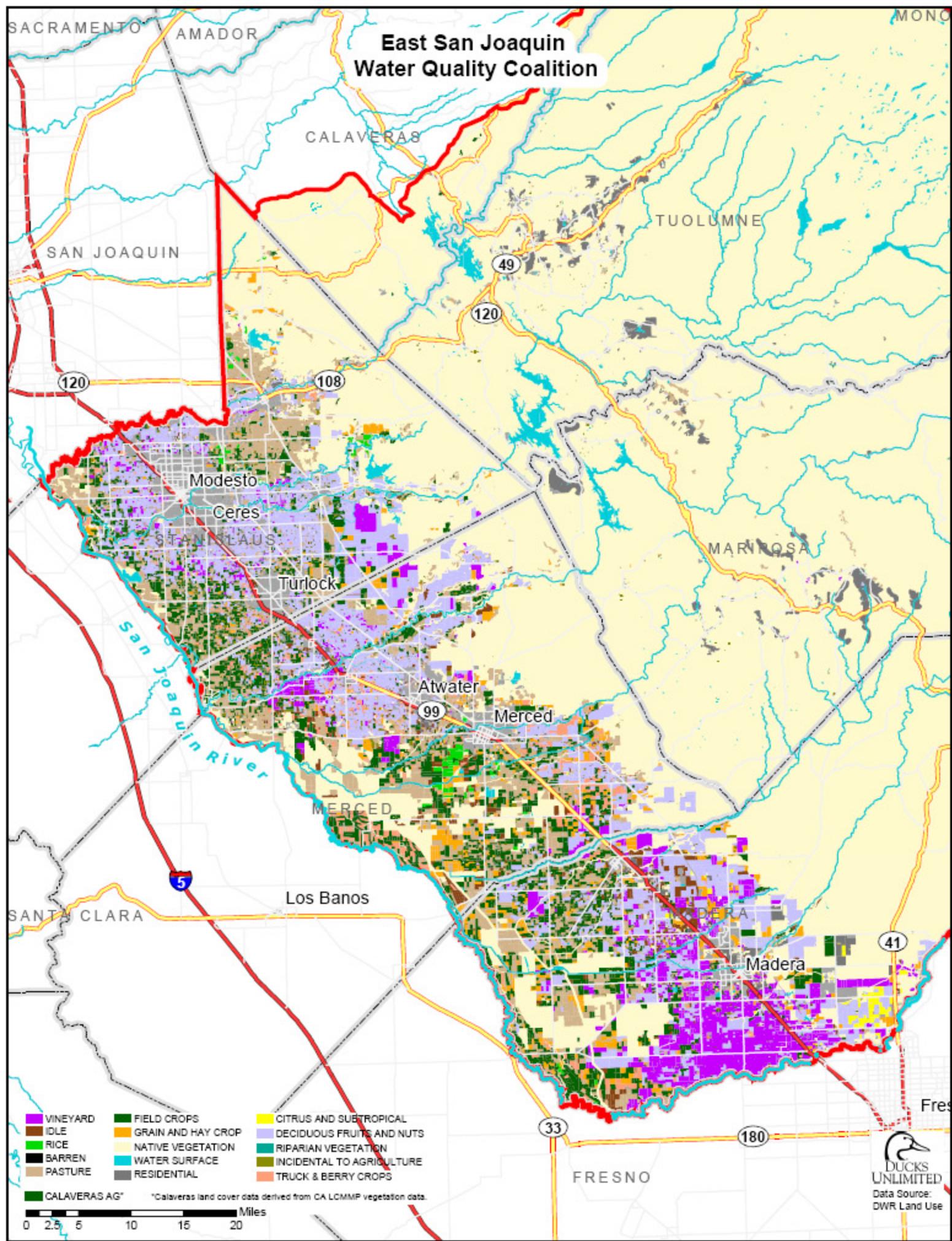


**EAST SAN JOAQUIN  
WATER QUALITY COALITION  
SUMMARY ANNUAL  
REPORT 2005**

## East San Joaquin Water Quality Coalition



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# **East San Joaquin Water Quality Coalition**

## **Summary Annual Report 2004-05**

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## ***Introduction***

The East San Joaquin Water Quality Coalition (Coalition) was formed in compliance with the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Land. In November 2005, the Coalition was granted non-profit status as a 501 (c)(5) organization by the Internal Revenue Service.

## ***Coalition Goals***

- To operate an efficient, economical program that enables members to comply with the Irrigated Lands Waiver.
- File required reports with the Central Valley Regional Water Quality Control Board to maintain conditional waiver coverage for Coalition members.
- Implement an economical and scientifically valid water monitoring program for area rivers and agricultural drains (as required by the waiver).
- Spread costs equitably among owners/operators who are Coalition members.
- Communicate to landowners where water monitoring indicates problems and work to solve those problems.

## ***Coalition Boundaries***

The Coalition includes Madera County and portions of Stanislaus, Merced, Tuolumne, Mariposa and Calaveras counties. Coalition borders are the crest of the Sierra Nevada on the east and the San Joaquin River on the west and south, and the Stanislaus River on the north. There are four major tributaries in the watershed: Chowchilla River, Merced River, Tuolumne River and Stanislaus River.

## ***Board of Directors***

A Board of Directors was formed to manage Coalition affairs. The Board Chairman is Parry Klassen, a fruit grower and also Chairman of the Board and Executive Director of the Coalition for Urban/Rural Environmental Stewardship (CURES).

Board members include:

- Julia Berry, Madera County Farm Bureau
- Richard Gemperle, Gemperle Enterprises
- Kent Johnson, Ag Production Co.
- Bill McKinney, almond grower
- Bruce Pace, A.L. Gilbert Co.
- Diana Westmoreland Pedrozo, Merced County Farm Bureau
- Alan Reynolds, Gallo Vineyards, Inc.
- Wayne Zipser, Stanislaus Co. Farm Bureau

## ***Ex-officio***

- Dennis Gudgel, Stanislaus County Agricultural Commissioner
- Michael McElhiney, Natural Resources Conservation Service, Stanislaus
- David Robinson, Merced County Agricultural Commissioner
- Bob Rolan, Madera County Agricultural Commissioner

## ***Coalition Membership***

As of November 1, 2005, Coalition membership stood at 1865 landowner/operators and 507,038 irrigated acres.

## **Water Monitoring Program Overview**

### **Monitoring Program Objectives**

- Characterize discharge from irrigated agriculture in the Coalition region
- Identify locations where water quality objectives are violated
- Identify potential source(s) of the exceedances
- Promote to landowners the implementation of management practices to eliminate water quality problems.

### **Monitoring Program Manager**

- Michael Johnson, Davis, CA.

### **Analytical Laboratories**

- Pacific Ecorisk Inc., Martinez, CA (water and sediment toxicity testing)
- APPL Inc., Fresno, CA (pesticide analysis)
- BSK Laboratories Inc., Fresno, CA (color, turbidity, Total Dissolved Solids, Total Organic Carbon, and E. coli. testing)

### **Coalition Sponsored Monitoring Sites**

1. Bear Creek @ Kirby Road
2. Cottonwood Creek @ Road 20
3. Duck Slough @ Pioneer Road
4. Highline Canal @ Highway 99
5. Hilmar Drain @ Central Avenue
6. Jones Drain @ Oakdale Road
7. Lone Willow Slough @ Madera Avenue
8. Prairie Flower Drain @ Crows Landing Road
9. Ash Slough @ Avenue 21
10. Duck Slough @ Gurr Road
11. Highline Canal @ Lombardy Avenue
12. Merced River @ Santa Fe Avenue
13. Dry Creek @ Willsford Road

### **Monitoring Site Selection Criteria**

- Characterizes agricultural drainage of the area
- Drains irrigated lands
- No urban influence on flows

### **Sampling Frequency**

- Monthly during irrigation season (May through October)
- Twice during winter rainy season (January, February or March)

### **Monitoring Results**

See the following pages for maps showing where sampling sites are located. Shaded areas indicate lands that likely drain into the sampled waterway during heavy storm events. Maps with no corresponding data page are sites where no water quality standards were exceeded or pesticides were detected.

## ***Fees Assessed by the State Water Resources Control Board***

In June 2005, the State Water Resources Control Board adopted a fee structure to cover the state's cost for implementing the Irrigated Lands Waiver program. The state established the following three-tiered annual fee structure for landowners seeking by waivers:

- Not member of coalition = \$100 per farm + 30 cents per irrigated acre
- Member of water coalition with fee collected by coalition = \$100 per coalition + 12 cents per irrigated acre
- Member of water coalition but coalition does not collect fee = \$100 per landowner + 20 cents per irrigated acre

The ESJWQC Board of Directors voted in June 2005 to pay the fees for members from membership dues already collected. These funds were initially set aside as reserves to cover additional costs of analysis when toxicity is detected in a sample. In the future, the 12 cent per acre fee will be included as part of the membership dues. By paying the state fee for members, the Coalition collectively saved member growers more than \$225,000.

## ***Member Outreach and Best Management Practices***

The Coalition is beginning its efforts to work with landowners in watersheds where monitoring indicates problems. Central to this effort will be promoting Best Management Practices (BMPs) with the best potential for addressing the problem. When a problem is identified, the Coalition will:

