

# Oakville to Oak Knoll Restoration Project Update



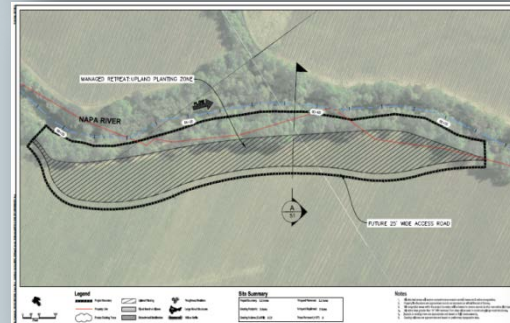
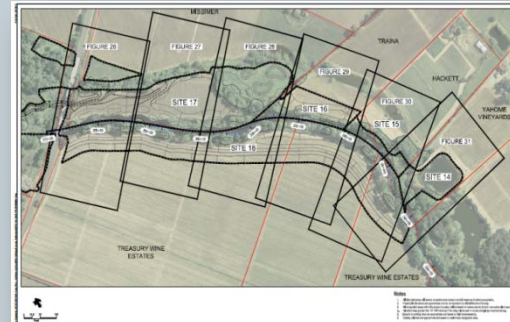
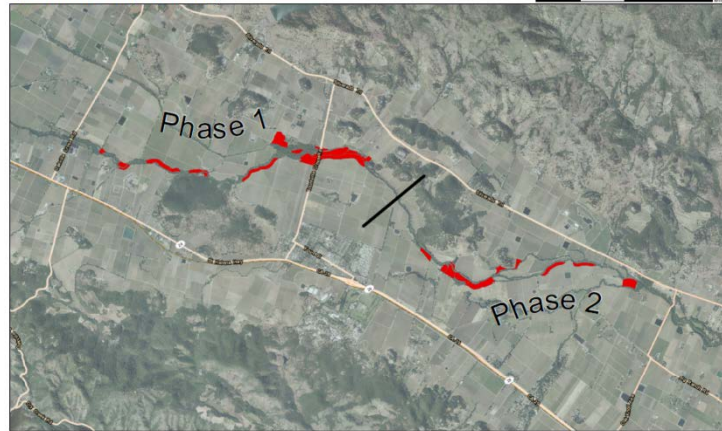
**Napa River Restoration: Oakville to Oak Knoll  
Final Concept Plan**

CALIFORNIA LAND STEWARDSHIP INSTITUTE  
with  
PHILIP WILLIAMS AND ASSOCIATES  
NAPA COUNTY RESOURCE CONSERVATION DISTRICT

FUNDING PROVIDED BY  
STATE WATER RESOURCES CONTROL BOARD  
NAPA COUNTY

Napa River Restoration - Oakville to Oak Knoll Reach

Figure 1 - Phase 1 & 2 Project Overview Map



# Agenda

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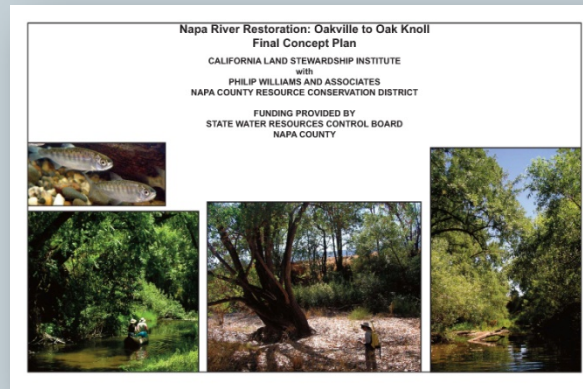
- **Background-Conceptual Plan**
- **Invasive Species Management-Arundo Removal**
- **Technical Studies-River Survey/Geotechnical**
- **Concept Design-Basis of Design**
- **CEQA Analysis**
- **Landowner Coordination**



