“E”

Tier 1 Water Use Calculations

Anthem Winery P14-00320-MOD and Exception to Road and Street Standards,
Variance P14-00321-VAR and Viewshed, and
Agricultural Erosion Control Plan P14-00322-ECPA
Planning Commission Hearing Date (Wednesday, February 5, 2020)

TIER 1 WATER USE CALCULATIONS

For

Anthem Winery
3454 Redwood Rd
Napa, CA

APN 035-470-046

Prepared for

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3454 Redwood Rd
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Project #4111010.0

March 18, 2015
Revised: January 9, 2019

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I. Executive Summary

These calculations demonstrate that the proposed total ground water use on both parcels is less than the estimated groundwater recharge rate for normal, "Average Rainfall", and dry, "Drought" years. The currently approved groundwater use on both parcels is greater than the estimated groundwater recharge rate.

The methods used in this analysis are based on the Final Adopted Napa County Water Availability Analysis guidance document, dated May 12, 2015.

The existing and proposed water use for the Anthem Winery parcels are as follows:

Usage Type	Existing [af/yr]	*Approved [af/yr]*	Proposed [af/yr]
Parcel 1 – Vineyard (APN: 035-460-038)			
Residential	0.75	*0.75*	0.75
Vineyard	0.00	*0.96*	0.62
Parcel 1 Water Use	**0.75**	***1.71***	**1.37**
Parcel 2 – Winery (APN: 035-470-046)			
Residential	0.75	*0.75*	0.75
Vineyard	2.89	*3.41*	3.00
Winery			
Process Water	0.00	*0.46*	0.77
Landscaping	0.00	*0.15*	0.54
Employees	0.00	*0.02*	0.10
Visitors	0.00	*0.01*	0.11
Events	0.00	*0.00*	0.08
Parcel 2 Water Use	**3.64**	***4.80***	**5.35**
Additional Water Supply (Average Rainfall Year)			
90% Reclaimed Process Wastewater	0.00	*0.00*	-0.69
85% Harvested Rainwater	0.00	*0.00*	-1.32
Total Groundwater Use (Average Rainfall Year)	**4.39**	***6.51***	**4.71**
Additional Water Supply (Drought Year)			
90% Reclaimed Process Wastewater	0.00	*0.00*	-0.69
85% Harvested Rainwater	0.00	*0.00*	-0.63
Total Groundwater Use (Drought Year)	**4.39**	***6.51***	**5.40**

The proposed average pump rate for project wells (3, 6, and 8 combined) during Average Rainfall years is 1.2 gpm, on a 12 hour/day duty cycle. Similarly, the average proposed pump rate for project wells during Drought years is 2.1 gpm. Sufficient water storage will be provided on site to normalize pump rates throughout the year. Refer to attached Water Balance for monthly water production, use, and storage schedule.

II. Parcel 1 – Vineyard (APN: 035-460-038)

Residential Water Use

Existing primary residence + guest house to remain (3 bedrooms total):

$$W_{Residential} = \mathbf{0.75\ af/yr}$$

Non-Residential Water Use

Approved Agricultural (P12-00401)

Previously Approved, Unplanted Vineyards – Irrigation Only (refer to Vineyard Exhibit):

$$W_{A\_Vineyards} = \left(\frac{0.5\ af/yr}{ac}\right)(1.55ac + 0.11ac + 0.25ac) = \mathbf{0.96\ af/yr}$$

Proposed Agricultural

40% reduction in vineyard demand due to proposed switch to water-efficient underground irrigation:

$$Q_{DRI} = 0.6\left(\frac{0.5\ af/yr}{ac}\right) = 0.3\ af/yr$$

Previously Approved Vineyards to be planted – Underground Irrigation Only:

$$W_{A\_Vineyards} = \left(\frac{0.3\ af/yr}{ac}\right)(1.55ac + 0.11ac) = 0.498\ af/yr$$

New Proposed Vineyards – Underground Irrigation Only:

$$W_{P\_Vineyards} = \left(\frac{0.3\ af/yr}{ac}\right)(0.90ac) = 0.27\ af/yr$$

50% reduction for planting 1 acre of low-water varietal (e.g. Sauvignon Blanc):

$$W_{DRI\_Low-Water} = -0.5\left(\frac{0.3af/yr}{ac}\right)(1.0ac) = -0.15\ af/yr$$