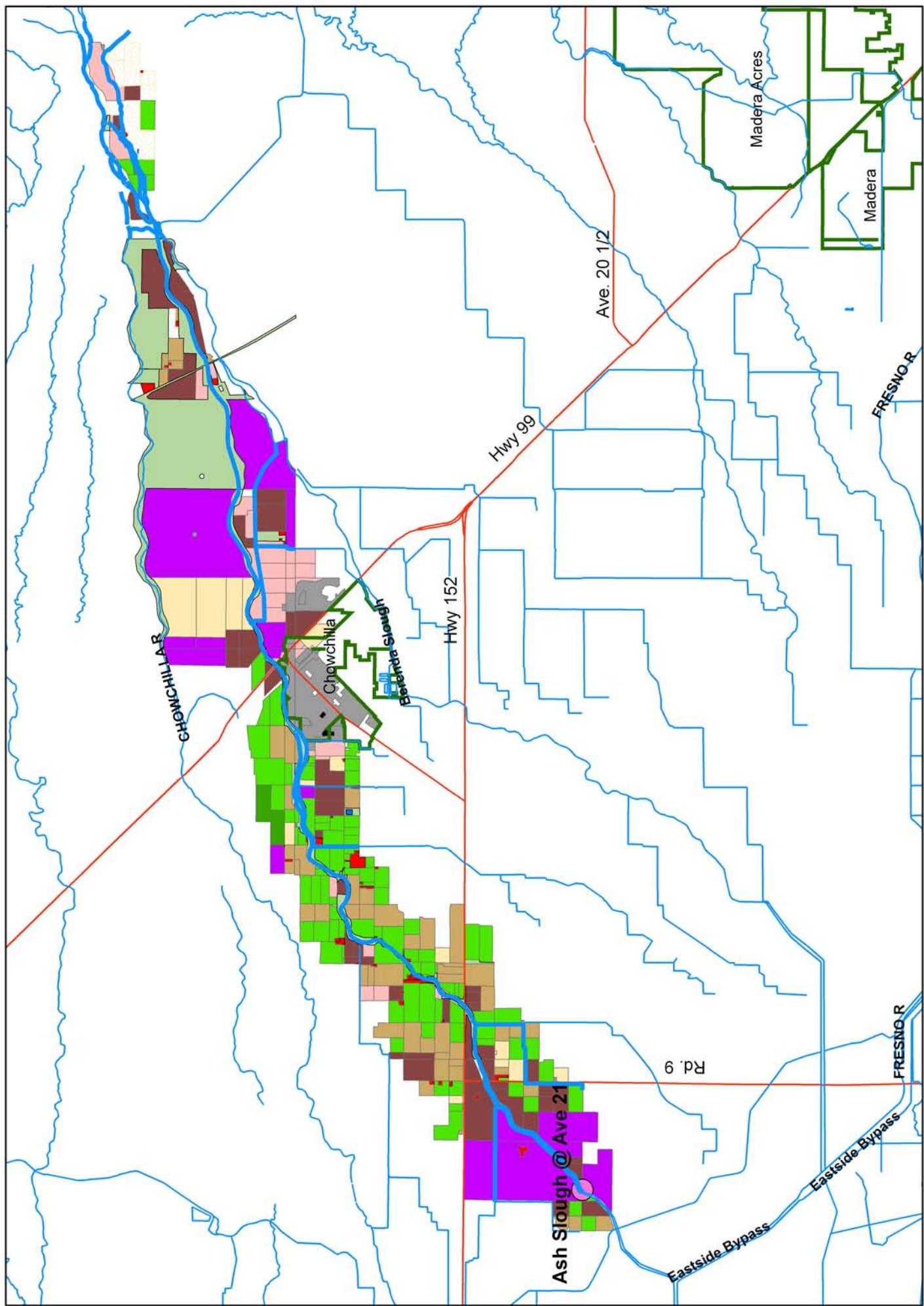
- Contact landowners upstream of the monitoring site, inform them of the constituent(s) identified.
- Distribute BMP information through mailings, individual visits and local grower and crop advisor meetings.
- Give educational presentations on monitoring results and potential BMPs at commodity and farm group meetings in the coalition region.

Outreach meeting dates and locations will be posted on the Coalition website [www.esjcoalition.org](http://www.esjcoalition.org).

**STATEMENT OF FINANCIAL ACTIVITIES**  
**EAST SAN JOAQUIN WATER QUALITY COALITION**  
 January – October, 2005

Income	(\$ Thousands)	Description
<b>Dues &amp; Interest</b>	551	Membership dues and interest on bank accounts.
<b>Expenses</b>		
Organizational	55	Executive director, legal and accounting costs.
Program	296	Program manager, site monitoring plan development, communications with Coalition members and reports to RWQCB. Includes \$74,000 for expected invoices for 2005 site monitoring.
Travel and Meeting	3	Expenses for executive director and program manager, employees of the Coalition.
Website Costs	1	ESJWQC website maintenance.
Total	355	
<b>Unexpended Funds</b>		
2005	197	
Retained	82	Funds carried in from previous year.
Total	279	Total funds in bank accounts to cover expenses incurred between November and receipt of dues for 2006.

Ash Slough @ Ave. 21



East San Joaquin Water Quality Coalition Exceedances

**Ash Slough at Avenue 21**

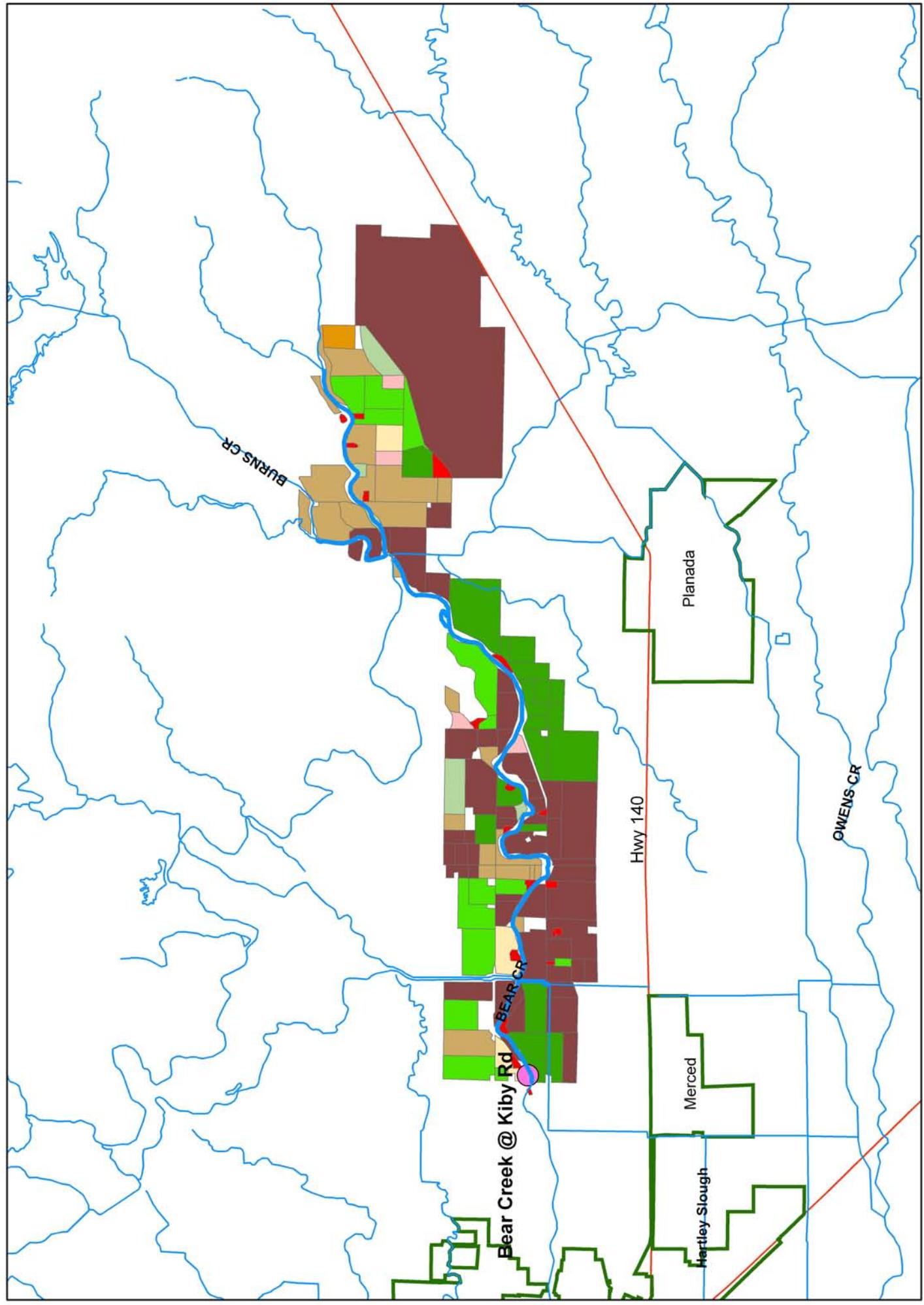
E. Coli Analysis.

Site Name	Date Sampled	Analyte	Sample Type	Results	Units	WQO
Ash Slough @ Ave. 21	7/12/05	E. Coli	E	500	MPN/100 ml	200

Water Chemistry Analysis Results.

Site Name	Date Sampled	Analyte	Sample Type	Results	WQO	Units	MDL	RL
Ash Slough @ Ave. 21	7/12/05	Chlorpyrifos	E	0.018	0.014	µg/L	0.00259	0.05
	8/16/05	Chlorpyrifos	E	0.046	0.014	µg/L	0.00259	0.05

Bear Creek @ Kiby Rd.



**East San Joaquin Water Quality Coalition Exceedances**  
**Bear Creek at Kiby Road**

E. Coli Analysis.

Site Name	Date Sampled	Analyte	Sample Type	Results	Units	WQO
Bear Creek at Kiby	3/21/05	E. Coli	E	>1600	MPN 100/ml	200
	5/10/05	E. Coli	E	280	MPN 100/ml	200

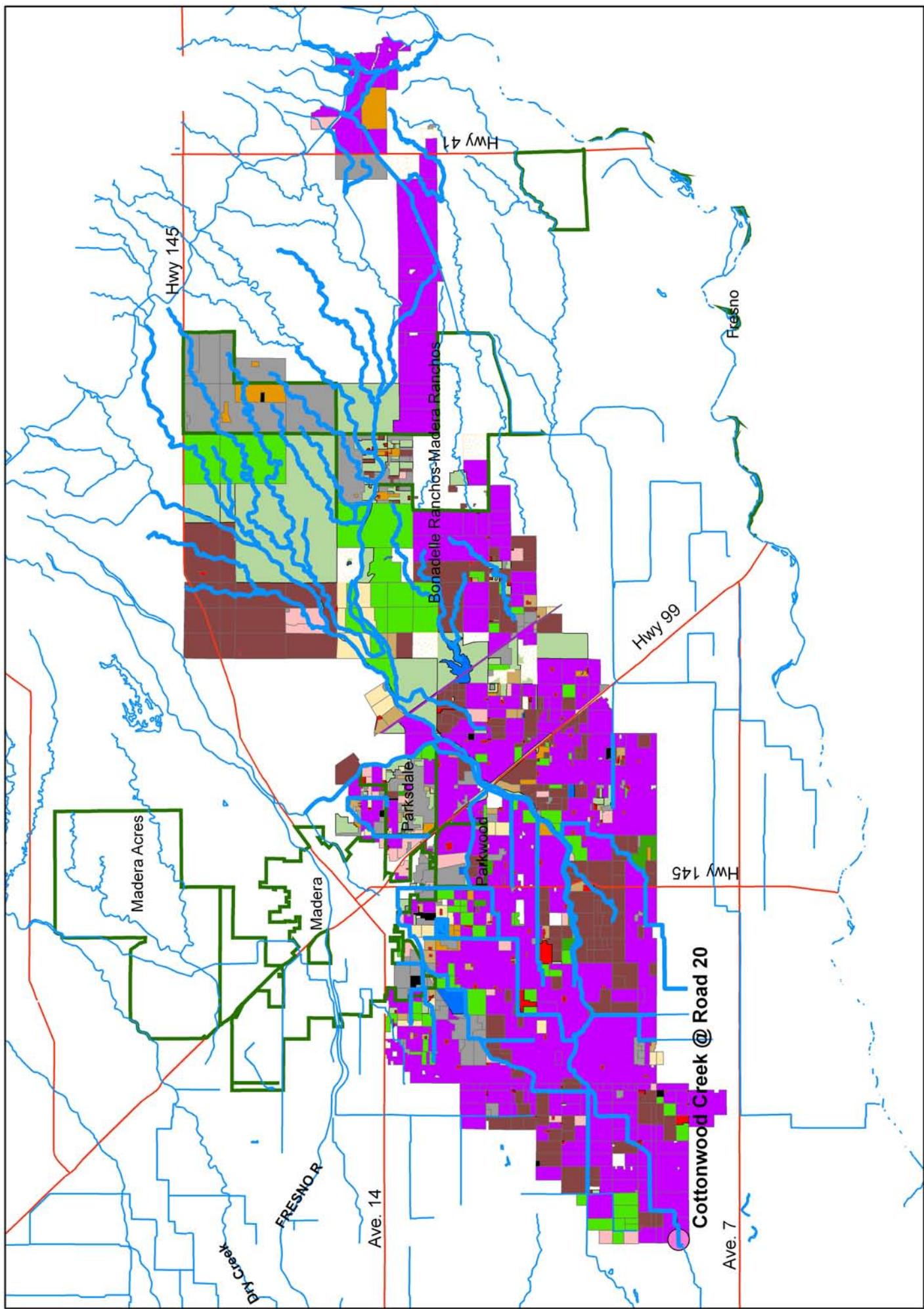
General Physical Analysis results (field data only)

Site Name	Date Sampled	Sample Type	Oxygen, Dissolved WQO 5.0 mg/L	pH	Specific Conductivity	Total Dissolved Solids
Bear Creek at Kiby	3/21/05	E	4.4			

Results of Toxicity Evaluations.