# Conceptual Plan

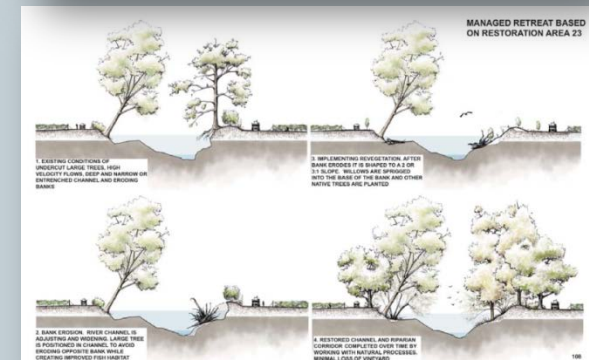
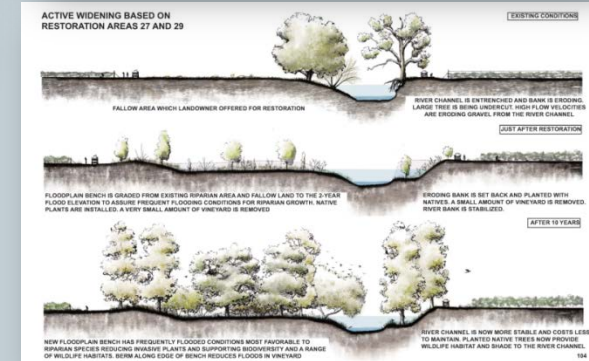
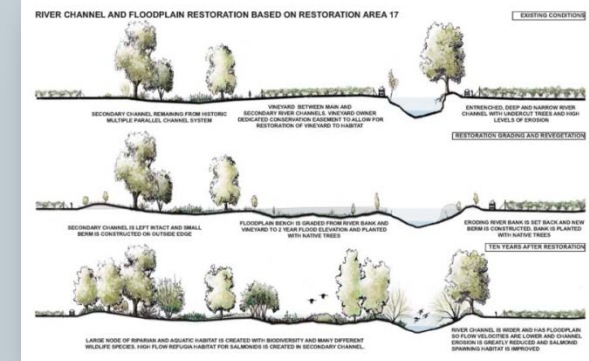
## Oakville to Oak Knoll Reach River Assessment

- Channel Geometry
- Bank Erosion
- Aquatic Habitat
- Riparian Forest
- Invasive Species



## Preliminary Restoration Concepts

- Willing Landowners-Work with landowners to identify suitable areas in which restoration could potentially take place
- Habitat Nodes-Develop potential major and minor restoration nodes where a high intensity and complexity of restoration actions could take place, linked by reaches where less intense or no action would occur



