

# **Habitat Mitigation and Monitoring Plan Alum Rock Park Bank Repair and Stream Restoration Projects**

**Prepared for:**

City of San Jose  
Parks, Recreation and Neighborhood Services  
200 E. Santa Clara Street  
San Jose, CA 95113  
Phone (408) 793-5552

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**Prepared by:**



718 Third Street  
Eureka, CA 95501  
(707) 443-8326

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## **I. PROJECT DESCRIPTION**

### **Summary**

The City of San José, Department of Parks, Recreation, and Neighborhoods Services proposes to implement 12 distinct stream and bank restoration activities on Upper Penitencia Creek within Alum Rock Park (Appendix A - Figure 1, Vicinity Map; Figure 2, Site Map). Proposed activities include bridge abutment repairs, creek bank repairs, floodplain restoration, and fish passage improvement. Several of the specific project elements are intended to restore riparian and aquatic habitat, reduce erosion and sedimentation in the creek, and repair damage to historic structures. Impacts to jurisdictional waters would occur as a result of the project and would be mitigated by on-site restoration and creation (see Table 1, below). This Habitat Mitigation and Monitoring Plan (HMMP) addresses only the three individual projects which are proposed for compensatory mitigation, including Project 3/10, Project 11, and Project 13/CEMAR. The complete project is described and the environmental impacts are analyzed in the CEQA Initial Study for the project. All regulatory permitting for the project, including the mitigation components, will be processed concurrently.

Project components which create or restore habitat or jurisdictional features are proposed for compensatory mitigation for areas of permanent unavoidable project impacts. Project 3/10 and Project 11 will create approximately 0.1 acres (6,329 ft<sup>2</sup>) of new floodplain. Project 13/CEMAR includes “self-mitigating” reconfiguration of approximately 0.2 acres (8,527 ft<sup>2</sup>) of creek channel and will remove an existing salmonid migration barrier. The purpose of this HMMP is to describe methods of construction, revegetation, maintenance, monitoring, success criteria, and reporting for mitigation areas which are intended to result in a long-term net gain in habitat area and functions. This plan includes additional revegetation specifications for all areas of upland disturbance created by the project.

### **Responsible Parties**

The applicant and responsible party is the City of San José, Department of Parks, Recreation, and Neighborhood Services, 200 E. Santa Clara Street, San José, CA, 95113. The contact person is Evelyn Velez-Rosario, (408) 793-5552. This Habitat Mitigation and Monitoring Plan was prepared by Winzler & Kelly, 718 Third Street, Eureka, CA, 95501. The contact person is Misha Schwarz, (707) 443-8326.

### **Project Location**

The project site is located along Upper Penitencia Creek within the 720-acre Alum Rock Park, in the foothills of the Diablo Range just east of San José (Appendix A - Figure 1, Vicinity Map). APN No. 595-07-015, 599-25-001, 612-46-001.

### **Site Characteristics**

Upper Penitencia Creek flows through the park, and is bordered on both sides by steep upland terrain. The park was extensively modified beginning in the late 1800s, with stone bridges crossing the creek, stone grottoes covering some of the associated springs, and stone walls constraining the course of the creek. Although in the 1970s some of the structures were removed in an effort to return portions of the park to a more natural condition, many of the structures remain. (Continued on page 3)

<b>Table 1: Impacts to Waters and Area of Restoration<sup>1</sup></b>							
<b>Number</b>	<b>Location</b>	<b>Description</b>	<b>Temporary Impacts<sup>2</sup></b>	<b>Permanent Impacts<sup>3</sup></b>	<b>Volume of Fill (cubic yards)</b>	<b>Mitigation/Creation</b>	<b>Net Change Waters of US</b>
<b>1</b>	Creekside Bridge	Abutment repair	0.0617 ac 2,690 sf	0.0038 ac 164 sf	8.6 cy	0	(-) 0.0038 ac 164 sf
<b>11</b>	Downstream of Creekside Bridge	Floodplain expansion	0.09 ac 3,958 sf	0	0	0.0456 ac 1,986 sf	(+) 0.0456 ac 1,986 sf
<b>3 and 10</b>	Downstream of Bridge L	Floodplain expansion, wall removal	0.1486 ac 6,473 sf	0	0	0.061 ac 2,657 sf	(+) 0.061 ac 2,657 sf
<b>4</b>	Downstream of Bridge K	Rock wall repair	0	0	0	0	0
<b>2</b>	YSI Bridge	Abutment repair	0.091 ac 3,957 sf	0	0	0	0
<b>13/CEMAR</b>	Downstream of YSI Bridge	Fish passage improvement	0.0046 ac <sup>1</sup> 200 sf	0.197 ac 8,572 sf	1,430 cy	0.197 ac 8,527 sf	0 self mitigating
<b>5</b>	Downstream of YSI Bridge	Repair eroded rill/wall	See 13/CEMAR	0.0015 ac 65 sf	19.25 cy	0	(-)0.0015 ac 65 sf
<b>6</b>	Adjacent to Visitor Center	Repair failed bank protection	0.028 ac 1,213 sf	0.006 ac 261 sf	41.5 cy	0	(-) 0.006 ac 261 sf
<b>9</b>	Visitor Center Bridge	Abutment repair	0.061 ac 2,650 sf	0.0018 ac 78 sf	2.98 cy	0	0
<b>7</b>	Downstream of Quail Hollow	Bank repair	0	0	0	0	0
<b>8</b>	Downstream of Quail Hollow	Repair failing sack concrete wall	0.074 ac 3,211 sf	0.0016 ac 69 sf	2.6 cy	0	(-)0.0016 ac 69 sf
<b>TOTAL</b>			<b>0.6 ac ~24,352 sf</b>	<b>(-)0.21 ac ~9,209 sf</b>	<b>1,505 cy</b>	<b>(+) 0.30 ac ~13,170 sf</b>	<b>~0.09 ac ~4,000 sf net gain</b>

1 All numbers approximate based upon surveyed topography and best available design accuracy and information.

2 Temporary impacts include entire in-channel area below OHW to be dewatered during construction, except 13/CEMAR where dewatered section is included as self-mitigating permanent impact because the channel will be reconstructed for improved fish habitat..

3 Permanent impacts include permanent fill or alteration of streambed below OHW

(Continued from page 2)

Upper Penitencia Creek is characterized by coarse substrate including boulder, cobble and gravel. Although sediment input into the stream is thought to be considerable, high winter flows carry most fine sediment through the system and there are relatively few side channels or quiet backwaters to trap sediment.

The stream is predominantly bordered by a narrow band of riparian forest dominated by willows, California sycamore, and oaks. Nearby upland slopes are characterized by Diablo sage scrub, oak woodland, and small areas of conifer forest. A variety of disturbed community types are present in more heavily used portions of the park. The park provides habitat for two federally threatened species, steelhead and California red-legged frog, as well as for state special concern species including the foothill yellow-legged frog. However, existing degraded habitat conditions limit these species. A relative scarcity of sediment-free interstitial spaces in cobble substrate has been identified as the primary limiting factor for second-year juvenile steelhead (Stillwater Sciences, 2006). At the proposed Project 13/CEMAR site, an existing weir downstream of the YSI Bridge is also a barrier to steelhead migration. The confined, seasonally fast-flowing character of the stream and a corresponding rarity of quiet, densely vegetated pool habitat is one of several factors limiting red-legged frogs.

### **Mitigation Site Suitability**

Project 3/10 and Project 11 will remove historic fill from areas believed to have been floodplain prior to extensive creek modification in the early 1900s. As such, the areas are likely to contain native substrate which is highly suitable for the re-creation of floodplain. Project 13/CEMAR will replace the existing weir and scour pool grade change within the creek channel with a more gradual and fish-friendly roughened channel. All three mitigation sites have suitable natural hydrology, in the form of the creek itself, to support the proposed mitigation designs. Each mitigation site is also situated within or immediately adjacent to the creek, which has been identified as habitat for steelhead and the California red-legged frog, in addition to other fish and wildlife species. Project 13/CEMAR is especially valuable in that it will link suitable upstream and downstream steelhead habitat by removing a barrier to migration.

### **Jurisdictional Wetlands and Waters**

The project sites are located along Upper Penitencia Creek, a tributary of Coyote Creek. The entire stream segment within Alum Rock Park is perennial, in part due to controlled releases from an impoundment upstream of the park boundary. Winzler & Kelly conducted an OHWM delineation in 2010 (W&K, 2010b). The delineation was verified by the COE on November 23, 2010. Impact calculations for the project are based upon the verified delineation.

Delineated wetlands are generally small, isolated, and confined below the OHWM of Upper Penitencia Creek. In most locations the creek is narrowly constrained within rock outcrops, stone walls or steep banks. In a few locations narrow bands of bordering wetlands are present along depressions in the streambank. More typically, wetlands occur as vegetated areas on low gravel bars within the perennial channel. Wetlands are inclusive within the area delineated by the OHWM, and no isolated wetlands were identified within the project boundaries.

Project 13/CEMAR will impact and subsequently restore the entire OHWM jurisdictional channel in the 300-foot long project area, causing no net loss or jurisdictional area. Project 3/10 and Project 11 will commence at the edge of the OHWM jurisdictional channel and create new jurisdictional floodplain within existing disturbed upland habitat.

## II. MITIGATION PROJECT DESCRIPTION

### Goals and Objectives

The goal of the proposed compensatory mitigation is to replace and enhance wetland/waters types, acreage, and functions which will be lost due to impacts to waters of the U.S. associated with the proposed project, as well as implement wetland and watershed goals identified by the Alum Rock Park Riparian Management Plan (Biotic Resources Group, 2001). The Management Plan identified a broad goal to “restore and enhance the riparian and aquatic resources along Upper Penitencia Creek to enhance native aquatic and riparian species, restore stream functions and protect public health and safety.” More specifically, the plan calls for: preservation and restoration of the ecological resources of the riparian and aquatic habitat along Upper Penitencia Creek; and restoration of natural hydrologic functions, to the extent possible, to the channel and stream banks of Upper Penitencia Creek, to reduce erosion and bank instability, allow habitat restoration and protect public safety and Park property.

Project 3/10 and Project 11 are intended to re-establish a palustrine, emergent/palustrine, scrub-shrub riverine wetland complex that provides natural floodplain functions for the adjacent creek. Project 13/CEMAR is intended to enhance a riverine, upper perennial, unconsolidated bottom creek section.

The re-established floodplain and enhanced creek section are anticipated to provide the following functions and values:

- **Provide flood flow attenuation:** The floodplain mitigation sites provide the widest floodplain area for some distance up and downstream of the project areas. This function may decrease erosive forces in more unstable sections of the stream channel downstream.
- **Provide opportunities for natural sediment removal:** The floodplain benches will be graded and planted to provide the ability to naturally trap suspended sediments from seasonal floodwater entering the site.
- **Provide erosion control and shoreline stabilization:** Establishment of herbaceous and woody vegetation within the mitigation areas and associated streambanks will minimize erosion and stabilize the low flow and high water stream edges. Dense vegetation can also reduce the water velocity near the bank, further reducing erosion and promoting long term stability.
- **Provide increased aquatic habitat suitability:** As part of a much larger riparian corridor, the floodplain benches and fish passage improvements will maintain and enhance

the corridor's function as a natural fish and wildlife conduit. The areas may also provide for fish and wildlife feeding, access water, cover, and nesting.

- **Provide improved and increased aquatic habitat:** Project 13/CEMAR will eliminate an existing fish barrier and improve overall fish passage. Project 3/10, 11, and several of the other concurrent streambank projects will promote and provide bank stability and complexity, shade, cover, and food chain support to aquatic species in the creek. The floodplain creation projects will increase aquatic habitat complexity and provide refugia functions in high flow events.

## **Mitigation Projects**

Although several additional proposed projects will address ongoing erosion, bank failures, and structural failures that have been designed to improve the habitat conditions of the creek, only the projects described below are proposed for compensatory mitigation for project impacts below the OHWM and within COE jurisdiction. These projects will expand or enhance COE jurisdictional waters.

### **Project 11 –Expansion of Floodplain**

Floodplain expansion and re-establishment is proposed along the east bank downstream of the Creekside Bridge (see Appendix B, Appendix C – Project 11 Photos) A stream segment from 200 to 300 feet downstream of the bridge is currently constrained by a stacked rock wall which functions as a retaining wall for an adjacent picnic area. The project would remove the wall, relocate the existing picnic area, and re-establish what is believed to be historic floodplain by grading the left (east) bank to an elevation that would be inundated under ordinary high water flows. There would be no placement of fill or impacts to existing wetlands or within the current OHWM of the creek. The project would require the removal of one large sycamore tree, which will be replaced with five 24-inch box replacement sycamore trees in the general vicinity of the tree removal. The floodplain area would be replanted with scrub-shrub and emergent wetland plants following grading, pursuant to the planting plan presented in Table 2, below. The re-establishment action would create approximately 1986 sf<sup>2</sup> (0.045 acre) of new floodplain and COE jurisdictional waters.

### **Project 3/10 - Removal of Rock Wall and Expansion of Floodplain**

Project 3 consists of removal of an approximately 120-foot long section of existing undercut mortared stone retaining wall located on the left (east) overbank immediately downstream of an historic foot bridge, Bridge L (Appendix B, Appendix C –Project 3/10 Photos). The stream channel is confined by grouted rock walls on both sides. The encroachment of the wall on the stream channel has increased the channel velocity and caused undercutting. The rock wall is undercut for approximately 25 feet. In some locations the wall has been separated from its poured concrete footing and hangs unsupported above the creek. Rock removed from the wall will be salvaged for use on current and future repairs to rock structures within the park.

Project 10 includes widening of the floodplain for high flow relief, sediment exchange, and creation of refugia for juvenile steelhead. Project 10 would occur in the same location as Project 3, following rock wall removal. Grading would commence during the summer season just below

ordinary high water with the resulting floodplain extending approximately 120 feet along the creek with a maximum width of 30 feet. The floodplain area would be replanted with scrub-shrub and emergent wetland plants following grading, pursuant to the planting plan presented in Table 2, below. This would create an estimated 2,590 square feet (.06 acre) of new floodplain and COE jurisdictional waters.

### **Project 13/CEMAR fish passage improvement project (Self-Mitigating Design)**

Project 13/CEMAR would allow fish migration around an existing undercut weir that serves as a grade control structure 75 feet downstream of the YSI Bridge (Appendix B, Appendix C – Project 13/CEMAR Photos). The existing weir has caused a scour pool and a 4.5-foot vertical drop from the crest of the weir to the normal pool surface, creating a salmonid migration barrier. Weir removal could trigger upstream channel degradation and threaten the structural integrity of the bridge. This project proposes to leave the weir in place and to create a stable roughened channel suitable for fish passage.

The project will modify the existing concrete grade control structure and install a roughened channel. The roughened channel will extend approximately 48 linear feet upstream and 254 downstream of the modified concrete grade control structure. The roughened channel includes 12 rock band structures to control grade and six chutes and five pool structures. The overall slope of the channel would be approximately 4%. The new streambed would be compacted with tamping and water jetting to reduce subsurface flow; water used for jetting would be captured and recycled to prevent downstream escape of sediments.

The project includes placement of approximately 1,430 cubic yards of rock fill over 300 linear feet and an area of 0.19 acres within the creek channel. As a result of the channel design, the OHW line would be elevated through the restored channel reach. There would be no significant net change in channel cross section, area of jurisdictional waters, or wetted area other than a slightly increased elevation of both channel bed and OHW line. There would be a significant improvement in fish migration capability, and there would also be a net gain in aquatic habitat quality.

Associated bank improvements include slope regrading, rock wall removal, and revegetation in the downstream part of the project reach, with some rock protection placed at the toe of slope.

### **Project Activities and Schedule**

Construction would begin upon acquisition of regulatory permits and program funding and would be implemented over a five-year period from 2012 to 2017. Construction shall be limited to daylight hours in the period between June 15<sup>th</sup> and October 15<sup>th</sup> unless extended in writing by the permitting agencies. Hand planting and low impact revegetation activities may occur between October 15<sup>th</sup> and June 15<sup>th</sup> in order to establish plants in the planting season. It is anticipated that the three mitigation projects discussed herein will occur in the initial year of project construction. Mitigation projects shall occur prior to or concurrent with any project which impacts jurisdictional waters.

Work would occur in and around Upper Penitencia Creek. Equipment would normally stage on uplands away from the stream, on nearby paved parking areas when possible. Only essential

construction activities would occur in or immediately adjacent to the streambed while the channel is dewatered. Floodplain re-establishment construction would extend as much as 40 feet away from the existing bank; most other project activities would not extend beyond top of bank except for vehicle parking, temporary stockpiling of materials, and use of construction equipment. Details regarding specific BMPs, dewatering protocol, and protection of special-status species may be found in the CEQA Initial Study and Biological Assessment for the project.

Excavation and repair activities would utilize standard construction equipment including an excavator, a dump truck, a dozer, a backhoe, a gas powered generator, and tamper. Revegetation within floodplain areas would typically be conducted using hand tools. Hydroseed equipment would be used in disturbed upland locations.

### III. PLANTING PLAN

Detailed information regarding revegetation can be found as follows:

For Projects 1, 3/10, 5, and 13/CEMAR, refer to Santa Clara Valley Transportation Authority C111 Alum Rock Fish Passage Project Plans and Specifications Plans and Specifications.

For Projects 4, 6, 7, 8, 9, and 11 refer to 65% City of San Jose, Department of Public Works, City Facilities Architectural Services Plans for the Construction of Alum Rock Park Nine Streambank Repair and Floodplain Expansion Projects.

For Project 2, refer to City of San Jose, Department of Public Works, City Facilities Architectural Services Plans for the Construction of Alum Rock Park Bridge Protection and Bank Repair Creekside Bridge and specifications.

All planting areas shall be cleared of targeted invasive and non-desired weed species. Invasive plants shall be removed manually or mechanically in the riparian woodland and floodplain expansion area. Remaining native trees (oak, sycamore, bay, fir, alder, and maple) and remaining native shrubs shall be protected with orange mesh exclusion fencing

#### ***Upland Hydroseeding***

Upon completion of construction, all barren soil outside the stream channel within each project site will be hydroseeded with the specified native seed mix and stabilizing emulsion and/or covered with rice straw (at hydroseed contractor discretion) to minimize the risk of erosion.

#### ***Riparian Woodland Planting***

Upper Riparian Woodland Planting shall include *Quercus agrifolia*, *Planatanus racemosa*, and *Acer macrophyllum* trees spaced 18 feet on center using a random layout. Shrubs include *Sambucus mexicana*, *Heteromeles arbutifolia*, and *Symphoricarpus alba* spaced 12 feet on center using a random layout. Additionally, *Ribes californica*, *Rosa californica*, and *Rubus ursinus* using 6 feet on center spacing. Wetland plants include *Melica californica*, and *Artemesia douglasiana* using 4 inch plugs spaced 6 feet on center using a random layout.

Lower Riparian Woodland Planting shall include *Salix lasiolepis* and *Alnus rhombifolia* live stakes (bundles of two- five stakes) placed in a non-linear fashion along the bankline rock spaced 5 feet apart for areas depicted on the planting plans.

#### ***Floodplain Re-establishment Area Planting Plan***

*Salix lasiolepis* and *Alnus rhombifolia* live stakes cutting shall be spaced 5 feet on center in a triangular placement within floodplain planting areas. Planting within the mid to top of bank near expanded floodplains shall include *Quercus agrifolia*, *Planatanus racemosa*, and *Acer macrophyllum* spaced 18 feet on center using a random layout. Shrubs shall include *Sambucus mexicana*, *Heteromeles arbutifolia*, and *Symphoricarpus alba*, *Rosa californica*, and *Rubus ursinus* spaced 10 feet on center using a random layout. A native seed mix shall be broadcasted to ensure no bare soil is left exposed after construction and revegetation outplanting.