Site Name	Sample Date	Sample Type	Matrix Name	Tox Species Name	% survival	Tox Test Comments
Bear Creek @ Kiby Rd				Ceriodaphnia dubia	5	Follow up TIE found no significant reduction in survival in the baseline, indicating that the toxicity that had been observed in the initial testing of this sample was no longer present.
	5/10/05	E	samplewater			

Cottonwood Creek @ Rd. 20



**East San Joaquin Water Quality Coalition Exceedances  
Cottonwood Creek at Road 20**

E. Coli Analysis.

Site Name	Date Sampled	Analyze	Sample Type	Result	Units	WQO
Cottonwood Creek @ rd. 20	2/16/05	E. coli	E	>1600	MPN/100 ml	200
	3/21/05	E. coli	E	1600	MPN/100 ml	200
	5/10/05	E. coli	E	540	MPN/100 ml	200
	8/16/05	E. coli	E	300	MPN/100 ml	200

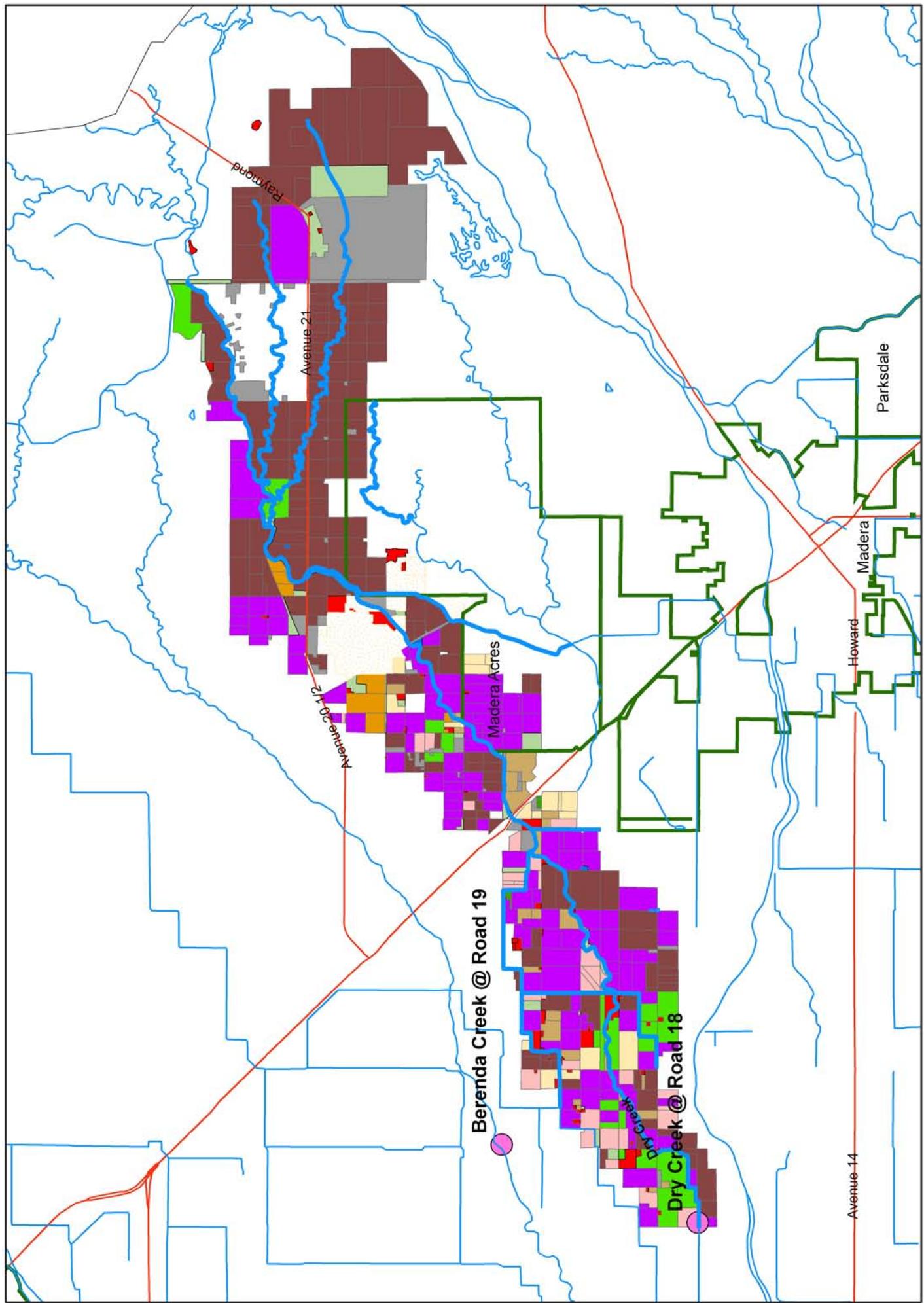
Water Chemistry Analysis Results.

Site Name	Sample Date	Analyze Name	Group	Sample Type	Result	WQO	Unit
Cottonwood Creek @ rd. 20	7/12/05	Chlorpyrifos	Organophosphate	E	0.012	0.014	µg/L
					0.00259	0.05	RL

Results of Toxicity Evaluations.

Site Name	Sample Date	Sample Type	Matrix Name	Tox Species Name	% survival	Tox Test Comments
Cottonwood Creek at Road 20	5/10/05	E	sediment	Hyalella azteca	80.9	
	5/10/05	FD	sediment	Hyalella azteca	84.2	

Dry Creek @ Rd. 18



East San Joaquin Water Quality Coalition Exeedances

**Dry Creek at Road 18**

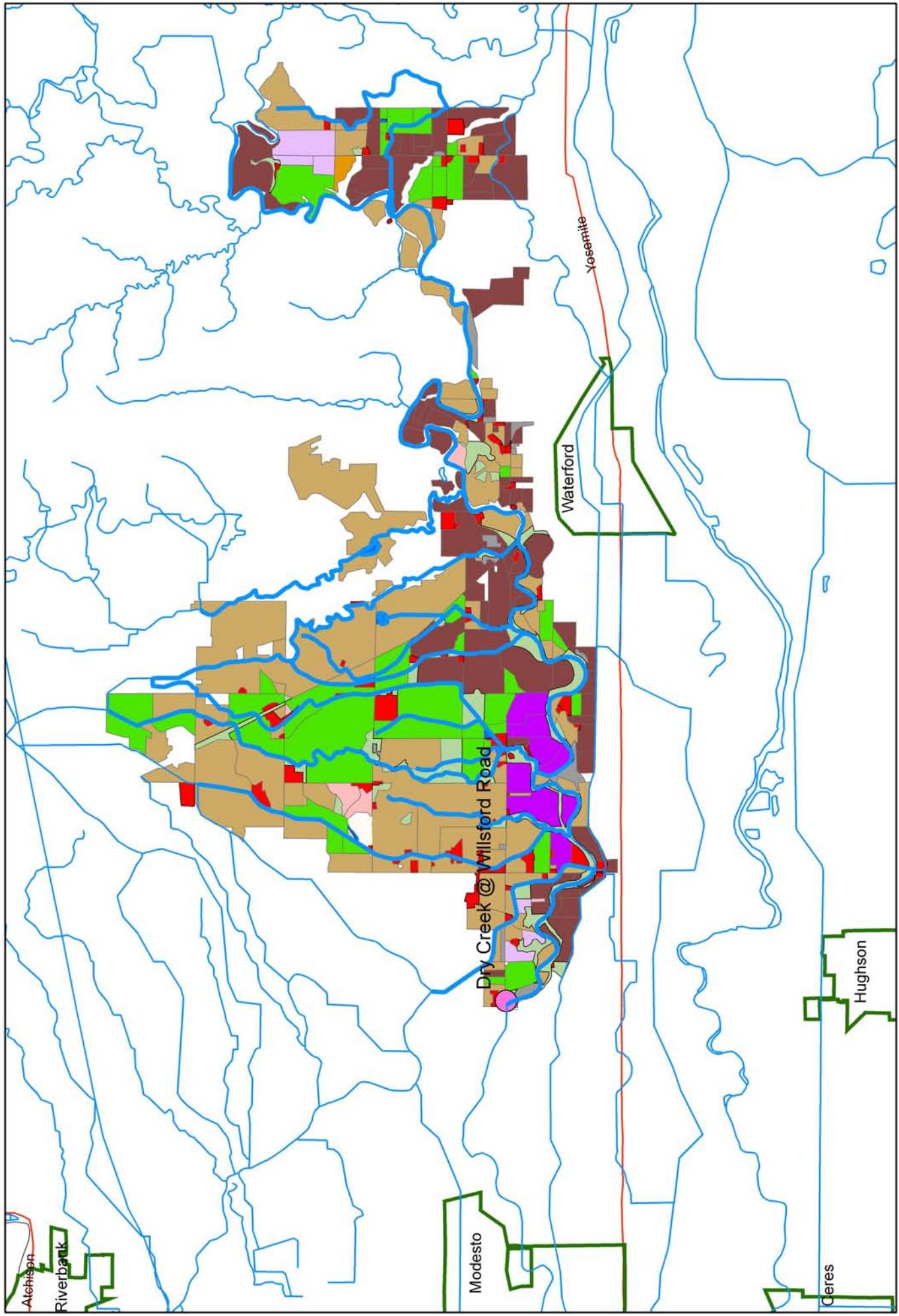
E. Coli Analysis.