# Arundo Removal




0 Feet 1,450 2,900

**Napa River Restoration Project**  
**Arundo Donax Management**

## Legend

 Arundo patch

 maingis.GIS.Streams

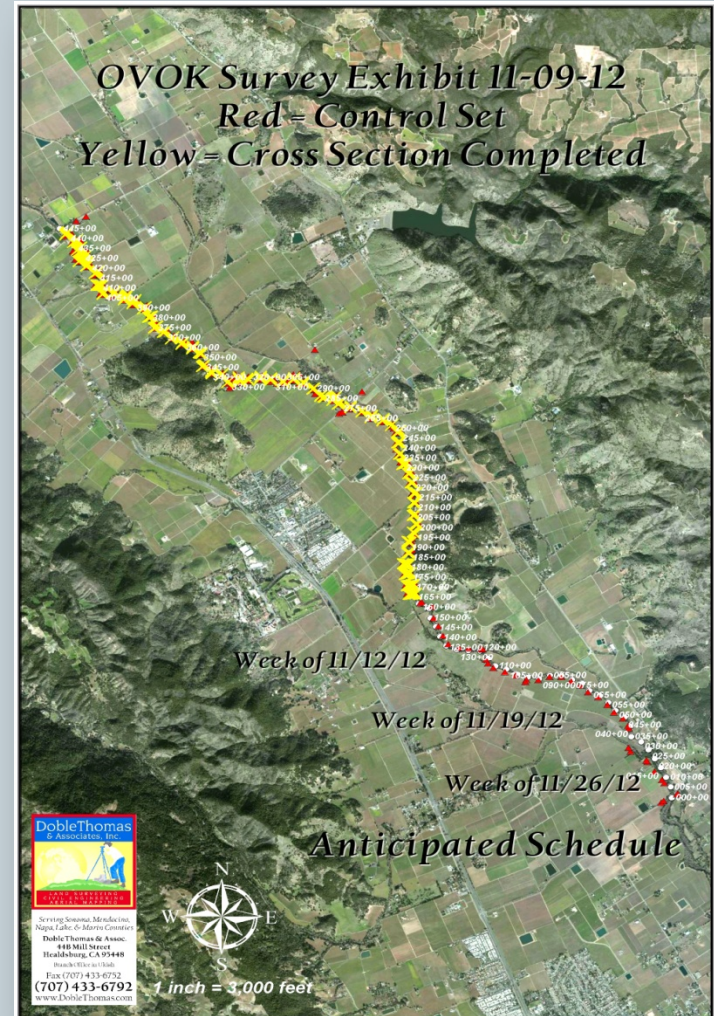
 Refined\_Concepts\_2013



# Technical Investigations

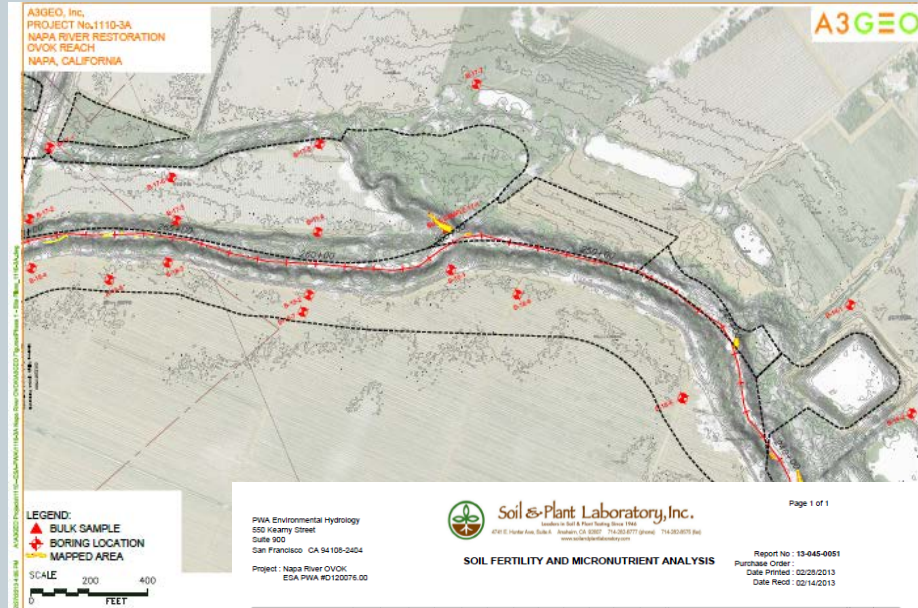
## River Survey

- Survey Control and Stationing: complete
- Cross-sections for Hydraulic Model: complete
  - every 500 feet longitudinally, 200 to 800 feet laterally
- Detailed topographic mapping: pending
- Geomorphic thalweg profile survey: complete
  - characterize channel and bank conditions specific to anticipated restoration areas.
  - tied into survey control



# Geotechnical Study & Soil Analysis

- Geology and Geotechnical Investigations
  - Geologic Mapping
  - Drilling and Sampling Borings
    - 46 borings drilled
  - Geotechnical Laboratory Testing
    - Moisture Content
    - Dry Density
    - Atterberg Limits (Plasticity Index)
    - Particle Size Distribution
    - Slaking
  - Geologic and Geotechnical Characterization
    - Soil Classification/Engineering Properties
    - Geologic Cross Sections
- Soil Sampling and Analyses
  - Soil and Plant Laboratory (Jim West)
  - Site Visits with Napa NRCS Scientists



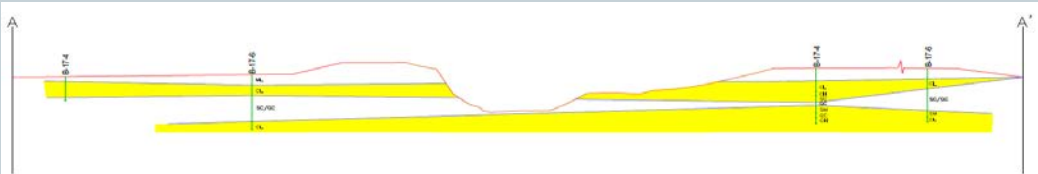
Soil & Plant Laboratory, Inc. Page 1 of 1