Total Post-Project Vineyards – Irrigation Only:

$$W_{Vineyards} = 0.498\ af/yr + 0.27\ af/yr - 0.15\,af/yr = \mathbf{0.62\ af/yr}$$

Total Parcel 1 Water Use

$$W1_{Existing} = \mathbf{0.75\ af/yr}$$

$$W1_{Approved} = 0.75\ af/yr + 0.96\ af/yr = \mathbf{1.71\ af/yr}$$

$$W1_{Proposed} = 0.75\ af/yr + 0.62\ af/yr = \mathbf{1.37\ af/yr}$$

III. Parcel 2 – Winery (APN: 035-470-046)

Residential Water Use

Primary Residence to remain

$W_{Primary} = \mathbf{0.75\ af/yr}$

Non-Residential Water Use

Existing Agricultural

Existing Vineyards – Irrigation Only:

$$W_{E\_Vineyards} = \left(\frac{0.5\ af/yr}{ac}\right)(5.57ac + 0.20) = 2.885\ af/yr$$

Approved Agricultural (P08-00345, P12-00401)

Previously Approved, Unplanted Vineyards – Irrigation Only:

$$W_{A\_Vineyards} = \left(\frac{0.5\ af/yr}{ac}\right)(0.08ac + 0.08ac + 0.58ac + 0.30ac) = 0.52\ af/yr$$

Total Existing and Approved Vineyards – Irrigation Only:

$$W_{Vineyards} = 2.885\ af/yr + 0.52\ af/yr = \mathbf{3.41\ af/yr}$$

Proposed Agricultural

Existing Vineyards to remain – Irrigation Only:

$$W_{E\_Vineyards} = \left(\frac{0.5\ af/yr}{ac}\right)(5.57ac) = 2.785\ af/yr$$

Previously Approved Vineyards to be planted (0.38 ac to remain unplanted) – Underground Irrigation Only:

$$W_{A\_Vineyards} = \left(\frac{0.3\ af/yr}{ac}\right)(0.08ac + 0.58ac) = 0.198\ af/yr$$

New Proposed Vineyards – Underground Irrigation Only:

$$W_{P\_Vineyards} = \left(\frac{0.3\ af/yr}{ac}\right)(0.05ac) = 0.015\ af/yr$$

Total Post-Project Vineyards – Irrigation Only:

$$W_{Vineyards} = 2.785\ af/yr + 0.198\ af/yr + 0.015\ af/yr = \mathbf{3.00\ af/yr}$$

Existing Winery

Previously Approved Winery Process Water:

$$W_{Process} = \left(\frac{5\ gal.process\ water/gal.wine}{325{,}851\ gal/af}\right)(30{,}000\ gal.wine) = \mathbf{0.46\ af/yr}$$

Previously Approved Landscaping (Tier 1 WAA method):

$$W_{Landscaping} = \left(\frac{0.5\ af/yr}{100{,}000\ gal.of\ wine}\right)(30{,}000\ gal.of\ wine) = \mathbf{0.15\ af/yr}$$

Previously Approved Employees:

$$Shifts_{Full-time} = \left[(2)\left(\frac{1\ shift}{8\ hours}\right)\left(\frac{40\ hours}{week}\right)\right]\left[\frac{52\ weeks}{yr}\right] = 520\ shifts/yr$$

$$W_{Employees} = \left[\left(\frac{15\ gal./yr}{shift}\right)(520\ shifts)\right]\left[\frac{1\ af}{325{,}851\ gal.}\right] = \mathbf{0.02\ af/yr}$$

Previously Approved Visitors:

$$Visitors = \left(\frac{5\ visitors}{week}\right)\left(\frac{52\ weeks}{yr}\right) = 260\ visitors/yr$$

$$W_{Visitors} = \left[\left(\frac{3\ gal./yr}{visitor}\right)(260\ visitors)\right]\left[\frac{1\ af}{325{,}851\ gal.}\right] = \mathbf{0.01\ af/yr}$$

Proposed Winery Expansion

Proposed Winery Process Water:

$$W_{Process} = \left(\frac{5\ gal.process\ water/gal.wine}{325{,}851\ gal/af}\right)(50{,}000\ gal.wine) = \mathbf{0.77\ af/yr}$$

Proposed Landscaping (WELO Analysis, Estimated Total Water Use):

$$W_{Landscaping} = (175{,}917\ gal/yr)\left[\frac{1af}{325{,}851\ gal}\right] = \mathbf{0.54\ af/yr}$$