Site Name	Date Sampled	Analyte	Sample Type	Result	Units	WQO
Dry Creek @ Rd 18	9/20/05	E. coli	E	500	MPN/100 ml	200

General Physical Analysis results (field data only)

Site Name	Sample Date	Sample Type	Oxygen, Dissolved WQO 5.0 mg/L > 5.0 mg/L	pH WQO 6.5-8.5 -log [H+]	Specific Conductivity WQO < 450 ( $\mu$ mhos/cm)	Total Dissolved Solids WQO < 450 mg/L
Dry Creek @ Rd 18	8/16/05	E		6.48		

Dry Creek @ Wellsord Rd.



**East San Joaquin Water Quality Coalition Exceedances  
Dry Creek at Wellsford Road**

**E. Coli Analysis.**

Site Name	Date Sampled	Analyte	Sample Type	Result	Units	WQO
Dry Creek @ Willsford	3/22/05	E. coli	E	900	MPN/100 ml	200
	6/15/05	E. coli	E	240	MPN/100 ml	200
	7/13/05	E. coli	E	220	MPN/100 ml	200
	8/17/05	E. coli	E	900	MPN/100 ml	200
	9/21/05	E. coli	E	500	MPN/100 ml	200

**General Physical Analysis results (field data only)**

Site Name	Sample Date	Sample Type	Oxygen, Dissolved	pH	Specific Conductivity	Total Dissolved Solids
			WQO 5.0 mg/L	WQO	WQO	WQO
			> 5.0 mg/L	6.5-8.5 -log [H+]	< 450 ( $\mu$ mhos/cm)	< 450 mg/L
Dry Creek @ Willsford Rd.	3/22/05	E		8.96		
	5/11/05	E		6.26		
	8/17/05	E		9.18		
	9/29/04	E			701	540

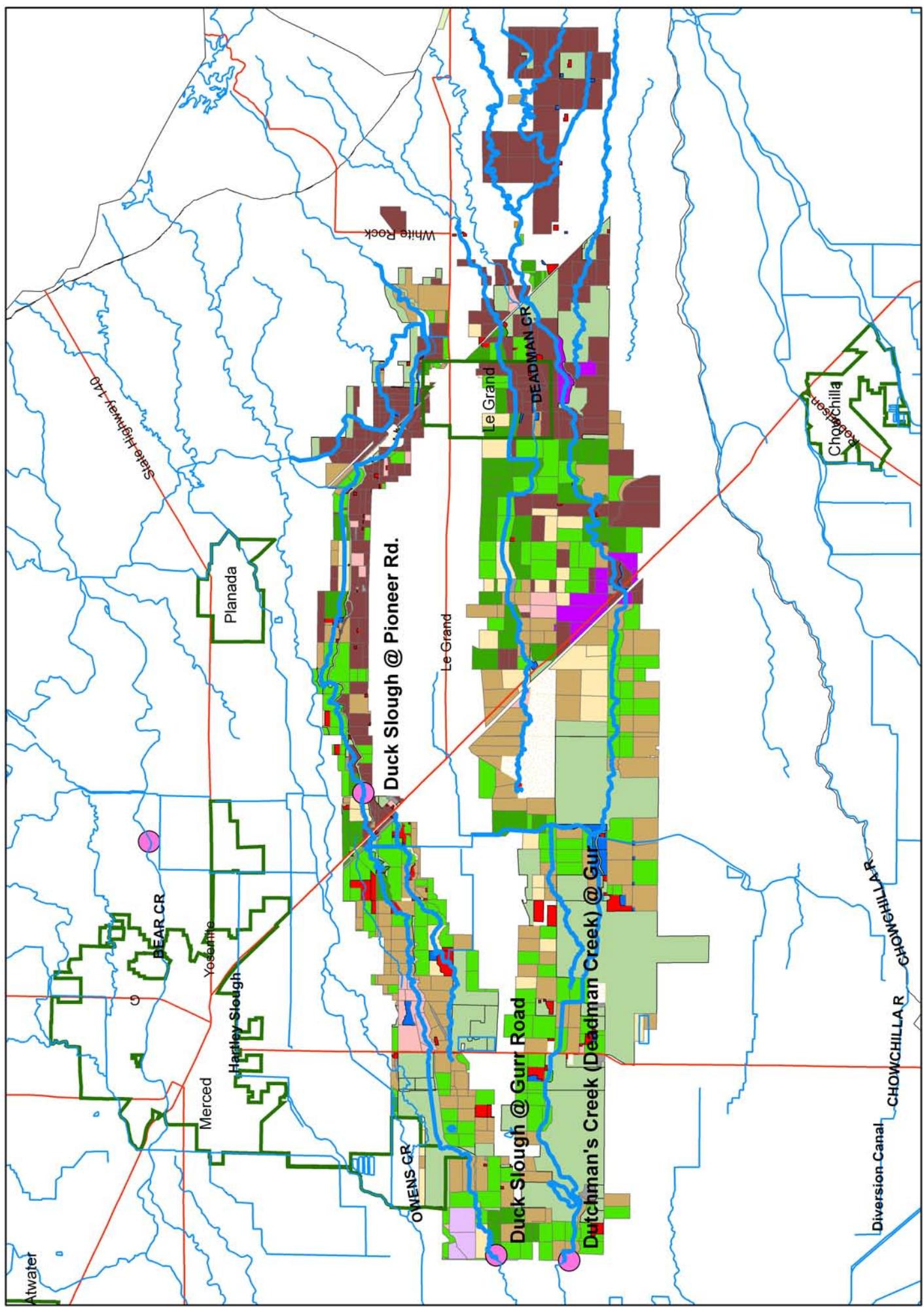
**Water Chemistry Analysis Results.**

Site Name	Sample Date	Analyte Name	Group	Sample Type	Result	WQO
		Diazinon	Organophosphate	E	0.011	0.05
		Diazinon	Organophosphate	FD	0.013	0.05
				Unit	MDL	RL
				$\mu$ g/L	0.00353	0.05

**Results of Toxicity Evaluations.**

Site Name	Sample Date	Sample Type	Matrix Name	Tox Species Name	% survival	Tox Test Comments
Dry Creek @ Willsford Rd.	2/15/05	E	Samplewater	Ceriodaphnia dubia	80	
	5/11/05	E	Sediment	Hyalella azteca	87.6	

Duck Slough @ Gurr Rd., Duck Slough @ Pioneer Rd., and Dutchman's Creek @ Gurr Rd.



East San Joaquin Water Quality Coalition Exceedances

**Duck Slough at Pioneer Road, Duck Slough at Gurr Road and Dutchman's Creek at Gurr Road**

E.Coli Analysis.

Site Name	Date Sampled	Analyte	Sample Type	Result	Units	WQO
Dutchman's Creek @ Gurr	7/31/04	E. coli	E	1600	MPN/100 ml	200
	8/31/04	E. coli	E	1600	MPN/100 ml	200
	9/29/04	E. coli	E	500	MPN/100 ml	200
Duck Sl @ Gurr Rd	7/31/04	E. coli	E	350	MPN/100 ml	200
	2/16/05	E. coli	E	>1600	MPN/100 ml	200
	3/21/05	E. coli	E	>1600	MPN/100 ml	200
	3/21/05	E. coli	E	>1600	MPN/100 ml	200
	5/10/05	E. coli	E	>1600	MPN/100 ml	200
	6/14/05	E. coli	E	300	MPN/100 ml	200
	7/12/05	E. coli	E	300	MPN/100 ml	200
	8/16/05	E. coli	E	240	MPN/100 ml	200
Duck Slough @ Pioneer	5/10/05	E. coli	E	>1600	MPN/100 ml	200

General Physical Analysis results (field data only)

Site Name	Sample Date	Sample Type	Oxygen, Dissolved WQO 5.0 mg/L >5.0 mg/l	pH WQO 6.5-8.5 -log [H+]	Specific Conductivity WQO < 450 (µmhos/cm)	Total Dissolved Solids WQO < 450 mg/L
Dutchman Creek @ Gurr Rd.	9/29/04	E			462	
Duck Slough @ Gurr Rd.	8/31/04	E			462	
	9/29/04	E			701	540

Water Chemistry Analysis Results.

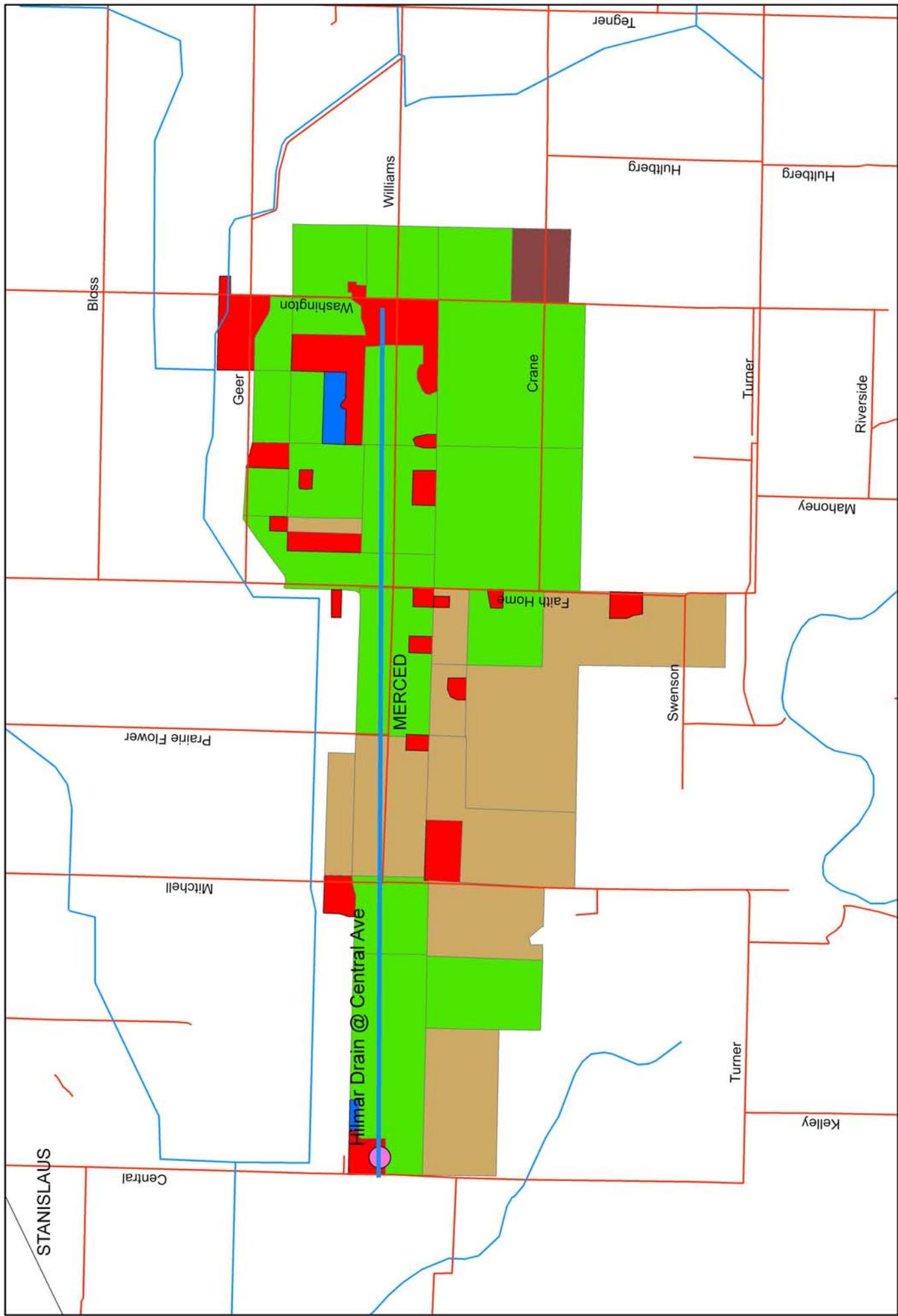
Site Name	Sample Date	Analyte Name	Group	Sample Type	Result	WQO	Unit
Duck Slough @ Gurr Rd	7/31/04	Chlorpyrifos	Organophosphate	FD	0.045	0.014	µg/L
	7/31/04	Trifluralin	Organophosphate	E	0.045		µg/L
	7/31/04	Trifluralin	Organophosphate	FD	0.34		µg/L
	9/29/04	Esfenvalerate/Fenvalerate	Pyrethroid	E	0.05		µg/L
Duck Slough @ Pioneer Rd.	7/12/05	Chlorpyrifos	Organophosphate	E	0.026	0.014	µg/L
				MDL		0.0254	0.05
				RL		0.036	0.1
						0.036	0.1
						0.002	0.02
						0.00259	0.05