## **IV. MONITORING**

### **Target Functions and Values**

See also Section II. Mitigation Project Description - Goals and Objectives, above.

***Floodplain Re-establishment:*** The primary target functions and values for floodplain re-establishment are to expand the available floodplain area and provide vegetated cover as well as slower water refugia for steelhead, California red-legged frogs, and other aquatic and semi-aquatic wildlife during winter high-flow events. Additionally, the floodplains should provide vegetated floodplain areas to trap sediment during storm events.

***Fish Passage Improvement:*** The primary target functions and values for fish passage improvement are to remove barriers to steelhead migration and provide improved fish habitat. The roughened channel construction should create a fish-friendly stream section with a chute and pool design.

### **Target Hydrological Regime**

Floodplain re-establishment areas will be graded to below the OHWM allowing periodic inundation during the wet season. Target flow velocities will allow for increased habitat diversity and the periodic accumulation of sediment within floodplain areas.

### **Target Jurisdictional Acreages**

Floodplain re-establishment is intended to restore an additional approximately 0.1 acres (4,356 ft<sup>2</sup>) of floodplain, leading to a net gain of 0.09 acres (4,000 ft<sup>2</sup>) jurisdictional waters. Fish Passage improvement is intended to disturb and subsequently restore 0.197 acres (8,527ft<sup>2</sup>) of instream habitat (no net change).

### **Performance Objectives and Success Standards**

The following section describes the thresholds that will determine site success and guide management. These standards may be adjusted with additional information following site construction, subject to review and approval from the COE.

#### ***Performance Objective 1:***

Presence of native scrub/shrub and emergent wetland areas on re-established floodplain areas of the mitigation site.

- Success Standard 1.a: At monitoring year 1, there will be a minimum of 20% aerial cover of native facultative and wetter species within the re-established scrub/shrub and emergent floodplain area.
- Success Standard 1.b: At monitoring year 2, there will be a minimum of 35% aerial cover of native facultative and wetter species within the re-established scrub/shrub and emergent floodplain area.
- Success Standard 1.c: At monitoring year 3, there will be a minimum of 40% aerial cover of native facultative and wetter species within the re-established scrub/shrub and emergent floodplain area.
- Success Standard 1.d: At monitoring year 4, there will be a minimum of 45% aerial cover of native facultative and wetter species within the re-established scrub/shrub and emergent floodplain area.
- Success Standard 1.e: At monitoring year 5, there will be a minimum of 50% aerial cover of native facultative and wetter species within the scrub/shrub and emergent floodplain area.

***Performance Objective 2:***

Ten year survival of at least 75% of all woody plants planted as a result of the project.

- Success Standard 2: At each annual monitoring event, there will be a minimum of 75% survival rate of planted trees and woody plants.

***Performance Objective 3:***

Growth and spread of invasive and nuisance species will be limited throughout the mitigation site to ensure the success of performance objective 1.

- Success Standard 3: At a minimum of once in each monitoring year, invasive species will be controlled in the mitigation site to the extent necessary to ensure compliance with performance objective 1.

***Performance Objective 4:***

The mitigation sites will achieve sufficient hydrologic flow to meet the COE OHWM definition.

- Success Standard 4: Finished grades will be appropriate such that mitigation areas are below the OHWM definition in CWA 33 CFR 328.3(e), which states: “The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

## **V. REPORTING REQUIREMENTS**

Annual reports of monitoring results will be submitted to the COE San Francisco District. The reports will assess attainment of yearly target criteria and progress toward final success criteria. The annual report shall be delivered by November 1 of each year following the first growing season after planting, and shall contain the following information:

### **A. Project Information**

1. Project Name
2. Applicant name, address, and phone number
3. Consultant name, address, and phone number
4. Corps permit file number
5. Acres of impact and type(s) of habitat impacted
6. Date project construction commenced
7. Location of the project and directions to site (including latitude/longitude or UTM coordinates)
8. Date of the report and the corresponding permit conditions pertaining to the compensatory mitigation
9. Amount and information on any required performance bond or surety

**B. Compensatory Mitigation Site Information**

1. Location and directions to the site (including latitude/longitude or UTM coordinates)
2. Size and type(s) of habitat existing at the site and proposed for restoration, enhancement, establishment (creation), and/or preservation
3. Specific purpose/goals for the compensatory mitigation site
4. Date site construction and planting completed (fully implemented)
5. Dates of previous maintenance and monitoring visits
6. Name, address, and contact number of responsible parties for the site
7. Name, address, and contact number for designer

**C. Brief Summary of Remedial Action(s) and Maintenance of the Compensatory Mitigation Site**

**D. Map of the compensatory mitigation site**

1. Habitat types (as constructed)
2. Locations of photographic record stations
3. Landmarks
4. Inset defining location of the site

**E. List of Corps-approved success criteria**

**F. Table of results from the monitoring visits versus performance standards for specified target dates**

**G. Photographic record of the site during most recent monitoring visit at record stations**

**H. Summary of field data taken to determine compliance with performance standards and success criteria**

**I. Summary of any significant events that occurred on the site that may affect ultimate compensatory mitigation success.**

## **VI. MAINTENANCE**

**Weed Control:** At a minimum, monthly inspections of the site during the spring and early summer for five years following planting will be conducted to identify establishment of exotic plants. If identified in inspections, removal of any immature exotic plants shall occur a minimum of once per year until Performance Objective 1, above, is met. Hand weeding, string trimmers, and other hand and power tools will be used to weed around riparian plantings in floodplain expansion areas, as needed. Stakes and mulch collars may be used to keep weeds away from plantings.

**Planting Replacement:** Vegetation surveys resulting from the annual monitoring events will form the basis for subsequent replanting. If the sites fall below the vegetation coverage or survival performance criteria (Performance Objective 1 and 2), the applicant shall be responsible for replanting such that the site meets the criteria in the planting season following the monitoring event. Plants to be replanted shall follow the original planting plan or COE approved substitution based on plant habitat conditions and observed survival rates.

## **VII. COMPLETION OF COMPENSATORY MITIGATION**

The applicant shall notify the COE in writing when the 5 and 10 year monitoring periods are complete and the COE-approved success criteria have been met. A final delineation of waters of the U.S. and other areas enhanced, re-established, established, or preserved as part of the compensatory mitigation program shall be submitted to the COE. Following receipt of the final report, the COE will contact the applicant (or agent) as soon as possible to schedule a site visit to confirm the completion of the compensatory mitigation effort and any jurisdictional delineation. The compensatory mitigation will not be considered complete without an on-site inspection by the COE and/or written confirmation that approved success criteria have been achieved.

## **VIII. CONTINGENCY MEASURES**

A brief discussion of the following items shall be part of each annual and the final compensatory mitigation monitoring report, unless the compensatory mitigation site is achieving or has achieved all specified success criteria:

- A. If annual performance objectives or success standards are not met for all or any portion of the compensatory mitigation project in any year, the applicant shall prepare an analysis of the cause(s) of failure(s) and, if determined necessary by the COE, propose remedial actions for approval. If the compensatory mitigation site has not met one or more of the performance objectives or success standards, the responsible party's maintenance and monitoring obligations shall continue until the COE gives final approval that the compensatory mitigation obligations have been satisfied.
- B. Alternative Locations for Contingency Compensatory Mitigation. Indicate specific alternative compensatory mitigation locations that may be used in the event that compensatory mitigation cannot be successfully achieved at the intended compensatory mitigation site. Include current ownership information, if offsite.

- C. Funding Mechanism. Indicate what funds will be available to pay for planning, implementing, maintaining, and monitoring of any contingency measures that may be required to achieve compensatory mitigation goals.
- D. Responsible Parties. List names, addresses, and phone numbers of persons/entities responsible for implementing, maintaining, and monitoring contingency measures.

## IX. LITERATURE CITED

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Winzler & Kelly 2010a. *Alum Rock Park Biological Assessment*. Prepared for the City of San José Parks, Recreation and Neighborhood Services.

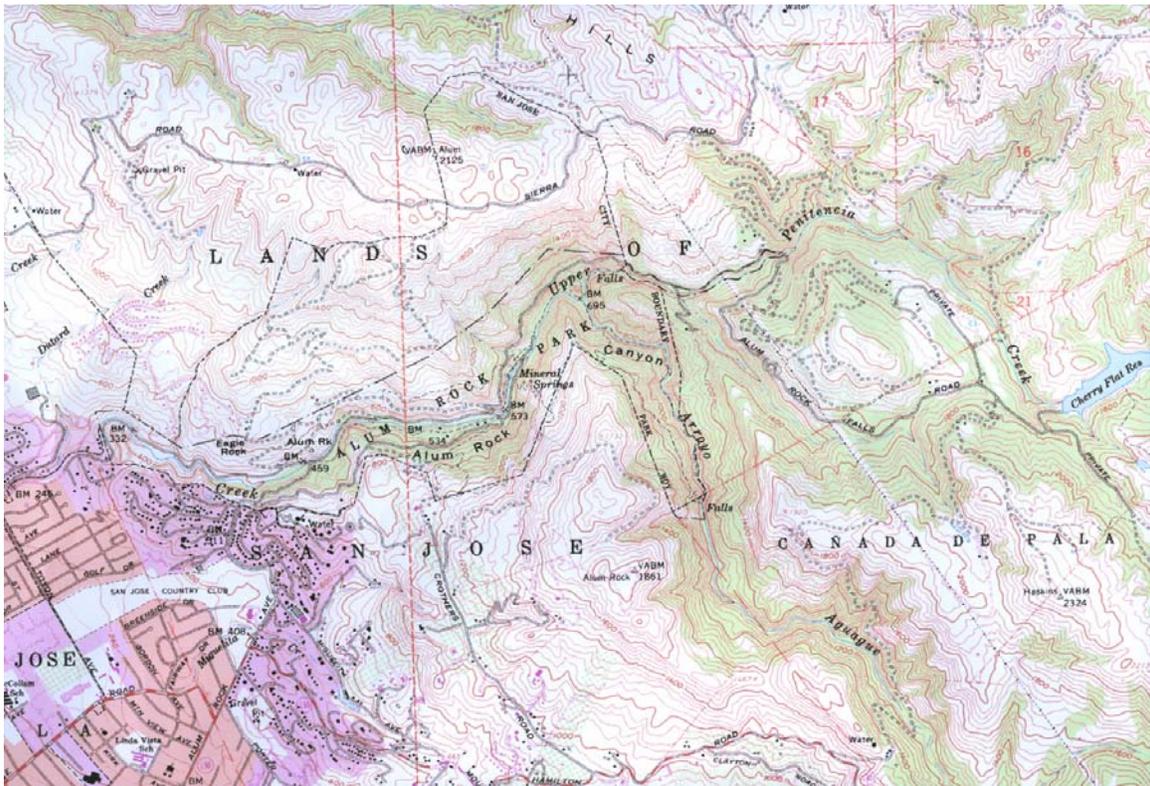
Winzler & Kelly 2010b. *Delineation of Ordinary High Water Mark and Riparian Habitat for the Alum Rock Park Proposed Project Areas 1-11, San José, California*.

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**Appendix A**  
**Figures**



Source: California State Geological Survey



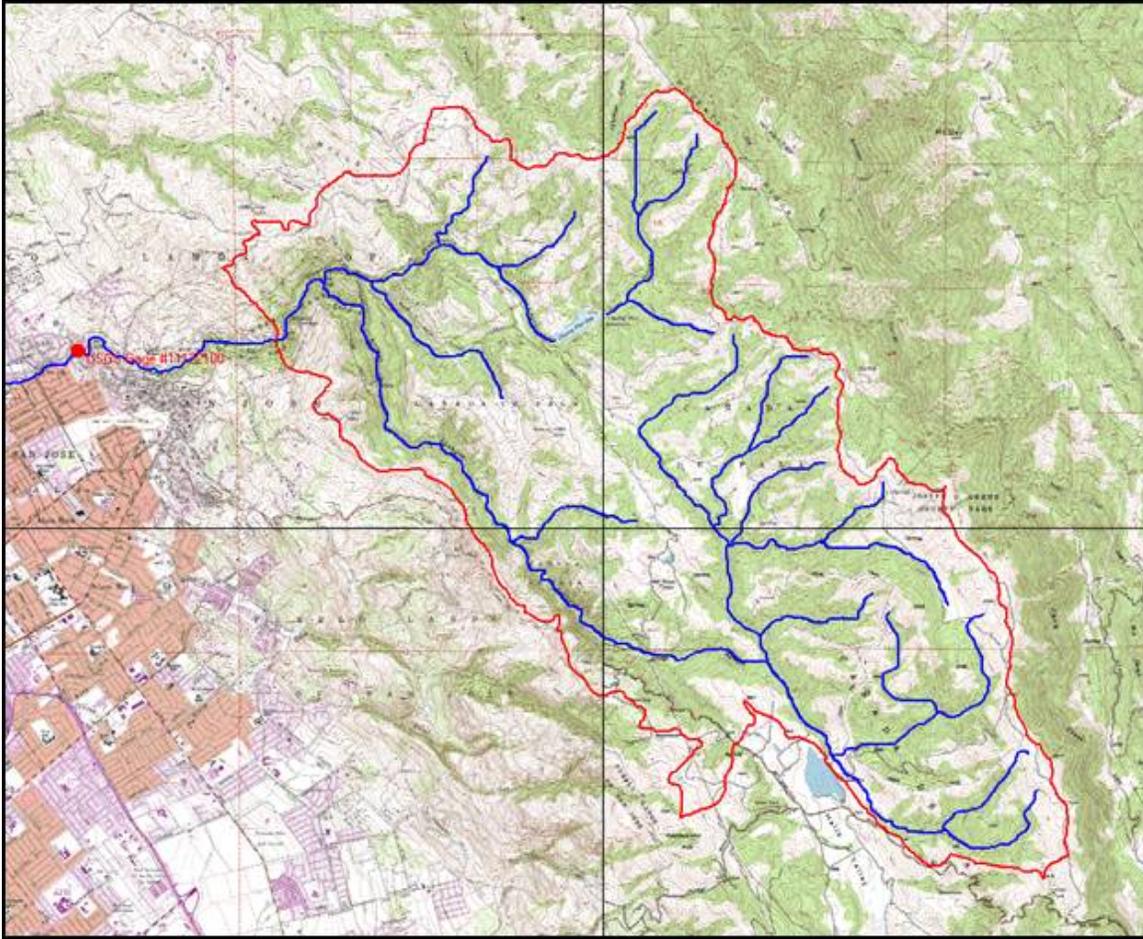
Source: USGS Calaveras Reservoir topographic quadrangle.

**Figure 1.** Location and Vicinity Maps

City of San Jose  
Alum Rock Park

Winzler & Kelly

1073407001



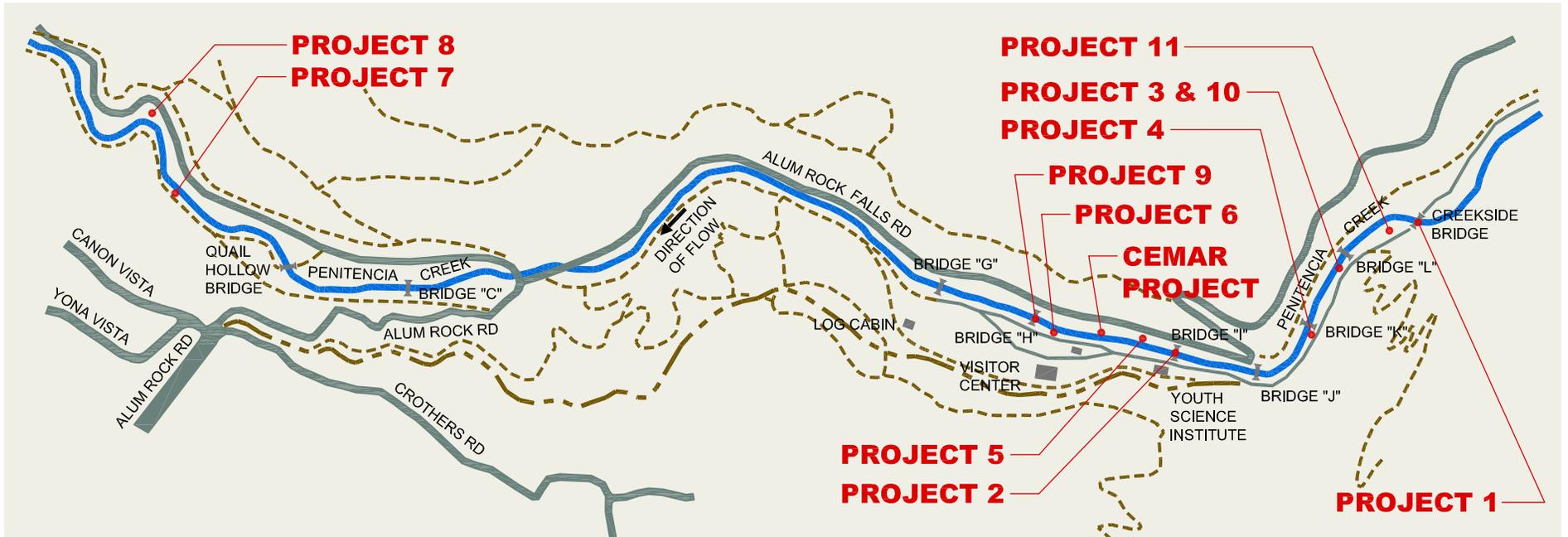
Source: USGS Calaveras Reservoir 7.5' topographic quadrangle

**Figure 2.** Watershed Map, showing the Upper Penitencia Creek drainage above the project site.





\\corp\win\Projects\SFO\10734 City of San Jose\10734-07-001 - Alum Rock Park Stream Bank Improvements\04\Permit Submittal 2011-08\SD\_CoE Permit Submittal Fig\_1-Overall.dwg



**PROJECT 1**

Creekside bridge repair: retaining wall, new concrete apron, revetment slope, grading.

**PROJECT 2**

Youth Science Institute bridge repair: retaining wall, new asphalt concrete pavement, revetment slope, grading.

**PROJECTS 3 AND 10**

Repair of rock wall (Project 3) and expansion of floodplain on east bank immediately downstream of historic foot bridge "L" (Project 10).

**PROJECT 4**

Repair of undercut section of rock wall on east bank immediately downstream of historic foot bridge "K".

**PROJECT 5**

Repair of eroded rill at end of north bank vertical rock wall directly adjacent to grade control structure.

**PROJECT 6**

Repair of failed bank protection project adjacent to Visitors Center. This project was originally constructed as part of the Phase II projects in 2001 (RMP, "Site #18").

**PROJECT 7**

Repair/protect failing south bank along trail downstream of Quail Hollow Bridge.

**PROJECT 8**

Repair of failing north bank sack concrete wall at sharp bend in top of bank road.

**PROJECT 9**

Repair/protection of the abutments/footings, repair of the rock railing, and bank repair at the Visitors Center Bridge (Bridge "H").

