Attachments to Accompany
Water Right Application
Rhys Vineyards, LLC

Attachment #1

3. Project Description

This Application is for the collection and storage of up to 14 acre-feet of water seasonally in an existing onstream reservoir. Water is used for irrigation of 38 acres as shown on the map accompanying this Application (Attachment #4). The reservoir and place of use are fully developed, and all pipelines and water transfer facilities are existing.

The reservoir is impounded by an earthen dam. Based aerial photographs of the project area, the dam and reservoir were constructed by a previous owner some time between 1998 and 2004. The place of use is also served by other non-jurisdictional sources of water.

Attachment #2

6. Water Availability
See separate attachment.

Attachment #3

10e. Outlet Pipe
The reservoir is existing, a pump will serve as the outlet.

Attachment #4

15. Map
See separate attachment.

Attachment #5

21. Project Photographs
See separate attachment

ATTACHMENT 2

Estimate of Water Availability to Accompany Water Right Application of Rhys Vineyards, LLC

California Water Code Section 1260(k) requires that every application for a permit to appropriate water shall include "sufficient information to demonstrate a reasonable likelihood that unappropriated water is available for the proposed appropriation." This narrative and accompanying calculations provide the required information.

The subject Application includes one reservoir as follows:

POD #	Source Description	Proposed Storage Capacity (af)
1	Unnamed stream tributary to Floodgate Creek	14

The subject Application is within the watershed of Floodgate Creek tributary to the Navarro River in Mendocino County (see attached Plate I). According to State Water Resources Control Board Order WR 98-08, there are no fully appropriated limitations on the subject watershed. The Application proposes a diversion season of November 1 to May 31, which conforms to Order WR 98-08. The following describes the methodology used to demonstrate a *reasonable* likelihood that water is physically available for the proposed appropriation.

Plate I shows the proposed point of diversion and the watershed areas tributary thereto. The map also shows lines of equal mean annual precipitation as shown on the map entitled *Mean Annual Precipitation within Navarro River Watershed* (Figure 4) taken from the December 15, 1998 Division of Water Rights Draft Decision for Application 29711, et al. This map is included as Attachment A.

The average seasonal runoff tributary to the point of diversion (POD) can be estimated based on adjustment of flow data recorded at a nearby stream gaged by the U.S. Geological Survey. The closest USGS gaged watershed with a significant length of record is the Navarro River Near Navarro gage (USGS #11468000). Table 1 summarizes the monthly discharge of the Navarro River as recorded at that gage for water years 1951 through 2008 (58 years). The average seasonal runoff at the application POD can be estimated by multiplying the Navarro River gage record by ratios that account for the difference in drainage area and mean annual precipitation between the gaged watershed and the watershed of interest. Table 2 summarizes the computation of drainage area and mean annual precipitation for the reference gage and the watershed of interest.

The table below summarizes this calculation. The Navarro River gaged watershed has a drainage area of about 195,271 acres, a mean annual precipitation of about 43.0 inches (based on evaluation of the mean annual precipitation map), and an average discharge during the proposed diversion season of 363,583 acre-feet. The drainage area for the

proposed POD and the mean annual precipitation over that area was estimated from the USGS 7.5-minute quad map and is shown in the table below.

The average seasonal discharge at the POD was then estimated by ratio, that is,

$$Q_2 = Q_1 \times (A_2/A_1) \times (MAP_2/MAP_1)$$

where:

Q_2 = Flow at point of interest;
Q_1 = Flow at gage;
A_2 = Drainage area above point of interest;
A_1 = Drainage area above gage;
MAP_2 = Area-weighted mean annual precipitation for watershed above point of interest;
MAP_1 = Area-weighted mean annual precipitation for watershed above gage.

Watershed	**Drainage Area (acres)**	**Mean Annual Precipitation (inches)**	**Average Discharge Nov 1 – May 31 (ac-ft/season)**
Navarro River gage	195,271	43.0	363,583
POD watershed	89	39.7	153

There are no existing water rights upstream of the subject PODs.

These calculations conclude that an average of 153 acre-feet would be available to the POD. This amount exceeds the applied-for total of 14 acre-feet, therefore, there is a reasonable likelihood that water is available for the subject application.