Toxicity Evaluations.

Site Name	Sample Date	Sample Type	Matrix Name	Tox Species	% survival
Duck Dlough @ Pioneer Rd.	7/12/05	E	samplewater	Selenastrum C.	76.7
Duck Slough @ Gurr Rd.	8/31/04	E	sediment	Hyaelia azteca	33.8
	9/29/04	E	samplewater	Selenastrum C.	73.5
	5/10/05	E	sediment	Hyaelia azteca	84.8
	7/12/05	E	sediment	Hyaelia azteca	58.8
	9/21/05	E		Hyaelia azteca	3.8

E: Environmental FD: Field Duplicate C: Capricornutum

Hilmar Drain @ Central Ave.



**East San Joaquin Water Quality Coalition Exceedances**  
**Hilmar Drain at Central Avenue**

**E. Coli Analysis.**

Site Name	Date Sampled	Analyte	Sample Type	Result	Units	WQO
Hilmar Dr @ Central	2/15/05	E. coli	E	240	MPN/100 ml	200
	3/22/05	E. coli	E	900	MPN/100 ml	200
	5/11/05	E. coli	E	1600	MPN/100 ml	200
	6/15/05	E. coli	E	500	MPN/100 ml	200
	7/13/05	E. coli	E	1600	MPN/100 ml	200
	8/16/05	E. coli	E	>1600	MPN/100 ml	200
	9/21/05	E. coli	E	430	MPN/100 ml	200
	8/16/05	E. coli	FD	>1600	MPN/100 ml	200

**General Physical Analysis results (field data only)**

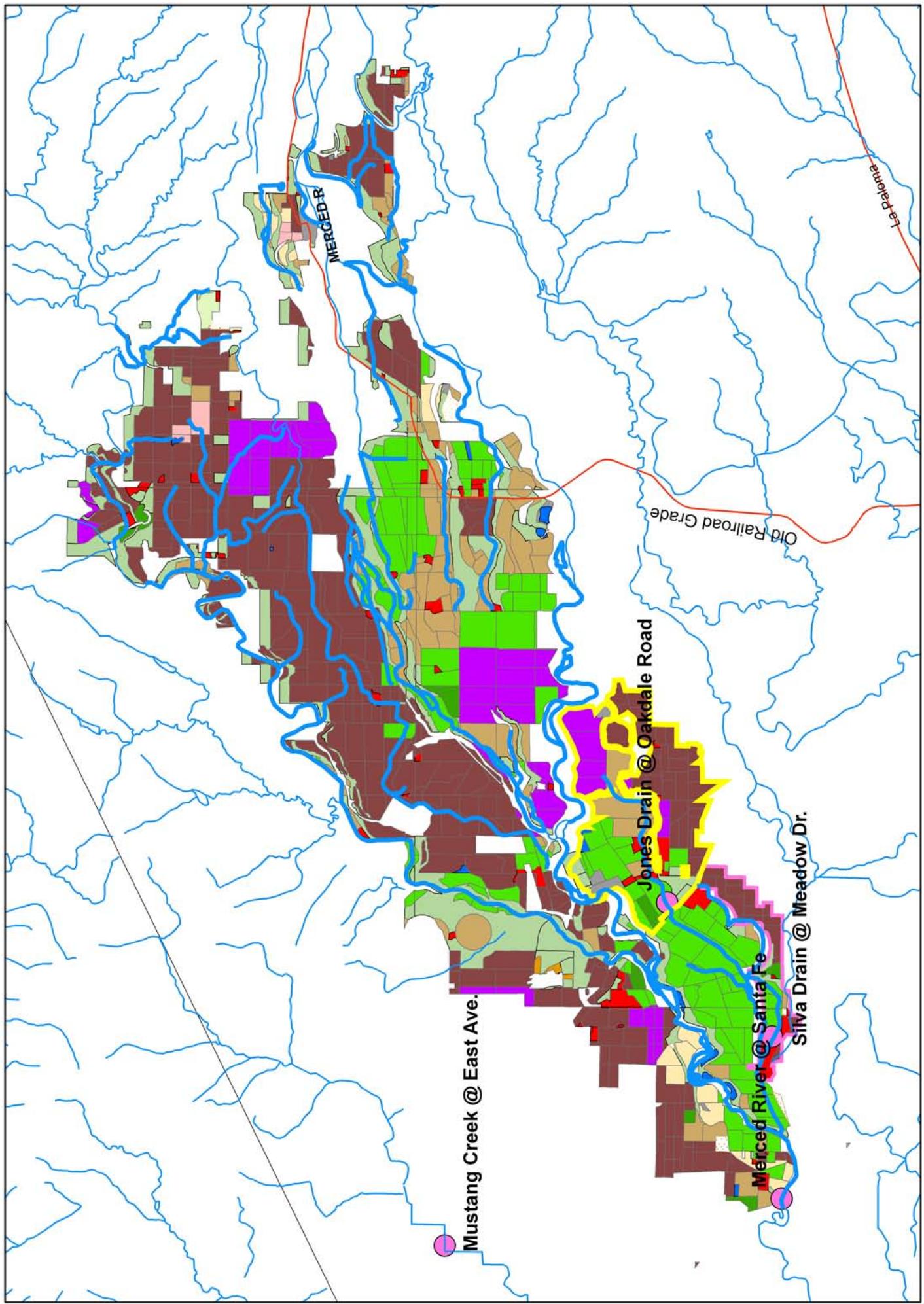
Site Name	Sample Date	Sample Type	Oxygen, Dissolved WQO 5.0 mg/L >5.0 mg/l	pH WQO 6.5-8.5 -log [H+]	Specific Conductivity WQO < 450 ( $\mu$ hos/cm)	Dissolved Solids WQO < 450 mg/L
Hilmar Drain @ Central	3/22/05	E			1102	740
	5/11/05	E			1157	740
	5/19/05	E			1354	
	6/15/05	E			1214	720
	7/13/05	E			855	600
	8/16/05	E			826	500
	8/16/05	FD			788	490
	9/21/05	E				690

**Toxicity Evaluations**

Site Name	Sample Date	Sample Type	Matrix Name	Tox Species Name	% survival
Hilmar Drain @ Central	5/11/05	E	samplewater	Ceriodaphnia dubia	70
	5/11/05	E	sediment	Hyalella azteca	54.4
	9/21/05	E		Hyalella azteca	31.2

E: Environmental FD: Field Duplicate

Merced River @ Santa Fe, Jones Drain @ Oakdale Rd. and Silva Drain @ Meadow Dr.



**East San Joaquin Water Quality Coalition Exceedances**  
**Merced River at Santa Fe and Jones Drain at Oakdale Road**

**E. Coli Analysis.**

Site Name	Date Sampled	Analyte	Sample Type	Result	Units	WQO
Jones Drain @ Oakdale Rd	2/16/05	E. coli	E	>1600	MPN/100 ml	200
	3/22/05	E. coli	E	300	MPN/100 ml	200
	5/11/05	E. coli	E	>1600	MPN/100 ml	200
	7/12/05	E. coli	E	1600	MPN/100 ml	200
	9/21/05	E. coli	E	350	MPN/100 ml	200

Table 2. ESJWQC - General Physical Analysis results (field data only)

Site Name	Sample Date	Sample Type	Oxygen, Dissolved WQO 5.0 mg/L > 5.0 mg/L	pH WQO 6.5-8.5 -log [H+]	Specific Conductivity WQO < 450 (μmhos/cm)	Total Dissolved Solids WQO < 450 mg/L
Jones Drain @ Oakdale	3/22/05	E	4.9	8.58		
Merced River @ Santa Fe	8/17/05	E		6.38		