**PROJECT 11**

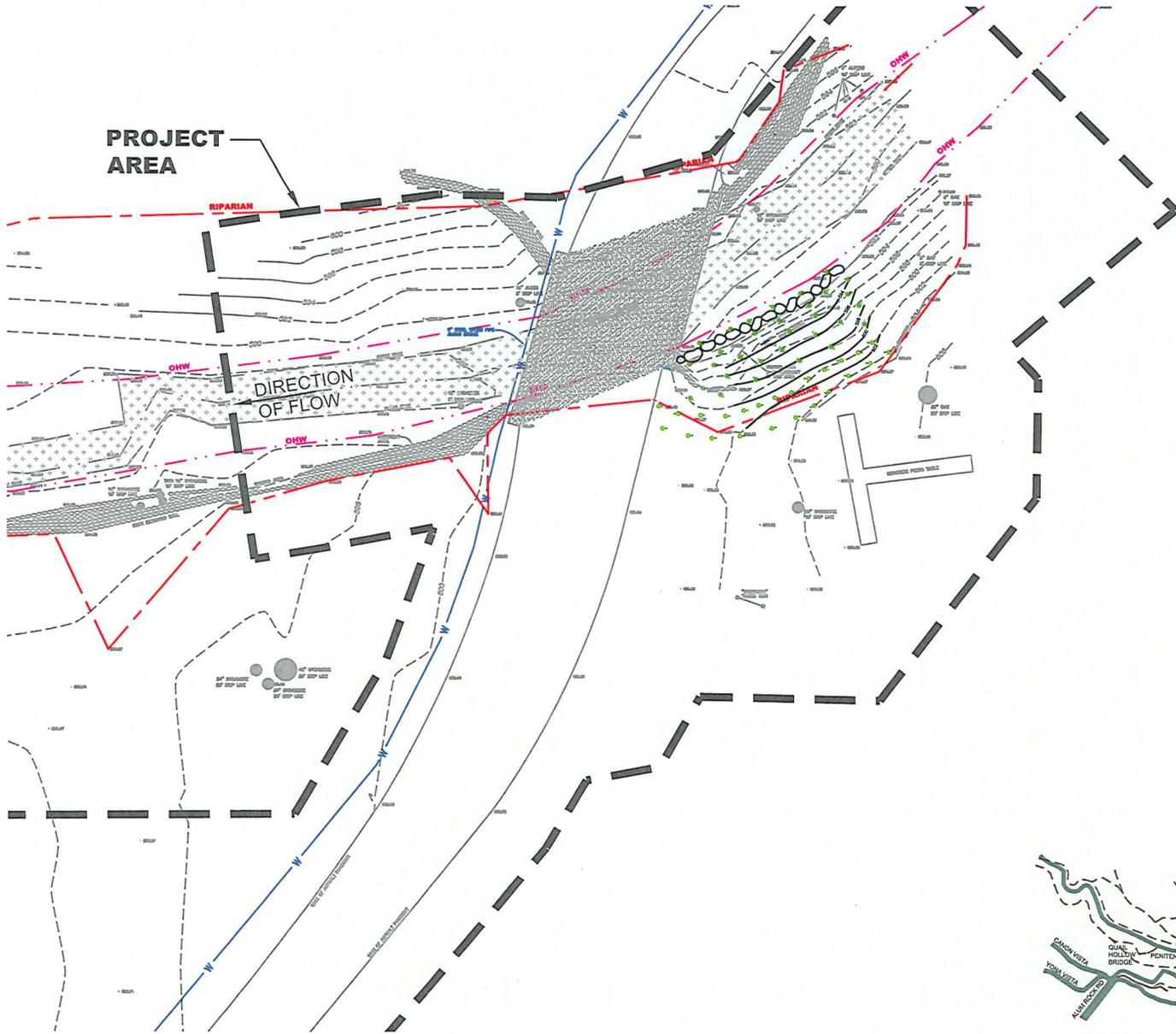
Expansion of floodplain immediately downstream of Creekside Bridge.

**PROJECT 13**

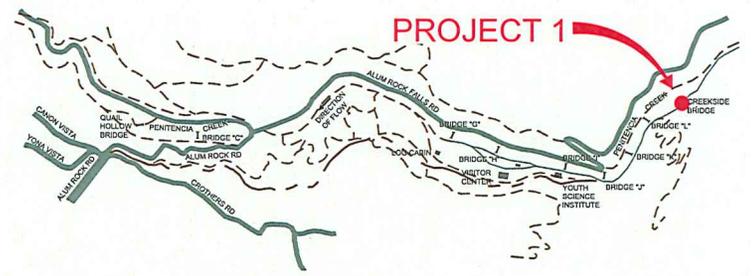
CEMAR fish passage improvement project.



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**SITE PLAN**  
SCALE: 1"=30'



**KEY MAP - ALUM ROCK PARK**

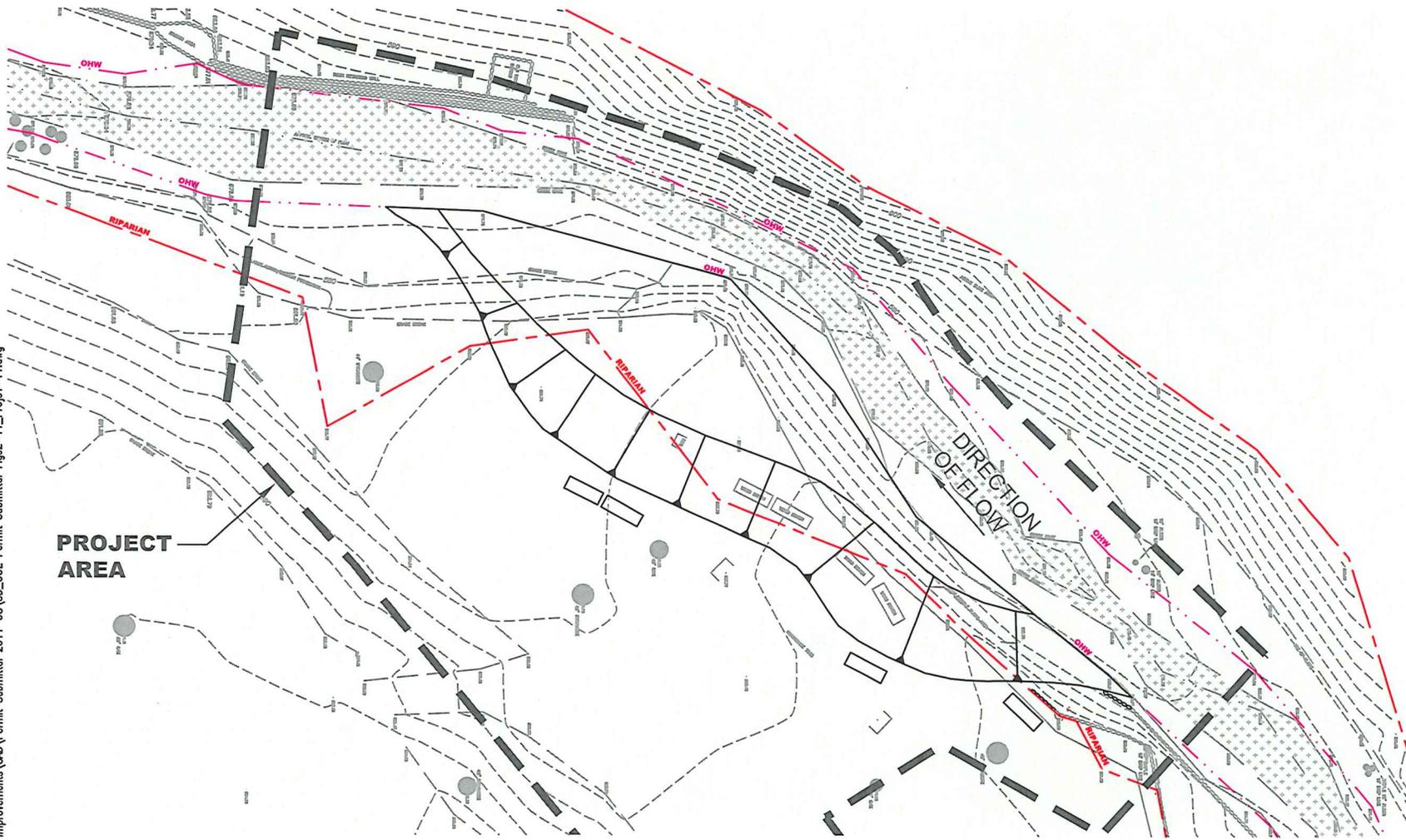
CITY OF SAN JOSE  
PARKS, RECREATION, AND NEIGHBORHOOD SERVICES  
ALUM ROCK PARK

CONCEPTUAL PLANS  
NOT FOR CONSTRUCTION



FIGURE 2  
PROJECT 1  
CREEKSIDE BRIDGE REPAIR

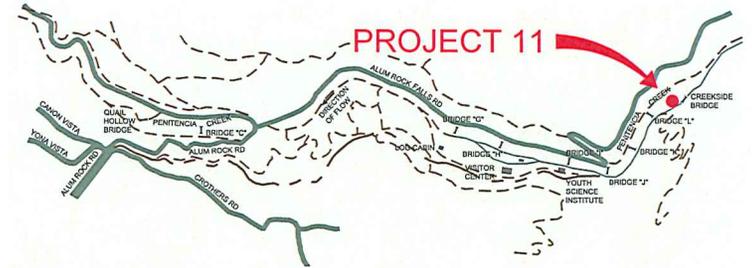
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**PROJECT AREA**

**SITE PLAN**

SCALE: 1"=30'



**KEY MAP - ALUM ROCK PARK**



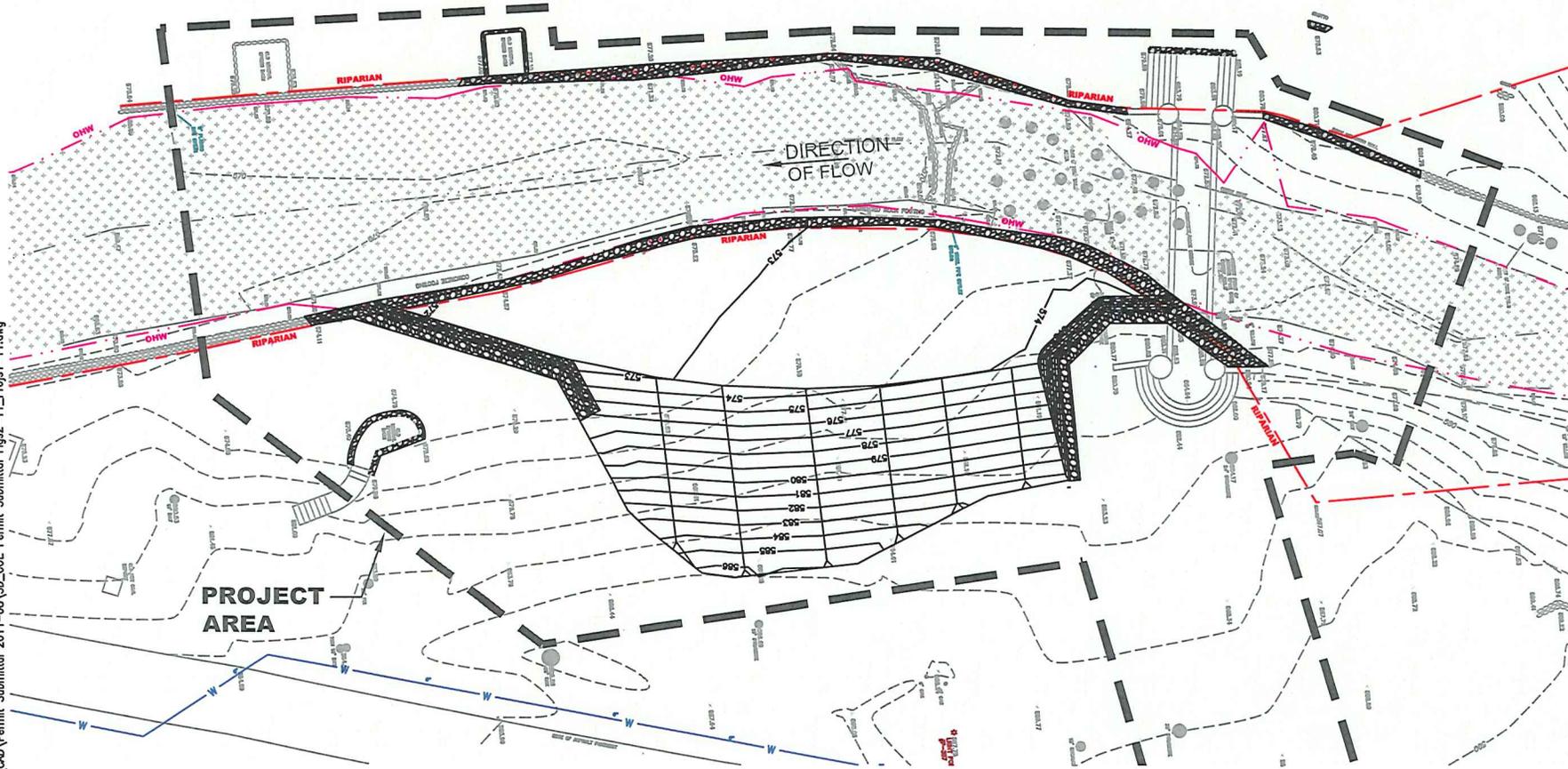
**CITY OF SAN JOSE  
PARKS, RECREATION, AND NEIGHBORHOOD SERVICES  
ALUM ROCK PARK**

**CONCEPTUAL PLANS  
NOT FOR CONSTRUCTION**



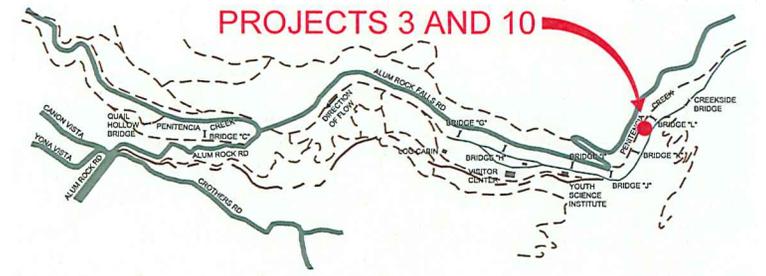
**FIGURE 3  
PROJECT 11  
PROPOSED EROSION REPAIRS**

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### SITE PLAN

SCALE: 1"=30'



### KEY MAP - ALUM ROCK PARK



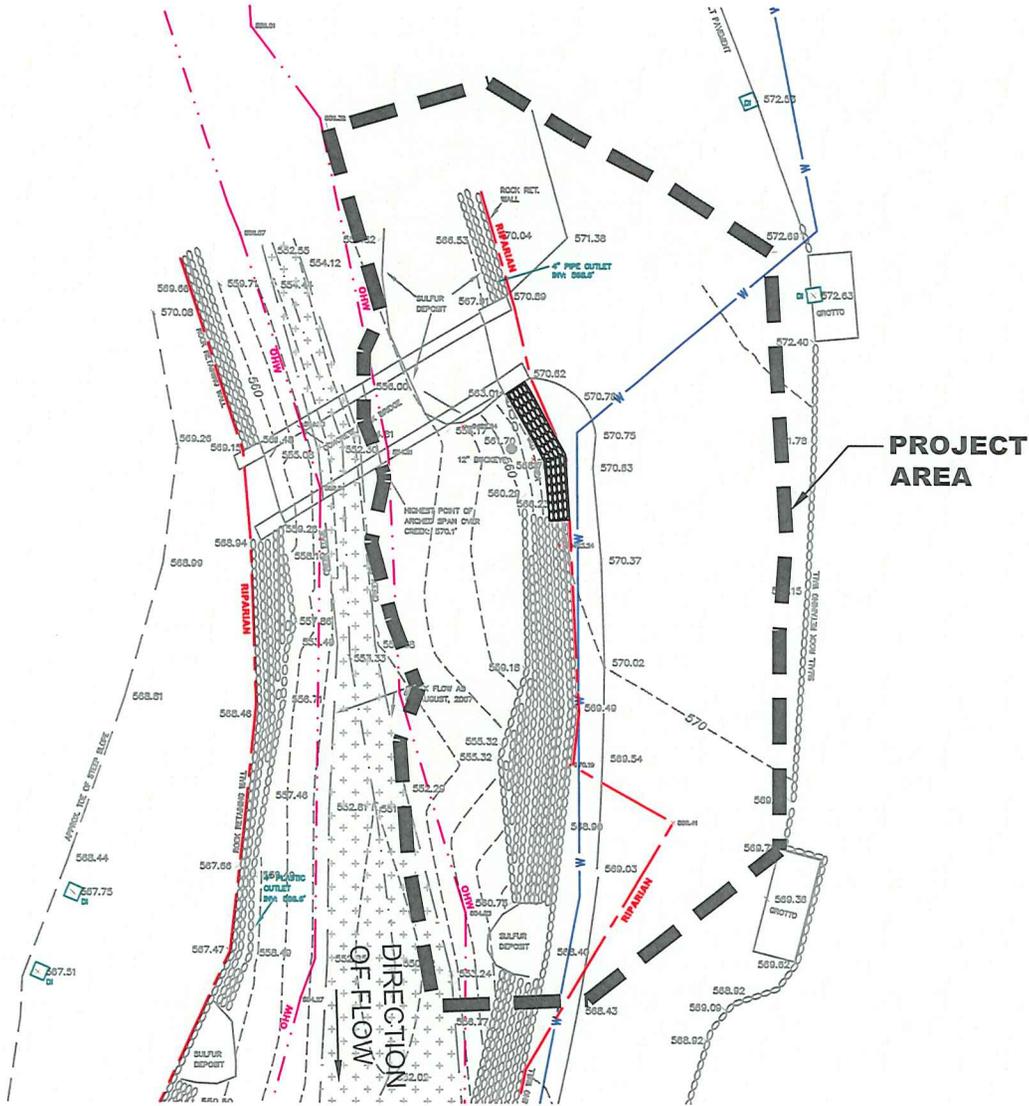
CITY OF SAN JOSE  
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ALUM ROCK PARK

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FIGURE 4  
PROJECTS 3 AND 10  
PROPOSED EROSION REPAIRS





**SITE PLAN**

SCALE: 1"=20'



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ALUM ROCK PARK

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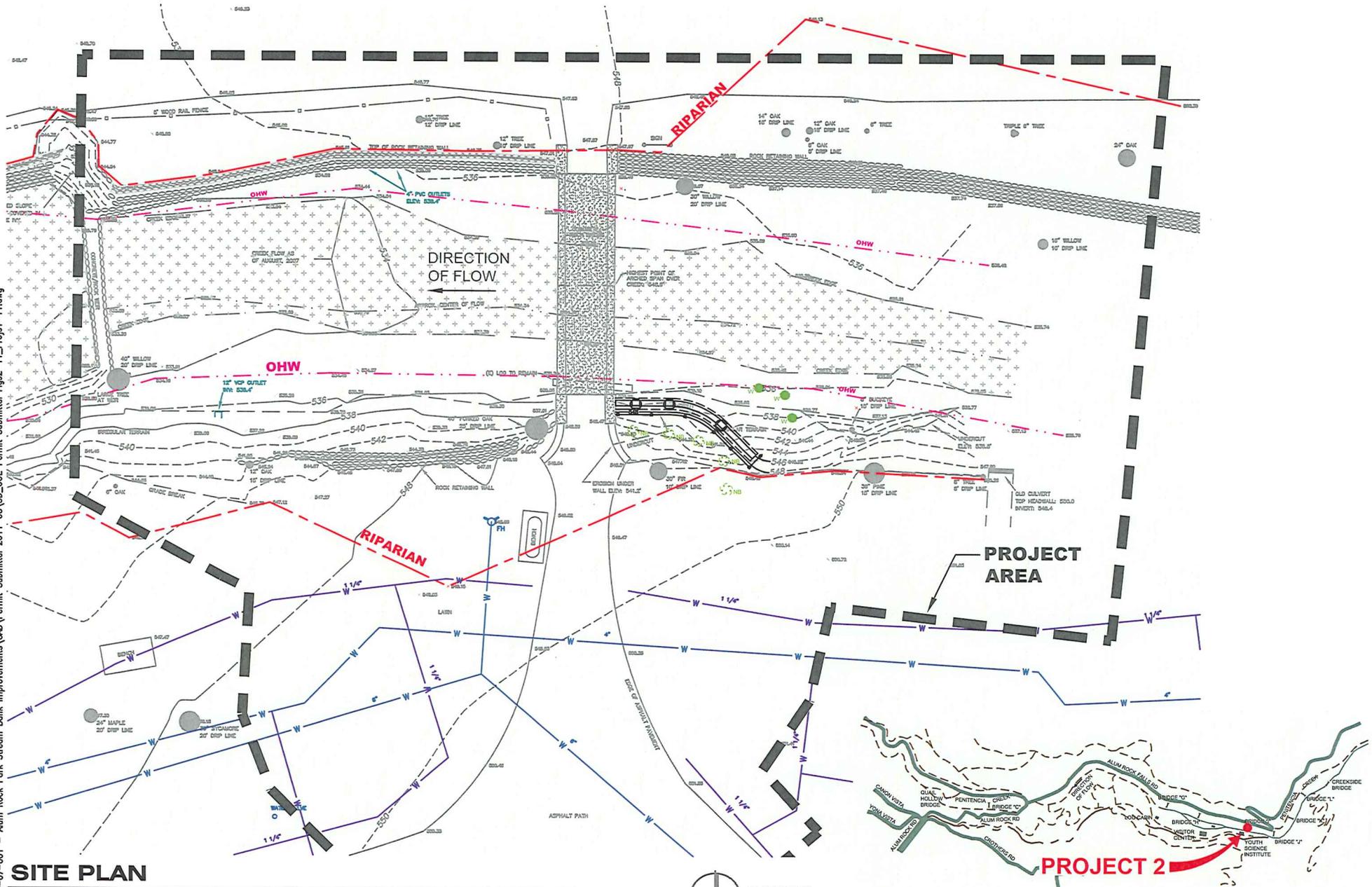
**KEY MAP - ALUM ROCK PARK**