Proposed Employees:

$$Shifts_{Full-time} = \left[(7)\left(\frac{1\ shift}{8\ hours}\right)\left(\frac{40\ hours}{week}\right)\right]\left[\frac{52\ weeks}{yr}\right] = 1{,}820\ shifts/yr$$

$$Shifts_{Part-time} = \left[(5)\left(\frac{1\ shift}{8\ hours}\right)\left(\frac{40\ hours}{week}\right)\right]\left[\frac{12\ weeks}{yr}\right] = 300\ shifts/yr$$

$$W_{Employees} = \left[\left(\frac{15\ gal./yr}{shift}\right)(1{,}820\ shifts + 300\ shifts)\right]\left[\frac{1\ af}{325{,}851\ gal.}\right] = \mathbf{0.10\ af/yr}$$

Proposed Visitors:

$$Visitors = \left(\frac{224\ visitors}{week}\right)\left(\frac{52\ weeks}{yr}\right) = 11{,}648\ visitors/yr$$

$$W_{Visitors} = \left[\left(\frac{3\ gal./yr}{visitor}\right)(11{,}648\ visitors)\right]\left[\frac{1\ af}{325{,}851\ gal.}\right] = \mathbf{0.11\ af/yr}$$

Proposed Events:

$$\begin{aligned} Visitors = &\left(\frac{22\ events}{year}\right)\left(\frac{30\ visitors}{event}\right) + \left(\frac{2\ events}{year}\right)\left(\frac{50\ visitors}{year}\right) \\ &+ \left(\frac{6\ events}{yr}\right)\left(\frac{100\ visitors}{event}\right) + \left(\frac{1\ event}{yr}\right)\left(\frac{200\ visitors}{event}\right) \\ &= 1{,}560\ event\ visitors/yr \end{aligned}$$

$$\begin{aligned} Event\ Staff = &\left(\frac{22 event_{30}}{yr}\right)\left(\frac{2\ staff}{event_{30}}\right) + \left(\frac{2 event_{50}}{yr}\right)\left(\frac{3\ staff}{event_{50}}\right) \\ &+ \left(\frac{6\ event_{100}}{yr}\right)\left(\frac{5\ staff}{event_{100}}\right) + \left(\frac{1\ event_{200}}{yr}\right)\left(\frac{10\ staff}{event_{200}}\right) \\ &= 90\ event\ staff/yr \end{aligned}$$

$$W_{Events} = \left[\left(\frac{15\ gal./yr}{person}\right)(1{,}560\ visitors + 90\ staff)\right]\left[\frac{1\ af}{325{,}851\ gal.}\right] = \mathbf{0.08\ af/yr}$$

Total Parcel 2 Water Use:

$$W2_{Existing} = 0.75\ af/yr + 2.89\ af/yr = \mathbf{3.64\ af/yr}$$

$$\begin{aligned} W2_{Approved} = &\ 0.75\ af/yr + 3.41\ af/yr + 0.46\ af/yr + 0.15\ af/yr + 0.02\ af/yr \\ &+ 0.01\ af/yr = \mathbf{4.80\ af/yr} \end{aligned}$$

$$\begin{aligned} W3_{Proposed} = &\ 0.75\ af/yr + 3.00\ af/yr + 0.77\ af/yr + 0.54\ af/yr + 0.10\ af/yr \\ &+ 0.11\ af/yr + 0.08\ af/yr = \mathbf{5.35\ af/yr} \end{aligned}$$

Beneficial Use of Reclaimed Process Wastewater

Proposed Reclaimed Process Wastewater (90% Capture):

$$90\%\ PW = 0.9(0.77 af/yr) = 0.69\ af/yr$$

Beneficial Use of Harvested Rainwater

Average Annual Rainfall (PRISM), per RCS = $30.0\ in/yr$

Drought year, per RCS = 48% of average:

$$Drought\ year = 0.48(30.0\ in/yr) = 14.4\ in/yr$$

Proposed Rainwater Harvesting

Building	Roof Area	
Fermentation Room 1:	4,478	sf
Fermentation Room 2:	5,207	sf
Hospitality*:	0	sf
Office*:	0	sf
Outdoor Event Area:	1,204	sf
Parcel 1 Residence & Guest House:	1,760	sf
Parking Lot & Roof Terrace**:	14,397	sf
Total roof area	27,046	sf

* Rainwater harvesting systems to be constructed at a later date - not included in water balance.
** Collected separately for irrigation only.