**Water Chemistry Analysis Results.**

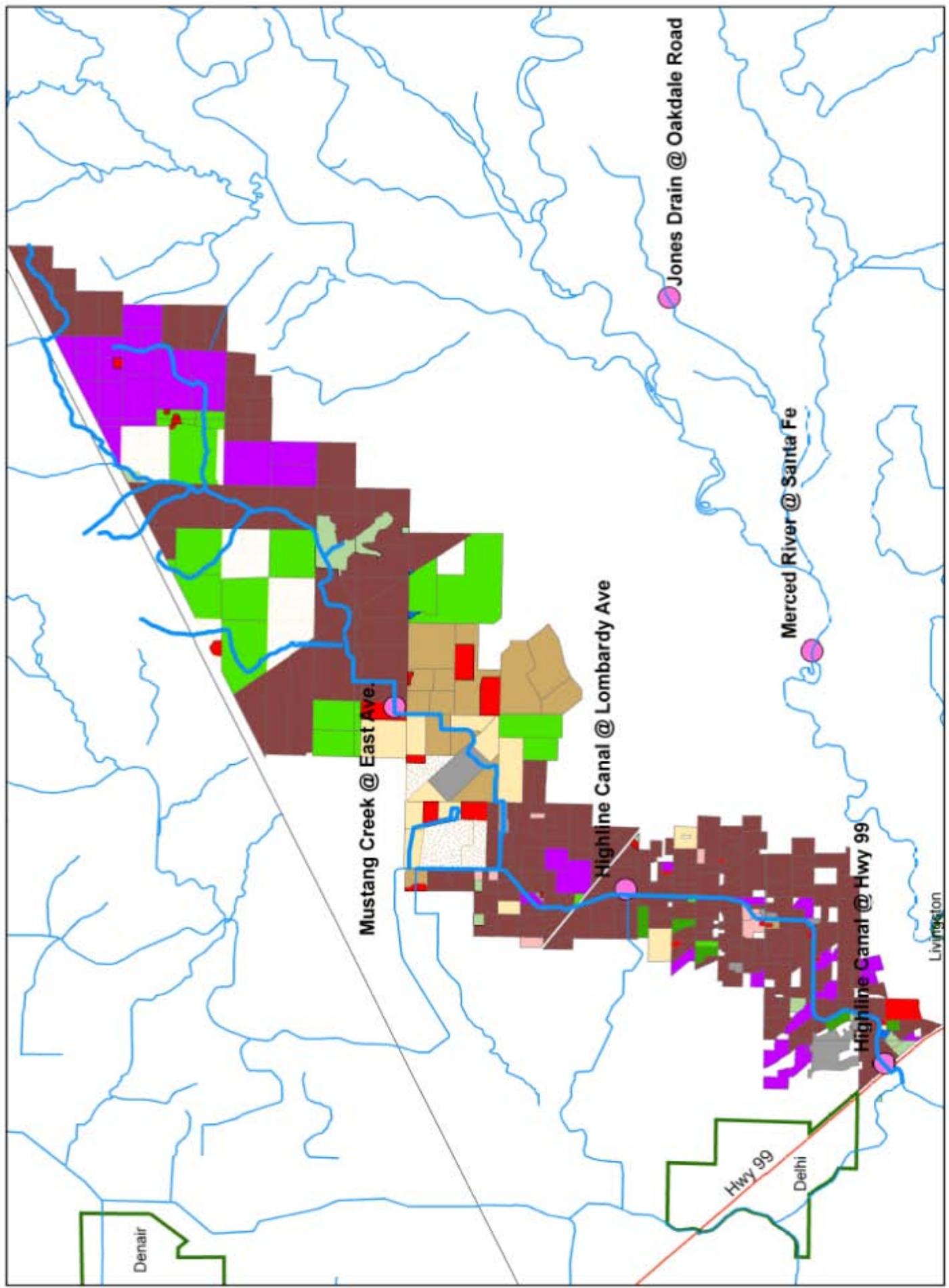
Site Name	Sample Date	Analyte Name	Group	Sample Type	Result	WQO	Unit
Jones Drain @ Oakdale Road	2/16/05	Diazinon	Organophosphate	E	0.011	0.05	µg/L
						MDL	RL
						0.00353	0.05

Table 4: Results of Toxicity Evaluations.

Site Name	Sample Date	Sample Type	Matrix Name	Tox Species Name	% survival	Tox Test Comments
Jones Drain @ Oakdale Rd.	2/16/05	E	samplewater	Selenastrum C.	71.7	
.	8/17/05	E	samplewater	Ceriodaphnia dubia	25	Due to the observation of >50% reduction in survival in the initial sample a dilution series test and Phase I TIE test targeting pesticides were run on this sample. Statistically significant reductions in survival were not seen in any of this follow-up testing, indicating that the toxicity initially seen in this sample was no persistent.
Merced River @ Santa Fe	7/31/04	E	samplewater	Ceriodaphnia dubia	75	
	8/31/04	E	samplewater	Ceriodaphnia dubia	40	An acute TIE performed indicated that the toxicity was not persistent and thus could not be identified

E: Environmental FD: Field Duplicate C: Capricornutum

**Highline Canal @ Highway 99, Highline Canal @ Lombardy Ave., And Mustang Creek @ East Ave.**



## East San Joaquin Water Quality Coalition Exceedances

### Highline Canal at Lombardy Avenue, Highline Canal at Hwy 99 and Mustang Creek

#### E. Coli Analysis.

Site Name	Date Sampled	Analyte	Sample Type	Result	Units	WQO
		E. coli	E	240	MPN/100 ml	200

#### General Physical Analysis results (field data only)

Site Name	Sample Date	Sample Type	Oxygen, Dissolved WQO 5.0 mg/L > 5.0 mg/L	pH WQO 6.5-8.5 -log [H+]	Specific Conductivity WQO < 450 $\mu\text{mhos}/\text{cm}$	Total Dissolved Solids WQO < 450 mg/L
Highline Canal @ Lombardy	3/21/05	E		8.56	469	760
	8/17/05	E		6.46		

#### Water Chemistry Analysis Results.

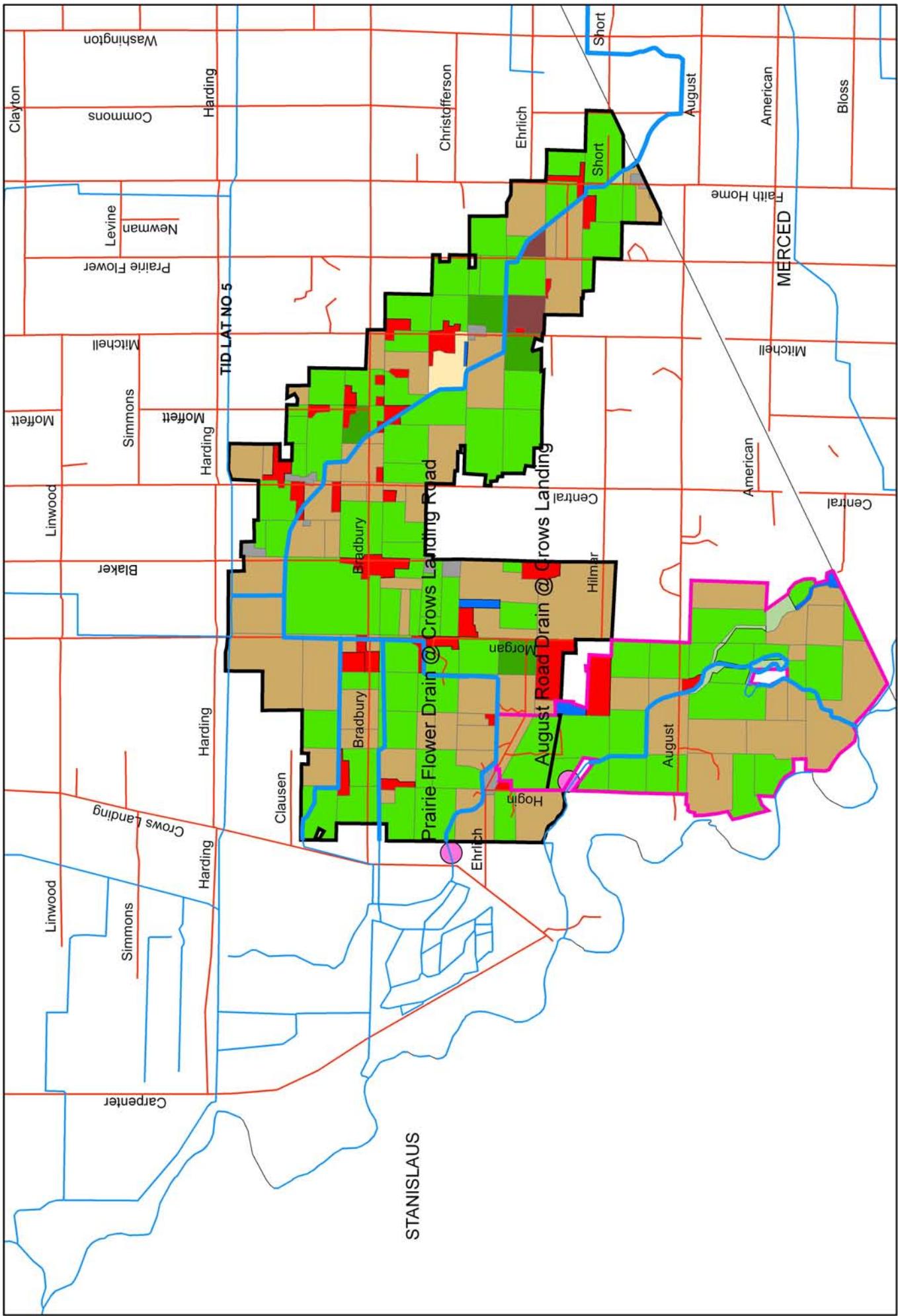
Site Name	Sample Date	Analyte Name	Group	Sample Type	Result	Unit	MDL
Highline Canal @ Lombardy		Chlorpyrifos	Organophosphate	E	0.01	$\mu\text{g}/\text{L}$	0.00259
	2/15/05	Diazinon	Organophosphate	E	0.098	$\mu\text{g}/\text{L}$	0.00353
	7/13/05	Chlorpyrifos	Organophosphate	E	0.011	$\mu\text{g}/\text{L}$	0.00259

#### Results of Toxicity Evaluations.

Site Name	Sample Date	Sample Type	Matrix Name	Tox Species Name	% survival	Tox Test Comments
Highline Canal @ Hwy 99	5/10/05	E	samplewater	Ceriodaphnia dubia	45	Follow up TIE found no significant reduction in survival in the baseline, indicating that the toxicity that had been observed in the initial testing of this sample was no longer present.
	5/19/05	E	samplewater	Ceriodaphnia dubia	0	Complete mortality in may 19 sample indicates that ambient water toxicity was still present at this site.
	7/13/05	E	sediment	Hyalella azteca	83.4	
	9/21/05	E		Hyalella azteca	87.5	
	5/10/05	E	sediment	Hyalella azteca	71.3	
	7/13/05	E	sediment	Hyalella azteca	77.3	
	8/17/05	E	samplewater	Selenastrum capricornutum	79.9	

E: Environmental FD: Field Duplicate

## Prairie Flower Drain @ Crows Landing and August Rd. Drain @ Crows Landing



East San Joaquin Water Quality Coalition  
**Prairie Flower Drain at Crows Landing**

E. Coli Analysis.

Site Name	Date Sampled	Analyte	Sample Type	Result	Units	WQO
Prairie Flower Dr @ Crows	3/22/05	E. coli	E	>1600	MPN/100 ml	200
	5/11/05	E. coli	E	500	MPN/100 ml	200
	6/15/05	E. coli	E	300	MPN/100 ml	200
	7/12/05	E. coli	E	>1600	MPN/100 ml	200
	8/17/05	E. coli	E	>1600	MPN/100 ml	200
	9/21/05	E. coli	E	500	MPN/100 ml	200
	9/21/05	E. coli	E	>1600	MPN/100 ml	200

General Physical Analysis results (field data only)