FIGURE 5  
PROJECT 4

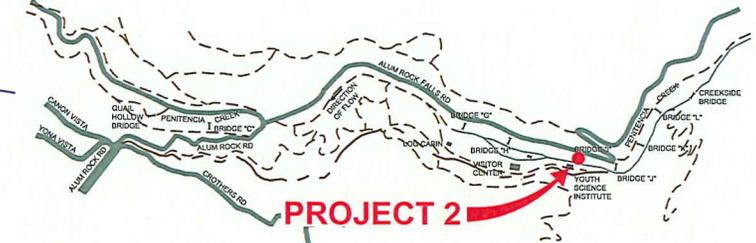
PROPOSED DAMAGED WALL REPAIR

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### SITE PLAN

SCALE: 1"=20'



### KEY MAP - ALUM ROCK PARK



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PARKS, RECREATION, AND NEIGHBORHOOD SERVICES  
ALUM ROCK PARK

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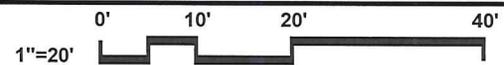
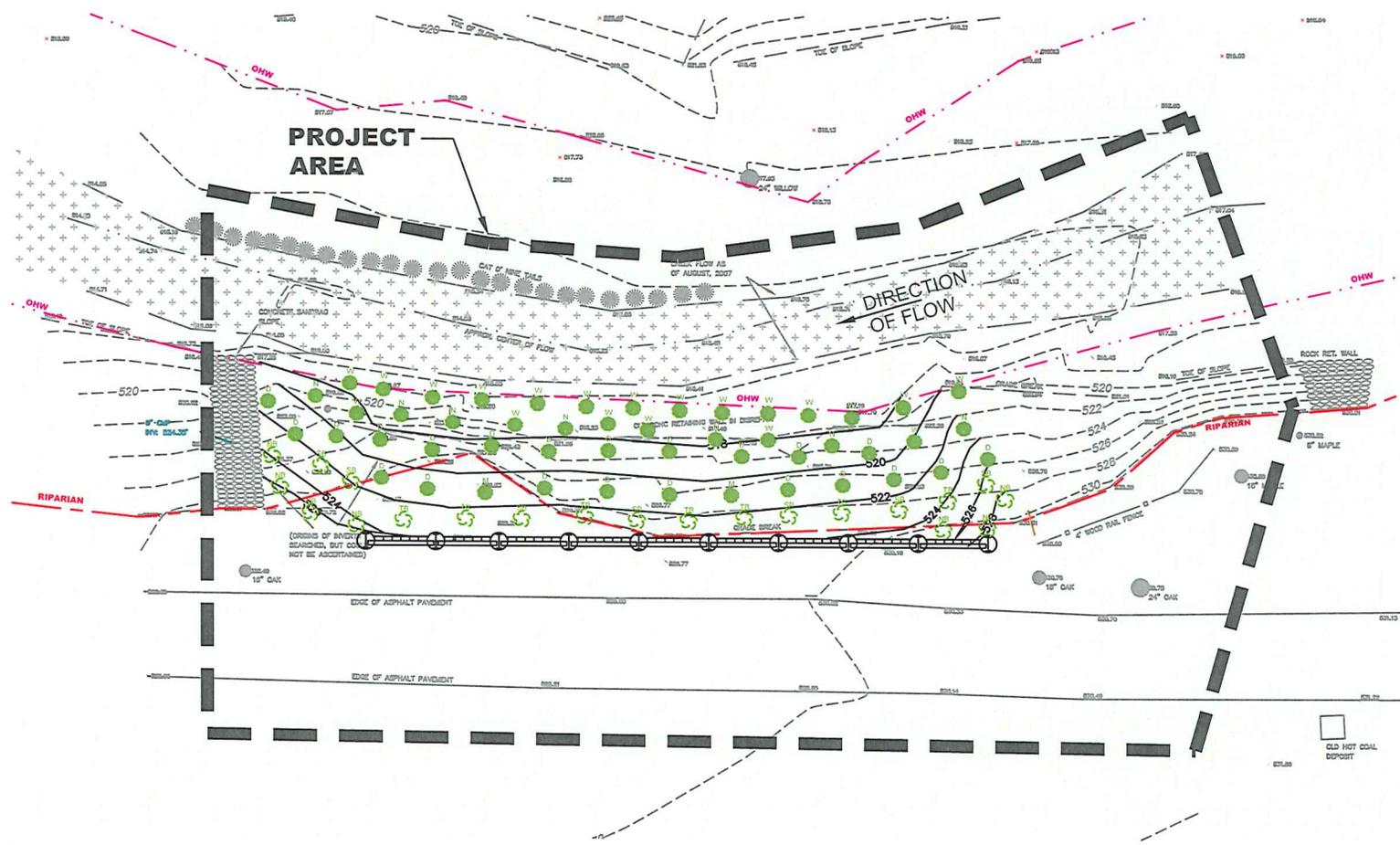


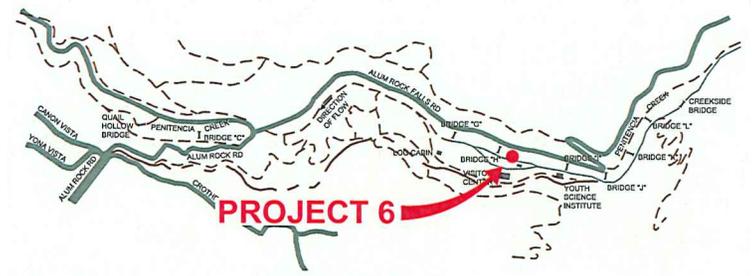
FIGURE 6  
PROJECT 2  
Y.S.I. BRIDGE REPAIRS



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**SITE PLAN**  
 SCALE: 1"=20'

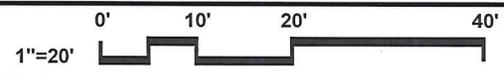


**KEY MAP - ALUM ROCK PARK**



**CITY OF SAN JOSE  
 PARKS, RECREATION, AND NEIGHBORHOOD SERVICES  
 ALUM ROCK PARK**

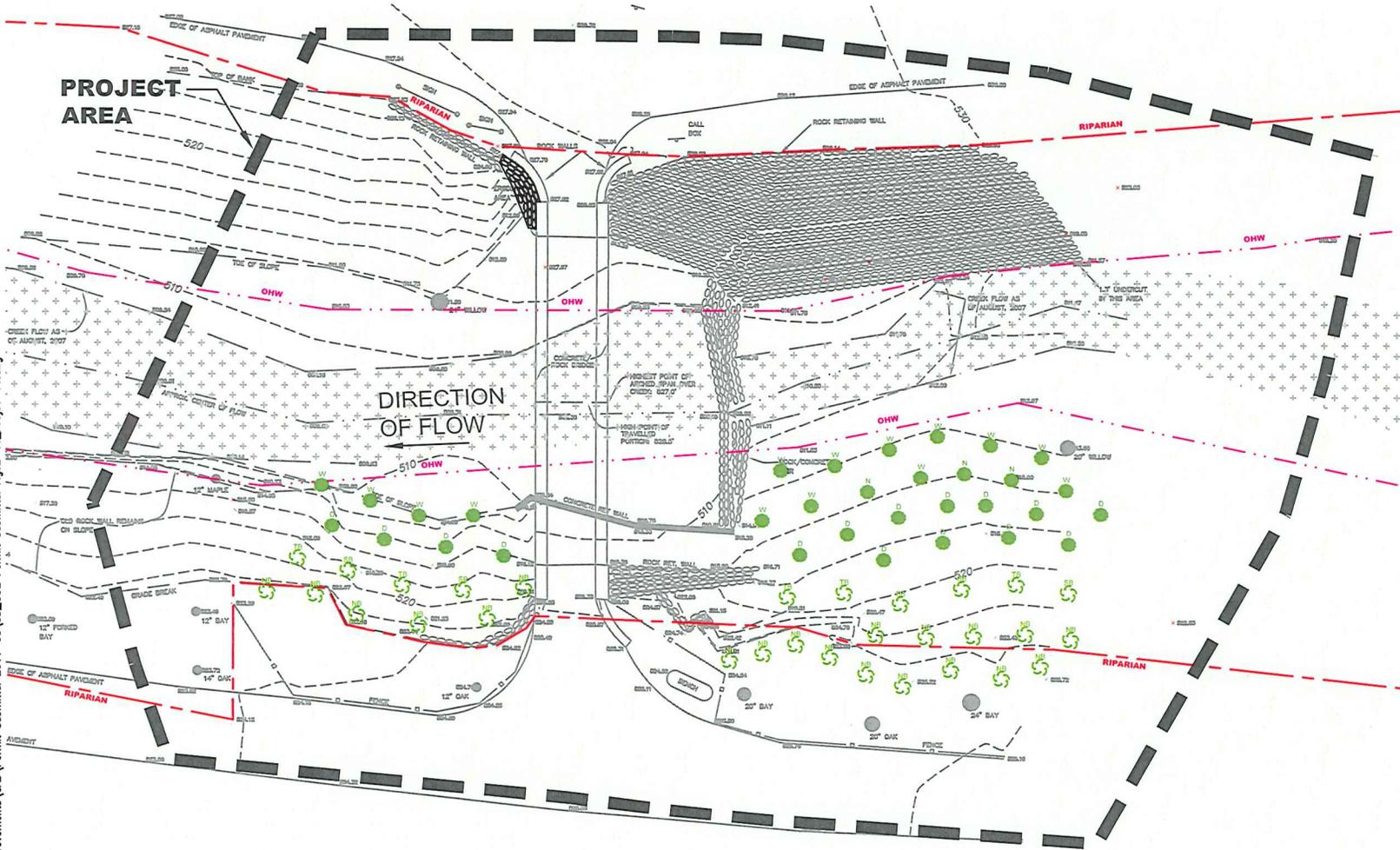
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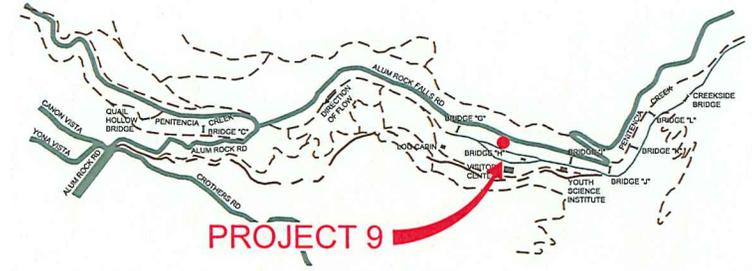
**FIGURE 8  
 PROJECT 6  
 PROPOSED EROSION REPAIRS**



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**SITE PLAN**  
SCALE: 1"=20'



**KEY MAP - ALUM ROCK PARK**



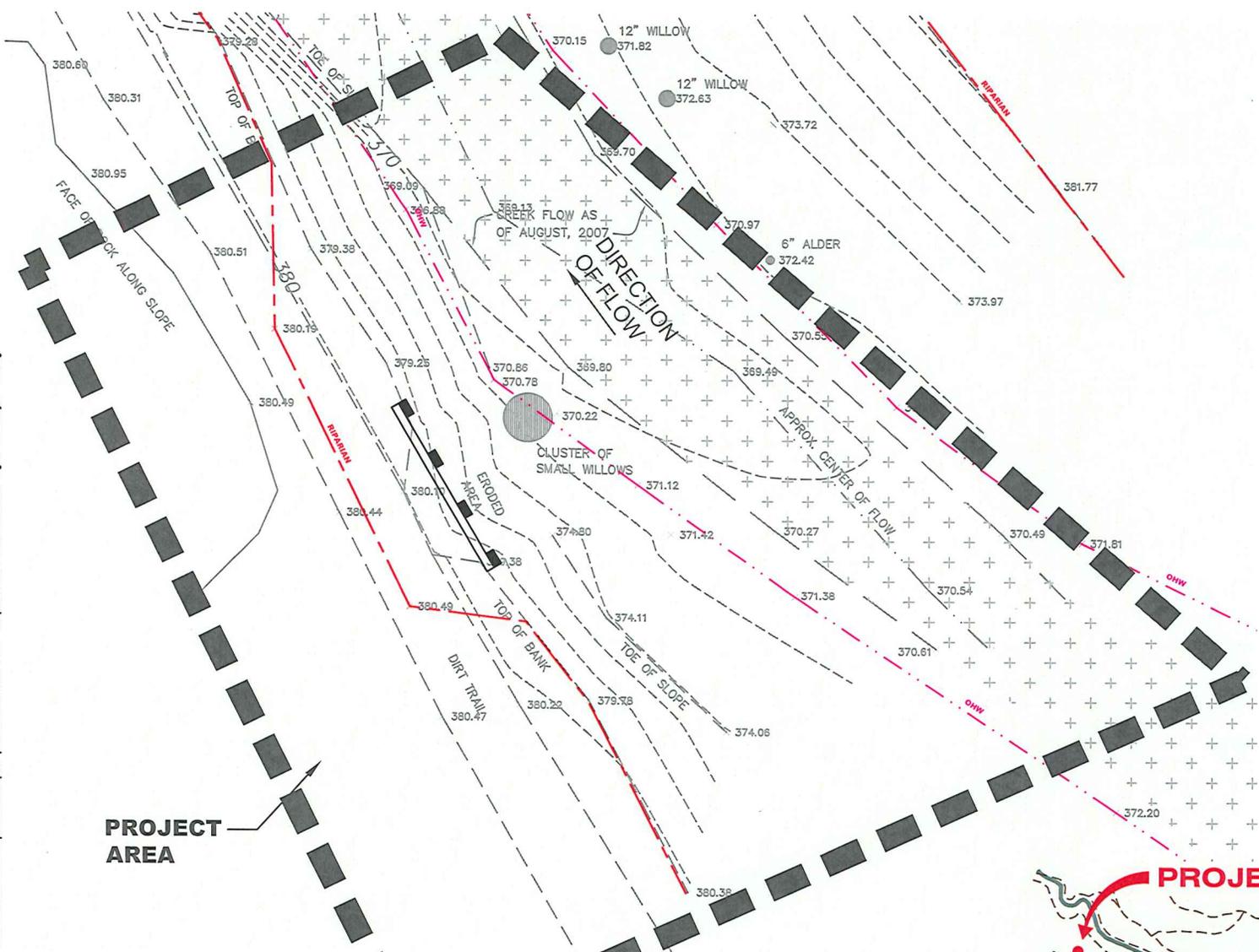
CITY OF SAN JOSE  
PARKS, RECREATION, AND NEIGHBORHOOD SERVICES  
ALUM ROCK PARK

CONCEPTUAL PLANS  
NOT FOR CONSTRUCTION



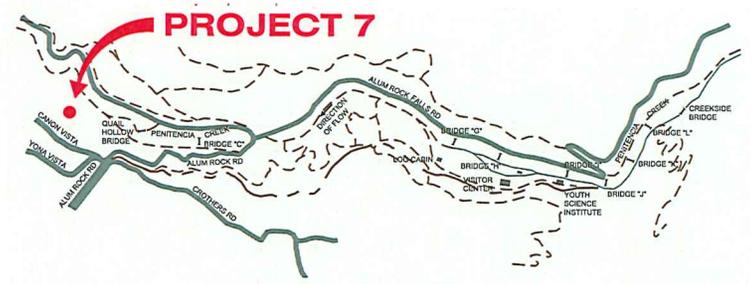
FIGURE 9  
PROJECT 9  
PROPOSED EROSION REPAIR

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**PROJECT AREA**

**SITE PLAN**  
SCALE: 1"=10'

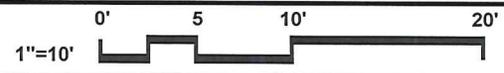


**KEY MAP - ALUM ROCK PARK**



**CITY OF SAN JOSE  
PARKS, RECREATION, AND NEIGHBORHOOD SERVICES  
ALUM ROCK PARK**

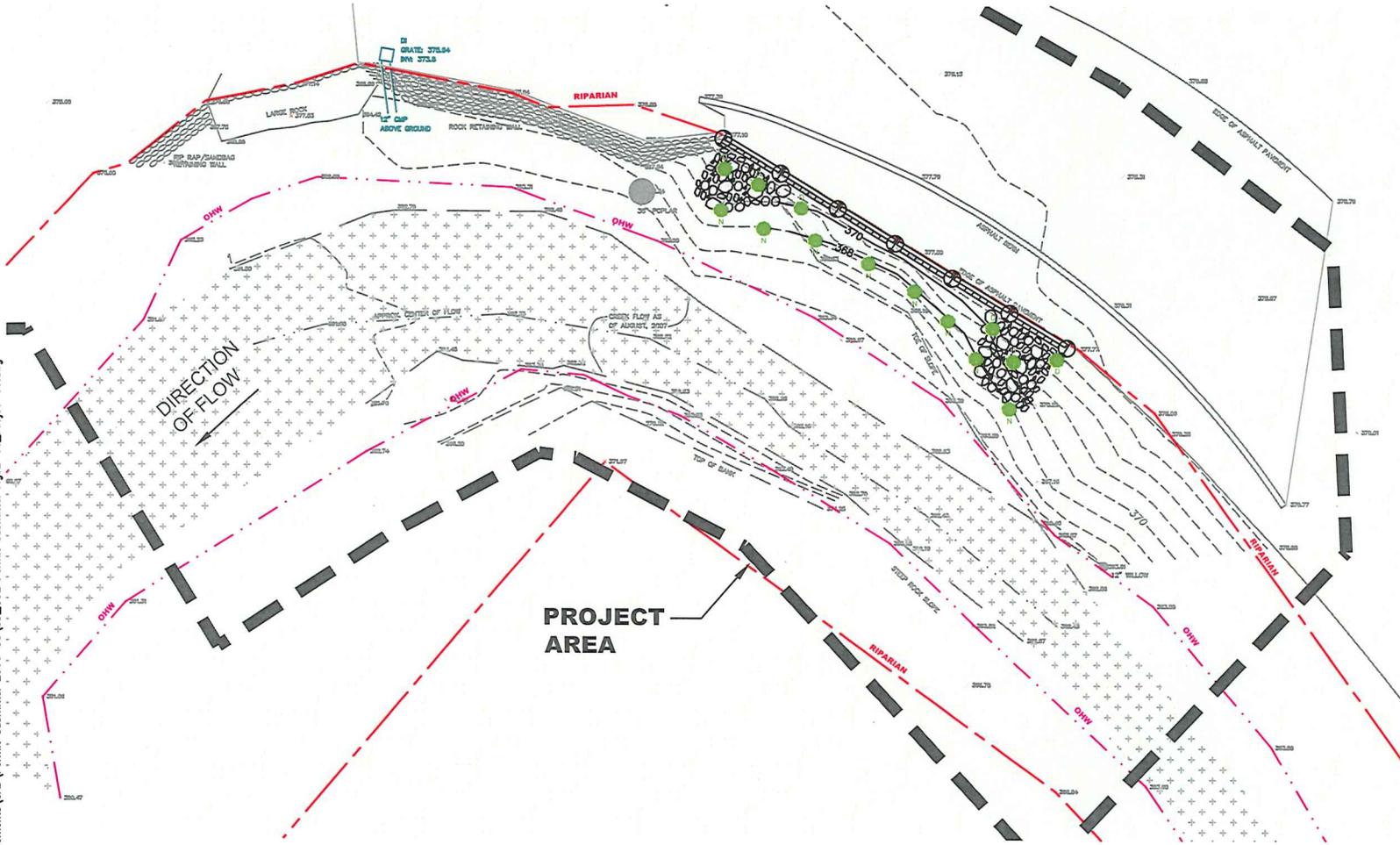
**CONCEPTUAL PLANS  
NOT FOR CONSTRUCTION**



