Biotic Resources Group
Biotic Assessments ◆ Resource Management ◆ Permitting

Berryessa Asphalt Recycling Plant Riparian Revegetation Project

Year 2 (2007) Monitoring Report

Prepared for:
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BERRYESSA ASPHALT RECYCLING PLANT
RIPARIAN REVEGETATION PROJECT

YEAR 2 (2007) MONITORING REPORT

INTRODUCTION

The Berryessa Asphalt Plant is located in the City of San Jose, along Berryessa Road between Highway 101 and Coyote Creek (Figure 1). The Riparian Revegetation Site encompasses approximately 20,400 square feet (0.468 acre) and provides riparian mitigation plantings for Granite Rock Company's recycling center. Development of the recycling project (e.g., storm drain outlet into Coyote Creek and future recycling activities adjacent to the creek) necessitated riparian mitigation activities pursuant to the requirements of the project's Conditions of Approval (City of San Jose) and regulatory agency permits (i.e., California Department of Fish and Game and California Regional Water Quality Control Board).

A Revegetation Plan was prepared for the project that identified the activities necessary for the establishment of riparian woodland adjacent to the recycling facility and Coyote Creek, in conformance to the approved *Conceptual Landscape Plan* (Drawing No. 22199P01-104, Thomas Reid Associates, Sept. 2004). The revegetation area is located in a 30-foot wide previously disturbed area where the revegetation will increase the riparian habitat values of Coyote Creek. All existing wetland and riparian habitat along Coyote Creek were to be retained in their existing state, except for the removal of invasive non-native plant species (i.e., giant reed, *Arundo donax*). The revegetation area is located in an approximately 30-foot wide band extending outward from the existing riparian woodland (*Berryessa Asphalt Recycling Plant Riparian Revegetation Project – Year 1 As-Built Conditions Report,* Biotic Resources Group, December 2005).

Pursuant to these plans and permit conditions, the Year 2 (2007) condition of the revegetation area (i.e., status of plants) was documented. The result of this monitoring is described in this report. The Year 1 (2006) condition of the site was documented in the *Berryessa Asphalt Recycling Plant Riparian Revegetation Project – Year 1 Monitoring Report,* Biotic Resources Group, December 2006).

SUMMARY OF PROJECT PERMITS AND REQUIREMENTS BY AGENCY

The projects revegetation requirements are derived from the City of San Jose's and other regulatory agencies permit conditions and the need to create self-sustaining natural habitats within the projects 5-year reporting schedule. The maintenance requirements follow those outlined in the revegetation plan.

Specific revegetation plan goals include:

1. Establish mitigation plantings within a 0.468-acre area along the top-of-bank of Coyote Creek.
2. Utilize native plant materials collected from the Coyote Creek watershed.
3. Utilize an irrigation system during the plant establishment period (i.e., first 3 years).
4. Implement periodic weed control to benefit the mitigation planting area.
5. Maintain a minimum 80% survival rate of all container stock and 60% survival of willow and cottonwood cuttings during the first three years, replacing dead plants if survival rates fall below this performance standard.
6. Establish four photo stations to document progress of the revegetation.

7. Document the progress of the revegetation over a five-year period by monitoring plant survival, health, and vigor, as well as site maintenance.
8. Submit annual reports to City of San Jose, CDFG, and RWQCB by December 31 of each monitoring year.

The monitoring program for the revegetation areas is designed to ensure project compliance with applicable regulatory permits and conditions. This is to be accomplished by initiating a 3-year plant establishment maintenance program, such that plant survival rates are maximized and desired habitat features are achieved. The program also includes implementation of a 2-year post-establishment period maintenance program, which also maximizes the potential for long-term plant survival and habitat features. The revegetation maintenance program includes the implementation of remedial actions on a yearly basis if plantings fail to meet performance standards. The success of the maintenance and management program are to be documented by implementing a 5-year monitoring program that documents the status of the habitat areas and reports the findings to regulatory agencies on a yearly basis.

YEAR 2 (2007) MONITORING

Native riparian plantings were installed within the designated revegetation area in October and November 2005. Central Coast Wilds, a landscape contractor, installed container plants (trees and shrubs) and cuttings of willow and cottonwood within the revegetation area as well as additional plantings around a previously installed storm drain outfall. A list of the plants specified in the Revegetation Plan is presented in Table 1.

