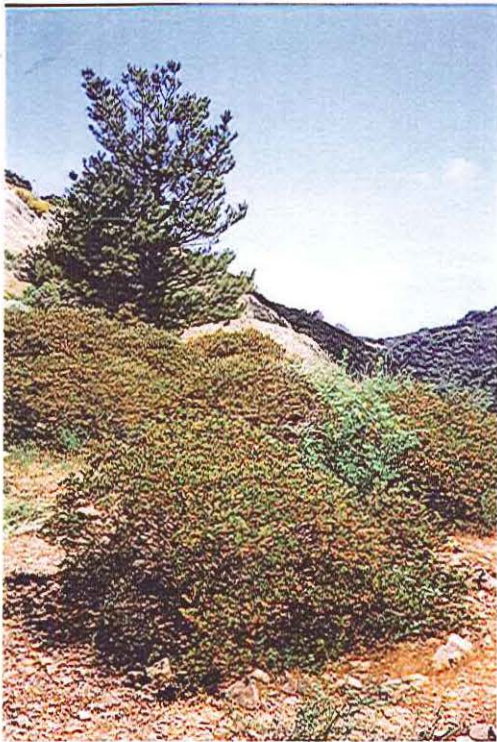
2. LUSH GROWTH ON OLDER BENCHES & SIDE SLOPES

3a

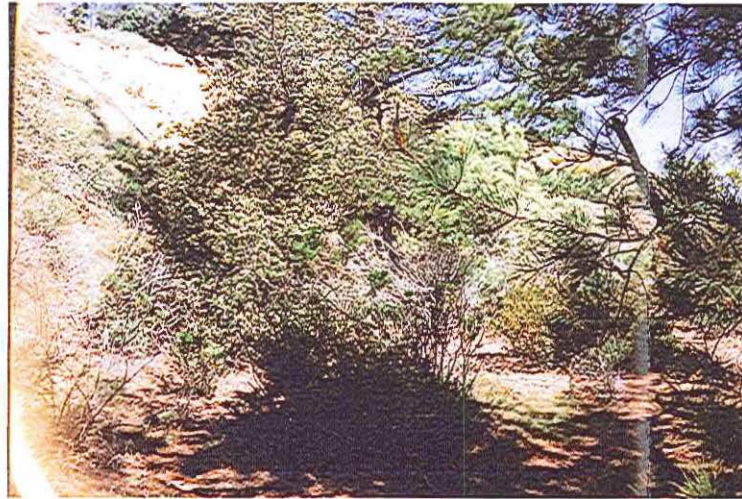
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MALCOLM CARPENTER ASSOCIATES
CITY AND REGIONAL PLANNERS

4/2002



3. TREES 15-20' HIGH & SHRUBS 3-4' HIGH



5. VEGETATION UNDERNEATH TREE CANOPY



4. FENCE AT END OF BENCH & VEGETATION

LEXINGTON QUARRY

WEST COAST AGGREGATES

REVEGETATION PROGRAM
PHOTOGRAPHS

3b

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4/2002