**FIGURE 10  
PROJECT 7  
PROPOSED EROSION REPAIR**



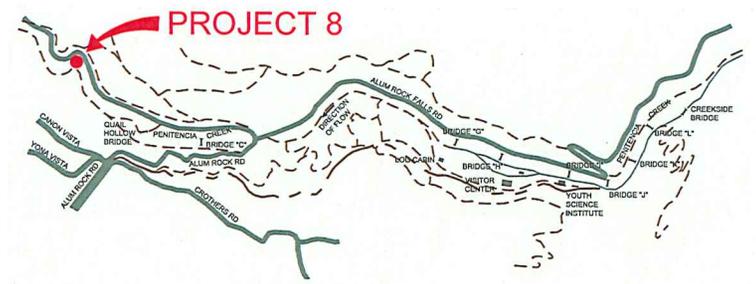
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### SITE PLAN

SCALE: 1"=20"

NORTH



### KEY MAP - ALUM ROCK PARK

NORTH

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ALUM ROCK PARK

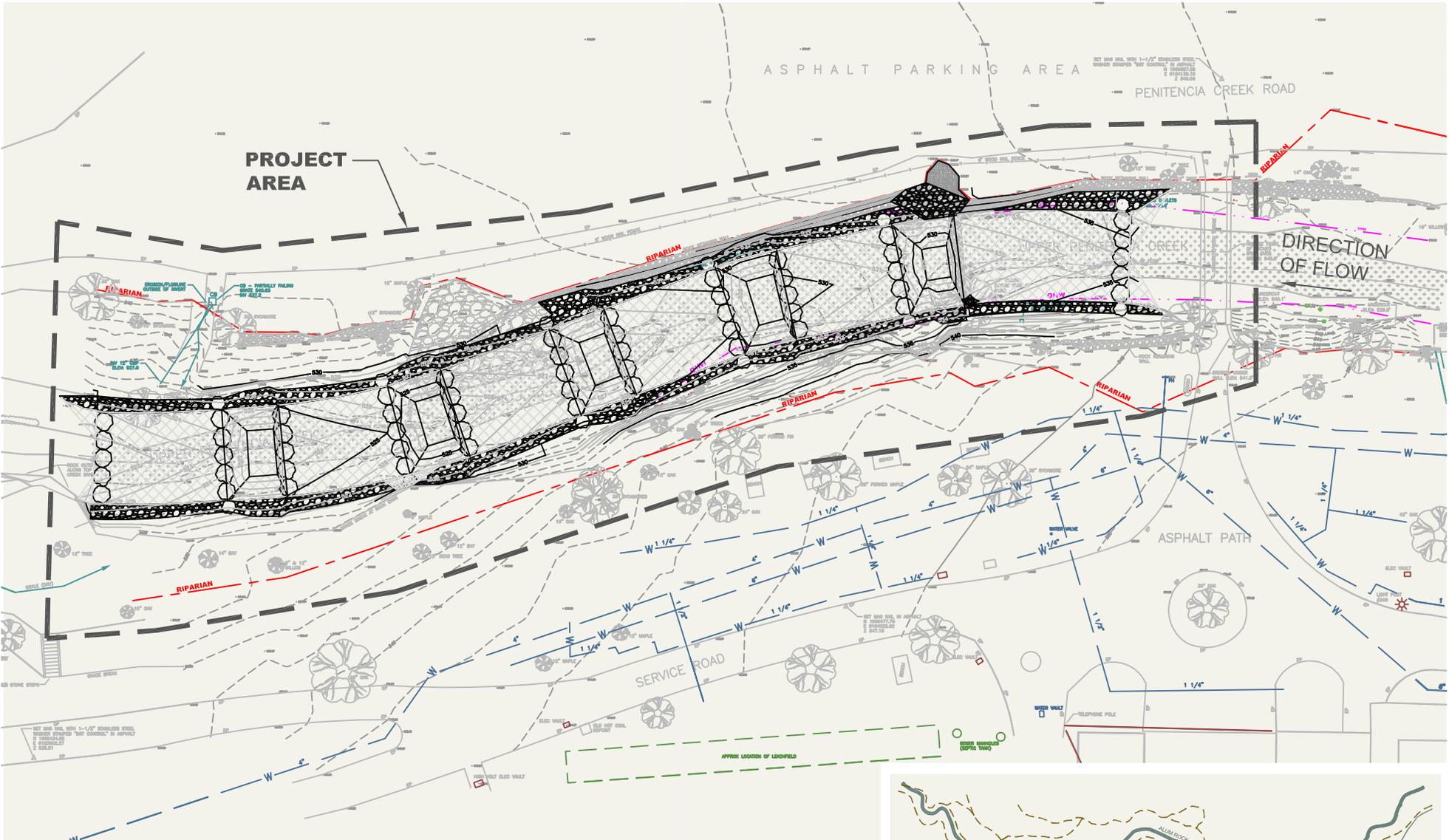
CONCEPTUAL PLANS  
NOT FOR CONSTRUCTION



### FIGURE 11 PROJECT 8 PROPOSED EROSION REPAIR

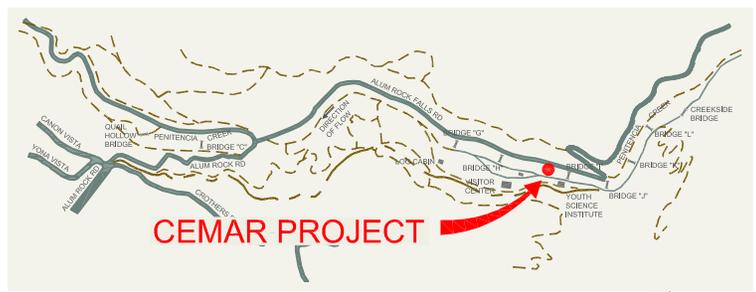


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### SITE PLAN

SCALE: 1"=40'



KEY MAP - ALUM ROCK PARK



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ALUM ROCK PARK

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FIGURE 12  
PROJECT 13  
CEMAR FISH PASSAGE IMPROVEMENT



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**Appendix C**  
**Photographs**



Project 11: Mature Sycamore Tree and Picnic Area



Project 11: Degraded Bank Near Mature Sycamore Tree



Project 3 and 10: Rock Wall Looking Upstream



Project 3 and 10: Rock Wall Looking Downstream



Project 3 and 10: Overview of Floodplain Re-establishment Area



Project 5 and 13/CEMAR: Weir Area, Plunge Pool

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**Appendix D**  
**OHMW Delineation**

**DELINEATION OF ORDINARY HIGH WATER,  
AND RIPARIAN HABITAT FOR THE  
ALUM ROCK PARK  
PROPOSED PROJECT AREAS 1-11  
SAN JOSE, CALIFORNIA  
APNs 595-07-015, 599-25-001 & 612-46-001**

March 2010

Prepared for:

City of San Jose  
Parks, Recreation and Neighborhood Services  
200 E. Santa Clara Street  
San Jose, CA 95113  
Phone (408) 793-5552

Prepared by:

Winzler & Kelly  
633 Third Street  
Eureka, CA 95501-0417  
(707) 443-8326

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**APPENDICES**

**Appendix A: Ordinary High Water & Riparian Habitat Delineation Figures**

**DELINEATION OF THE ORDINARY HIGH WATER MARK,  
AND RIPARIAN HABITAT FOR THE  
ALUM ROCK PARK  
PROPOSED PROJECT AREAS 1-11  
SAN JOSE, CALIFORNIA  
APNs #595-07-015, 599-25-001 & 612-46-001**

**I. SUMMARY**

On February 9-10, 2010, a delineation of the Ordinary High Water Mark (OHWM) and riparian habitat was conducted for the City of San Jose Parks, Recreation and Neighborhood Services Department at eleven proposed project sites on Penitencia Creek in Alum Rock Park, San Jose, CA in City owner properties, Assessor's Parcel Numbers (APNs) 595-07-015, 599-25-001 and 612-46-001. The OHWM location procedure was completed pursuant to the U.S. Army Corps of Engineers (USACE) guidance for OHWM identification using physical characteristics criteria for making OHWM determinations (USACE, 2005). The identification for riparian habitat (WCB, 2010) was made by on-site establishment of the average outer tree drip line (away from the stream), for those individual trees established adjacent to proposed bank or in-stream work, which appear to provide sufficient creek shading. Wetlands generally occur as small and isolated inclusions within the delineated OHWM and typically consist of vegetated portions of gravel bars or, occasionally, as small terraces along a stream bank. Because much of Upper Penitencia Creek, within the project area, is constrained by rock walls, rock outcrops, or steep banks, bordering wetlands are not common and they occur within the OHWM limits.

**II. INTRODUCTION**

The overall project includes 12 sub-project locations within Alum Rock Park to be implemented over a four-year period (2010-2013). Proposed activities include two bridge abutment repairs, ten bank repair sites, floodplain restoration and a fish passage improvement project. Several of the specific project elements are intended to restore habitat in ways likely to benefit aquatic and semi-aquatic species (floodplain restoration, weir modification and stream channel roughing to enhance fish passage) or prevent future impacts from occurring (bank repair, bridge abutment and footing repair). Project related construction has the potential to result in temporary impacts, many of which can be avoided or minimized.

Work would generally occur in immediate proximity to Upper Penitencia Creek. Floodplain restoration would extend as much as 40 feet away from the existing bank; most other project activities would not extend beyond top of bank except for vehicle parking and temporary stockpiling of materials. Most individual project activities are very limited in spatial extent.

For clarity, project activities are presented in spatial (not numerical) sequence from upstream to downstream, and are grouped into three distinct clusters. The upstream cluster extends over an area of about 1,000 linear feet, from the Creekside Bridge to just below Bridge K, and includes Sites 1, 11, 3, 10, and 4. The middle cluster begins about 1,000 feet downstream, extends about 1,200 feet from Bridge I to about 250 feet below the Visitor's Center Bridge, and includes Sites

2, 5, 6, and 9 (including the CEMAR fish passage improvement project). The downstream cluster begins nearly a mile below the middle cluster, extends for about 600 feet, and includes Site 7 and 8. The sub-projects have been individually described in the City of San Jose's Alum Rock Park Bridge and Bank Repair and Stream Restoration Projects Initial Study (2008).

The locations and extent of the OHWM and the limits of the riparian habitat of the various projects are presented on Figures located in Appendix A.

### **III. ORDINARY HIGH WATER MARK and RIPARIAN DELINEATION METHODOLOGY**

The OHWM and riparian habitat delineation was conducted by Winzler & Kelly following the USACE (2005) OHWM guidance criteria. Field Work for the OHWM and riparian habitat delineation was completed by Gary Lester of Winzler & Kelly on February 9-10, 2010. This delineation report includes a discussion of site conditions, sampling methodology, sampling results, and conclusions as well as a map delineating wetland boundaries, and riparian boundaries in the eleven project areas. A set of project location figures illustrating the extent of the OHWM and riparian habitat within each project site is included in Appendix A.

#### **A. Ordinary High Water Mark Identification Methodology**

USACE (2005) defines the term "ordinary high water mark" as:

"...that line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris or other appropriate means that consider the characteristics of the surrounding areas."

In practice, the means used at the time of this survey was the existing Penitencia Creek flow line and recent flow lines marked by matted down vegetation.

#### **B. Riparian Habitat Identification Methodology**

Riparian habitat is composed of the trees and other vegetation and physical features normally found on the stream banks and flood plains associated with streams, lakes or other bodies of water (WCB, 2010). Further interpretation of riparian vegetation was made on-site for trees which would provide creek water cover or shade, not necessarily restricted to those trees normally (or naturally) found on California water ways. Therefore long standing Alum Rock landscape trees planted along Penitencia Creek were also recognized as providing riparian-like shade quality. Care was taken to determine the extent of these riparian habitat features at the farthest limits away from the established OHWM. The extent was determined to be the average edge of the riparian tree or shrub drip-line.

Once OHWM and riparian habitat characteristics were determined for a specific project area, a flag was placed to delineate the limits of the boundary. Point numbers for the OHWM boundary or extent of riparian average drip-line were written on flags. Points were based on field determinations to mark a change in the direction of the boundary and

were not predetermined by aerial or topographic maps. Flag locations were surveyed by BGT Land Surveying, the results of which are provided in the figures in Appendix A.

#### **IV. RESULTS OF ORDINARY HIGH WATER MARK AND RIPARIAN HABITAT DELINEATION**

The sub-projects are individually discussed in detail below. The project locations, survey of the OHWM and outer extent of riparian habitat identified at the project locations are presented in figures located in Appendix A. The OHWM is identified on each bank of the creek. Riparian is identified on the bank where the project will take place or was delineated on both stream banks in significant project areas where in-stream activities, such as diversions or coffer dams will be temporarily employed.

##### **Project 1. Creekside Bridge Abutment Repair**

Project 1 is located at the upstream section of the Creekside Bridge along the existing left (south) bank. The left bank at this location is the outside bank at the end of a minor bend. This bend is causing erosion to occur at the left (south) abutment just before the entrance of the bridge. The erosion is causing riprap that was placed as artificial fill during the bridge construction to be exposed and migrate downstream. The erosion of the riprap and fill on the left bank is exposing the left abutment and has the potential to undermine the abutment and cause the bridge to fail.

The riparian habitat was delineated at the Project 1 location on each bank of Penitencia Creek for approximately 100 feet above Creekside Bridge and 100 feet below. The riparian habitat primarily consisted of small white alders (*Alnus rhombifolia*) and a few larger California sycamores (*Platanus racemosa*) and California bays (*Umbellularia californica*).

##### **Project 11: Creekside Bridge Floodplain Expansion**

This sub-project consists of expansion of the floodplain immediately downstream of Creekside Bridge. A segment 200 to 300 feet downstream of the Creekside Bridge currently has a stacked rock wall on the left (east) bank. Much of the eastern bank consists of old fill material and presently supports a picnic area. Floodplain restoration is proposed along the east bank downstream of the bridge. Fill will be excavated and removed, and the area will be graded to an elevation equal to the 1.5-year design flow. All existing walls will be removed, and the picnic area relocated.

The riparian habitat was delineated on the left bank of Penitencia Creek for approximately 100 feet above the floodplain expansion and extending through Project Areas 3 and 10 below. The riparian habitat primarily consisted of small white alders, a few larger California sycamores and the canopy of a few larger coast live oaks (*Quercus agrifolia*). One tree, a sycamore within the delineated riparian habitat, will be removed.

##### **Projects 3 and 10: Bridge L Wall Repair and Floodplain Expansion**

This sub-project consists of repair of the rock wall and expansion of floodplain downstream of Bridge L. Immediately downstream of Bridge L, a rock wall on the east bank is undercut for a length of approximately 25 feet. The wall constrains the stream, which is only 25 feet wide at this location, which results in increased channel velocity and scour. The restoration action at site

3 includes re-establishing the natural width of the channel by removing the rock and concrete wall downstream of the bridge, and creating approximately 0.14-acres of floodplain (up to 40 feet wide) along the eastern bank. There will be no fill or increase in water surface. A new section of wall will be constructed to protect the existing bridge footing.

The riparian habitat was delineated on the left bank of Penitencia Creek above Bridge L contiguous with Project 11 and extending below Project Areas 3 and 10 for approximately 100 feet. The riparian habitat primarily consisted of only a few scattered small white alders and willows (*Salix* spp.), growing within the OHWM.

#### **Project 4: Bridge K Rock Wall Repair**

This sub-project consists of repair of an undercut section of rock wall on the east bank downstream of historic Bridge K. A rock and mortar wall immediately downstream of Bridge K has failed, exposing unstable soil and making additional sections of wall and a nearby asphalt path vulnerable to storm damage. In-kind repair is proposed, using native rocks and mortar and with the addition of weep holes. The project is more than 15 horizontal feet and 7 vertical feet away from the ordinary high water line of Upper Penitencia Creek and is limited to bank repair work. There will be no impacts to waters or wetlands. The repair activities will reduce the future risk of erosion and sedimentation.

A small extent of riparian habitat formed by California buckeyes (*Aesculus californicus*) located on the left bank, was delineated 100 feet above and below Project 4.

#### **Project 2: Youth Sciences Institute Bridge Abutment Repair**

At the Youth Sciences Institute (YSI) Bridge along the left (south) bank, just upstream of the bridge the existing left abutment is constricting the flow of the creek as it passes underneath the bridge. High velocities from turbulence associated with flow constrictions are the likely cause of the erosion located just upstream of the abutment and potential undermining of the abutment. The erosion extends to the top of the bank, where erosion is occurring underneath the wall.

The riparian habitat was delineated at the Project 2 location on each bank of Penitencia Creek for approximately 100 feet above the YSI Bridge and contiguous with Project Area 5 below. The riparian habitat consisted primarily of mature coast live oaks and a few California bays.

#### **Project 5. Repair Eroded Rill and Wall Downstream of YSI Bridge**

This sub-project consists of repair of eroded rill at the end of the north bank vertical rock wall adjacent to a grade control structure.

The riparian habitat was delineated at the Project 5 location on each bank of Penitencia Creek for approximately 100 feet below the Project Area 5 area and contiguous with the YSI Bridge habitat delineation above. The riparian habitat consisted primarily of mature coast live oaks and a few California bays and a big-leaf maple (*Acer macrocarpa*).

#### **CEMAR Fish Passage Improvement**

Design details for these proposed activities is described in the *Final Design Report for a Fish Passage Improvement Project on Upper Penitencia Creek* (Winzler & Kelly, 2008), and was

completed for the Center for Ecosystem Management and Restoration (CEMAR). An undercut weir serving as a grade control structure 75 feet downstream of the YSI bridge has caused a scour pool and a 4.5-foot vertical drop from the crest of the weir to the normal pool surface, creating a salmonid migration barrier. Simple weir removal could allow upstream channel degradation and threaten the structural integrity of the bridge. This project proposes to leave the weir in place and to create a stable roughened channel suitable for fish passage. The new roughened channel will extend for 225 linear feet, with a chute and pool design to allow fish resting places. As a result of the channel design, the OHWM will be elevated through the restored channel reach. There will be no net change in channel cross section, area of jurisdictional waters, or wetted area other than a slightly increased elevation of both channel bed and the OHWM. There will be a significant improvement in fish migration capability, and there will also be a net gain in aquatic habitat quality.

Associated bank improvements include slope regrading, rock wall removal, and revegetation in the downstream part of the project reach, with some rock protection placed at the toe of slope. The riparian habitat present at the CEMAR Fish Passage Project location for approximately 100 feet below the area and contiguous with the Project 5 habitat delineation above consists of scattered mature coast live oaks, several California bays, California sycamores and clusters of small willows. Much of the entire right bank opposite the project is existing frontage of visitor parking and steep creek banks, lacking significant riparian cover.