TABLE 1

USGS Gage #11468000 Navarro River Near Navarro, CA

Monthly Flow (acre-feet) of record (1950-10-01 - 2008-09-30)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1951	15,987	30,943	96,107	141,547	84,695	54,300	8,628	10,853	2,779	1,371	793	502	**448,505**
1952	1,310	11,984	162,084	170,754	93,472	77,230	13,299	6,094	3,225	1,789	849	714	**542,803**
1953	580	1,904	96,844	231,197	16,550	45,495	19,809	13,159	6,516	2,250	1,347	1,006	**436,657**
1954	1,353	13,597	13,933	123,223	89,305	64,501	55,042	7,471	4,028	1,752	1,365	1,244	**376,815**
1955	1,500	14,912	45,643	47,266	12,407	8,873	31,770	14,173	2,749	1,414	762	565	**182,035**
1956	812	3,219	235,747	211,274	141,848	36,530	8,170	4,427	2,261	1,297	830	631	**647,047**
1957	2,171	2,487	1,918	25,733	64,369	77,967	17,578	28,740	6,165	1,986	965	1,940	**232,019**
1958	22,566	14,299	42,181	104,039	306,681	77,230	108,299	8,854	4,499	2,152	1,162	887	**692,848**
1959	959	2,743	2,951	83,932	106,522	16,670	9,253	3,234	1,595	775	428	1,041	**230,103**
1960	922	887	1,586	18,287	114,180	76,861	13,805	7,563	3,344	1,506	787	388	**240,117**
1961	935	6,563	56,373	19,719	74,421	70,896	15,578	8,701	3,261	996	885	530	**258,858**
1962	719	13,222	25,475	15,218	127,404	73,417	9,557	4,243	1,970	928	732	573	**273,458**
1963	20,974	7,402	39,316	39,838	80,641	55,001	116,094	18,299	4,998	2,423	996	756	**386,739**
1964	3,081	33,597	8,664	68,744	13,943	10,804	5,849	3,425	1,868	818	475	423	**151,690**
1965	972	23,225	270,303	155,750	25,042	10,158	74,500	9,789	3,552	1,863	1,261	916	**577,332**
1966	1,027	22,011	30,142	100,964	66,535	34,286	12,692	4,150	2,089	879	584	631	**275,989**
1967	572	27,212	74,155	117,689	30,274	76,061	84,259	14,677	5,480	2,005	984	672	**434,040**
1968	1,383	2,261	18,606	77,537	57,067	49,443	10,068	3,861	1,720	762	879	702	**224,291**
1969	1,064	3,285	106,990	241,527	178,055	52,708	13,990	5,534	2,577	1,138	587	391	**607,844**
1970	1,150	2,106	73,848	335,973	58,482	30,056	7,474	3,290	1,553	867	421	346	**515,564**
1971	879	15,715	131,032	103,116	10,058	75,262	21,130	6,260	2,648	1,334	713	571	**368,719**
1972	812	2,969	29,182	24,632	27,858	28,254	14,727	3,984	1,458	639	308	481	**135,306**
1973	1,851	13,722	43,503	183,728	109,188	69,912	15,697	4,526	2,041	990	586	720	**446,463**
1974	2,164	120,974	110,987	226,462	58,426	170,446	76,940	7,711	3,677	2,552	1,261	696	**782,296**
1975	1,008	2,362	24,891	43,909	157,450	168,786	24,962	8,338	2,458	1,297	689	591	**436,742**
1976	3,265	4,963	8,209	3,560	18,516	20,568	23,570	2,982	851	328	605	266	**87,683**
1977	435	1,131	1,138	2,712	3,255	5,848	2,035	867	252	38	42	312	**18,062**
1978	695	8,283	63,641	235,439	125,960	93,954	39,880	8,664	2,821	1,328	658	1,172	**582,495**
1979	812	964	1,623	35,110	89,583	50,015	14,335	10,613	2,315	996	322	387	**207,074**
