

Willow Creek Mutual Water Company

Federal Easement Lands
Water Management Plan

(February 2011)
(Final Submission date August 9, 2011)

Section A - Background

1. Identify the staff member responsible for developing and implementing the Plan. Provide their contact information

Name Ben Gordon Title Vice President
 Address 134 W. Sycamore Street, Willow, CA 95988
 Telephone 530-682-1567 Fax 530-934-8575
 E-mail wcmwc@earthlink.net

2. Year District established 1945

Define year-type used consistently throughout plan January thru December

3. Water supplies

List each annual entitlement of surface water under each water right and/or contract

Supplier	Water source	Contract #	Contract restrictions	Acre-feet/year
Federal Wtr Level 4	BOR	09-WC-20-3941	Federal Easement Only	3000
East Drain Water	WCMWC in System Recovery	N/A	N/A	250
Battle Creek Water	BOR&USFWS	GCID RES #07-08	Federal Easement only	1440
Central Drain Water	WCMWC In System Recovery	N/A	N/A	150
Provident ID	Sacramento River	N/A	Surplus Water only	5985

- ~~4. Provide a narrative on pre-CVPIA Federal easement lands water supplies and water management~~

5. Land use history--Identify habitat types specific to this District.

Attach a District map showing habitat location and size.

List Federal easement lands habitat-types with 5% or more of total acreage

Habitat type	Original size	1992 acres	1997 acres	2010 acres
Seasonal wetland – timothy (irrigated)	NA	NA	NA	1,304
Seasonal wetland – smartweed	NA	NA	NA	652
Seasonal wetland – watergrass	NA	NA	NA	652
Permanent wetland	NA	NA	NA	0
Semi-permanent wetland/brood pond	NA	NA	NA	290
Riparian	NA	NA	NA	0
Irrigated pasture	NA	NA	NA	0

<i>Upland (not irrigated)</i>	NA	NA	NA	512
<i>Not irrigated</i>	NA	NA	NA	0
<i>Total (size of Federal easement lands)</i>	NA	NA	NA	3,410

Describe Federal easement lands habitat-type water use characteristics.

<i>Habitat type</i>	<i>AF/ac</i>	<i># of irrigations</i>	<i>Floodup date</i>	<i>Draw down date</i>
<i>Seasonal wetland – timothy (irrigated)</i>	5	1	Sept/October	April
<i>Seasonal wetland – smartweed</i>	7.5	1 or 2	Sept/October	April
<i>Seasonal wetland – watergrass</i>	7.5	1 or 2	Sept/October	May
<i>Permanent wetland</i>	N/A	N/A	N/A	N/A
<i>Semi-permanent wetland/brood pond</i>	9	1,2,or3	Sept/October	July/August
<i>Riparian</i>	NA	N/A	N/A	N/A
<i>Irrigated pasture</i>	NA	N/A	N/A	N/A
<i>Upland (not irrigated)</i>	0	N/A	N/A	N/A
<i>Not irrigated</i>	N/a	N/A	N/A	N/A
<i>Total (size of Federal easement lands)</i>	3,410			

Section B - Water Management Related Goals and Objectives

1. *Describe the District mission relative to water management. (i.e. crop depredation, legislative mandates, service to landowners)*
Willow Creek Mutual Water Company is dedicated to maintaining and operating its canal and delivery system for the purpose of providing its landowners with good quality water for the preservation and enhancement of wetland habitat throughout the year, and for the growing of crops in the summer.
2. *Describe specific habitat management objectives. Include pertinent information from Federal easement lands management plans*
The District's primary objective is providing water to its landowners for the purpose of maintaining wetland habitat during the fall and winter for migratory waterfowl. A secondary objective, which is entirely dependent upon the availability of groundwater and Level 4 water, is providing water for the optimum management of that habitat through the spring and summer months.
3. *Describe the strategies used to attain objectives listed above*
The District will reserve a minimum of 70% of its water supply for achieving its primary objective of providing fall and winter waterfowl habitat. Any additional water will be reserved for the enhancement of this habitat through during the winter and spring months.
4. *Describe constraints that prevent attainment of objectives and explain the effect on operations*
The lack of full acquisition of Level 4 water supplies by the Bureau of Reclamation will greatly affect the District's ability to provide winter and spring water for optimum habitat enhancement.
5. *Describe the strategies used to remedy the constraints listed above*
The strategy to remedy is to continue to work with BOR and other agencies to acquire additional supplemental water to meet our needs.

Section C - Policies and Procedures

1. *Describe the District policies/procedures on accepting agricultural drainage water as supply*
The District does receive and use agricultural drainage water provided that the water meets all quality standards set forth by the State Water Resources Control Board the Central Valley Regional Water Quality Control Board for the delivery of water to wetlands.
2. *Describe the District policies/procedures on water pooling, transfers, reallocations or exchanges*
The District has no policies in place at the present time.
3. *Describe the District water accounting policies/procedures for inflow, internal flow and outflow*

All Purchased water is measured by Provident Irrigation District and Glenn Colusa Irrigation District and monitored by Willow Creek Mutual Water Company Water Superintendent. Outflow is measured and recorded daily by the Water Superintendent at any point where water exits the Water Company service area.

4. *Attach a copy of the District's shortage policies, drought plan, or any similar document.*
At the present time Willow Creek operates on a best management plan basis for short water years Willow Creek will develop a formal shortage plan for the 2012 water year.

5. *Describe water policies as they pertain to:*

- a. *water allocation policy to customers*

Willow Creek is a mutual water company. Each share is entitled to an equal amount of water. When shortage occurs, the water delivery to all shares are reduced by an equal percentage.

Water is delivered to the District's landowners on a pro-rata basis determined by total available water versus the total acres being serviced. Winter habitat water is distributed to clubs from September 15th through the end of January. Owners are assessed bi-annual water service fees that are charged on a per acre basis. Habitat water is available for use by the owners for winter irrigation and brood habitat maintenance and is available from September 15th through the end of January. This water is billed based on a per acre charge.

- b. *lead time for water orders (see 'application for water' form)*

The District requires a written water application by a deadline. The applicant must be present when delivery commences. Rules require that owners notify the District 72 hours in advance for deliveries and 24 hours in advance for shut-off

- c. *policies for wasteful use of water (see Stockholder Rules)*

The District will shut off any water delivery for the remainder of the season if the water is escaping from the owner's property.

- d. *pricing and billing policies*

.Willow Creek adds all costs for water production from the wells, water purchased from Provident, and pumped from the private wells under contract with the company, and divides that number by the number of acres serviced during the season. Because of the variables involved year to year to obtain water, Willow Creek cannot establish a cost sheet for stockholders before the company cost are known. The BOR water will

be billed out evenly to those easement lands who order and receive this water. Willow Creek will develop a billing policy for this water when we are able to deliver the water.

<i>Fixed Charges (stock assessment)</i>			
<i>Charges \$ unit</i>	<i>Charge units acre</i>	<i>Units billed during year acres</i>	<i>\$ collected \$ times units</i>
47	Per acre	7,000	\$329,000

<i>Volumetric charges</i>			
<i>Charges \$ - Acres/Total water cost</i>	<i>Charge units acres</i>	<i>Units billed during year All flooded acres</i>	<i>\$ collected (\$ times units)</i>
Winter – \$45.91	Per acre	3577	\$152,951
Summer rice - \$65.85	Per acre	2500	\$113,381
Summer water-\$13.40	Per acre	869	11643
Summer pasture - \$23.01	Per acre	42	\$978
	TOTAL	6,210	\$278,953

Section D - Inventory of Existing Facilities

1. Mapping.

Attach existing facilities map(s) that show points of delivery, turnouts (internal flow), and outflow (spill) points, measurement locations, conveyance system, storage facilities, operational loss recovery system, wells, and water quality monitoring locations. Describe in the body of the plan the information contained in each attached map