PWA Environmental Hydrology  
555 Kearny Street  
Suite 900  
San Francisco CA 94 105-2424  
Project: Napa River CIVIC  
EDA PWA #0120076.00

Soil FERTILITY AND MICRONUTRIENT ANALYSIS Report No: 13-045-0051  
Purchase Order:  
Date Printed: 02/28/2013  
Date Recd: 02/14/2013

Sample Description - Sample ID - Plant Name	Hor/Bed TEC	% Quil. Lime	pH	NH <sub>4</sub> -N ppm	NO <sub>3</sub> -N ppm	PO <sub>4</sub> -P ppm	K ppm	Ca ppm	Mg ppm	Cu ppm	Zn ppm	Mn ppm	Fe ppm	Saturation Extract							
														B ppm	SO <sub>4</sub> meq/L	Na meq/L	Ca meq/L	Cl meq/L	ECa dS/m	OM %	Lab No
Site Bulk #1-1 (River Channel)	20	7.8	1	0	1	86	1633	2999						0.19	0.4	2.9	1.4		0.4	0.7	20002
	202	None	0.1	0	0.8	0.4	4.2							0.4	0.3	(1.21)	1.2				
Site 1 Boring B-1-1 (1-1-11)	30	6.7	0	0	1	128	2185	2999						0.02	0.4	2.1	0.1		0.7	0.4	20003
	302	None	0.2	0	0.8	0.4	4.3							0.1	1.1	(1.21)	2.9				
Site 17 Bulk #17-1 (River Channel)	18	6.9	73	1	4	180	1924	1294						0.04	2.2	3.4	0.4		2.0	0.6	20004
	200	None	2.0	0.2	0.9	0.7	3.7							0.1	0.7	(1.09)	0.4				
Site 17 Boring B-17-4 (16-16-5)	17	7.0	12	10	0	198	1822	810						0.04	1.4	1.1	0.1		2.1	0.6	20005
	187	None	0.7	0.2	0.9	0.7	3.1							0.1	0.9	(0.76)	1.8				
Site 17 Boring B-17-4 (20-5-21)	24	7.1	6	6	3	186	1997	1163						0.02	1.3	1.8	0.1		0.4	0.4	20006
	207	None	0.2	0.1	0.4	0.7	2.6							0.1	0.4	(1.13)	1.1				
Site 19 Bulk 19-2 (River Channel)	26	6.8	47	8	1	144	1638	1916						0.06	1.3	1.3	0.8				
	216	None																			
Site 19 Boring B-19-P-2 (17-17-5)	22	7.1																			
	116	None																			
Site 22 Bulk #22-2 (River Channel)	22	7.6																			
	281	None																			
Site 22 Boring B-22-1 (20-5-21)	31	7.0																			
	279	None																			

Sufficiency Factor (1=Deficient for average crop)  
 1=Average field moisture capacity, Major elements,  
 Zinc, Cu, Manganese & Boron by CDTA test  
 \*LOW, \*SUFFICIENT, \*HIGH