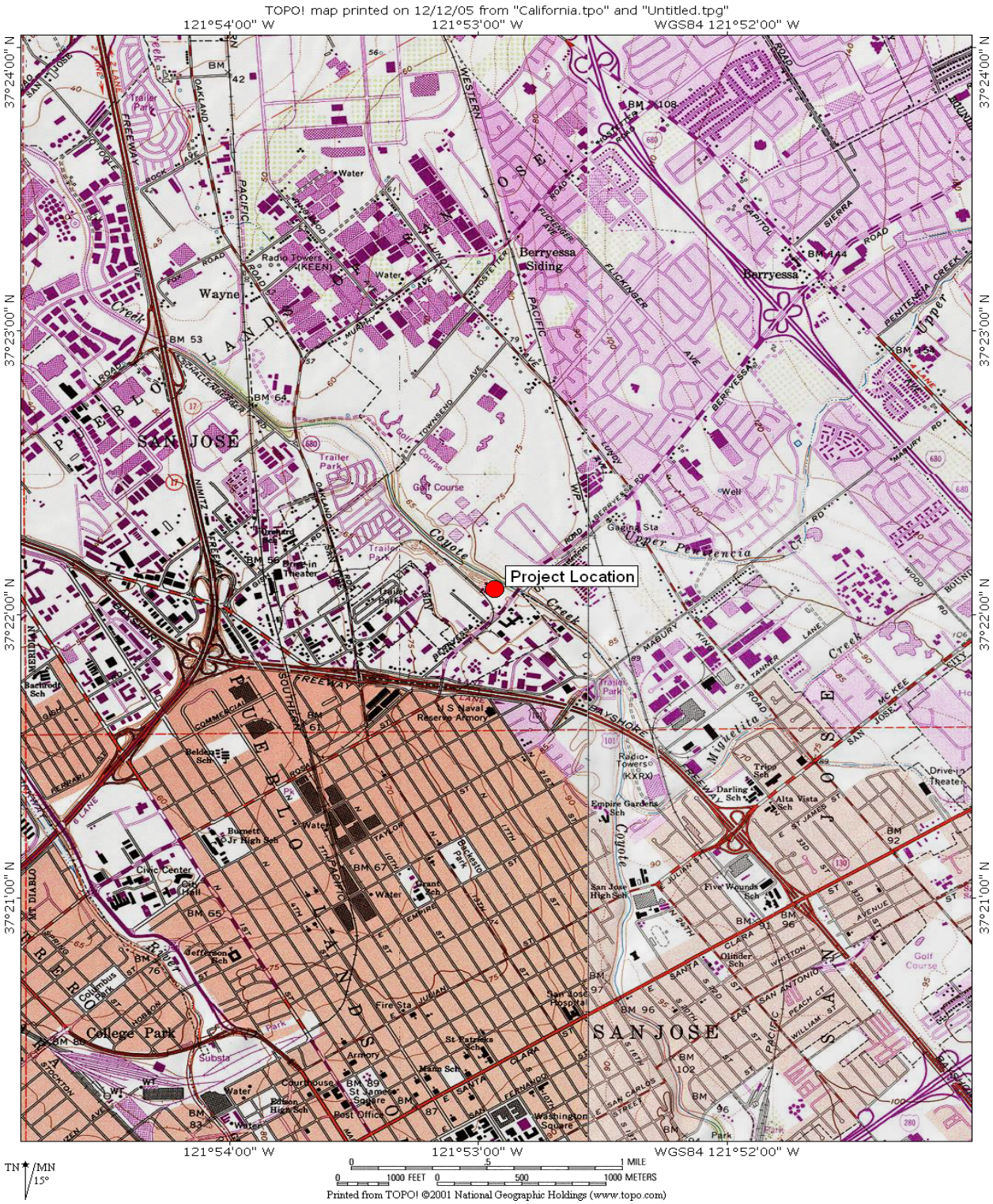
Table 1. As-Built Conditions for Riparian Revegetation Site

Common Name	Scientific Name	Size of Propagule Installed	Quantity Specified in *Revegetation Plan*
Box Elder	*Acer negundo*	1-gallon	12
Fremont Cottonwood	*Populus fremontii*	Cutting	15
Willow	*Salix sp.*	Cutting	14
Blue Elderberry	*Sambucus mexicana*	1-gallon	12
California Blackberry	*Rubus ursinus*	1-gallon	20
California Rose	*Rosa californica*	1-gallon	20
Total			**93**

Year 2 Monitoring

Kathleen Lyons of the Biotic Resources Group documented the Year 2 condition of the riparian mitigation area on November 7 and December 11, 2007. At the monitoring sessions, environmental features of the planted area were noted (i.e., human disturbances) as well as plant species condition and the site's conformance to requirements of the *Revegetation* Plan. The riparian mitigation area was also evaluated as to site maintenance and other disturbances.