Site Name	Sample Date	Sample Type	Oxygen, Dissolved WQO 5.0 mg/L > 5.0 mg/L	pH WQO 6.5-8.5 -log [H+]	Specific Conductivity WQO < 450 ( $\mu$ mhos/cm)	Total Dissolved Solids WQO < 450 mg/L
Prairie Flower Drain @ Crows Landing Rd.	2/15/05	E			2561	1600
	3/22/05	E			2568	1600
	5/11/05	E			3168	1600
	6/15/05	E			1705	1300
	7/13/05	E	3.2		1723	1100
	8/17/05	E			1779	990
	9/21/05	E			791	460

### Water Chemistry Analysis Results.

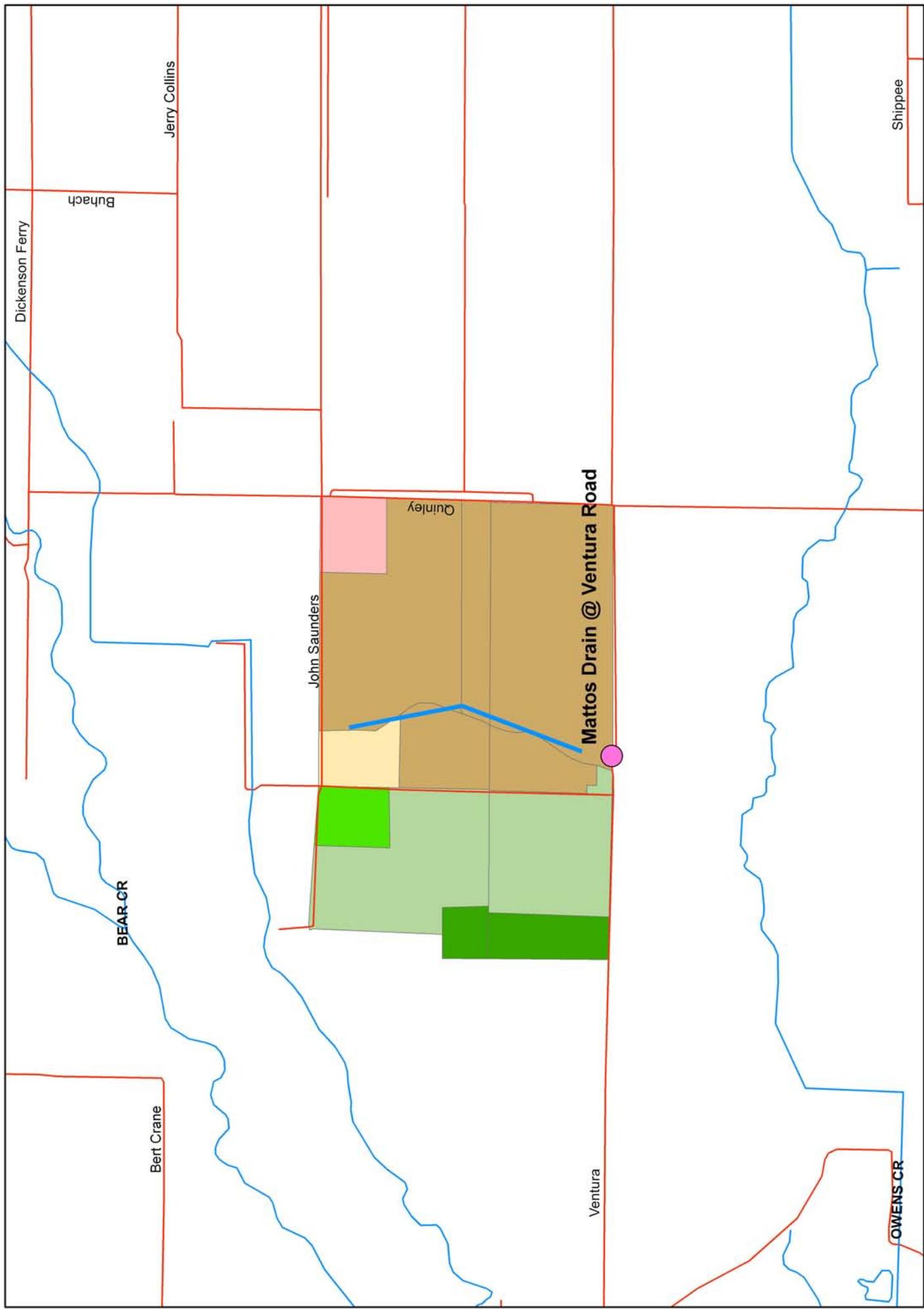
Site Name	Sample Date	Analyte Name	Group	Sample Type	Result	WQO
Prairie Flower Drain @ Crows Landing Road	7/13/05	Diazinon	Organophosphate	E	0.013	0.05
	9/21/05	Chlorpyrifos	Organophosphate	FD	0.018	0.014
	9/21/05	Chlorpyrifos	Organophosphate	E	0.018	0.014
			Unit	MDL	RL	
			µg/L	0.00353	0.05	
			µg/L	0.00259	0.05	
			µg/L	0.00259	0.05	

### Results of Toxicity Evaluations.

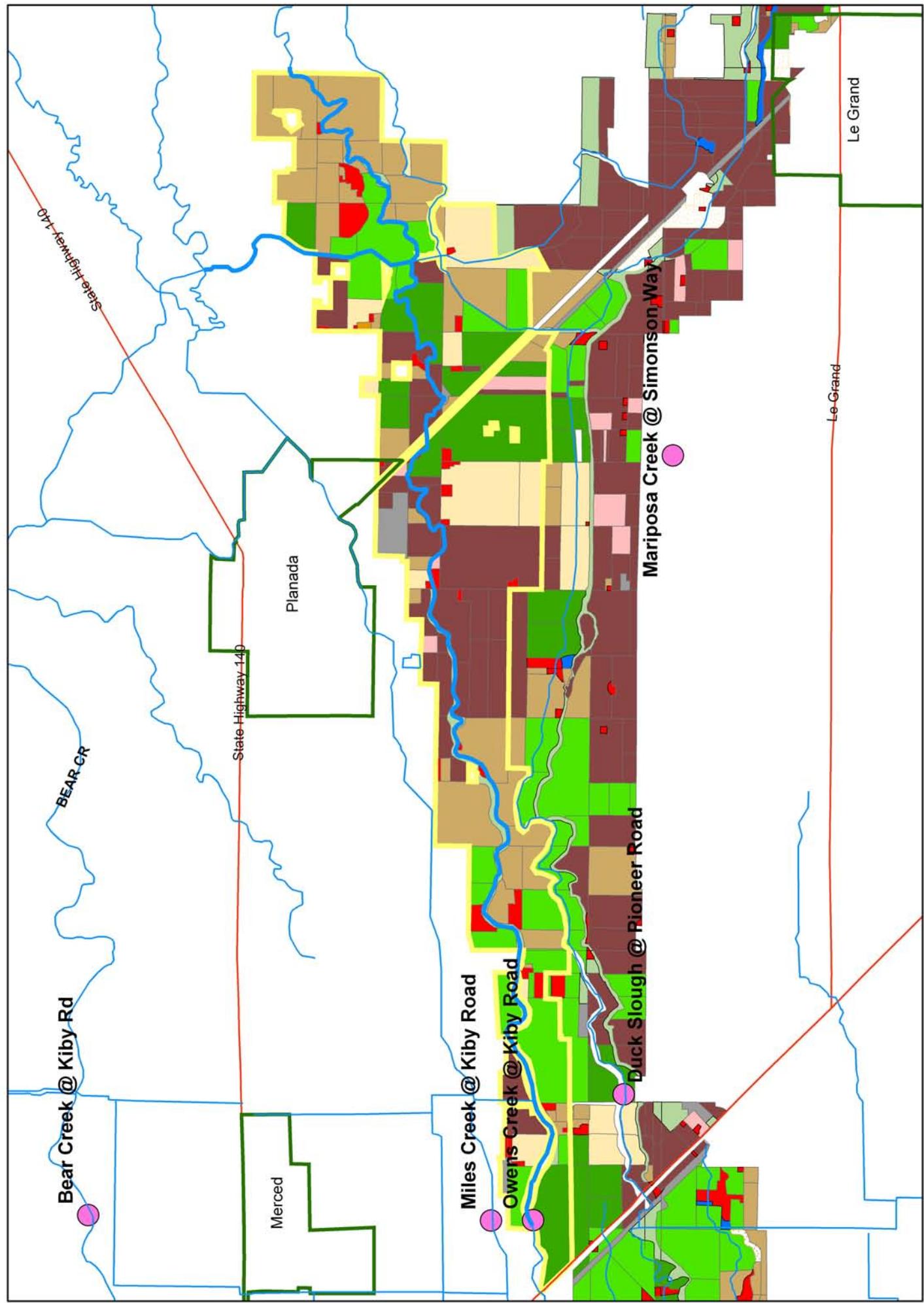
Site Name	Sample Date	Sample Type	Matrix Name	Tox Species Name	% survival	Tox Test Comments
Prairie Flower Drain @ Crows Landing Rd.	7/13/05	E	sediment	Hyalella azteca	76.7	
	9/21/05	E		Hyalella azteca	83.8	