2. Water measurement

a. Inflow/deliveries

Total # of inflow locations/points of delivery 4

Total # of measured points of delivery 2

Percentage of total inflow (volume) measured during report year 80

<i>Delivering agency</i>	<i>Conveyance facility</i>	<i>Measuring point</i>	<i>District distribution facility</i>	<i>% of total inflow</i>	<i>Type of measurement</i>	<i>Measuring agency</i>
PID	Main canal	Salmon Hole	Main canal	60	Flow meter	PID
Sac Refuge	West canal	2501 canal	West canal	20	Flow meter	GCID
East Drain	East drain	None	Main canal	10	None	None
Central Drain	Central drain	None	Main canal	10	None	None

b. Internal flow at turnouts

Total # of turnouts 110+

Total # of easement water management units (units) 44+
 Total # of easement water management unit turnouts 44+
 Total # of measured turnouts 0
 Estimated % of total internal flow (volume) during report year that was measured at a turnout 0
 Number of turnouts supplying more than one unit or not directly off delivery system 0

Measurement type	Number of devices	Acres served	Accuracy (avg or range)	Reading frequency	Calibration frequency (months)	Maintenance frequency (months/days)
Orifices	None					
Propeller						
Weirs						
Flumes						
Venturi						
Alfalfa valves						
Flash Boards	25+					
Waterman Gates	75+					

c. *Outflow.*

Outflow (AF/yr) 10
 Total # of outflow locations/points of spill 5
 Total # of measured outflow points 5
 Percentage of total outflow (volume) measured during report year 100%

Outflow point	Measuring point	Type of measurement	Percent of total outflow (estimated)	Measuring agency	Acres drained
2047 Drain	Wylie drain	Overflow spill	30	WCMWC	1226
2047 Drain	East drain	Overflow spill	30	WCMWC	1775
2047 Drain	Central drain	Overflow spill	30	WCMWC	1171
Logan Creek	West drain	Overflow spill	5	WCMWC	2250
Logan Creek	West canal	Overflow spill	5	WCMWC	212

3. *Identify the type and length of the District internal distribution system*

Miles unlined canal			Miles lined canal	Miles piped	Miles - other	
Delivery	Drain	Delivery/Drain			Delivery	Drain
24.83	0	11.55	0	0	0	0

Describe the location and types of identified leaks and areas of higher than average canal seepage, and any relation to soil type.

Staff has not identified any significant leaks or areas of higher than average canal seepage. No areas of high seepage due to soil type (gravel lens, etc.) have been identified.

4. Describe the District operational loss recovery system

Pump #	Location	HP
C Lateral lift	Norman Road	7.5
5 Gravity diversion weirs	East Drain	NA

5. Groundwater

Describe groundwater availability, quality and potential for use.

There are 20 existing ground wells in the Willow Creek service area, 11 which are owned or leased by the company. The remaining 9 wells are owned and used by private landowners to supplement their water from the company. No water quality problems currently exist from these wells.

Groundwater plan No X Yes _____

Groundwater basin(s) that underlie the District

Name of basin underlying District	Size (sq. mi.)	Usable capacity (AF)	Safe yield (AF/Y)	Management agency	Relevant reports
Colusa Subbasin	1,434	900,000	NA	Glenn County	DWR Bulletin 118

Identify District-operated ground water wells

#	Location	Status	HP	2010 (AFY)	Future plans
4	Main Canal	Active	60	527	Maintain & Improve
5	Main Canal	Active	60	344	Maintain & Improve
7	Main Canal	Active	75	542	Maintain & Improve
8	Main Canal	Active	40	486	Maintain & Improve
9	Main Canal	Active	75	620	Maintain & Improve
10	A Lateral	Active	75	353	Maintain & Improve
11	West Canal	Active	100	750	Maintain & Improve
Gordon	Main Canal	Active	100	350	Maintain & Improve
Ceccotti	Main Canal	Active	60	450	Maintain & Improve
Garbutt	Main Canal	Active	75	229	Maintain & Improve
Stony Creek	Main Canal	Active	40	199	Maintain & Improve
			TOTAL	4,850	

Section E Environmental Characteristics

1. Topography - describe and discuss impact on water management

Relatively flat with slope from NW to SE. The water impact of this gentle NW to SE slope is that the District takes a maximum amount of delivered water on along the north and west boundaries so that the supply can be used in multiple units as it gravity flows towards the SE spill points.

2. Soils - describe and discuss impact on water management (see attached map.)

The soils of Willow Creek MWC (Attachment C is a soils map) are fairly tight soils that minimize seepage and are thus beneficial for wetland type habitats. There are no areas of problem soils so water management is very efficient.

3. Climate

National Weather Service – Willows (049699), July 1948 to December 2001

	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Annual</i>
<i>avg precip</i>	3.65	3.29	2.44	1.10	0.65	0.32	0.04	0.13	0.29	0.97	2.47	2.71	18.06
<i>avg. temp</i>	44.9	49.7	53.1	58.8	66.0	73.1	77.4	75.7	72.5	64.3	53.0	45.5	61.20
<i>max temp</i>	54.4	60.6	65.3	72.9	80.7	88.6	94.1	92.5	89.1	79.4	65.0	55.5	74.80
<i>min temp</i>	35.5	38.7	40.9	44.6	51.3	57.7	60.7	58.8	56.0	49.2	41.0	35.6	47.50
<i>ETo</i>	0.95	1.73	4.30	5.60	6.48	7.70	7.74	6.99	5.86	3.61	1.97	1.31	54.24

Discuss the impact of climate, and any microclimates, on water management

Mild damp winters and long hot summers. Federal easement lands objectives result in the majority of wetlands being flooded during the fall and winter (to mimic historic hydrologic patterns). Those acres that remain flooded during spring and summer have the greatest amount of water-use per habitat acre. The hot summers, and the resulting evaporative losses, limit the extent to which the Federal easement lands can provide permanent water habitats. No microclimates exist within the District borders.

4. *Water quality monitoring (attach water quality test result forms)*

The District is a member of the Colusa Glenn Sub Watershed group. The water quality is monitored by this group.

Discuss the impact of water quality on water management.

Currently, there are no water quality issues existing in our water inventory. However, the water company staff has a responsibility to deliver the best available quality water to our stockholders habitat lands, as poor quality water (high salinity, etc.) would adversely affect habitat lands and the animal species that use them, and would impact current management methods.

Section F Transfers, Exchanges and Trades

Provide information on any transfers, exchanges and/or trades into or out of the District

From whom	To whom	Report year (AF)	Use
NONE			
	<i>TOTAL</i>		

Section G Water Inventory

See Tables

Section H Critical Best Management Practices

Describe the 5-year implementation plan and the proposed 3-year funding budget.

1. *Management programs*
 - a. *Education*

<i>Program</i>	<i>Estimated cost (in \$1,000s)</i>		
	<i>2011</i>	<i>2012</i>	<i>2013</i>
US Fish and Wildlife, through their Easement Lands Management Program, contacts Landowners directly for best management practice programs.	No cost	No cost	No cost

Describe the specifics of each program (number of participants, topics, purpose, etc.) and attach program materials, if available.

The District conducts an annual Landowners Meeting in the spring of each year for the purpose of informing the Landowners about current issues. Topics that are presented cover a wide range from current and pending legislation to water quality issues and wetland management. Water conservation techniques are often presented to the landowners with the purpose of encouraging them to employ best water management practices and to introduce them to new products and ideas designed to improve water deliveries and water use efficiency. Attendance may range from 40 to 100 Landowners.

b. Water quality monitoring

Type of water	Existing Estimated cost (in \$1,000s)		
	2011	2012	2013
Surface – USBR and riparian	N/A	N/A	N/A
Upslope drain	N/A	N/A	N/A
Groundwater	N/A	N/A	N/A
Outflow	N/A	N/A	N/A

Short description of existing or planned program – i.e., required by which agency, coordinated with whom, constituents monitored and frequency

Willow Creek is a member of the Colusa Sub-basin watershed of the Sacramento Valley Coalition for monitoring water quality. No water quality problems were identified during 2009-2010. Past studies (Reconnaissance Investigation of Water Quality, Bottom Sediment, and Biota Associated with Irrigation Drainage in the Sacramento National Wildlife Refuge Complex. 1988; etc.) have indicated no surface water (inflow and outflow) quality issues.

c. Cooperative efforts

Willow Creek Mutual Water Company is currently involved with Ducks Unlimited to improve wetlands water delivery to the Federal easement properties and other habitat lands. The district has a long and productive history of working with USFW Service – especially the Sac National Wildlife Refuge - on projects within the district’s boundaries to improve water deliveries to habitat lands.

d. Pump evaluations (mobile labs)

Total number of groundwater pumps in District 11

Total number of surface water (low-lift) pumps on District 9

Groundwater pumps	Estimated cost (in \$1,000s)		
	2011	2012	2013
# of groundwater pumps tested 11	3500	3500	3500
# of pumps to be fixed or replaced 11 to be maintained	15000	15000	15000
# of low-lift pumps to be tested 9	1500	1500	1500
# of pumps to be fixed or replaced 9 to be maintained	19500	7500	7500

e. Policy evaluation.