Average Rainfall Year Harvested Rainwater (85% Capture):

$$85\%\ RW_{Average\ Year} = (0.85)\left(30\frac{in}{yr}\right)(27{,}046\ sf)\left(\frac{1\ ac}{43{,}560\ sf}\right)\left(\frac{1\ ft}{12\ in}\right) = \mathbf{1.32\ \ af/yr}$$

Drought Year Harvested Rainwater (85% Capture):

$$85\%\ RW_{Drought\ Year} = (0.85)(14.4\ in/yr)(27{,}046\ sf)\left(\frac{1\ ac}{43{,}560\ sf}\right)\left(\frac{1\ ft}{12\ in}\right) = \mathbf{0.63\ \ af/yr}$$

Total Groundwater Use

Average Rainfall Year Groundwater Use:

$$GW_{Existing-Average} = 0.75\ af/yr + 3.64\ af/yr = \mathbf{4.39\ \ af/yr}$$

$$GW_{Approved-Average} = 1.71\ af/yr + 4.80\ af/yr = \mathbf{6.51\ \ af/yr}$$

$$GW_{Proposed-Average} = 1.37\ af/yr + 5.35\ af/yr - 0.69\ af/yr - 1.32\ af/yr = \mathbf{4.71\ \ af/yr}$$

Drought Year Groundwater Use

$$GW_{Existing-Drought} = 0.75\ af/yr + 3.64\ af/yr = \mathbf{4.39\ \ af/yr}$$

$$GW_{Approved-Drought} = 1.71\ af/yr + 4.80\ af/yr = \mathbf{6.51\ \ af/yr}$$

$$GW_{Proposed-Drought} = 1.37\ af/yr + 5.35\ af/yr - 0.69\ af/yr - 0.63\ af/yr = \mathbf{5.40\ \ af/yr}$$

Groundwater Sources

Well 4 (non-project well)

Existing supply to remain – 20% of Parcel 1 Residence:

$$W_{Well\ 4\ Existing} = (0.20)(0.75\ af/yr) = \mathbf{0.15\ \ af/yr}$$

Wells 1, 5, 7 (non-project wells)
Existing supply to remain – Parcel 2 Residence and Vineyards:

$$W_{Well\ 1,5,7\ Existing} = 0.75\ af/yr + 2.89\ af/yr = \mathbf{3.64\ af/yr}$$

Well 2 (non-project well)
Destroyed in 2014 earthquake. To be abandoned per Napa County Well Destruction Guidelines.

Wells 3, 6, 8 (project wells)
Average Rainfall Year Supply:

$$W_{3,6,8\ Existing-Average} = 4.39\ af/yr - 0.15\ af/yr - 3.64\ af/yr = \mathbf{0.60\ af/yr}$$

$$W_{3,6,8\ Approved-Average} = 6.51\ af/yr - 0.15\ af/yr - 3.64\ af/yr = \mathbf{2.72\ af/yr}$$

$$W_{3,6,8\ Proposed-Average} = 4.71\ af/yr - 0.15\ af/yr - 3.64\ af/yr = \mathbf{0.92\ af/yr}$$

Drought Year Supply:

$$W_{3,6,8\ Existing-Drought} = 4.39\ af/yr - 0.15\ af/yr - 3.64\ af/yr = \mathbf{0.60\ af/yr}$$

$$W_{3,6,8\ Approved-Drought} = 6.51\ af/yr - 0.15\ af/yr - 3.64\ af/yr = \mathbf{2.72\ af/yr}$$

$$W_{3,6,8\ Proposed-Drought} = 5.40\ af/yr - 0.15\ af/yr - 3.64\ af/yr = \mathbf{1.61\ af/yr}$$

Proposed Average Rainfall Year Pump Rate, 12 hr/day duty cycle:

$$Q_{3,6,8\ Proposed-Average} = (0.92\ af/yr)\left(\frac{325{,}851\ gal}{1\ af}\right)\left(\frac{1\ yr}{365\ days}\right)\left(\frac{1\ day}{12\ hrs}\right)\left(\frac{1\ hr}{60\ min}\right)$$
$$= \mathbf{1.1\ gpm}$$