#### **Project 6: Visitor's Center Bank Protection Repair**

This sub-project consists of repair of failed bank protection adjacent to the Visitor's Center. About 175 feet upstream of the Visitor Center Bridge, a previous bank protection project on the south bank has failed, possibly because of runoff from the adjacent parking lot. An approximately 50-foot long by 5-foot high crib wall has broken and no longer retains the slope. About 30 feet upstream a 6 by 15-foot rock and mortar wall has failed and slid into the channel. Downstream of the crib wall, a 7-by-20-foot section of rock and mortar bank facing has been undercut by erosion and has slid down to the edge of the stream. In this area of multiple failures, a 30-to-40 foot long section of the bank protrudes into the channel and is near vertical.

The riparian habitat was delineated on both banks of Penitencia Creek above the Visitor's Center Bridge the length of Project 6 to approximately 100 feet above and extending below to Project Area 9. The riparian habitat primarily consisted of both dense small willows and mature coast live oaks.

#### **Project 9: Visitor's Center Bridge Abutments Repair and Fish Passage Improvement**

This sub-project consists of repair/protection of bridge abutments/footings, repair of the rock railing, bank repair, and fish passage improvement at the Visitor's Center Bridge. The Visitor's Center Bridge is a rock and mortar arch footbridge with a 40-foot span supported on approximately 9-by-4 foot rock and mortar abutments. Damage to the north abutment includes undercutting of the upstream edge of the footing. A rock and mortar bank wall upstream of the bridge has also been undercut. Damage to the south abutment includes erosion of the footing and rock railing. A concrete and rock and mortar weir is present 12 feet upstream of the bridge. The weir is undercut, is in marginal condition, and has been identified as a potential barrier to

salmonid migration under certain flow conditions. The weir has caused a scour pool and contributed to the failures identified above.

The riparian habitat was delineated at the Project 9 location on each bank of Penitencia Creek for approximately 100 feet below the Project Area 9 area and contiguous with the Visitor's Center Bridge habitat delineation above. The riparian habitat consisted primarily of mature coast live oaks, white alders, California bays and big-leaf maples.

**Project 7: Bank Repair Downstream of Quail Hollow**

This sub-project consists of repairing/protecting the failing south bank along a trail downstream of Quail Hollow. Just downstream of Quail Hollow, a 10-foot section of bank has failed on the outside of a bend in the channel. Repair will include minor excavation of the upper slope, replacement of excavated material with rip rap, and filling of voids with soil to promote growth of vegetation. Work will take place well above the ordinary high water mark, and there will be no impacts to waters or wetlands.

A small extent of riparian habitat formed by white alders located on the left bank, was delineated 100 feet above and below Project 7.

**Project 8: Repair Concrete Wall Downstream of Quail Hollow**

This sub-project consists of repairs to a failing north bank sack concrete wall. On the outer bank of a 90-degree bend in the stream a 40-foot long sack concrete wall has been undercut, exposing the concrete footing. A large culvert extends through the undercut wall. A 50-foot long adjacent upstream section of bank has failed, damaging a portion of the pavement edge of a roadway on top of the bank. The road has been relocated. The banks opposite and downstream are constrained by large bedrock outcrops. The proposed action includes placement of rip rap protection along the exposed footing of the sack concrete wall, which is otherwise in good condition. The failed bank will be repaired with a vertical Hilfiker Retaining Wall system.

Extensive riparian habitat formed by numerous species (primarily white alders, coast live oaks and willows) located on both banks, was delineated 100 feet above and below Project 8.

**V. CONCLUSIONS**

The OHWM and riparian habitat delineation of February 9-10, 2010, delineated the OHWM and riparian habitat outside of the OHWM on 12 project areas in Alum Rock Park. The OHWM and the riparian habitats were delineated during the same period. The riparian habitat was identified as per the WCB (2010) definition and the U.S. Army Corps of Engineers Ordinary High Water Mark ("waters" of the U.S) definition by USACE (2005). All delineated boundaries as well as recorded transect points can be identified on Figures 1-6 (Appendix A).

**VI. RECOMMENDATIONS**

It is recommended that a Jurisdictional Determination by the COE and Stream Alteration Agreement from DFG be obtained and documented in regards to this delineation before proceeding with construction and causing potential disturbance to the waters or buffer areas associated with the

delineated OHWM or riparian vegetation.

## **VII. SPECIAL TERMS AND CONDITIONS**

To achieve the delineation objectives stated in this report, we based our conclusions on the information available during the period of the investigation, February 9-10, 2010. This report does not authorize any individuals to develop, fill or alter the waters or riparian habitat delineated. Verification of the delineation by jurisdictional agencies, including the U. S. Army Corps of Engineers, the California Department of Fish and Game, the California Regional Water Quality Control Board and the City of San Jose is necessary prior to the use of this report for site development purposes. Permits to affect wetlands must be obtained from the involved government agencies. If permits are obtained to develop the delineated wetlands after agency review and written verification, the delineation is given a 5-year expiration period. Land use practices and regulations can change thereby affecting current conditions and delineation results.

This report was prepared for the exclusive use of the City of San Jose. Winzler & Kelly is not liable for any action arising out of the reliance of any third party on the information contained within this report.

## **VIII. REFERENCES**

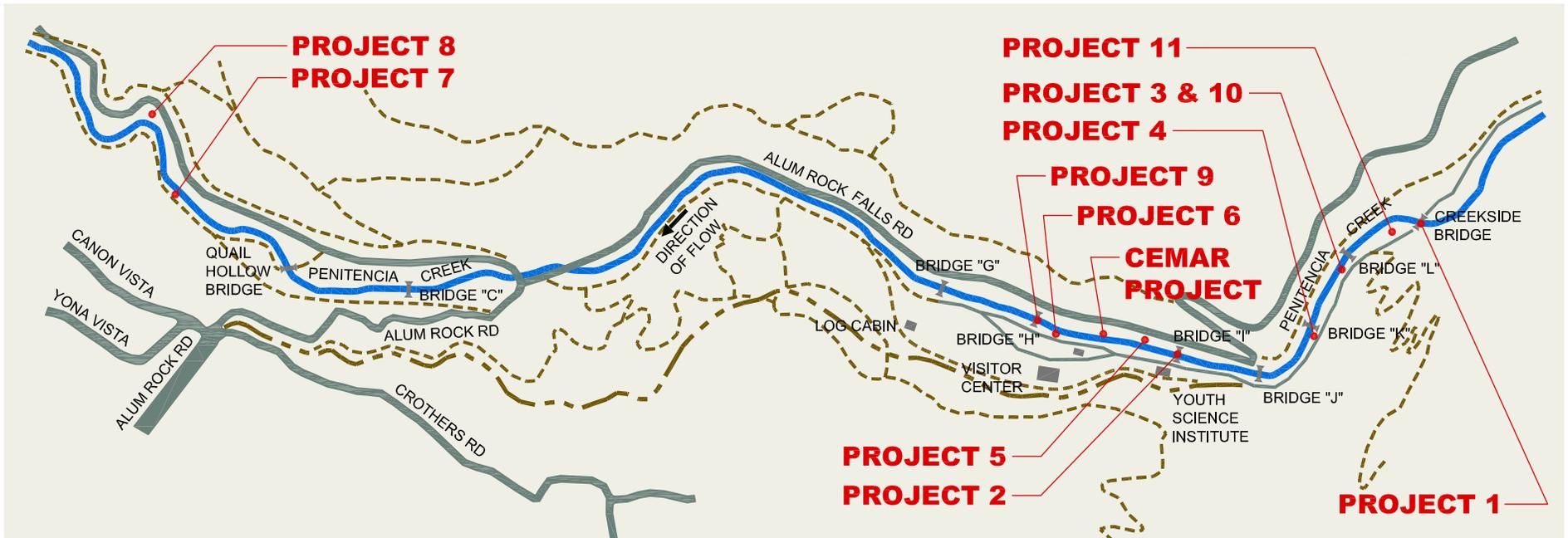
City of San Jose, 2008. Alum Rock Park Bridge and Bank Repair and Stream Restoration Projects, Intial Study. San Jose, CA.

United States Department of the Army Corps of Engineers, Regulatory Guidance Letter, Ordinary High Water Identification, No. 05-05, December 2005.

Wildlife Conservation Board, 2010. State of California. California Riparian Habitat Conservation Program. Sacramento, CA.  
[http://www.wcb.ca.gov/Pages/california\\_riparian\\_habitat\\_conservation\\_program.asp](http://www.wcb.ca.gov/Pages/california_riparian_habitat_conservation_program.asp).

Winzler & Kelly, 2008. *Final Design Report for a Fish Passage Improvement Project on Upper Penitencia Creek*. Center for Ecosystem Management and Restoration. Oakland, CA.





**PROJECT 1**

Creekside bridge repair: retaining wall, new concrete apron, revetment slope, grading.

**PROJECT 2**

Youth Science Institute bridge repair: retaining wall, new asphalt concrete pavement, revetment slope, grading.

**PROJECTS 3 AND 10**

Repair of rock wall (Project 3) and expansion of floodplain on east bank immediately downstream of historic foot bridge "L" (Project 10).

**PROJECT 4**

Repair of undercut section of rock wall on east bank immediately downstream of historic foot bridge "K".

**PROJECT 5**

Repair of eroded rill at end of north bank vertical rock wall directly adjacent to grade control structure.

**PROJECT 6**

Repair of failed bank protection project adjacent to Visitors Center. This project was originally constructed as part of the Phase II projects in 2001 (RMP, "Site #18").

**PROJECT 7**

Repair/protect failing south bank along trail downstream of Quail Hollow Bridge.

**PROJECT 8**

Repair of failing north bank sack concrete wall at sharp bend in top of bank road.

**PROJECT 9**

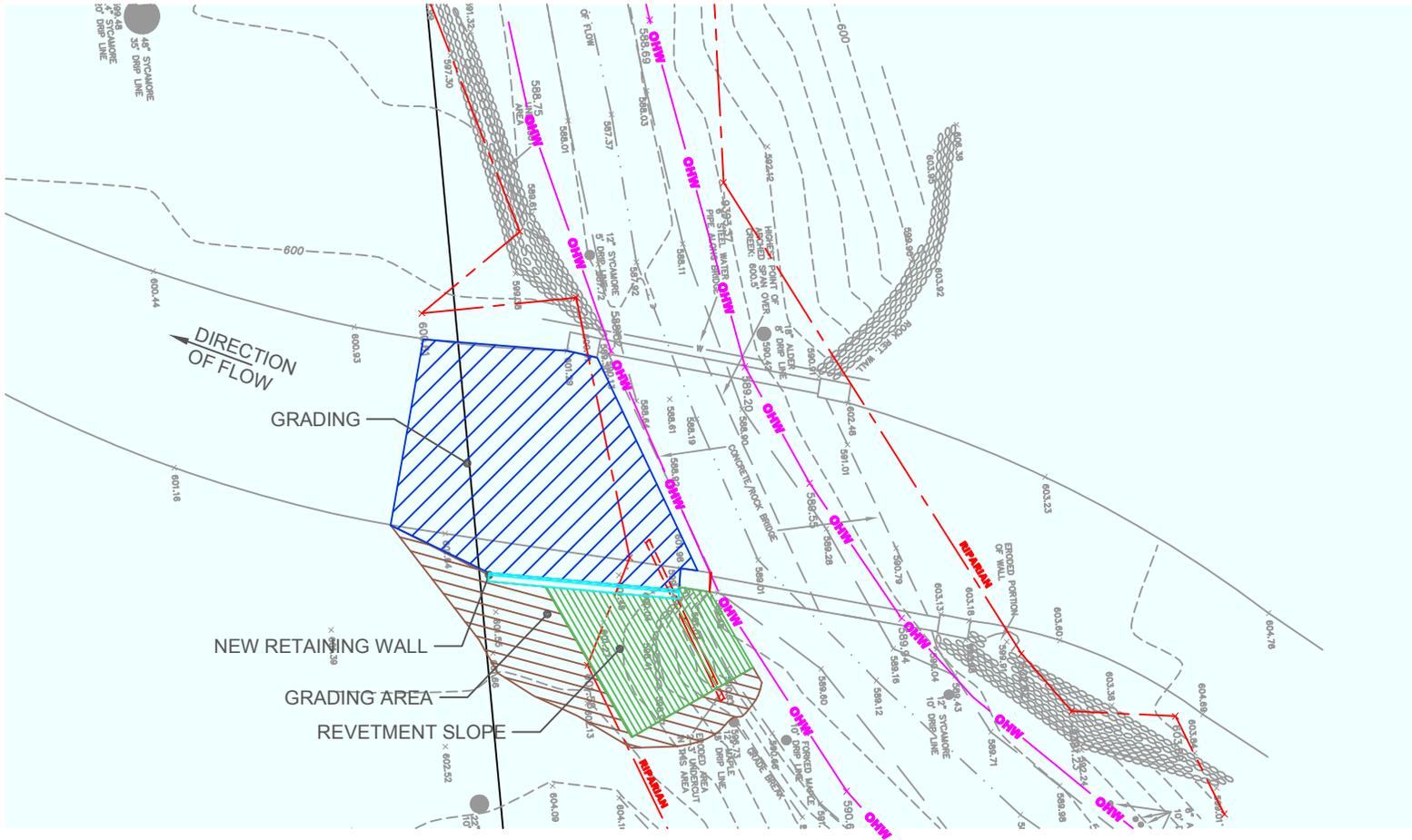
Repair/protection of the abutments/footings, repair of the rock railing, and bank repair at the Visitors Center Bridge (Bridge "H").

**PROJECT 11**

Expansion of floodplain immediately downstream of Creek Side Bridge.

**CEMAR PROJECT**

Create a fish passage.



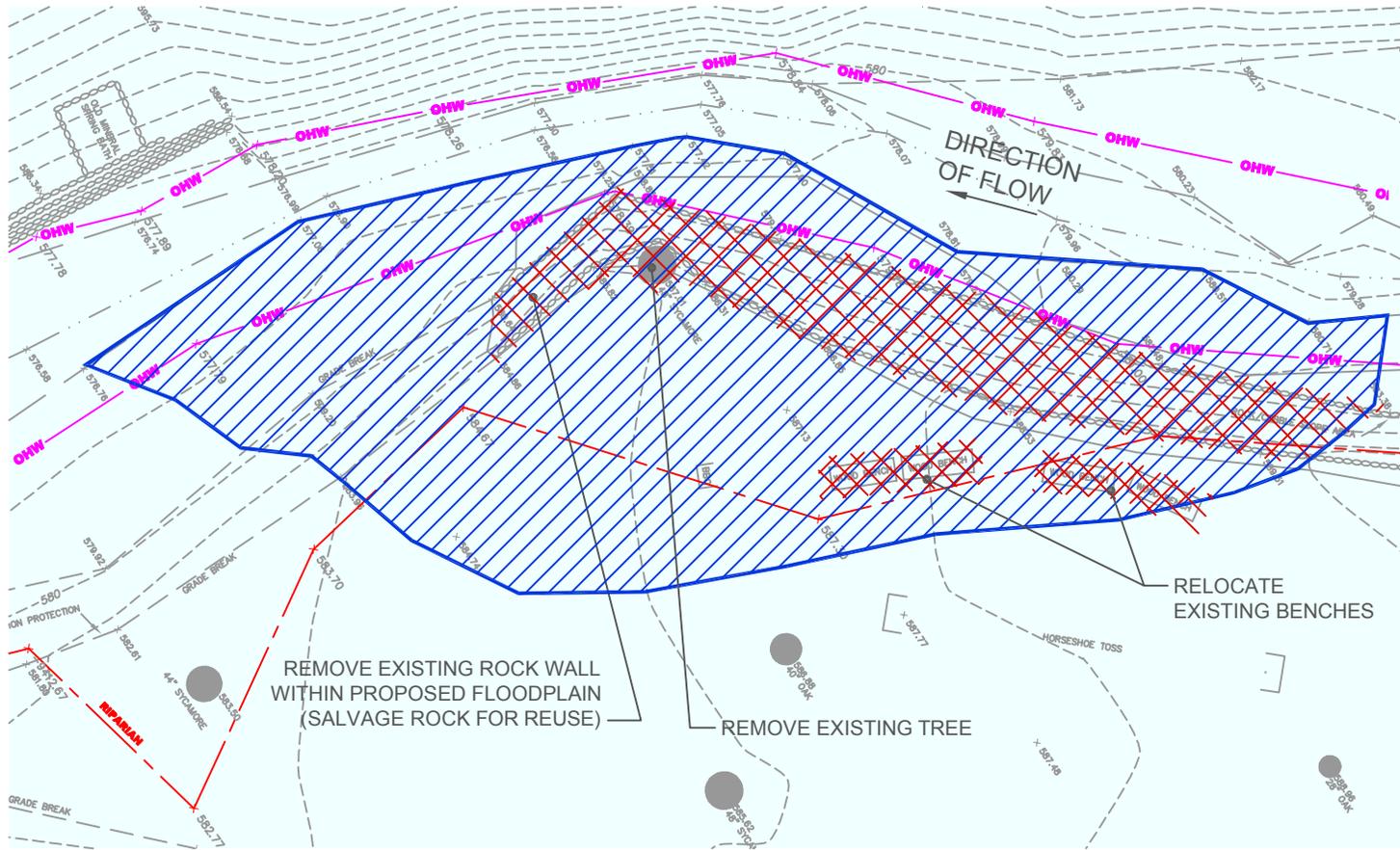
**SITE PLAN**

SCALE: 1"=20'