The November 2007 monitoring of the riparian mitigation area was conducted approximately two years after the plantings were installed. During the monitoring, 109 planting sites were documented to contain live trees or shrubs. All species, except blue elderberry (*Sambucus mexicana)* exhibited greater than 80% plant survival, when compared to the requirements specified in the *Revegetation Plan.* Weeds were noted in and around the planting basins and browse protection cages required removal. Granite Rock secured the services of Central Coast Wilds to do maintain the site, including removing weeds, replacing mulch, removing cages where necessary, and installing replacement plants.

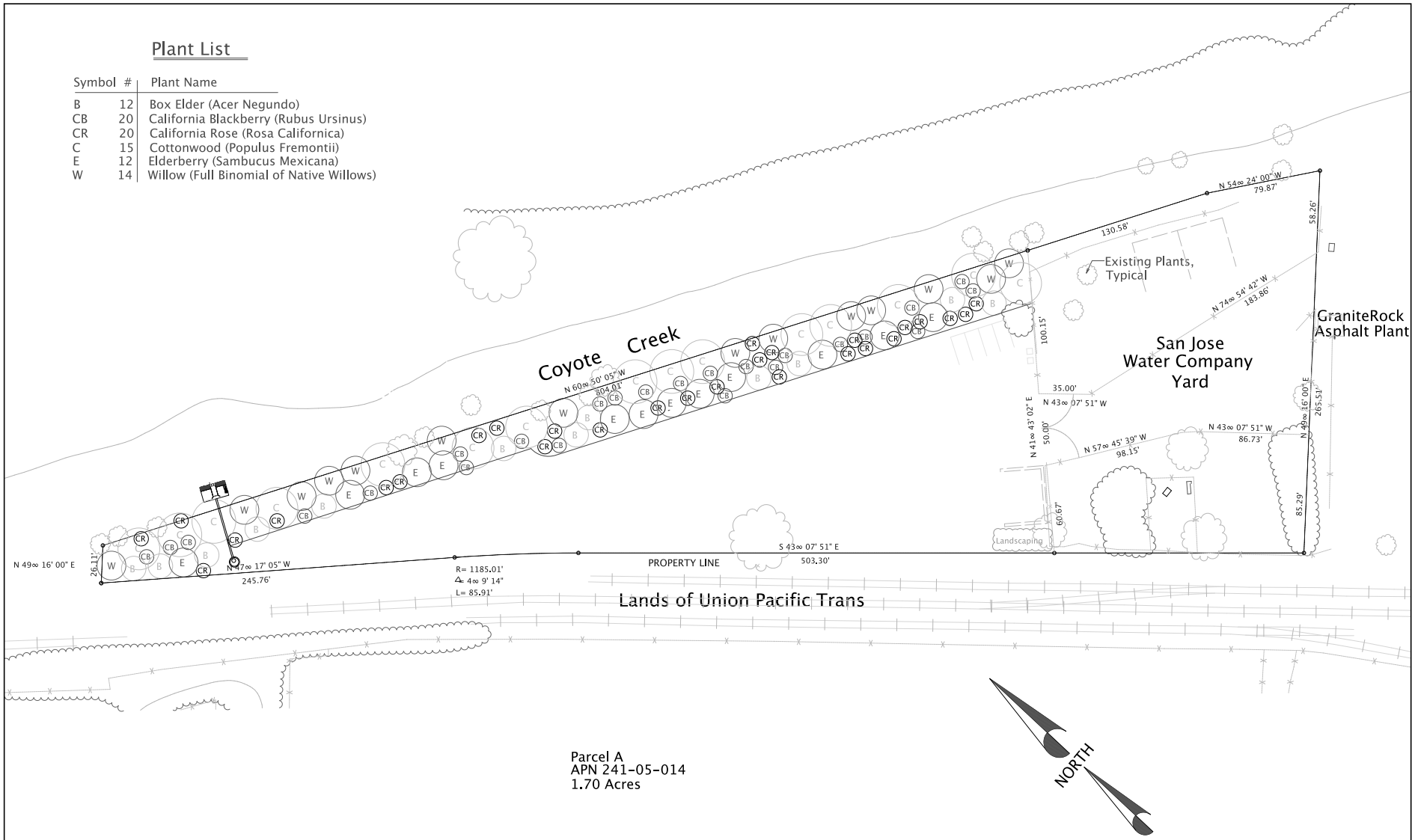


Base Map: USGS Topographic Map, San Jose

Biotic Resources Group 2551 S. Rodeo Gulch Road #12 ♦ Soquel, CA 95073 (831) 476-4803 ♦ Fax (831) 476-8038	Berryessa Asphalt Recycling Plant Riparian Revegetation Area Location Map	Figure 1 12/07