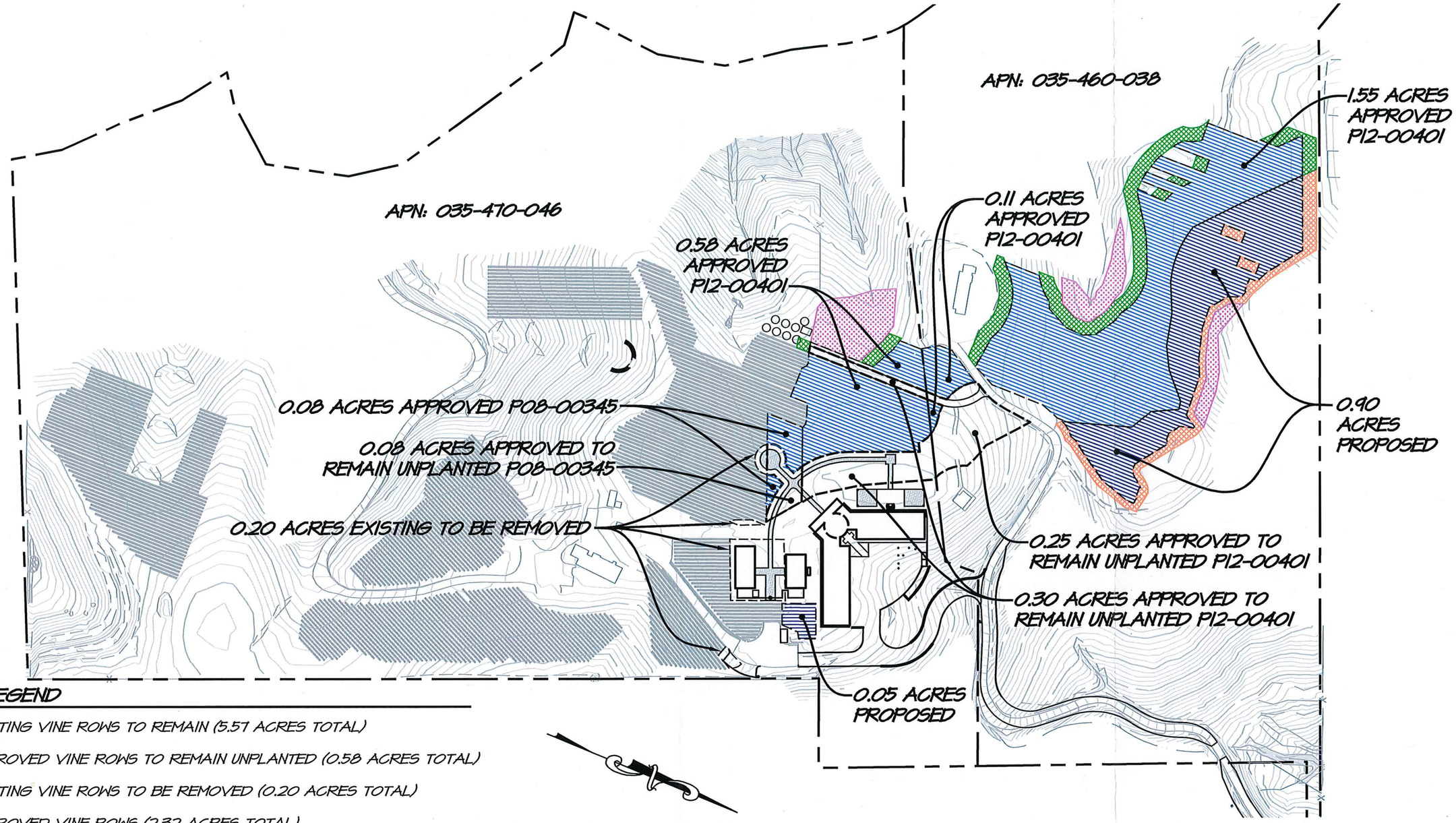
Proposed Drought Year Pump Rate, 12 hr/day (720 min/day) duty cycle:

$$Q_{3,6,8\ Proposed-Drought} = (1.61\ af/yr)\left(\frac{325{,}851\ gal}{1\ af}\right)\left(\frac{1\ yr}{365\ days}\right)\left(\frac{1\ day}{12\ hrs}\right)\left(\frac{1\ hr}{60\ min}\right)$$
$$= \mathbf{2.0\ gpm}$$