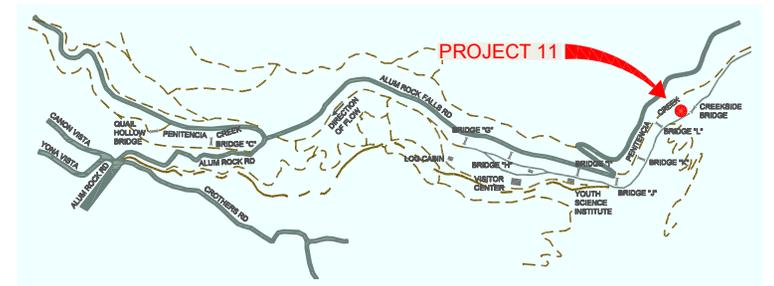
**KEY MAP - ALUM ROCK PARK**





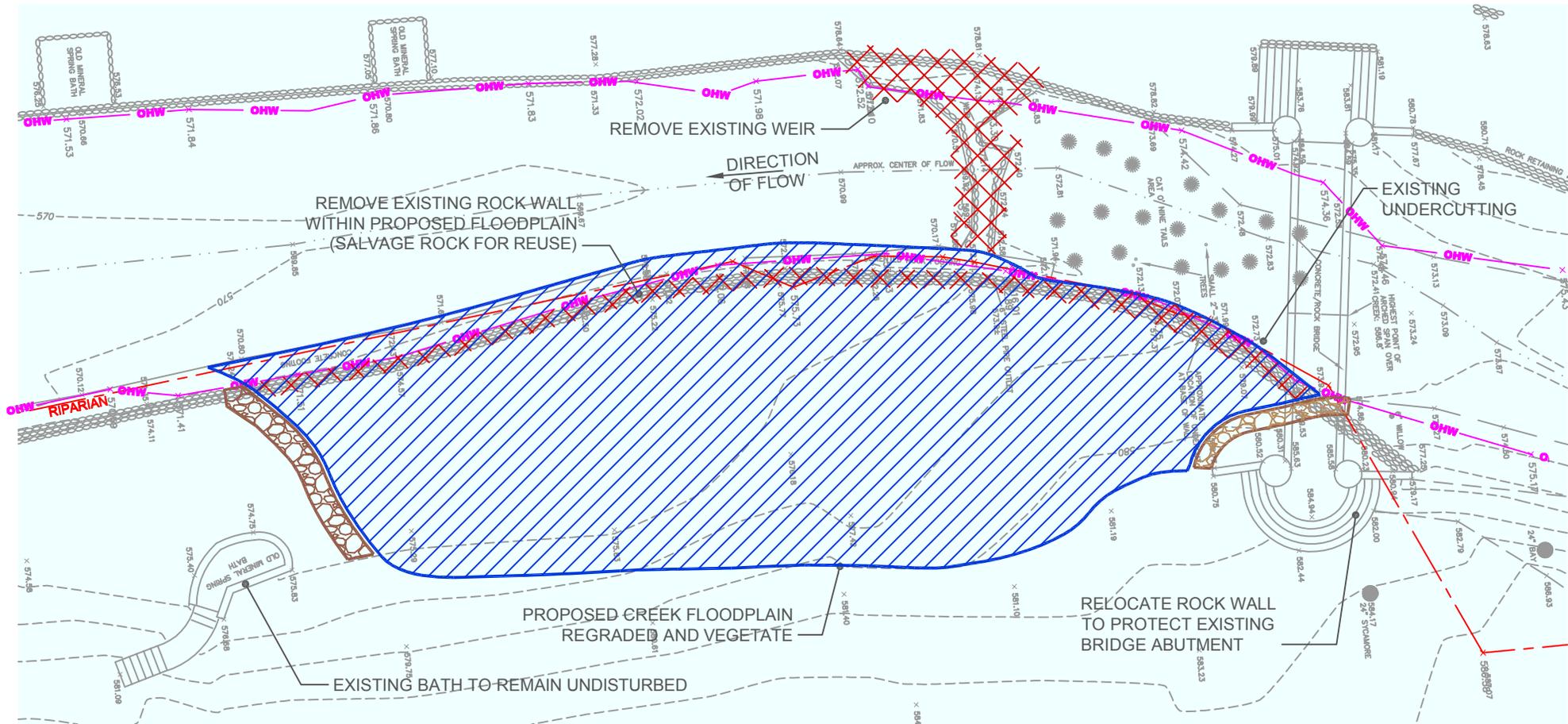
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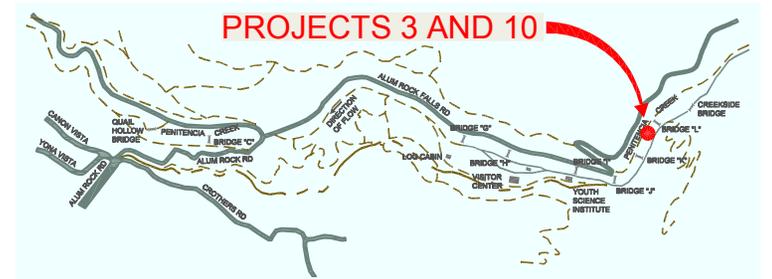
**KEY MAP - ALUM ROCK PARK**





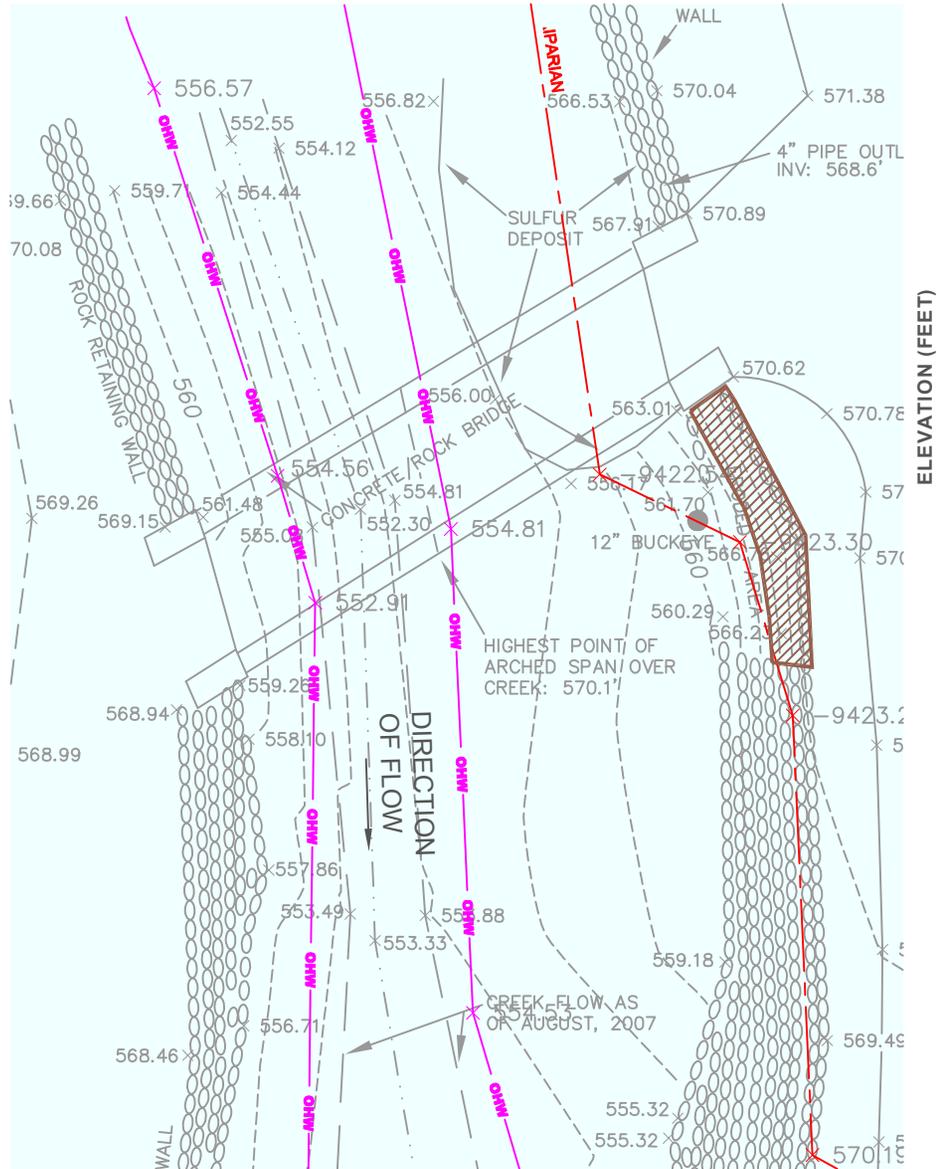
**SITE PLAN**

SCALE: 1"=20'



**KEY MAP - ALUM ROCK PARK**





ELEVATION (FEET)

DISTANCE (FEET)

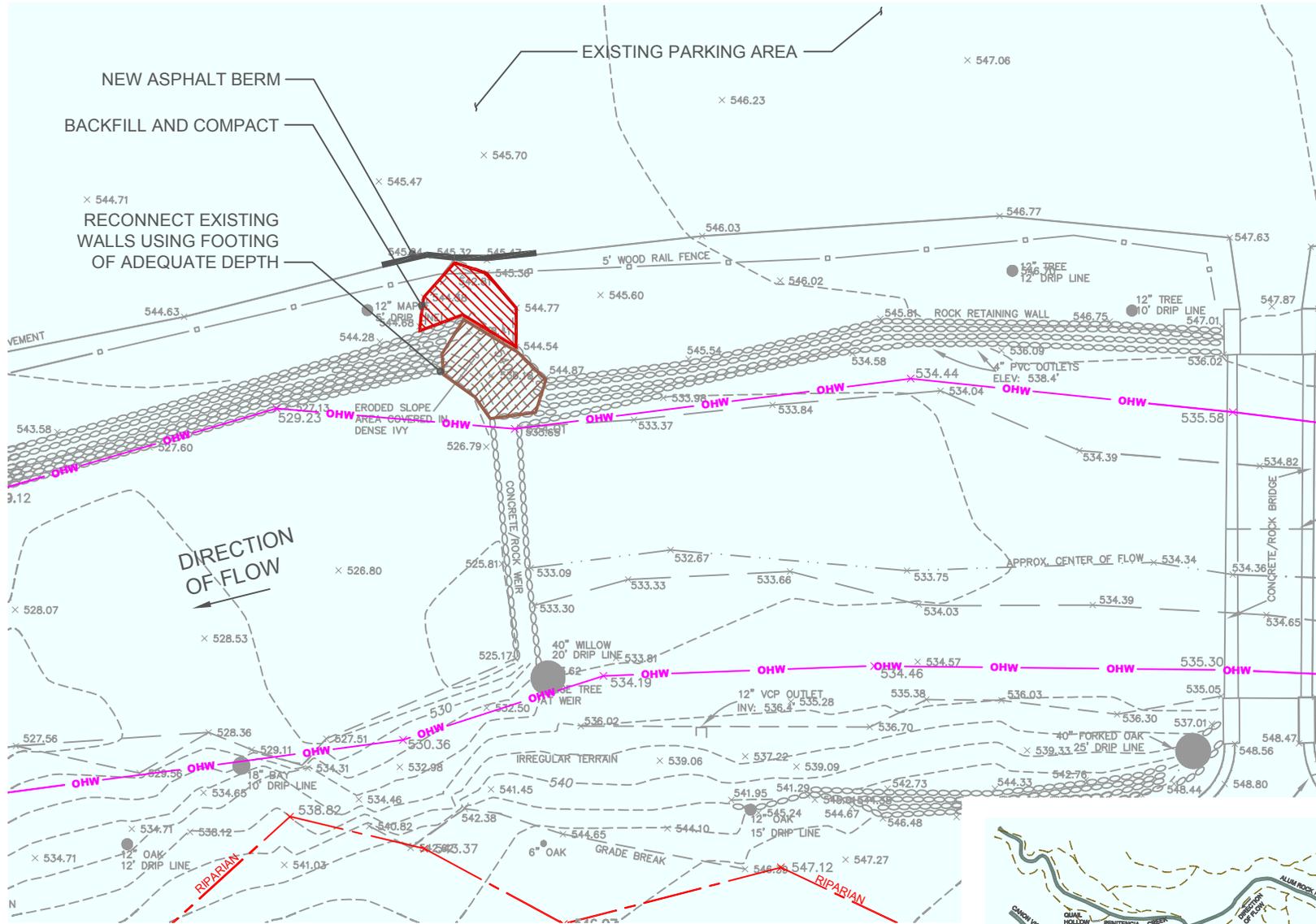
**SITE PLAN**  
SCALE: 1"=10'



**KEY MAP - ALUM ROCK PARK**







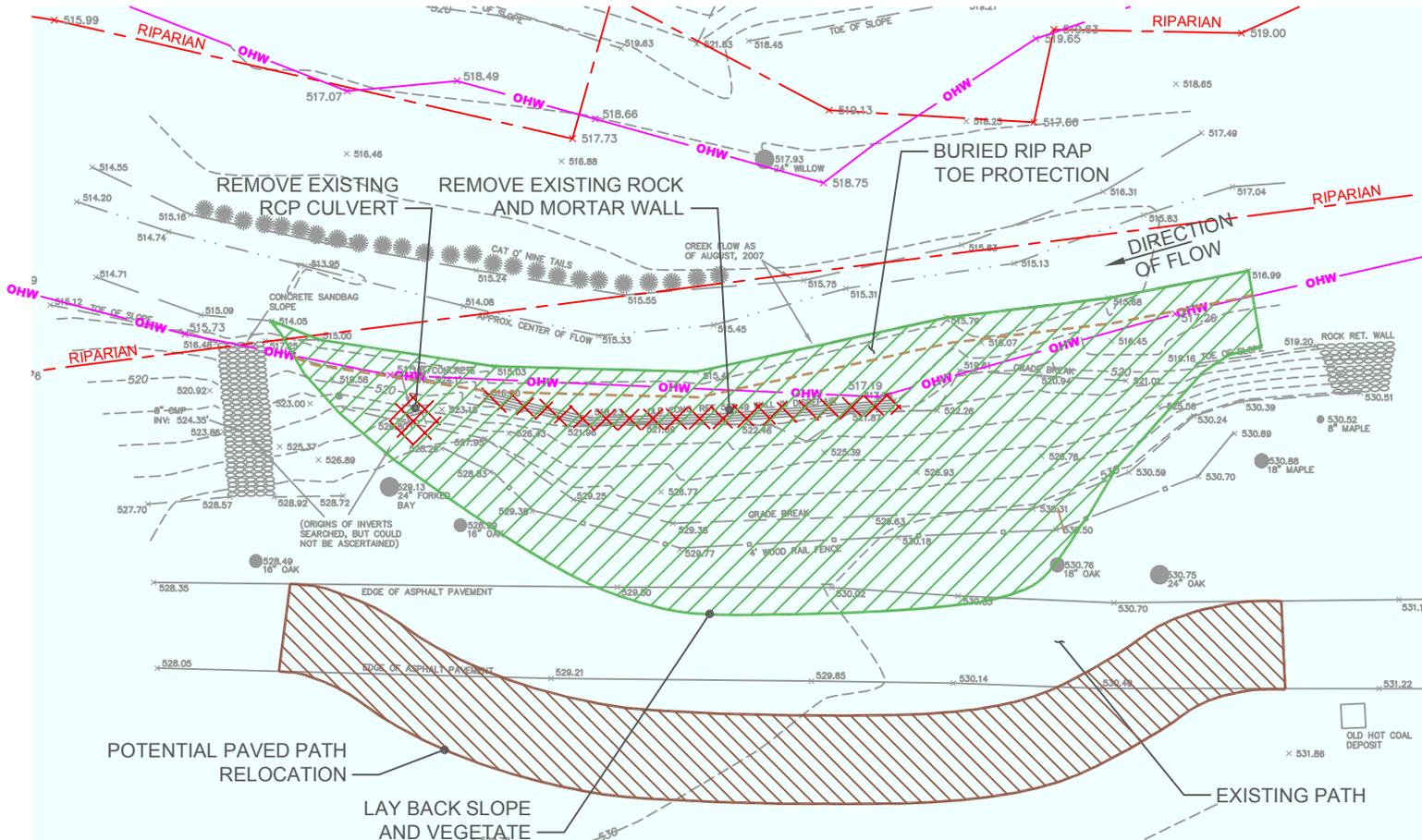
**SITE PLAN**

SCALE: 1"=15'



**KEY MAP - ALUM ROCK PARK**





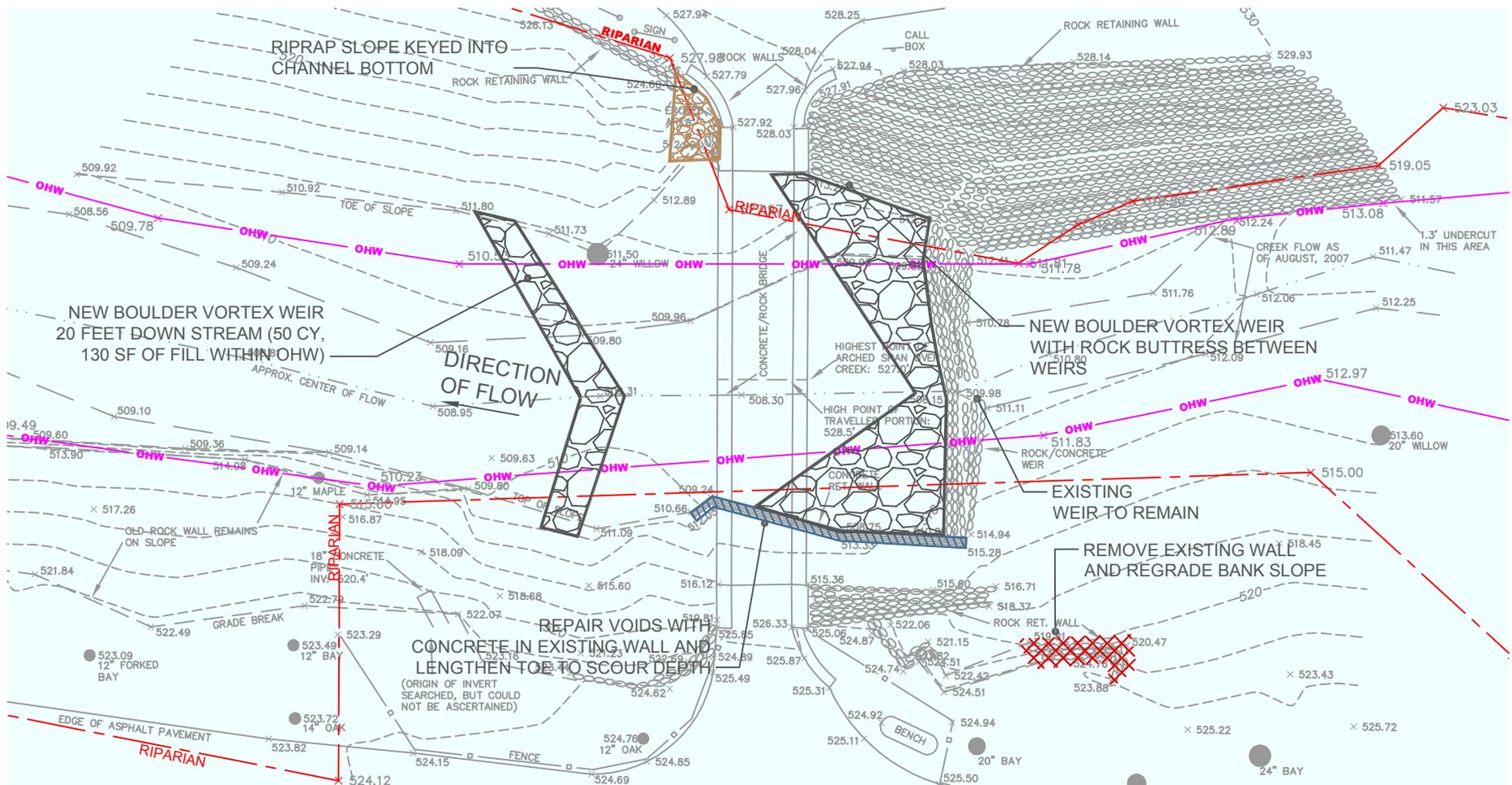
**SITE PLAN**

SCALE: 1"=20'