Plant List

Symbol	#	Plant Name
B	12	Box Elder (Acer Negundo)
CB	20	California Blackberry (Rubus Ursinus)
CR	20	California Rose (Rosa Californica)
C	15	Cottonwood (Populus Fremontii)
E	12	Elderberry (Sambucus Mexicana)
W	14	Willow (Full Binomial of Native Willows)



Source: Thomas Reid Associates, 9/04

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Figure 2
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At the December 12, 2007 field inspections, the site had been weeded and replacement container stock plants had been installed. In addition to the installation of two blue elderberry plants required to meet success critieria, additional plants were installed: five blue elderberry, six California rose (*Rosa californica)*, six box elder (*Acer negundo)*, and five California blackberry (*Rubus ursinus)*.

The November 2007 monitoring documented plant survival, health and vigor (i.e., presence of chlorosis, limb dieback, drought stress) and record plant cover. The rating system used for plant health and vigor is listed on Table 2.

Table 2. Plant Health and Vigor Rating System

Code	Rating	Health Characteristics	Vigor Characteristics
4	Excellent	75-100% healthy foliage	Vigorous new growth observed throughout plant
3	Good	50-74% healthy foliage	Vigorous new growth observed only at terminal bud
2	Fair	25-49% healthy foliage	No new growth evident
1	Poor	0-24% healthy foliage	Stem dieback observed

The Year 2 monitoring results are presented in Table 3. With the replacement plantings of two blue elderberries in December 2007, each species showed a greater than 80% survival rate. Average plant heights ranged from 1.5 feet (California blackberry) to 16 feet for Fremont cottonwood. Plant vigor and health ratings ranged from a low of 3.5 (very good vigor and health) for blue elderberry to excellent vigor for Fremont cottonwood, California blackberry and California rose.

Table 3. Year 2 (2007) Plant Survival Data within Riparian Mitigation Area

Plant Species	Number of Plants Specified in *Revegetation Plan*	Number of Plants Alive 2007	Percent Survival in Year 2	Average Vigor/Health	Average Height (Feet)
Trees					
Box Elder	10	12	83%	3.9/3.9	8.0
Fremont Cottonwood	15	18	100%+	4.0/3.9	12.5
Willow	14	25	100%+	3.8/3.8	9.5
Blue Elderberry	12	10	80%*	3.0/3.0	4.5
Shrubs					
California Blackberry	20	19	95%	4.0/4.0	1.5
California Rose	20	29	100%+	4.0/3.9	5.0
Total	**93**	**113**	**100%+**	**-**	**-**

+ Reflects survival of species over-planted in 2005
* Reflects two replacement plantings in December 2007

The monitoring documented that all plants were observed in good to excellent condition. Some willows showed drought stress, which may be attributable to a below-normal rainfall year. The outer (western) edge of the mitigation area was fenced with a wooden fence and only minor human disturbances were noted in the mitigation area. A section of the wooden fence was damaged by asphalt operations; the fence was repaired and was in a good, functional condition at the time of the December 2007 inspection. The mulch at each planting basin was replenished at each site in December 2007. Weeds, observed on site in November, had been removed (including small patches of giant reed [*Arundo donax]*, had been removed by the December inspection.

The trend in plant height, by species, from Year 1 (2006) to Year 2 (2007) is depicted in Table 4.