The Water Company is relatively new to contracted water, but can see problem with timing of delivery for set amounts of ordered water for our customers. Stockholders desire to flood with summer water tends to change year to year. Water applications have been sent earlier to have acreage numbers to be serviced available by March of each year. The most problematic issue is the October 31st stop date for delivery from the BOR with this contract. All stockholders of Water Company habitat lands desire to have winter water delivered in the fall months of October and November. This results in a very small window to accommodate our stockholders before the October 31st cut-off. If the water could be delivered thru November would be most beneficial for the targeted species.

f. Provide Customer Services - Facilitate physical/structural improvements for member units; provide management services and technical advice to raise funds for BMP Implementation and provide customers with water efficiency education programs.

The District cooperates with wetland related organizations that provide direct services its Landowners. These services include installation of water control structures, development of drainage swales, habitat improvements, water efficiency improvements and water management techniques. Organizations that assist Landowners include Ducks Unlimited, California Waterfowl Association, Natural Resource Conservation Service, U. S. Fish and Wildlife Service and California Department of Fish and Game. These agencies are instrumental in writing grants for wetland habitat improvements.

2. Pricing structure

Willow Creek Mutual Water Company fixes a price per acre for water based on the total water delivery cost. Each Landowner who submits an application receives an equal share of the total available water. At the end of each season the cost of the water delivered is calculated and the price per acre is set. The same process is used for both the summer and winter water deliveries. The Company is currently working on purchasing some water meters to establish acre feet use on habitat lands, and set prices based on actual consummation of water. The Company plans to implement this pricing structure by spring of 2012.

3. Plan to measure deliveries

The Water Company has many different sizes of gates and weirs. This makes measurement difficult. The Water Company is currently assessing how best to remedy this situation. The Water Company plans to purchase several meters in 2011 to begin the process of eventually measuring all deliveries.

4. Water management coordinator

Name: Ben Gordon Title: Vice President

Address: 134 W. Sycamore St. Willows, Ca. 95988

Telephone: 530-934-2137 E-mail: wcmwc@earthlink.net

Section I Exemptible Best Management Practices

Describe the 5-year implementation plan and the proposed 3-year funding budget.

1. Improve management unit configuration

Assist customers to improve management unit configurations. US Fish and Wildlife currently assist stockholders with improvements along with Ducks Unlimited and California Waterfowl Association. The Water Company is involved with all improvements for delivery and drainage of habitat lands.

2. *Improve internal distribution system*

a. *New control structures within distribution system*

<i>Proposed location</i>	<i>Type of structure</i>	<i>Reason for new structure</i>	<i>Estimated cost (in \$1,000s)</i>		
			<i>2011</i>	<i>2012</i>	<i>2013</i>
East Drain	Flood structure	Replacing old structure	12000		

b. *Line/pipe sections of distribution system*

Considered part of habitat

c. *Independent water control for each unit*

Complete

d. *New internal distribution sections (pipe, canal) to provide water to existing and new habitat units*

The Water Company has no current plans for new pipe or canal sections, all internal distribution sections are in working order and adequate for delivery to all habitat lands. We will continue to *Provide assistance to member units to improve internal distribution.*

Willow Creek is working closely with Ducks Unlimited and California Waterfowl Association to provide technical and financial assistance to the private stockholders to improve internal distribution on private lands.

3. *Develop a Water Use Schedule*

See the attached Flood Plan.

<i>Plan element</i>	<i>Completion date</i>	<i>Estimated development/update cost (in \$1,000s)</i>		
		<i>2011</i>	<i>2012</i>	<i>2013</i>
<i>Floodup dates by unit</i>	Completed 2010	No cost	No cost	No cost
<i>Drawdown dates by unit</i>	No drawdown dates	No Cost	No cost	No cost
<i>Irrigation dates by unit</i>	Completed 2010	No cost	No cost	No cost

4. *Plan to measure outflow* Willow Creek has been measuring outflow since 1987 and continues to measure outflows bi-weekly by measuring width and depth and converting to CFS.

Identify locations, prioritize, determine best measurement method/cost, submit funding proposal

	<i>Estimated cost (in \$1,000s)</i>		
	<i>2011</i>	<i>2012</i>	<i>2013</i>
<i>Identify locations; Wylie drain, East drain, East drain #2, Central drain, West drain, West canal, K lateral.</i>	N/A	N/A	N/A
<i>Estimate outflow quantity/rank</i>	15Af	15Af	15Af
<i>Develop plan; Completed in 1980, updated in 2010</i>	15Af	15Af	15Af
<i>Estimate construction start date</i>	N/A	N/A	N/A
<i>Estimate construction completion date</i>	N/A	N/A	N/A

5. *Incentive pricing*

Willow Creek Mutual Company has never received and sees no possibility of ever receiving the quantity of Willow Creek MWC -8/09/11

water necessary to provide a full supply to the habitat acres. Thus there is no basis to developing pricing based on encouraging efficiency.

6. *Construct and operate operational loss recovery systems*

Many of the unit areas already drain through or into other unit areas. The Water Company has two operational recovery/return systems currently existing, with the possibility of two additional systems in the future.

<i>Proposed location</i>	<i>Reason for improvement</i>	<i>Estimated cost (in \$1,000s)</i>		
		<i>2011</i>	<i>2012</i>	<i>2013</i>
A lateral	Low efficiency test results	10000	0	0
C lateral	Low efficiency test results	7500	7500	7500
East drain	Available drain water to reuse	0	7500	7500

7. *Optimize conjunctive use of surface and groundwater.*

<i>Proposed production/injection well</i>	<i>Anticipated yield</i>	<i>Estimated cost (in \$1,000s)</i>		
		<i>2011</i>	<i>2012</i>	<i>2013</i>
No new wells proposed at this time	N/A	N/A	N/A	N/A

Of the nine private wells in Willow Creeks service area, four are under contract with Willow Creek on a as needed basis. Willow Creek has the right to use their wells when needed, but, the well owner holds first right to the water. All cost incurred while operating these wells is paid by the company. The private well owners under contract with Willow Creek are compensated at a rate of 10% of the total PG&E operational cost. Willow Creek continues to pursue agreements on the remaining five private wells.

8. *Facilitate use of available recycled urban wastewater that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to wildlife management goals.*
Opportunities for using recycled urban wastewater currently do not exist.

9. *Mapping; Willow Creek is currently working with Ducks Unlimited Engineers to map our service area.*

<i>GIS map layers</i>	<i>Estimated cost (in \$1,000s)</i>		
	<i>2011</i>	<i>2012</i>	<i>2013</i>
<i>Mapping to be completed during spring 2011</i>	18000	0	0

10. *CALFED Quantifiable Objectives*

Describe any past, present, or future plans that address the goals identified for this Federal easement lands

If reducing nonproductive ET involves removing invasive plants, complete the following:

<i>Invasive unwanted species name</i>	<i>Estimated acres</i>			<i>Estimated cost (in \$1000s)</i>		
	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
Cocklebur, (Xanthium strumarium L.)	500	500	500	5000	5000	5000
Yellow starthistle (Centaurea solstitialis L.)						

These amounts reflect landowners cost, as Willow Creek does no work on private lands.

Sacramento and Delevan National Wildlife Federal easement lands (NWRs)

1. Describe actions that reduce the salinity of surface return water. (Targeted Benefit (TB) 24)

None - no salinity or conductivity problems have been documented on any of the Water Company's wetlands.

2. Describe actions that reduce nonproductive ET. (TB 25)

The Water Company has a continuous program to minimize or eradicate invasive aquatic plants (parrots feather, primrose and Arundo).