ATTACHMENTS

Vineyard Exhibit, Water Balance, WELO Calculations, WRCC Rainfall Data

ANTHEM WINERY
VINEYARD EXHIBIT



VINEYARD LEGEND

- EXISTING VINE ROWS TO REMAIN (5.57 ACRES TOTAL)
- APPROVED VINE ROWS TO REMAIN UNPLANTED (0.58 ACRES TOTAL)
- EXISTING VINE ROWS TO BE REMOVED (0.20 ACRES TOTAL)
- APPROVED VINE ROWS (2.32 ACRES TOTAL)
- PROPOSED VINE ROWS (0.95 ACRES TOTAL)
- APPROVED 20' VINEYARD AVENUE (0.41 ACRES TOTAL)
- PROPOSED 10' VINEYARD AVENUE (0.24 ACRES TOTAL)
- NATIVE BUNCH GRASSES (0.41 ACRES TOTAL)

GRAPHIC SCALE

150 0 150 300

(IN FEET)
1 inch = 150 FT

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JUNE 5, 2018 4111010.0 Exh-Vineyards.dwg

Average Year Water Balance - Wells 3, 6, 8

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
					---------- 20-week irrigation season ----------									
Vineyard					0.02	0.02	0.02	0.02	0.02				0.11	
Residential	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.60	
Winery														
Winery domestic water	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.29	
Winery process water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Winery landscape irrigation	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.08)	
Well water to storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
TOTAL	**0.07**	**0.07**	**0.07**	**0.07**	**0.09**	**0.08**	**0.08**	**0.09**	**0.09**	**0.07**	**0.07**	**0.07**	**0.92**	
days in month (for pumping rate calc)	31	28	31	30	31	30	31	31	30	31	30	31		
hours of pumping per day (for pumping rate calc)	12	12	12	12	12	12	12	12	12	12	12	12	**Average:**	
pumping rate from 3, 6, and 8 COMBINED (average year)	1.1	1.2	1.0	1.0	1.3	1.3	1.2	1.3	1.3	1.0	1.1	1.1	**1.1**	**gpm**
Well water storage for irrigation (AF)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**Max:**	
Well water storage for irrigation (gal)	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**gal Well Water Tank**

Average Year Water Balance - Reclaimed Process Wastewater

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
					---------- 20-week irrigation season ----------									
Vineyard					0.12	0.12	0.12	0.12	0.12				0.62	
Residential														
Winery														
Winery domestic water														
Winery process water	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)	(0.05)	(0.06)	(0.07)	(0.10)	(0.10)	(0.08)	(0.06)	(0.69)	
Winery landscape irrigation	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.07	
TOTAL	**0.03**	**0.04**	**0.04**	**0.03**	**(0.09)**	**(0.09)**	**(0.07)**	**(0.06)**	**(0.03)**	**0.09**	**0.07**	**0.05**	**(0.00)**	
Reclaimed process wastewater storage required (AF)	0.24	0.28	0.32	0.35	0.26	0.17	0.10	0.03	0.00	0.09	0.17	0.22	**Max:**	
Reclaimed process wastewater storage required (gal)	79,811	92,456	104,398	113,387	83,655	55,750	32,201	11,322	0	29,929	53,816	71,380	**113,387**	**gal Recycled PWW Tank**

Average Year Water Balance - Harvested Rainwater

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
					---------- 20-week irrigation season ----------									
Vineyard					0.00	0.00	0.00	0.00	0.00				0.00	
Residential														
Winery														
Winery domestic water														
Winery process water	0.03	0.05	0.05	0.04	0.05	0.05	0.07	0.08	0.11	0.11	0.08	0.06	0.77	
Winery landscape irrigation	0.01	0.02	0.04	0.05	0.07	0.08	0.08	0.07	0.06	0.04	0.02	0.01	0.55	
Rainfall - % of total (from Napa State Hospital averages)	20.4%	17.9%	13.5%	6.8%	2.7%	0.9%	0.1%	0.2%	1.3%	5.5%	12.1%	18.6%	100.0%	
Average year (in)	6.13	5.37	4.05	2.03	0.82	0.26	0.02	0.07	0.39	1.65	3.62	5.59	30.00	
Average year (AF)	(0.27)	(0.24)	(0.18)	(0.09)	(0.04)	(0.01)	(0.00)	(0.00)	(0.02)	(0.07)	(0.16)	(0.25)	(1.32)	
TOTAL	**0.23**	**0.17**	**0.09**	**(0.00)**	**(0.08)**	**(0.12)**	**(0.15)**	**(0.14)**	**(0.15)**	**(0.07)**	**0.05**	**0.17**	**0.00**	
Harvested rainwater storage required (AF)	0.45	0.62	0.72	0.71	0.64	0.52	0.37	0.22	0.07	0.00	0.05	0.23	**Max:**	
Harvested rainwater storage required (gal)	147,708	202,965	233,768	232,635	207,223	167,923	119,171	71,926	23,621	0	17,648	74,357	**233,768**	**gal Rainwater Tank**