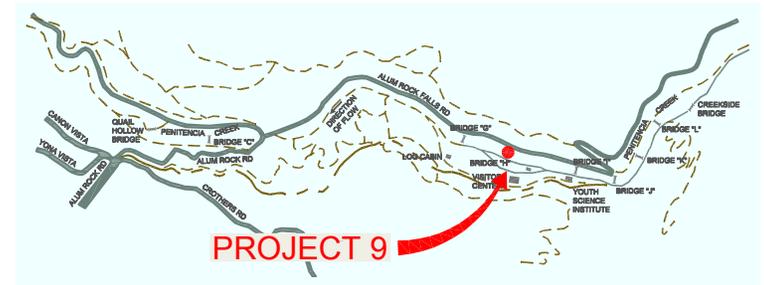
**KEY MAP - ALUM ROCK PARK**





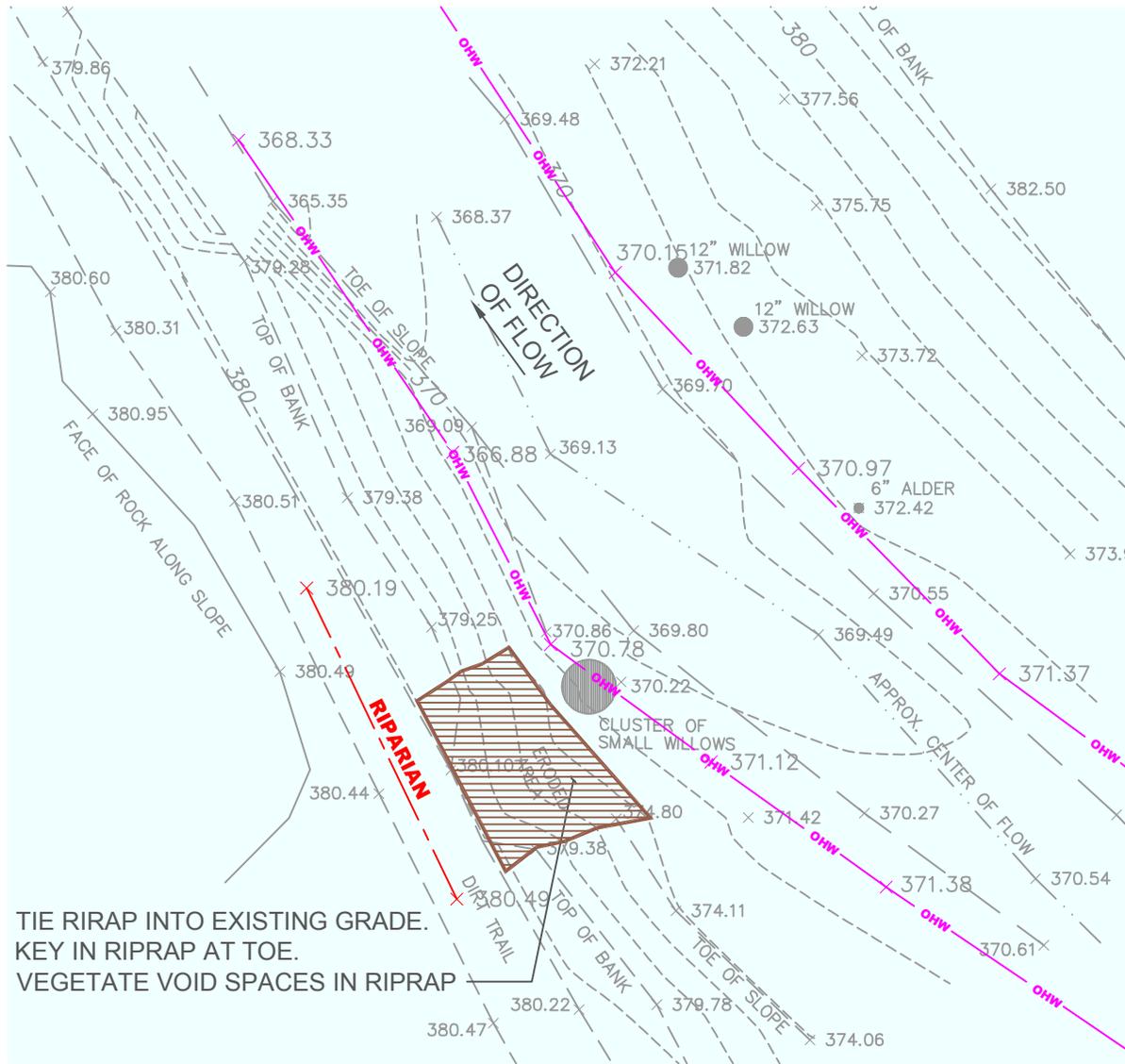
**SITE PLAN**

SCALE: 1"=15'



**KEY MAP - ALUM ROCK PARK**





TIE RIPRAP INTO EXISTING GRADE.  
 KEY IN RIPRAP AT TOE.  
 VEGETATE VOID SPACES IN RIPRAP

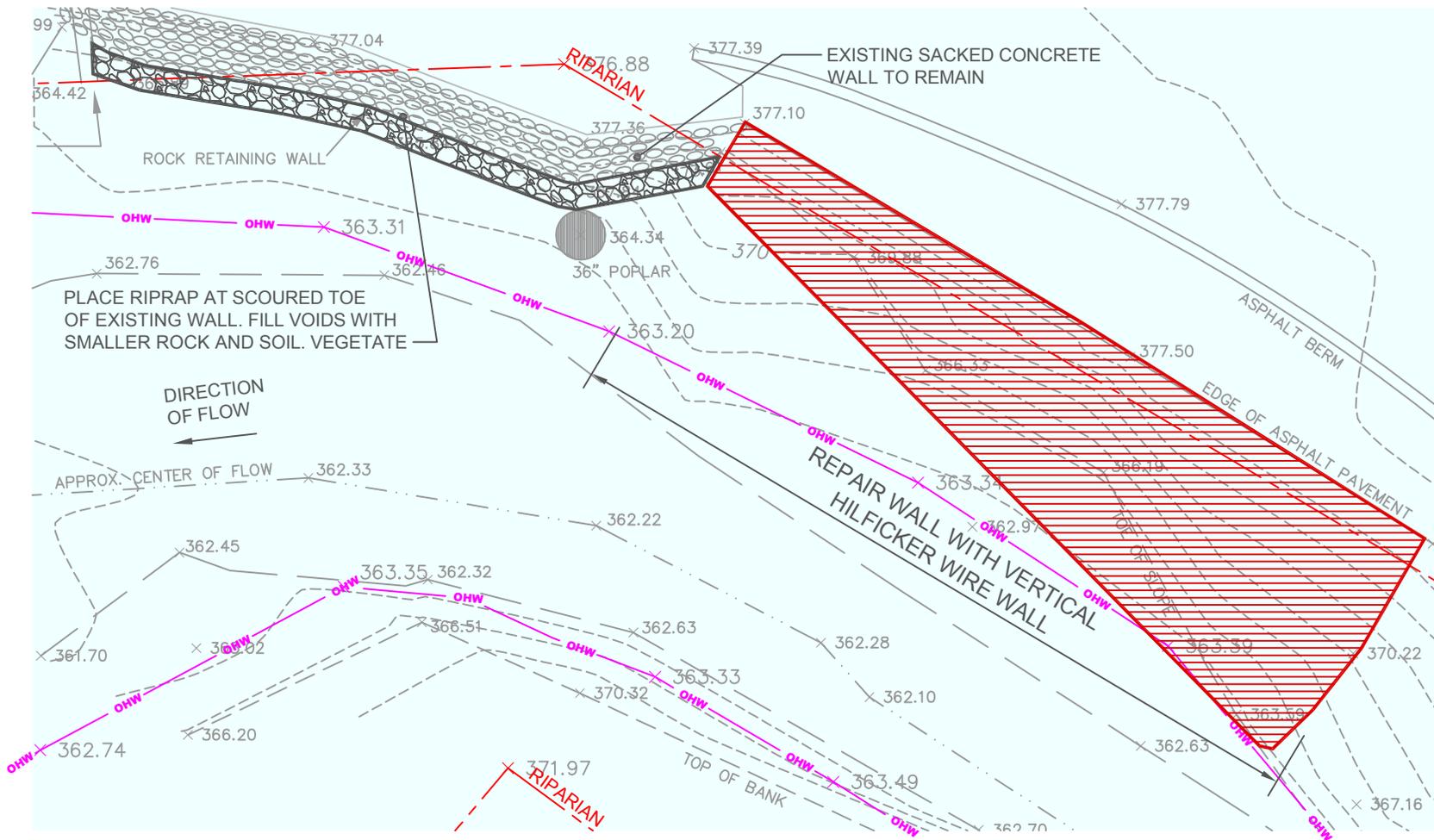
**SITE PLAN**

SCALE: 1"=10'



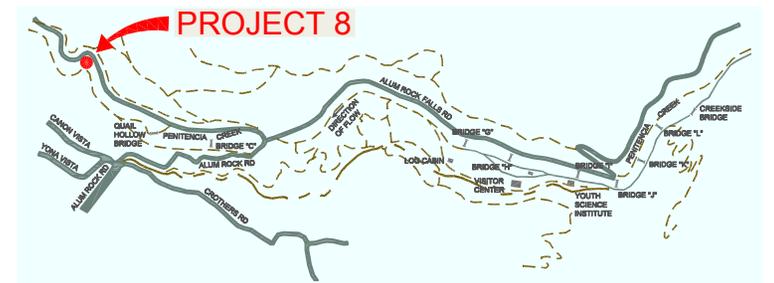
**KEY MAP - ALUM ROCK PARK**





**SITE PLAN**

SCALE: 1"=10'



**KEY MAP - ALUM ROCK PARK**

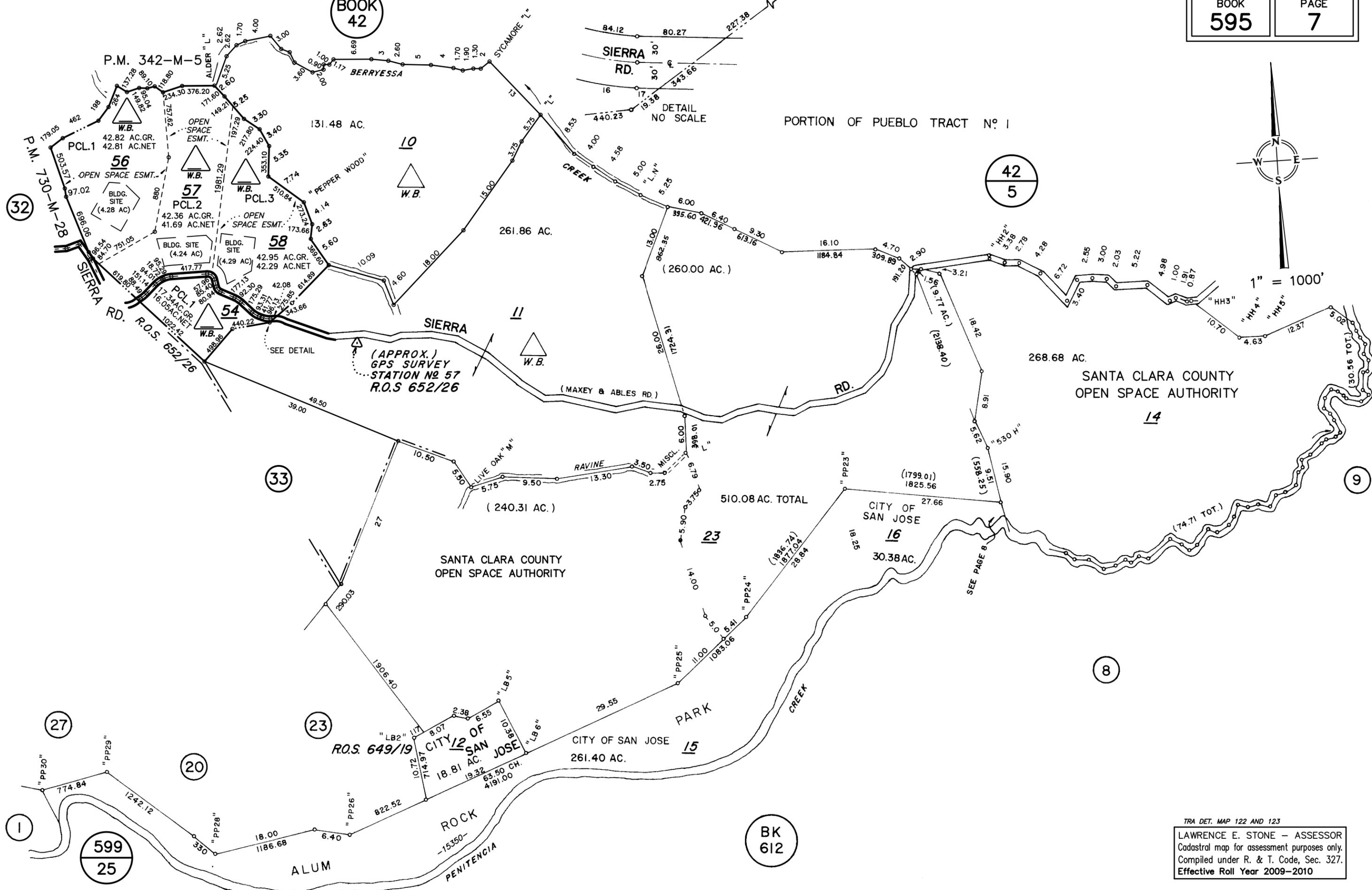




BOOK 42

BOOK 595

PAGE 7



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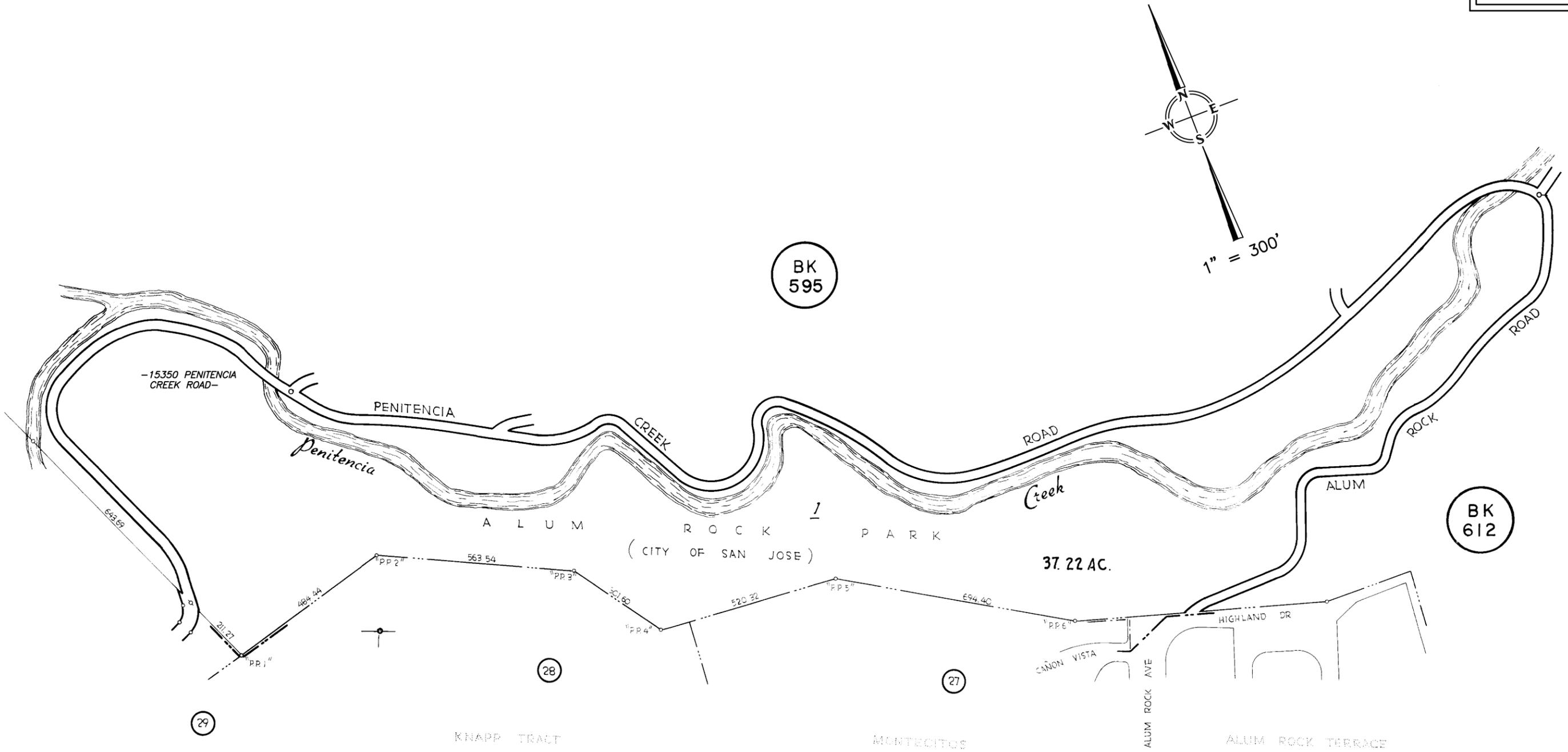
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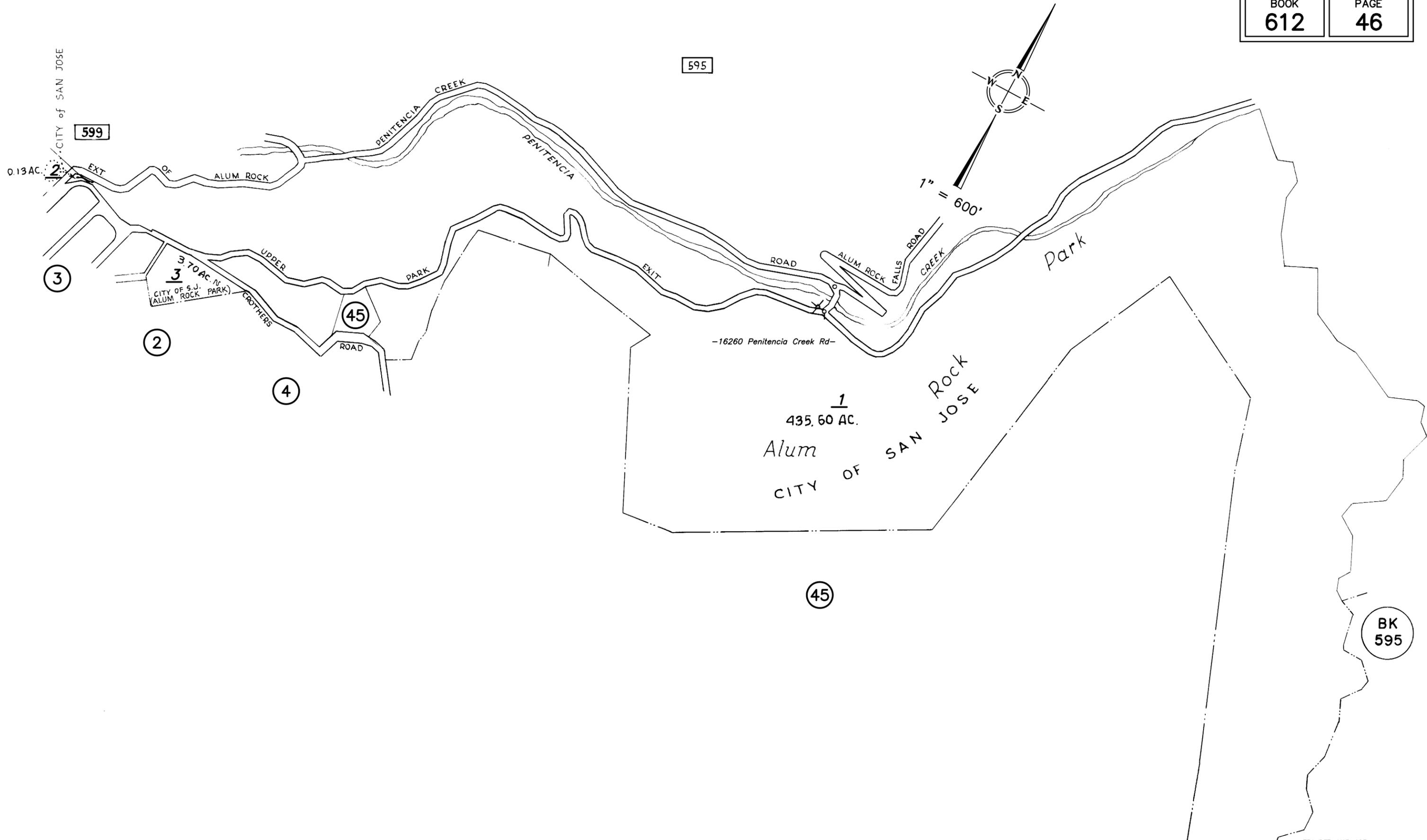
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BK 612

TRA DET. MAP 122 AND 123  
 LAWRENCE E. STONE — ASSESSOR  
 Cadastral map for assessment purposes only.  
 Compiled under R. & T. Code, Sec. 327.  
 Effective Roll Year 2009-2010





0.13 AC. CITY OF SAN JOSE

599

595

1" = 600'

3

2

4

45

45

BK 595

BK 627

3.70 AC. CITY OF S.J. (ALUM ROCK PARK)

435.60 AC. Alum CITY OF SAN JOSE

-16260 Penitencia Creek Rd-

TRA DET. MAP 123  
LAWRENCE E. STONE — ASSESSOR  
Cadastral map for assessment purposes only.  
Compiled under R. & T. Code, Sec. 327.  
Effective Roll Year 2009-2010