Table 1

Water Supply

2009-2010 Method	Federal Wtr	East Drain	Battle Creek	District	Central	Provident	Total
	Level 4 (acre-feet)	Water (acre-feet)	Water (acre-feet)	Groundwat er (acre-feet)	Drain Water (acre-feet)	ID (acre-feet)	(acre-feet)
		E3	M1	C3	E3	M1	
Jan-2010	0	25	0	0	25	798	848
Feb-10	0	0	0	0	0	0	0
Mar-2009	0	0	0	0	0	0	0
April	0	25	0	250	15	0	290
May	0	25	0	500	15	0	540
June	0	25	0	850	15	0	890
July	0	25	0	850	0	798	1,673
August	0	25	0	600	0	1,218	1,843
September	0	25	289	850	20	42	1,226
October	0	25	651	850	20	1,281	2,827
November	0	25	420	100	20	546	1,111
December	0	25	80	0	20	1,302	1,427
TOTAL	0	250	1,440	4,850	150	5,985	12,675

*March 1, 2009 - February 28, 2010

Table 2

Internal Distribution System

Year	2009-2010								
Canal, lateral	Length (feet)	Width (feet)	Surface Area (square feet)	Precip. (acre-feet)	Evaporation (acre-feet)	Seepage (acre-feet)	Operational losses (acre-feet)	Measure method (see Cell K5)	Total (acre-feet)
west canal	22,000	19	418,000	16.38	41.05	1,014	469	E3	(1,508)
central canal	27,000	20	540,000	21.16	53.04	0	0		(32)
eastern canal	26,000	19	494,000	19.35	48.52	0	0		(29)
A lateral	6,000	19	114,000	4.47	11.20	0	0		(7)
B lateral	5,000	16	80,000	3.13	7.86	0	0		(5)
C lateral	8,000	16	128,000	5.01	12.57	0	0		(8)
D lateral	6,000	16	96,000	3.76	9.43	0	0		(6)
E lateral	6,000	15	90,000	3.53	8.84	0	0		(5)
F lateral	3,000	16	48,000	1.88	4.71	0	0		(3)
G lateral	2,000	15	30,000	1.18	2.95	0	0		(2)
H lateral	5,000	15	75,000	2.94	7.37	0	0		(4)
J lateral	4,500	15	67,500	2.64	6.63	0	0		(4)
K lateral	10,000	16	160,000	6.27	15.71	0	0		(9)
TOTAL	130,500		2,340,500	92	230	1,014	469		(1,621)

54 acres

Table 3

Managed Lands Water Needs

Year	2009-2010										
Habitat Type	Area habitat acre:	Habitat Water (AF/ac)	AF/ac water (AF/ac)	Delivered Water (Total AF)	Precip (AF/Ac)	Shallow Groundwtr (AF/Ac)	Evap (AF/Ac)	Cultural Practices (AF/Ac)	Seepage (AF/Ac)	Balance (acre-feet)	
Seasonal wetlands: timothy	1,304	5.00	5.00	6,520	1.60	0.00	1.46	1.50	1.50	2,796	
Seasonal wetlands: smartweed	652	6.00	7.50	4,890	1.66	0.00	2.45	2.00	1.50	2,093	
Seasonal wetlands: watergrass	652	8.00	7.50	4,890	1.66	0.00	2.45	2.00	1.50	2,093	
Permanent wetlands		12.00		0	1.71	0.00	4.28	0.00	0.00	0	
Semi-perm wetlands/brood pond	290	10.00	9.00	2,610	1.71	0.00	4.28	2.00	2.00	704	
Riparian		12.00		0	1.66	0.00	4.28	0.00	0.00	0	
Upland	512	0.00		0	0.00	0.00	0.00	0.00	0.00	0	
non-irrigated		0.00		0	0.00	0.00	0.00	0.00	0.00	0	
Total Habitat Acres	3,410	5.44	5.55	18,910						7,686	

Table 4

Company Habitat Water Inventory

Year	2010	Reference		
Total Water Supply		Table 1		12,675
Precipitation		Table 2	plus	92
Evaporation		Table 2	minus	230
Seepage		Table 2	minus	1,014
Operational Losses		Table 2	minus	469
			Deliveries to Managed Lands	11,054
Managed Land needs		Table 3	minus	18,548
Difference		(calculated)		(7,494)
			Balance (outflow?) (Table 3)	7,686
			Water Inventory Balance	192

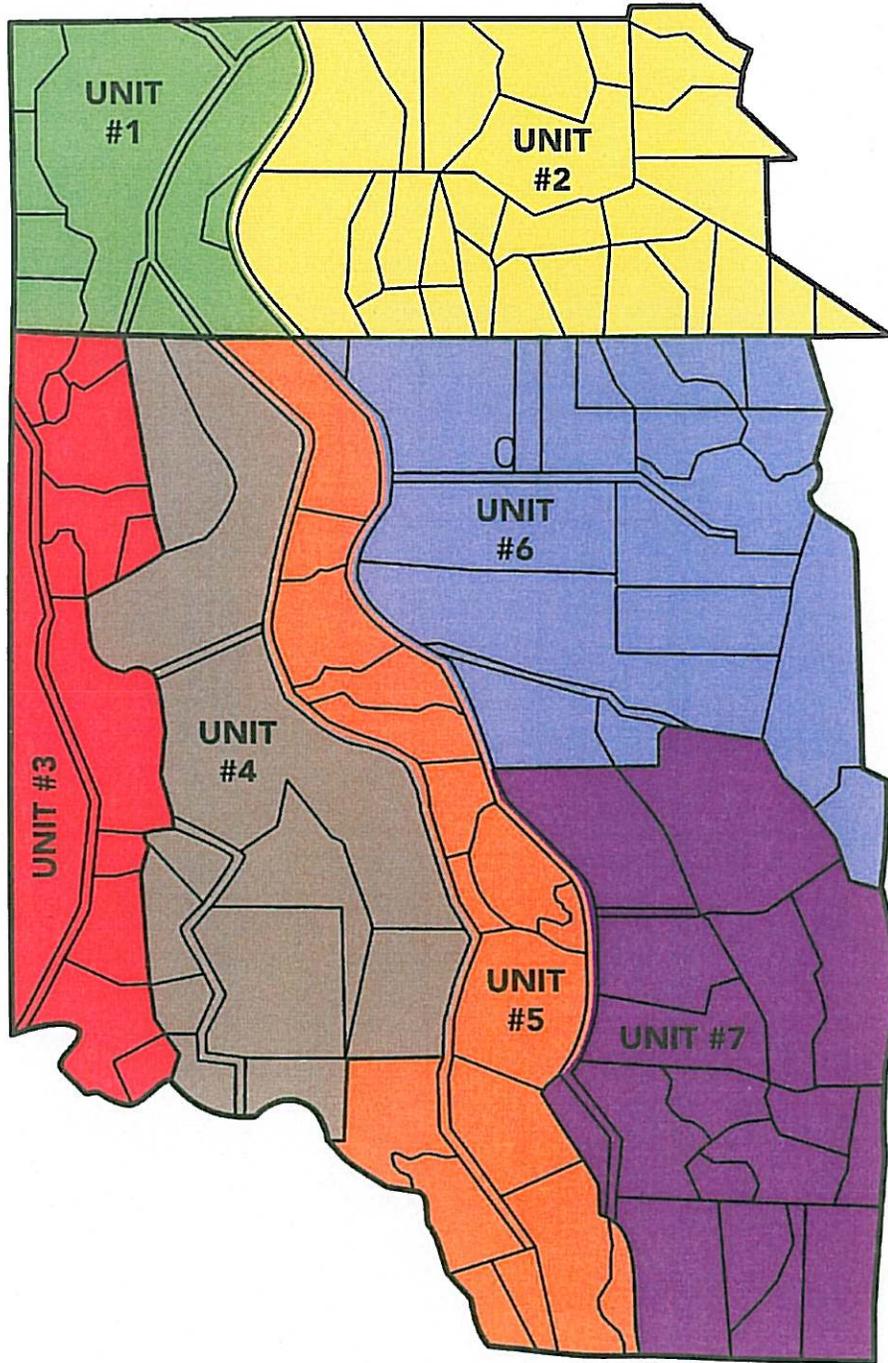
Table 5

Annual Water Quantities Delivered Under Each Right or Contract

Year	Federal Wtr Level 4 (acre-feet)	East Drain Water (acre-feet)	Battle Creek Water (acre-feet)	District Groundwat er (acre-feet)	Central Drain Water (acre-feet)	Provident ID (acre-feet)	Total (acre-feet)
2001	0	250	0	0	150	8,312	8,712
2002	0	250	0	0	150	6,274	6,674
2003	0	250	0	0	150	8,869	9,269
2004	0	250	0	0	150	9,475	9,875
2005	0	250	0	7,074	150	4,329	11,803
2006	0	250	0	8,865	150	4,134	13,399
2007	0	250	1,440	11,643	150	6,095	19,578
2008	0	250	1,440	13,863	150	0	15,703
2009	0	250	1,440	11,247	150	2,100	15,187
2010	0	250	1,440	4,850	150	5,985	12,675
Total	0	2,500	5,760	57,541	1,500	55,573	122,874
Average	0	250	1,440	9,590	150	5,557	12,287