1980	4,267	24,825	38,129	152,430	124,361	53,341	18,804	6,272	2,713	1,359	592	469	**427,563**
1981	879	1,012	10,545	78,213	35,200	33,419	9,914	3,548	1,089	349	194	302	**174,665**
1982	4,144	90,329	167,064	94,631	102,468	91,310	149,774	10,342	3,326	1,586	830	827	**716,632**
1983	3,185	38,190	137,304	160,485	183,498	263,171	120,141	30,701	5,820	2,872	1,648	1,500	**948,513**
1984	1,340	94,910	216,501	33,511	39,793	32,503	14,549	6,081	2,713	1,094	607	431	**444,035**
1985	1,359	61,707	26,821	9,100	39,177	36,057	12,127	3,320	1,351	430	304	580	**192,333**
1986	1,279	5,480	21,878	53,151	280,745	110,556	10,723	4,784	1,958	793	410	863	**492,618**
1987	1,027	1,202	4,212	17,100	39,976	74,709	8,307	2,453	869	359	182	149	**150,545**
1988	652	2,172	78,767	89,712	10,193	4,292	3,636	2,171	964	280	130	81	**193,049**
1989	191	9,420	16,995	18,422	4,304	119,657	16,560	3,837	1,357	639	241	397	**192,020**
1990	3,216	2,523	1,648	24,872	29,624	14,862	3,499	16,848	7,224	1,279	334	268	**106,197**
1991	354	539	1,519	1,476	4,826	110,679	9,943	2,644	1,047	446	181	79	**133,734**
1992	462	1,101	6,807	15,188	113,202	56,760	10,187	3,136	1,113	824	195	157	**209,131**
1993	898	1,636	74,401	284,938	58,370	35,430	25,962	11,259	11,871	2,416	1,254	762	**509,197**
1994	689	881	11,646	19,830	61,036	9,568	5,117	3,370	1,101	392	162	103	**113,893**
1995	181	2,660	11,468	399,429	36,627	262,556	37,119	28,826	5,385	2,570	1,193	560	**788,575**
1996	572	785	51,288	127,835	119,990	68,498	21,975	13,478	4,647	1,623	818	503	**412,013**
1997	750	3,761	175,058	211,213	33,912	22,449	7,962	4,046	2,225	996	521	411	**463,305**
1998	1,377	24,974	34,538	195,349	308,014	93,401	40,588	24,417	15,537	4,550	1,949	1,160	**745,855**
1999	1,082	14,180	30,677	34,280	166,281	99,427	48,574	8,590	3,481	1,470	953	549	**409,543**
2000	842	8,414	8,977	53,649	142,941	58,180	13,704	6,296	2,630	1,322	575	484	**298,016**
2001	1,045	1,821	2,964	17,659	71,311	43,565	5,558	2,300	934	515	146	105	**147,922**
2002	194	13,418	91,372	86,576	29,502	20,795	7,581	3,554	1,386	566	232	99	**255,276**
2003	147	2,339	188,831	86,391	22,593	42,261	82,355	39,642	5,153	2,201	842	506	**473,261**
2004	470	1,678	70,835	59,177	169,343	29,619	7,611	3,554	1,422	563	262	201	**344,734**
2005	1,150	1,595	41,548	73,479	27,891	90,634	49,443	34,766	12,210	3,978	1,224	655	**338,572**
2006	742	3,380	224,366	136,286	69,042	177,509	128,035	12,635	4,538	2,130	901	436	**760,000**
2007	319	1,720	24,472	7,606	73,255	21,958	5,778	3,117	1,154	488	226	170	**140,263**
2008	1,058	1,029	11,375	110,310	90,941	13,349	4,439	2,330	964	327	148	129	**236,400**
Average	**1,927**	**13,959**	**61,456**	**99,994**	**83,262**	**65,224**	**30,532**	**9,157**	**3,301**	**1,325**	**680**	**570**	**371,385**