Table 4. Trends in Plant Height, 2006-2007

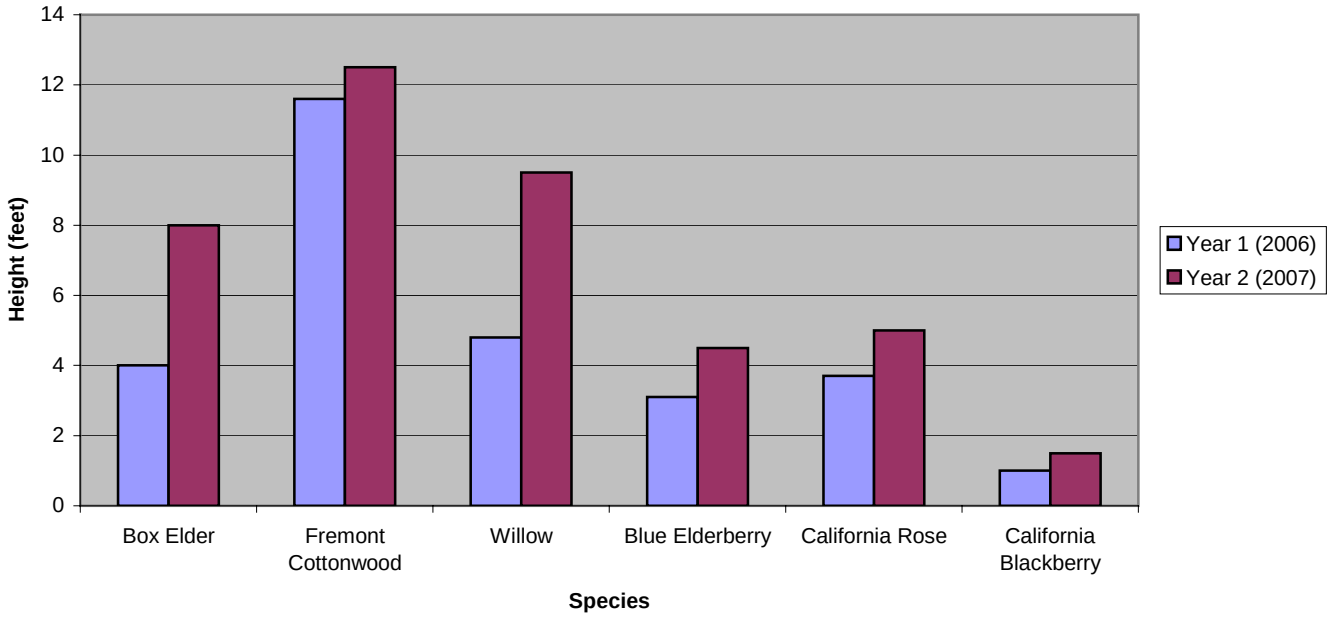

Photo Stations

Four permanent photo stations were established as part of the As-Built Conditions monitoring. The stations are located at the northern and southern ends of the mitigation area (looking south and north, respectively) and two stations are located in the mid section of the mitigation area, with views to the southwest and northeast. These photo stations, documenting the Year 0 (as-built) and Year 2 condition of the site are portrayed in Figures 3-6.

Photo Station 1

Figure 3A. Photo Station #1, taken from southern end of revegetation area, looking northward along the top edge of Coyote Creek, December 2005.

Figure 3B. Photo Station #1, taken from southern end of revegetation area, looking northward along the top edge of Coyote Creek, November 2007. Site was weeded in December 2007.

Photo Station 2

Figure 4A. Photo Station #2, taken from mid section of revegetation area, looking eastward toward top edge of Coyote Creek, December 2005.

Figure 4B. Photo Station #2, looking eastward toward top edge of Coyote Creek, November 2007. Site was weeded in December 2007.

Photo Station 3

Figure 5A. Photo Station #3, taken from mid section of revegetation area, looking southward along the top edge of Coyote Creek, December 2005.

Figure 5B. Photo Station #3, looking southward along the top edge of Coyote Creek, November 2007.

Photo Station 4

Figure 6A. Photo Station #4, taken from northern end of revegetation area, looking southward along the top edge of Coyote Creek, December 2005.

Figure 6A. Photo Station #4, looking southward along the top edge of Coyote Creek, November 2007.

CONCLUSIONS AND RECOMMENDATIONS

According to the mitigation plan for the project, Granite Rock is responsible for 80% survival for the riparian plantings. As per the data collected in December 2007 (Year 2), the plantings meet this criterion, with each species exceeding the 80% survival rate (including replacement planting of two blue elderberries in December 2007). The project successfully meets this performance standard.

RECOMMENDATIONS FOR YEAR 3 (2008)

Revegetation Area Maintenance

The riparian plantings should continue to receive supplemental irrigation in 2008 to promote plant growth and survival. The revegetation area should also be weeded to reduce competition, as specified in the mitigation plan. Weed removal should include removal of weeds from planting basins as well as

removal/control of patches of giant reed that are sprouting within the mitigation area. Mulch should be replenished within the planting basins, if needed. Granite Rock has secured the services of Central Coast Wilds to implement site maintenance (including irrigation system control) throughout 2008.

Monitoring

The revegetation area should be monitored in fall 2008 to document the condition of the revegetation area and document plant survival and plant growth (e.g., height, health and vigor). The survey should include collecting quantitative data and photographing the development of the revegetation plantings. Replacement plantings should be installed if plant survival drops below 80% for any species.

Central Coast Wilds installed over plantings of four species (blue elderberry, California rose, box elder, and California blackberry) in December 2007. Additional willow pole cuttings are scheduled to be installed in late December/January.

Reporting

The Year 3 (2008) monitoring report should be submitted to City of San Jose, CDFG, and RWQCB at the end of the monitoring year. The report is due to these agencies by December 31, 2008.