Willow Creek Duck Clubs

Colusa & Glenn Counties



WILLOW CREEK MUTUAL WATER COMPANY
WATER FLOOD PLAN

UNITS SCHEDULED FLOOD DATES

UNIT #1	SEPTEMBER 6	-	SEPTEMBER 9
UNIT #2	SEPTEMBER 18	-	SEPTEMBER 25
UNIT #3	SEPTEMBER 10	-	SEPTEMBER 17
UNIT #4	SEPTEMBER 26	-	OCTOBER 2
UNIT #5	OCTOBER 3	-	OCTOBER 8
UNIT #6	OCTOBER 9	-	OCTOBER 13
UNIT #7	OCTOBER 14	-	OCTOBER 20

Those that leave an upland area un-flooded early in the season can now request a late season one-time flood for such areas.

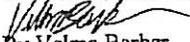
Should you choose to flood once:

in the month of October	you will be billed at 50% of the winter rate
in the month of November	at 40%
in the month of December	at 25%
in the month of January	at 20% of the winter rate

Further, a modified decomp rate has been established for the farmers this coming year. Those farmers that elect to wait until the property is saturated and has visible standing water resulting from winter rains in December or January can make requests to "top-off" such properties and will be accommodated at a charge rate of 12% of the winter rate. In those situations where the Company determines that the property does not qualify, one time flood rates would then be applicable. Late applications for this flooding will be accepted.

It remains the Company policy that should your property lose its initial flooding through no fault of the Company you may be charged for a second flooding. If you do not wish to be flooded within the time period that neighboring properties are being flooded under the Company's schedule, your request will be honored. However, the timing for flooding of your property will then solely be at the Company's discretion subsequent to your notification that you are ready for a winter flood. Periodic inspections of properties throughout the season should be expected, the purpose will be to confirm and verify areas flooded, amounts of water required to maintain lands and the condition of inlets facilities.

Now let us hope that we receive the water necessary to meet these goals. Let's have a great season!

Sincerely;
W. Bickell, President

By Velma Barber
Secretary

Irrigator: The person that sees that the outflow boards are in place and are maintained to minimize leakage throughout the season, that has inspected the properties levees, arranges for necessary repairs and notifies the Water Superintendent that the property is ready to be flooded.

Person's and firms available to serve as irrigators for Stockholders:

Rick Greeson, G&G, 530-521-2912; Joe Carrancho, 530-624-7423, Loonie Gaball, 530-439-2308

msworksword\wc\waterapletter.wps

**WILLOW CREEK MUTUAL WATER COMPANY
APPLICATION FOR WATER FOR 2011-2012 WINTER SEASON**

The undersigned hereby applies for water to be used during the winter season of 2011-2012 for the purpose of a winter flood on:

Club Name: _____

Purpose of flooding: Duck Hunting _____ Rice Decomp _____

Total Acres of property _____ Acres to be flooded _____

Provide separate applications for each flooding.

Requested is a: Maintained Flood _____, or One Time Flood _____ in the month of _____

Dates for subsequent one-time floods can be submitted throughout the season,
dates for decomp can likewise be submitted throughout the season.

This application is made subject to the rules and regulations as adopted by the Board of Directors of the Company, which are hereby made a part of this application. It is hereby agreed to pay the balance of the water charges fixed by the Board of Directors within thirty (30) days of the date of the billing. If not paid prior to such delinquency, it is understood that an interest charge of 1 1/2% per month is to be added. The undersigned owner understands that unpaid water charges may be secured by a lien on this land, even if the water was provided for a tenant.

It is understood that this Applicant is responsible to provide all necessary ditches and facilities to conduct water from existing ditches of Company to the Applicant's land, and it is agreed that the Company will not be liable for any damage of any kind or nature resulting directly or indirectly from any private ditch or the water flowing therein or by reason of lack of capacity therein, or for negligence wasteful, or other use or handling of water by the users thereof, and it is agreed that the Company's responsibility shall absolutely cease when the water leaves the canal or lateral of the Company, that the Company will not be liable for shortage of water, either temporary or permanent nor for failure to deliver such water, and Applicant agrees to hold Company, its officers and employees blameless and free from any and all liability or damages in the event the Applicant or those holding under him or any other person suffers damage from the use of said water or shortage of water.

Date _____ Stockholders Signature _____

Print Name: _____

Address: _____

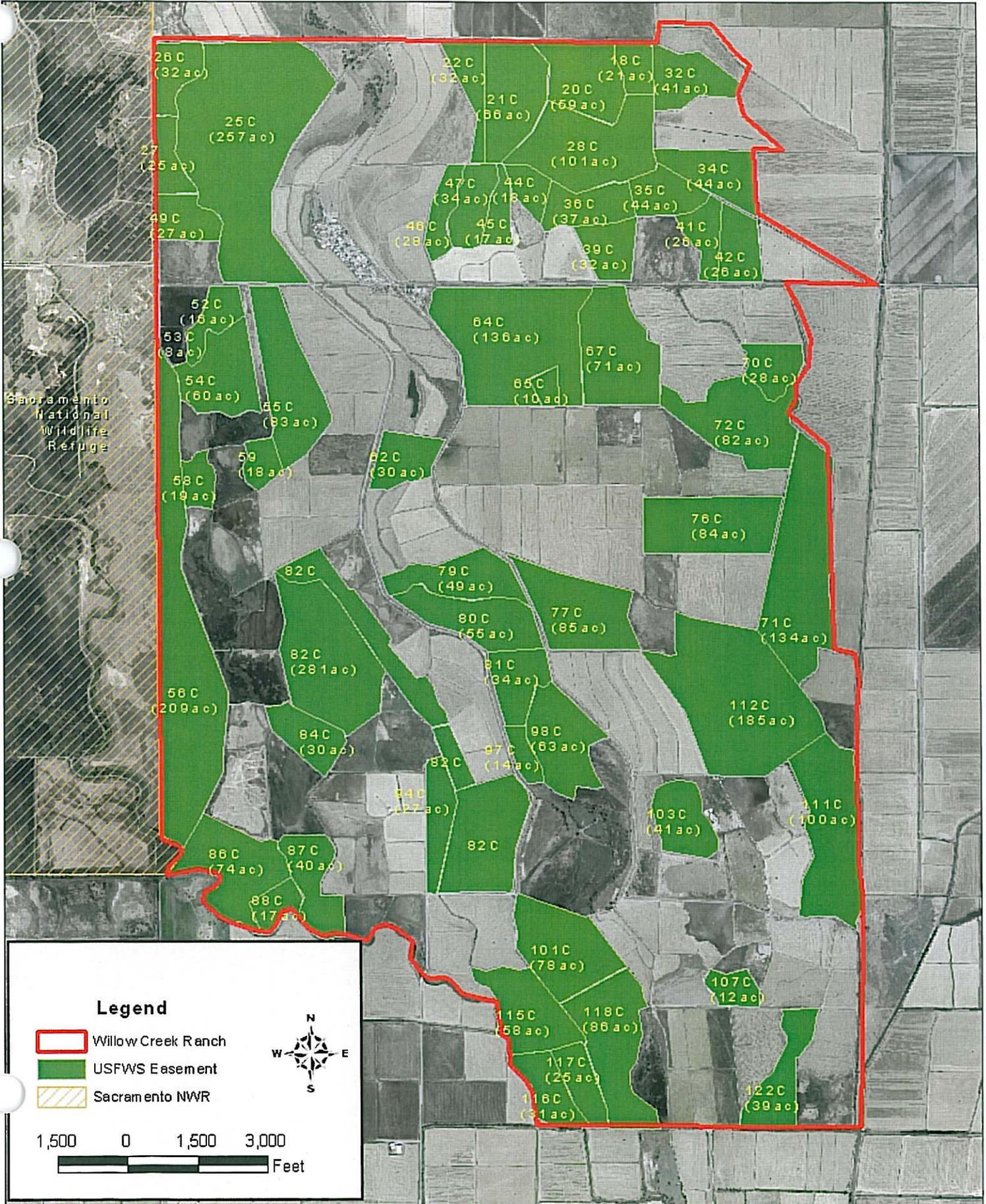
Phone: _____

Designated Irrigator:

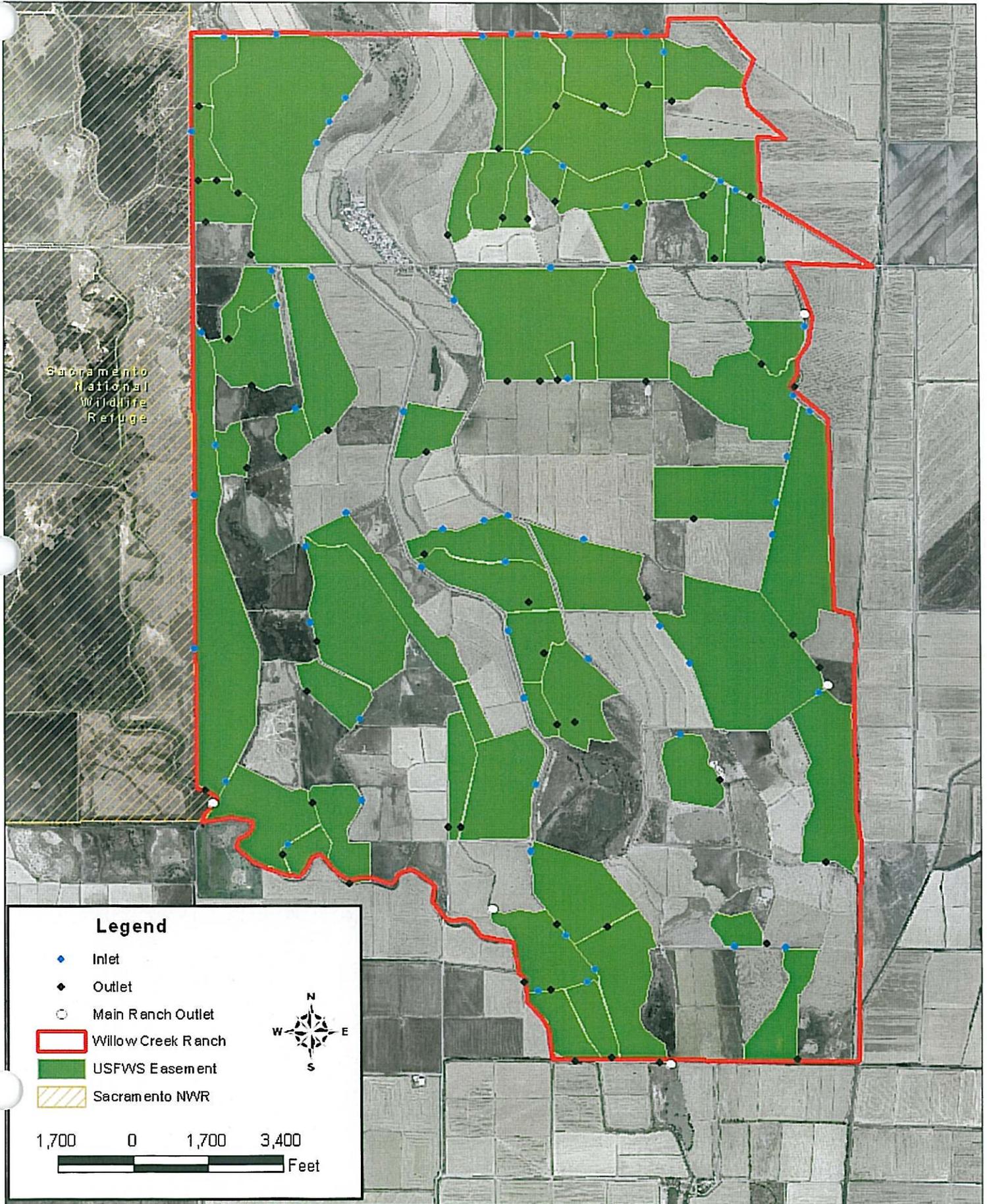
If Billings are to be sent to others:

Phone: _____

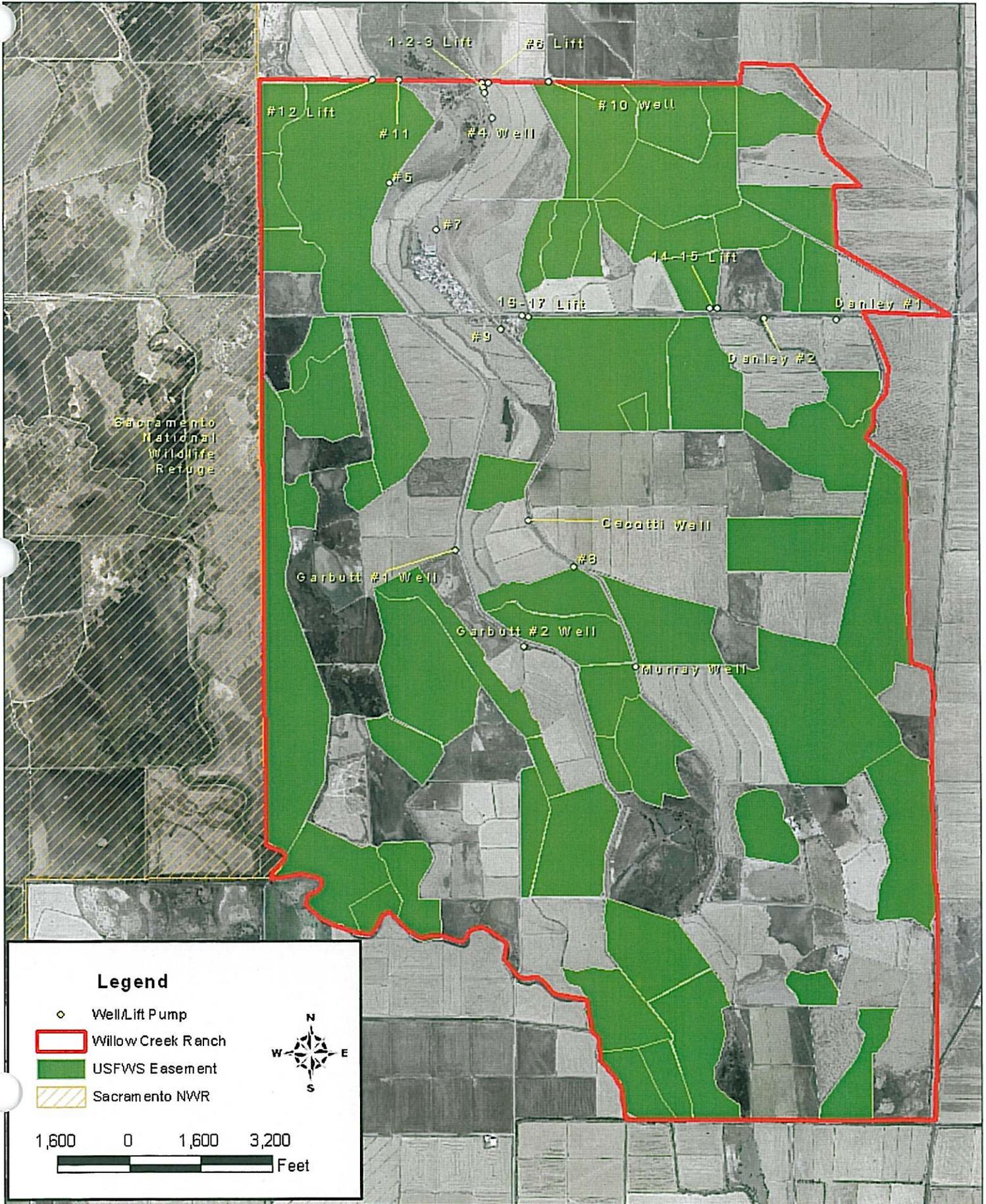
Willow Creek Ranch USFWS Easements



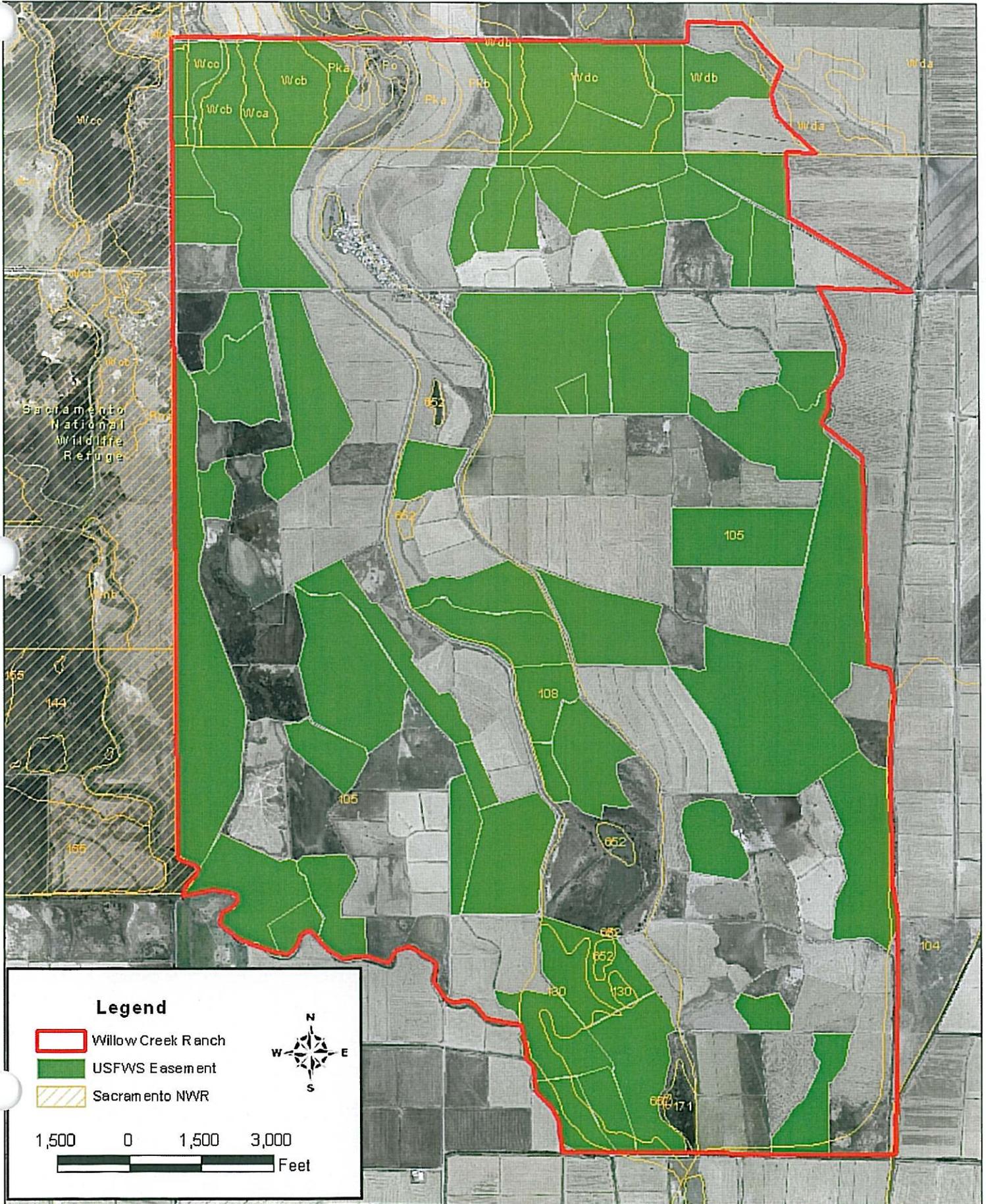
Willow Creek Ranch Inlets and Outlets



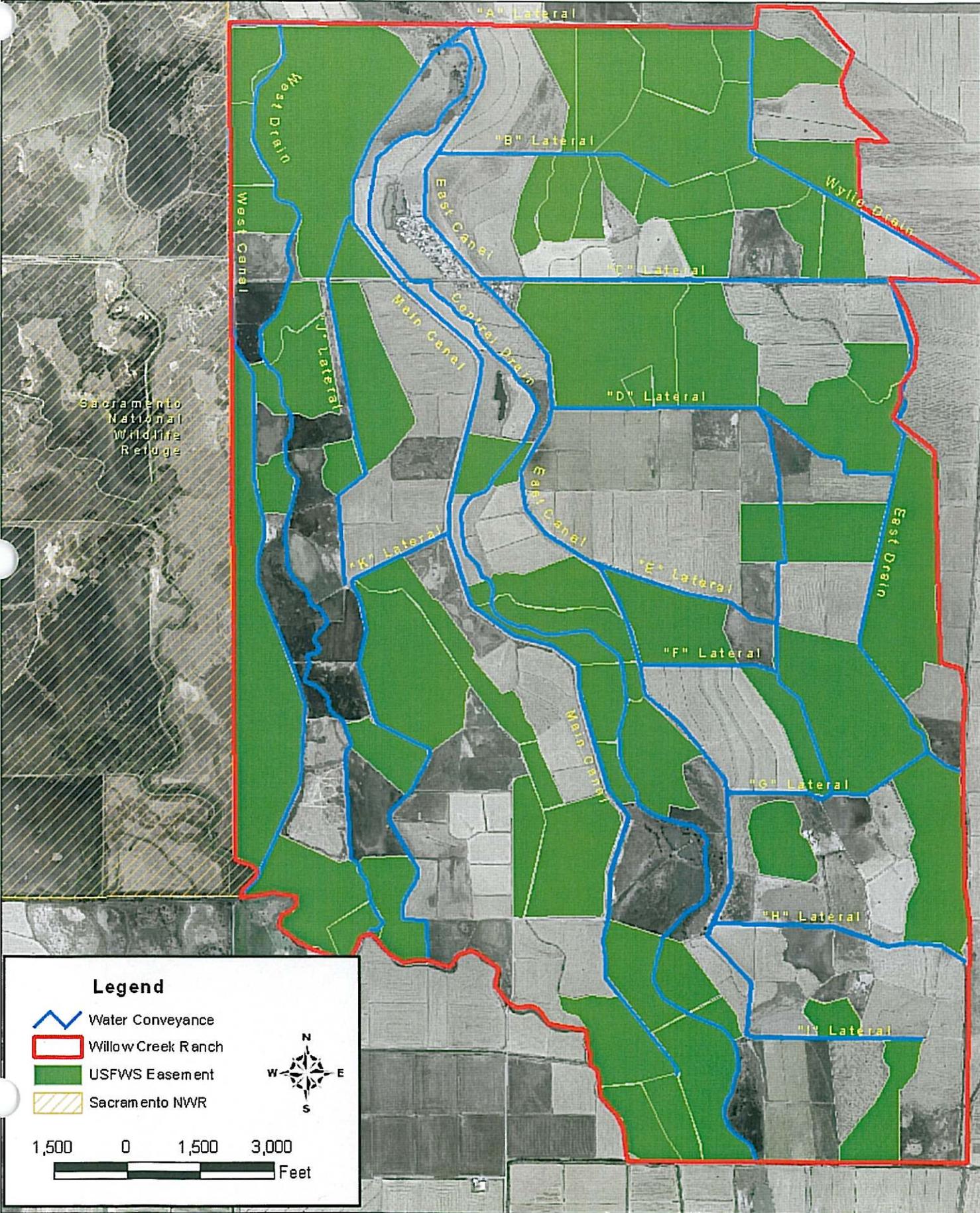
Willow Creek Ranch Wells and Lift Pumps



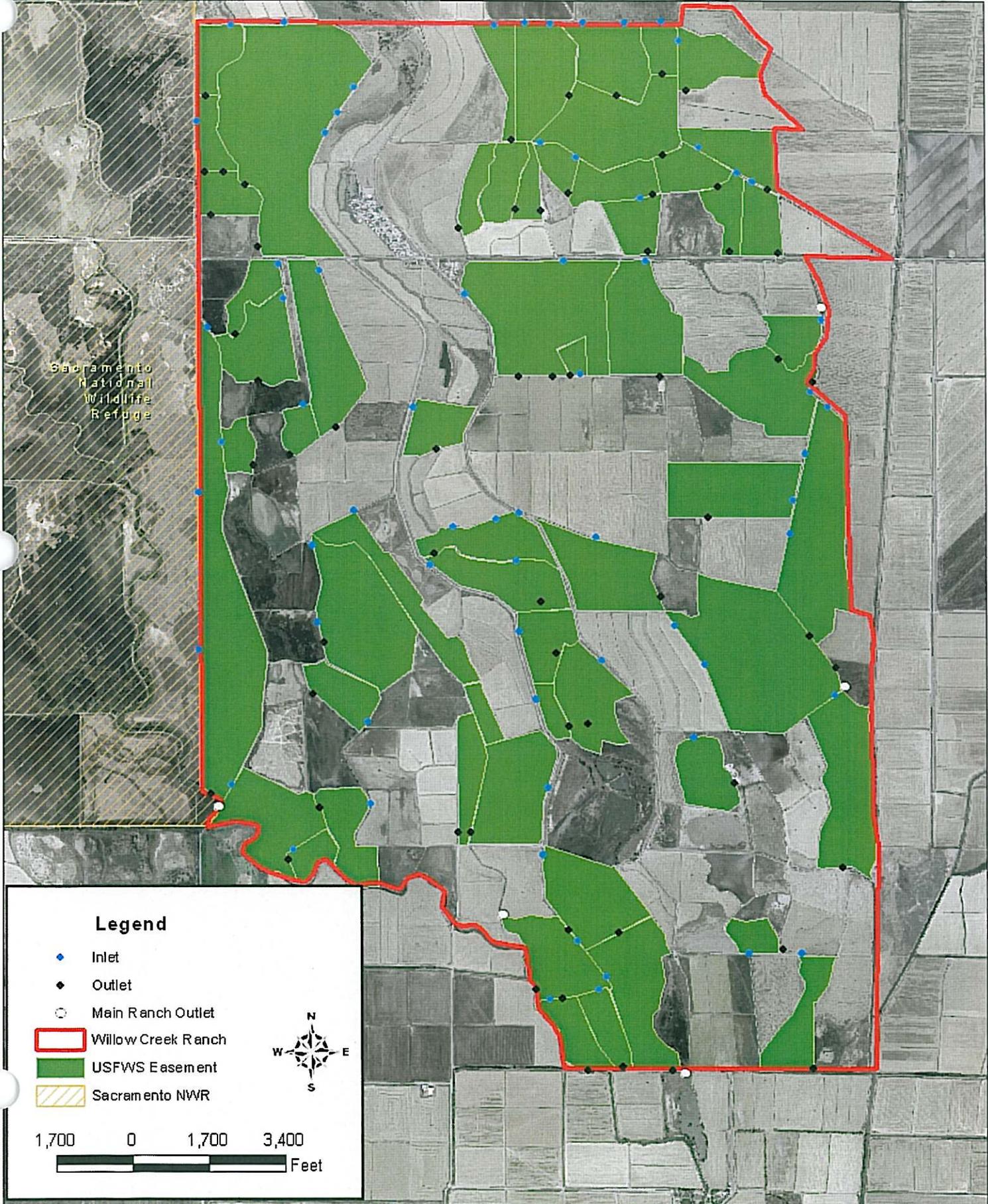