Notes:

Source: USGS National Water Information System, Surface Water Data (http://waterdata.usgs.gov/nwis/sw), accessed April 23, 2009.

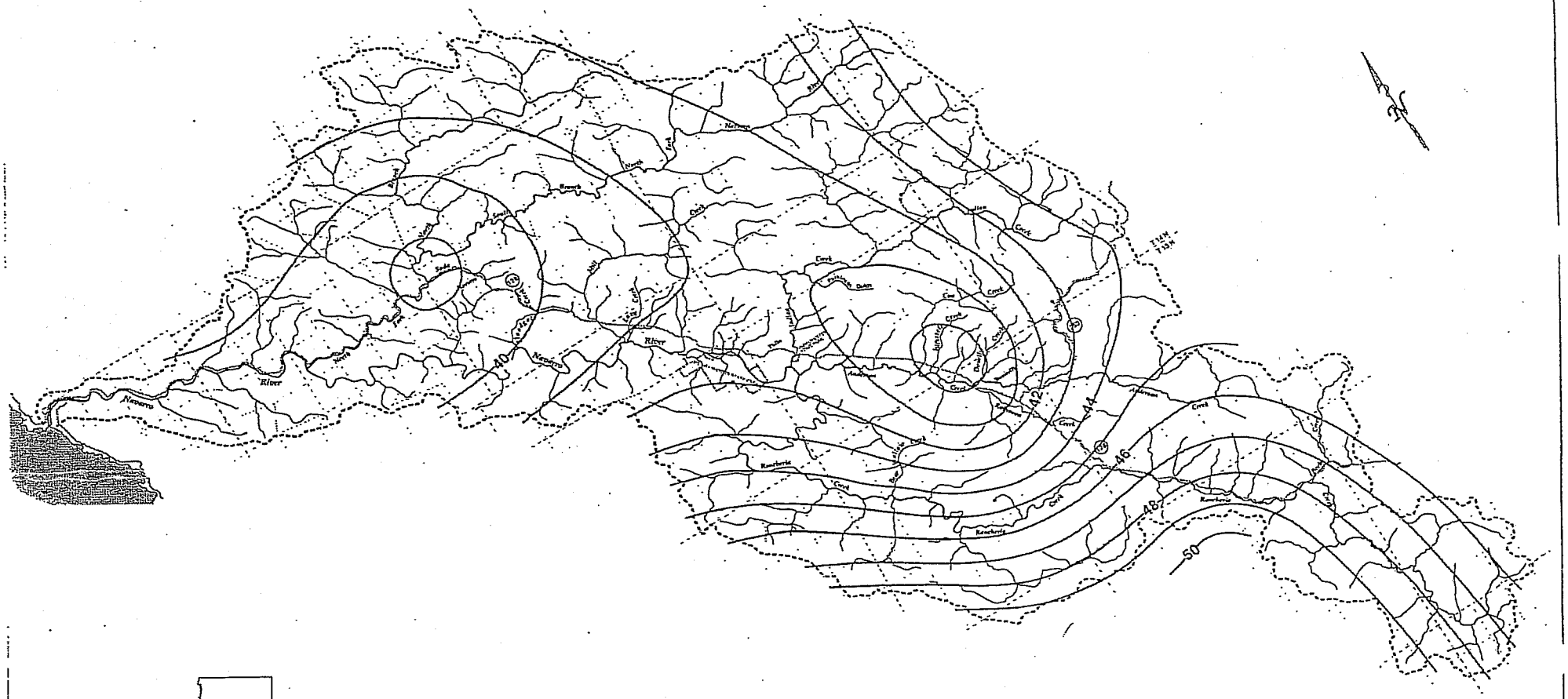
Data for water year 2006 was calculated using preliminary daily data.

Table 2
Rhys Vineyards
Calculation of Weighted Mean Annual Precipitation in POD Watersheds

Watershed	Area (ac)	Mean Annual Precipitation (in)	Volume (ac-in)	Volume (ac-ft)	Percent of Gage (%)
USGS 11468000 Navarro River Near Navarro, CA					
	1,907	39	74,373		
	20,327	39.5	802,917		
	22,794	40.5	923,157		
	7,936	40.5	321,408		
	1,576	40	63,040		
	43,013	41.5	1,785,040		
	19,306	42.5	820,505		
	16,393	43.5	713,096		
	15,041	44.5	669,325		
	11	45	495		
	9,948	45.5	452,634		
	8,934	46.5	415,431		
	11,089	47.5	526,728		
	8,697	48.5	421,805		
	672	49.5	33,264		
	202	49.5	9,999		
	3,792	49.5	187,704		
	2,530	46.5	117,645		
	1,103	46	50,738		
Total	**195,271**		**8,389,301**		
Weighted Average		**43.0**		-	
POD #1					
	89	39.7	3,518	293	0.042%

Notes:
1. Weighted mean annual precipitation from automatic calculation using AutoCAD.