# Concept Design

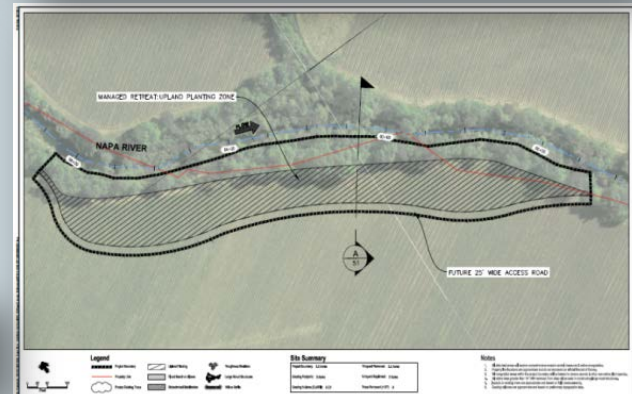
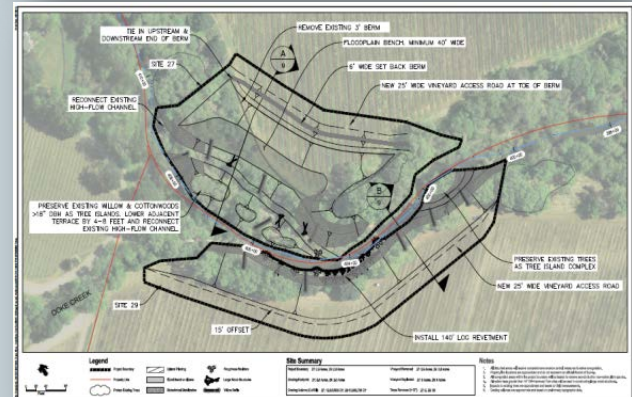
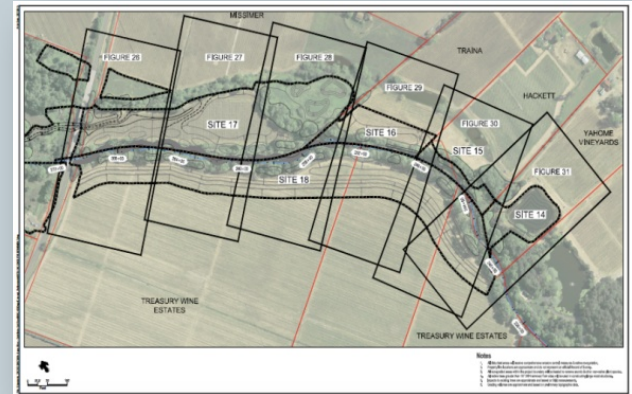
**Basis of Design** – restore a living river in a working environment

- Reverse habitat degradation
  - Restore a mix of aquatic, riparian and upland habitats for a range of species
  - Help address the limiting factors report for salmonid decline
- Reduce bank erosion
  - Reduce property damage
  - Create less steep banks to support a regenerating riparian corridor
  - Help meet the Napa River TMDL for fine sediment reduction