Drought Year Water Balance - Wells 3, 6, 8

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
					---------- 20-week irrigation season ----------									
Vineyard					0.02	0.02	0.02	0.02	0.02				0.11	
Residential	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.60	
Winery														
Winery domestic water	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.29	
Winery process water	0.02	0.03	0.03	0.02	0.03	0.03	0.04	0.04	0.06	0.06	0.05	0.03	0.42	
Winery landscape irrigation	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.02	0.02	0.01	0.01	0.00	0.19	
Well water to storage	0.04	0.01	0.01	0.01	0.00	(0.02)	(0.02)	(0.02)	(0.03)	(0.01)	0.01	0.02		
TOTAL	**0.14**	**0.12**	**0.12**	**0.12**	**0.14**	**0.13**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.13**	**1.61**	
days in month (for pumping rate calc)	31	28	31	30	31	30	31	31	30	31	30	31		
hours of pumping per day (for pumping rate calc)	12	12	12	12	12	12	12	12	12	12	12	12	**Average:**	
pumping rate from 3, 6, and 8 COMBINED (drought year)	2.0	1.9	1.8	1.9	2.1	2.0	2.1	2.1	2.2	2.0	2.1	1.9	**2.0**	**gpm**
Well water storage for irrigation (AF)	0.09	0.10	0.11	0.12	0.10	0.08	0.06	0.04	0.01	0.00	0.01	0.03	**Max:**	
Well water storage for irrigation (gal)	29,327	32,585	35,844	39,102	32,585	26,068	19,551	13,034	3,259	0	3,259	9,776	**39,102**	**gal Well Water Tank**

Drought Year Water Balance - Reclaimed Process Wastewater

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
					---------- 20-week irrigation season ----------									
Vineyard					0.12	0.12	0.12	0.12	0.12				0.62	
Residential														
Winery														
Winery domestic water														
Winery process water	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)	(0.05)	(0.06)	(0.07)	(0.10)	(0.10)	(0.08)	(0.06)	(0.69)	
Winery landscape irrigation	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.07	
TOTAL	**0.03**	**0.04**	**0.04**	**0.03**	**(0.09)**	**(0.09)**	**(0.07)**	**(0.06)**	**(0.03)**	**0.09**	**0.07**	**0.05**	**(0.00)**	
Reclaimed process wastewater storage required (AF)	0.24	0.28	0.32	0.35	0.26	0.17	0.10	0.03	0.00	0.09	0.17	0.22	**Max:**	
Reclaimed process wastewater storage required (gal)	79,811	92,456	104,398	113,387	83,655	55,750	32,201	11,322	0	29,929	53,816	71,380	**113,387**	**gal Recycled PWW Tank**

Drought Year Water Balance - Harvested Rainwater

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
					---------- 20-week irrigation season ----------									
Vineyard					0.00	0.00	0.00	0.00	0.00				0.00	
Residential														
Winery														
Winery domestic water														
Winery process water	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.05	0.05	0.04	0.03	0.35	
Winery landscape irrigation	0.01	0.01	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.01	0.01	0.28	
Rainfall - % of total (from Napa State Hospital averages)	20.4%	17.9%	13.5%	6.8%	2.7%	0.9%	0.1%	0.2%	1.3%	5.5%	12.1%	18.6%	100.0%	
Drought year (in)	2.94	2.58	1.94	0.97	0.39	0.12	0.01	0.04	0.19	0.79	1.74	2.68	14.40	
Drought year (AF)	(0.13)	(0.11)	(0.09)	(0.04)	(0.02)	(0.01)	(0.00)	(0.00)	(0.01)	(0.03)	(0.08)	(0.12)	(0.63)	
TOTAL	**0.11**	**0.08**	**0.05**	**(0.00)**	**(0.04)**	**(0.06)**	**(0.07)**	**(0.07)**	**(0.07)**	**(0.03)**	**0.03**	**0.08**	**0.00**	
Harvested rainwater storage required (AF)	0.22	0.30	0.35	0.34	0.31	0.25	0.17	0.10	0.03	0.00	0.03	0.11	**Max:**	
Harvested rainwater storage required (gal)	71,857	98,527	113,261	112,406	99,803	80,480	56,707	33,840	10,878	0	8,937	36,550	**113,261**	**gal Rainwater Tank**