Attachment A


40
42
44
46
48
50
River
Navarro
Rancheria
Creek
Branch
Fork
North
South
East
West
Little
Big
Mill
Indian
Phillips
Anderson
Alder
Hurricane
Ten
Mile
Bear
Cow
Ward
Smith
Stone
Brown
Hollow
Pole
Jackson
Ryan
Hill
Rice
Ellen
Cold
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Hare
Ash
Oak
Rock
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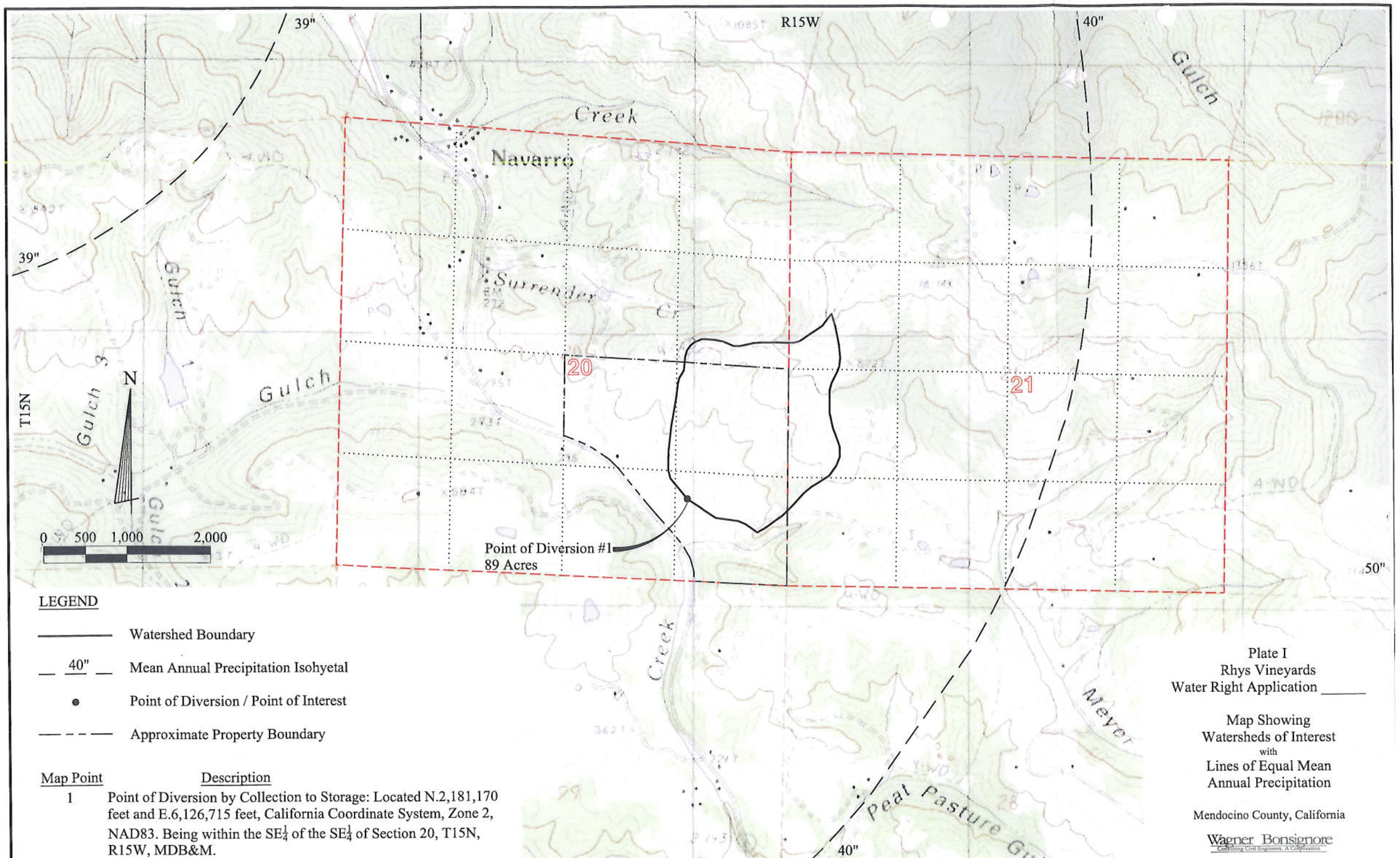
Wolf
Fish
Hog
Elk
Deer



LEGEND

Watershed Boundary

40" Mean Annual Precipitation Isohyetal

Point of Diversion / Point of Interest

Approximate Property Boundary

Map Point	Description
1	Point of Diversion by Collection to Storage: Located N.2,181,170 feet and E.6,126,715 feet, California Coordinate System, Zone 2, NAD83. Being within the SE¼ of the SE¼ of Section 20, T15N, R15W, MDB&M.

Plate I
Rhys Vineyards
Water Right Application _____

Map Showing
Watersheds of Interest
with
Lines of Equal Mean
Annual Precipitation

Mendocino County, California

Wagner Bonsignore
Consulting Civil Engineers, A Corporation

June 2010

Base map per USGS 7.5 Minute Quad map for Navarro.
Average annual rainfall isohyetals per Mean Annual Precipitation within the Navarro River Watershed compiled by California State Water Resource Control Board.

Q:\Drawings\Rhys Vineyards\Prelim WAA Map.dwg