# Design Refinement

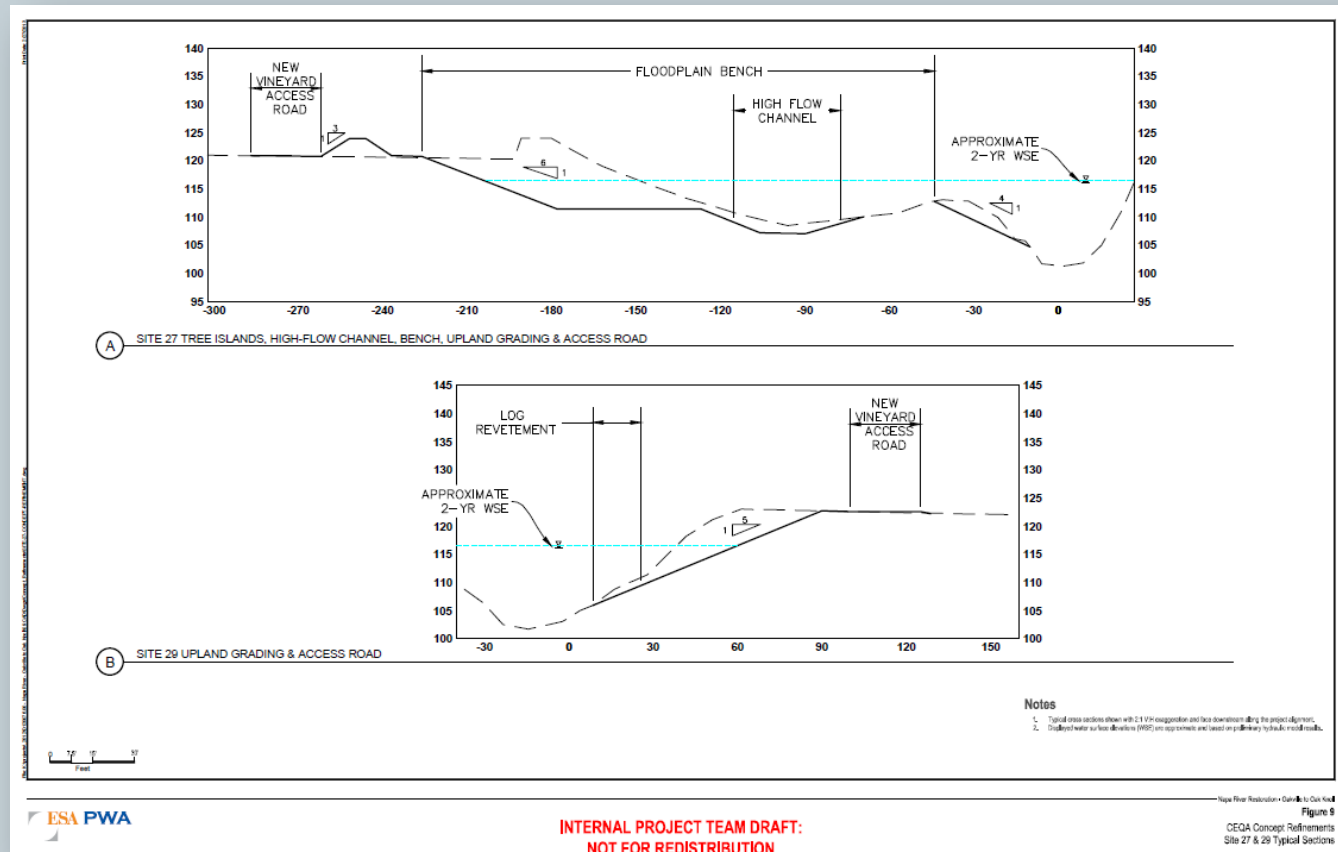
- Field assessment to look in more detail at potential project sites from concept
- Multidisciplinary - fisheries, geomorphology, vegetation, engineering, geology
- Develop more detailed site footprints and construction cost estimates
- Supports environmental documentation process
  - identify potential project footprints and impacts
  - opportunity to minimize impacts through design refinement (e.g. locate and avoid key mature trees)





# Design Elements

- Active Restoration
  - Vineyard and berm setback (80 to 130 feet)
    - layback oversteepened banks and revegetate
    - new vineyard access roads
  - Large wood structures for geomorphic function, bank stability and refugia



# CEQA Analysis

- Cultural Resources Investigation
  - Literature and Records Review: complete
- Biological Resources Assessment: underway
- Refined Conceptual Design Review: pending
  - Establish field survey requirements
  - CEQA: impact minimization and avoidance measures