Willow Creek Ranch Soils



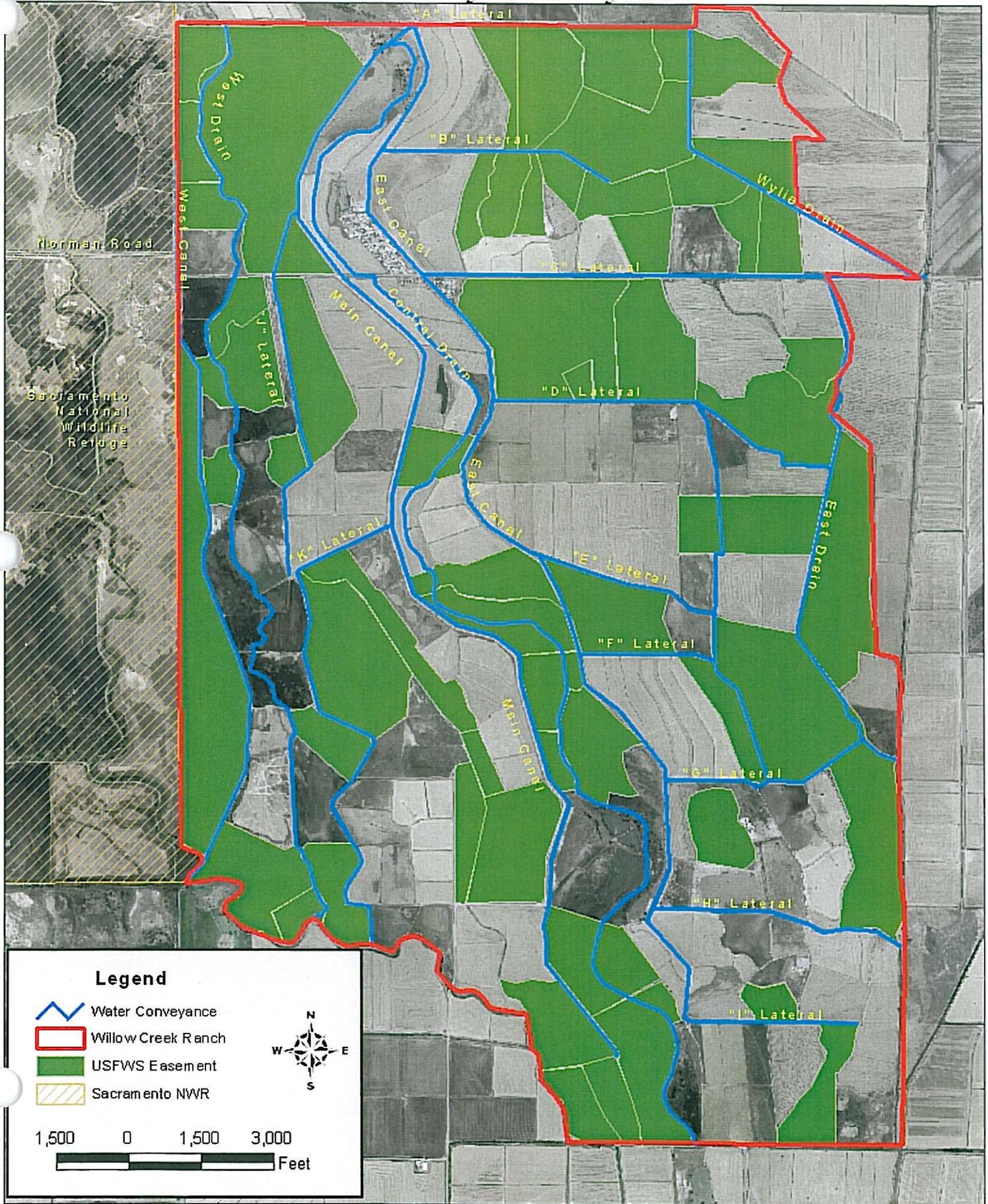
Willow Creek Ranch Water Conveyance System



Willow Creek Mutual Water Company Inlets and Outlets



Willow Creek Mutual Water Company Water Conveyance System



Willow Creek Mutual Water Company Wells and Lift Pumps