E: Environmental FD: Field Duplicate

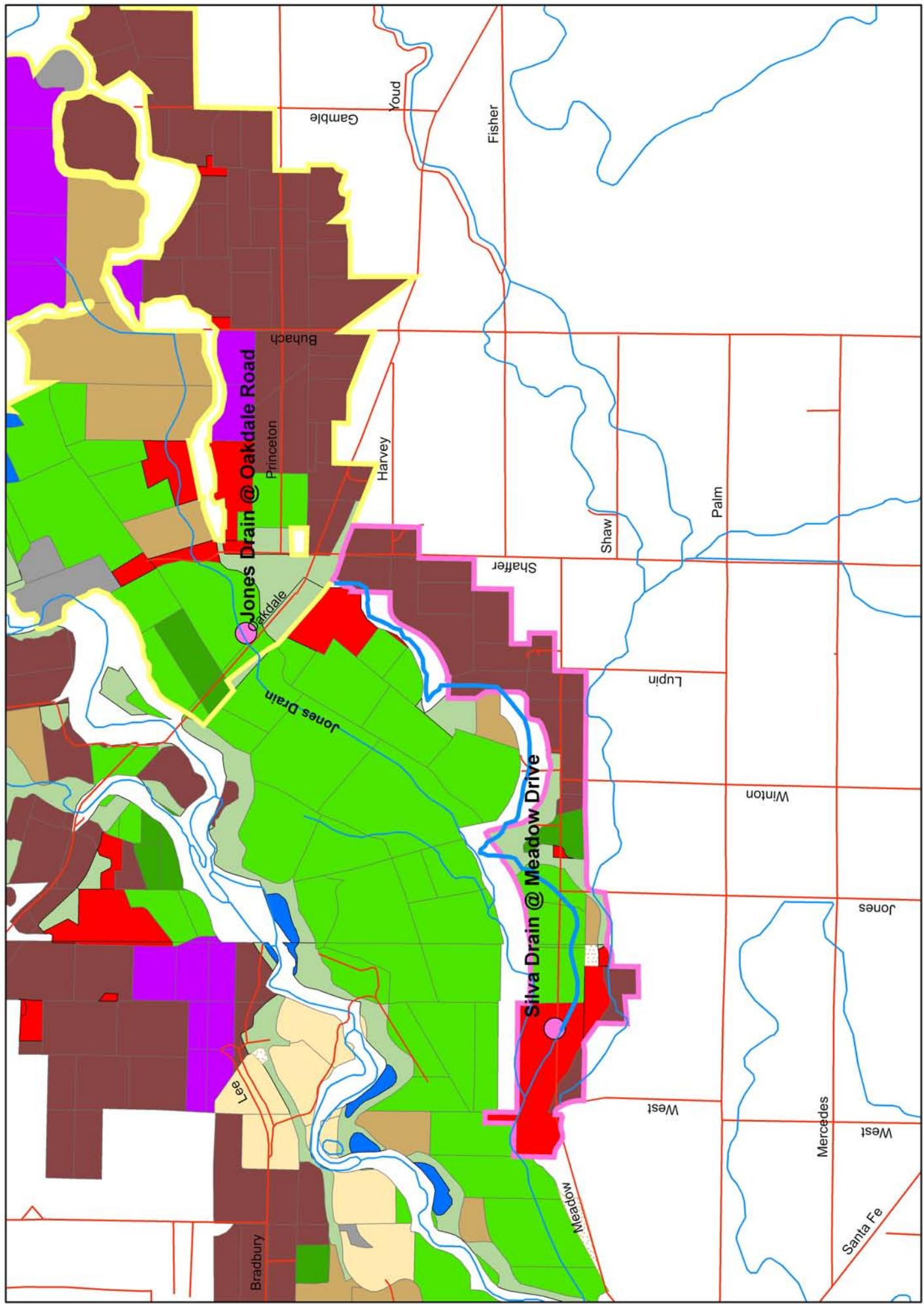
**Mattox Drain @ Ventura Rd.**



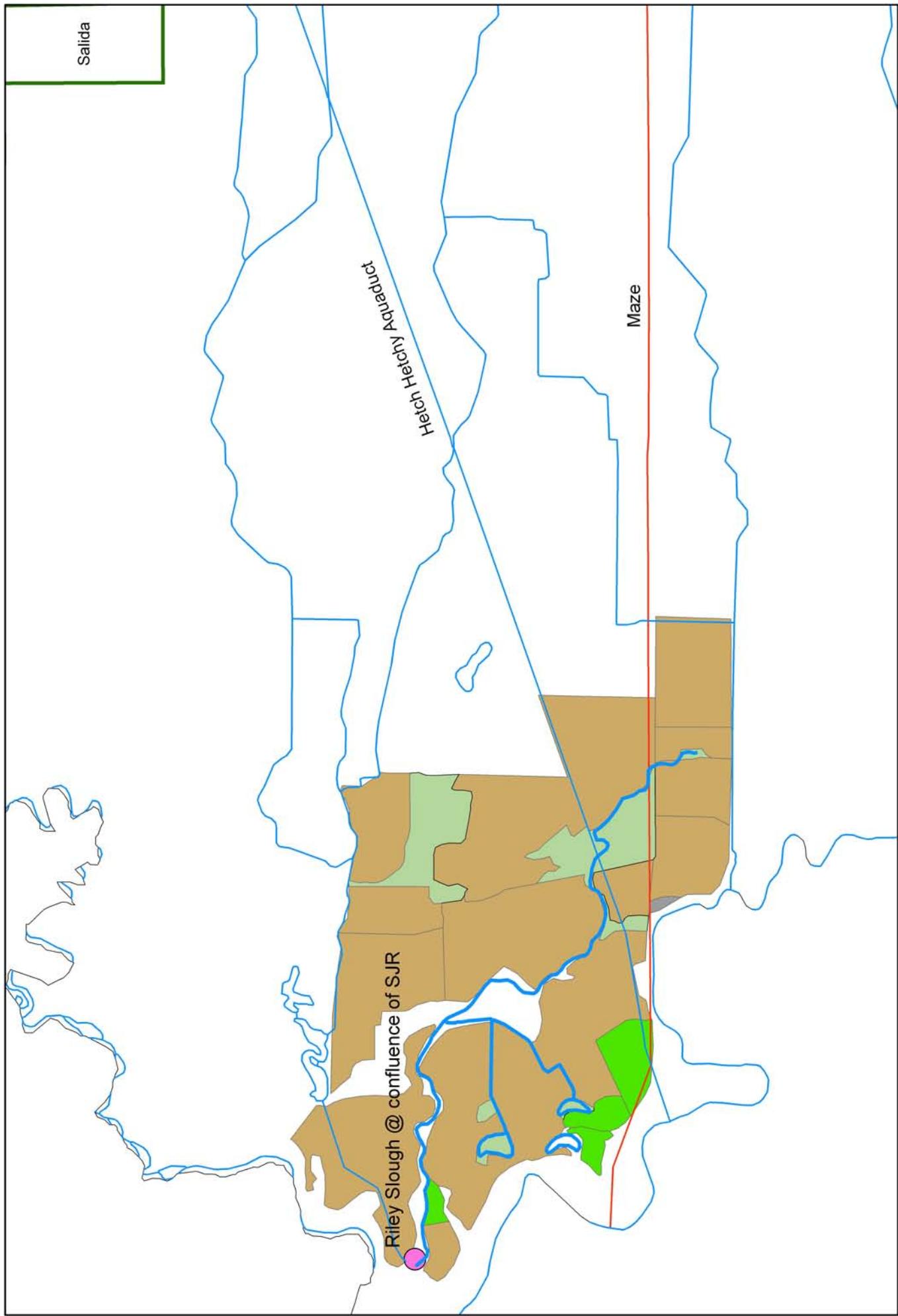
Owen's Creek @ Kibby Rd.



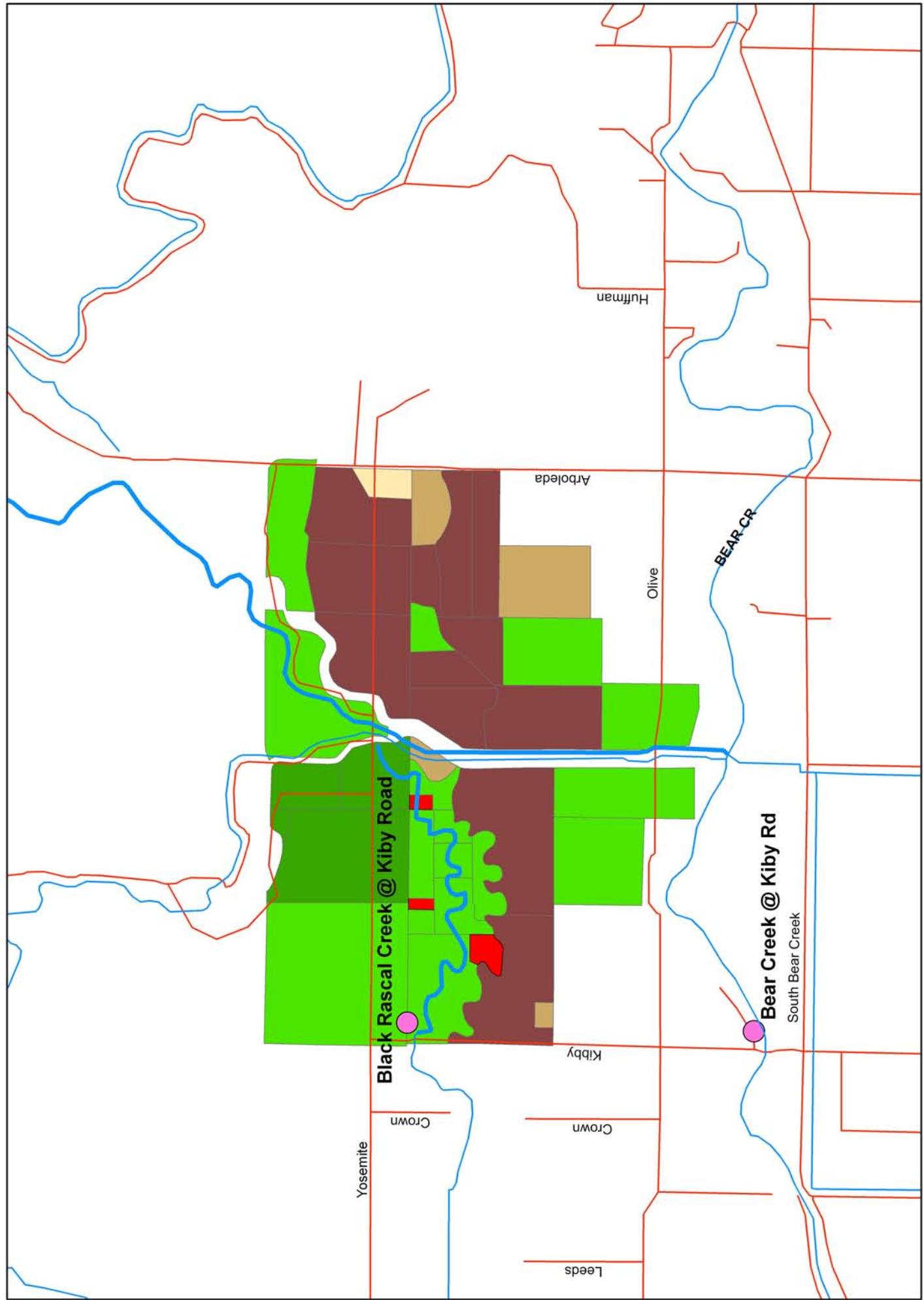
Silva Drain @ Meadow Dr.



Riley Slough @ confluence of SJR



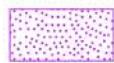
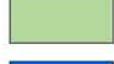
Black Rascal Creek @ Kibby Rd.



# Legend

— Hydrology

## Land Use

-  Citrus, I
  -  Deciduous Fruit, Nut, I
  -  Deciduous Fruit, Nut, NI
  -  Field Crops, I
  -  Grains, Hay, I
  -  Grains, Hay, NI
  -  Idle, I
  -  Idle, NI
  -  Pasture, I
  -  Pasture, NI
  -  Rice, I
  -  Truck, Nursery, Berry, I
  -  Vineyard, I
  -  Vineyard, NI
  -  Barren Wasteland, NI
  -  Raparian Vegetation, NI
  -  Wild Vegetation, NI
  -  Water Surface, NI
  -  Feedlot, Dairy, Farmstead, NI
  -  Golfcourse, cemetary, Landscape, NI
  -  Urban, NI
- State & US Hwys
-  City Outline
- Sampling Site