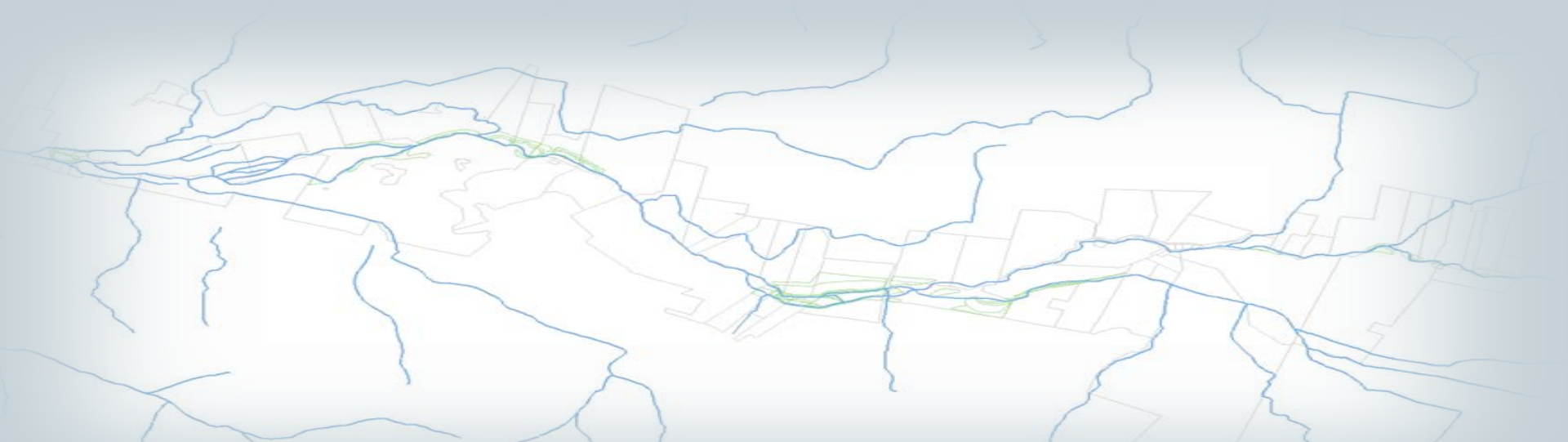
Parcel Number	Resources within Parcel		Resource Description
1	None	No	None noted
2	None	Yes (Faherty 2004), Negative	CA-NAP-2007, a prehistoric lithic scatter, was reported to be at confluence of Dry Creek and Napa River at confluence of Hopper Creek at Dry Creek. Site not relocated during survey.
3	None	Part of parcel (Faherty 2004), Negative	None noted
5	None	No	None Noted
7	None	No	None Noted
8	None	No	None noted
9	None	No	None noted
10	None	No	None noted
11	None	No	None noted
12	CA-NAP-0006 P-28-000019	May have included part of Still (1962) survey area. Not clear from report.	First recorded in 1923 (Stephens 1923). Was not relocated during 1962 survey of area (Still (1962)). Very little descriptive information. Site record notes, arrowpoint and pedes reported from the site.
13	None	No	Close to reported location of CA-NAP-6.
14	None	No	None noted
15	None	No	None noted
16	None	No	None noted
17	None	No	None noted
18	None	No	None noted
19	CA-NAP-0451 P-28-000048	Unclear if systematically surveyed	Prehistoric low mound with associated obsidian

Parcel Number	Resources within Parcel		Resource Description
	CA-NAP-0412 P-28-000348	Unclear if systematically surveyed	Prehistoric low mound with sparse lithic scatter of obsidian flakes (Garry N.D.)
	CA-NAP-0413 P-28-000349	Unclear if systematically surveyed	Prehistoric sparse lithic scatter of obsidian flakes (Garry 1976).
20	None	No	None noted
21N	None	No	None noted
21S	None	No	None noted
22	CA-NAP-0395 P-28-000288	Stream bank survey by Rich et al 2004, partial. Possibly surveyed by Beed (2003).	Prehistoric habitation site with obsidian flake fragments on the ground surface (Rich and Diaz 1974). The original site location was noted incorrectly on file; the site record and location were updated in 1962 (Baker 1962).
23	CA-NAP-0304 P-28-000018	Stream bank survey by Rich et al 2004, part of Still (1962) study area.	Prehistoric sparse lithic scatter of obsidian debitage (Rich 2004), originally recorded as circular pit, remnant of a semi-subterranean "stone house" (Stephens 1923). Site is located adjacent to Parcel 23.
26A	P-28-001404	Stream survey by Burns et al 2005.	Prehistoric rocks, two obsidian flake fragments and flakes. Non-cultural obsidian cobbles noted (Rich 2005).
26B	None	Stream survey by Burns et al 2005.	None noted
26C	None	Stream survey by Burns et al 2005.	None noted
26D	None	No	None noted
26E	None	No	None noted
27	None	Unclear from report whether parcel was surveyed (Hyatt 1995).	Noted flake, historic debris scatter, nothing recorded as a resource.
28	None	No	None noted
29	None	Unclear from report whether parcel	Noted flake, historic debris scatter nothing

# Landowner Coordination

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- **73 Parcels/34 landowners**
- **Landowner Meetings**
  - **Landowner Advisory Committee (LAC)**
- **Special Benefit Zone**
  - **Long-term Maintenance and Monitoring**
  - **Maintenance Permits**



# Next Steps

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- **Grant Applications (NOAA, CDFW FRGP, EPA)**
- **Landowner Meetings-Design Review**
- **CEQA Coordination and Input**
- **Habitat Assessments (CDFW EP)**
- **Agency Coordination including plan reviews and site visits**