Anthem Winery
3123 Dry Creek Rd, Napa, CA 94558

Section B. Water Efficient Landscape Worksheet

Based on planting plans dated 1/7/2019

Reference Evapotranspiration (ETo) 44.3

Valve	Symbol	Hydrozone / Planting Description	WUCOLS	Zone Plant Factor	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Landscape Area (sq.ft)	ETAF x Area	Estimated Total Water Use (ETWU)	Qty	Size
Regular Landscape Areas												
	Residence											
	TREES											
5	PIS CHI	PISTACIA CHINENSIS	LOW	0.2	Drip	0.81	0.25	4800	1,185	31,671	16	60" BOX
1	OLE SEV	OLEA EUROPAEA `SEVILLANO`	VERY LOW	0.1	Drip	0.81	0.12	2000	247	6,598	8	FIELD DUG
2	QUE AGR	QUERCUS AGRIFOLIA	VERY LOW	0.1	Drip	0.81	0.12	4200	519	13,856	12	72"BOX
	SHRUBS	Botanical										
2	ARB MAR	ARBUTUS X `MARINA`	LOW	0.3	Drip	0.81	0.37	1800	667	17,815	8	48" BOX
3	ARC BAK	ARCTOSTAPHYLOS BAKERI `LOUIS EDMUNDS`	LOW	0.3	Drip	0.81	0.37	1020	378	10,095	34	5 GAL
3	ARC HUR	ARCTOSTAPHYLOS MANZANITA `DR. HURD`	LOW	0.3	Drip	0.81	0.37	1260	467	12,470	21	24"BOX
3	CEA YAN	CEANOTHUS GRISEUS HORIZONTALIS `YANKEE POINT`	LOW	0.3	Drip	0.81	0.37	210	78	2,078	7	5 GAL
	FRUIT TREES	Botanical										
9	FRU TBD	FRUIT TREE TBD	MODERATE	0.6	Drip	0.81	0.74	60	44	1,188	2	B & B
	PERENNIALS	Botanical										
7	AGA BLU	AGASTACHE X `BLUE FORTUNE`	LOW	0.3	Drip	0.81	0.37	370	137	3,662	37	1 GAL
8	AGA BLU	AGASTACHE X `BLUE FORTUNE`	LOW	0.3	Drip	0.81	0.37	470	174	4,652	47	1 GAL
7	AGA LIC	AGASTACHE RUPESTRIS `LICORICE MINT`	LOW	0.3	Drip	0.81	0.37	320	119	3,167	32	1 GAL
8	AGA LIC	AGASTACHE RUPESTRIS `LICORICE MINT`	LOW	0.3	Drip	0.81	0.37	290	107	2,870	29	1 GAL
6	ERI KAR	ERIGERON KARVINSKIANUS	LOW	0.3	Drip	0.81	0.37	1176	436	11,639	168	1 GAL
10	ERI KAR	ERIGERON KARVINSKIANUS	LOW	0.3	Drip	0.81	0.37	112	41	1,108	16	1 GAL
10	NEP BLU	NEPETA X FAASSENII `BLUE WONDER`	LOW	0.3	Drip	0.81	0.37	300	111	2,969	30	1 GAL
7	PER SPI	PEROVSKIA ATRIPLICIFOLIA `BLUE SPIRES`	LOW	0.3	Drip	0.81	0.37	760	281	7,522	76	5 GAL
8	PER SPI	PEROVSKIA ATRIPLICIFOLIA `BLUE SPIRES`	LOW	0.3	Drip	0.81	0.37	400	148	3,959	40	5 GAL
7	SAL MID	SALVIA LEUCANTHA `MIDNIGHT`	LOW	0.3	Drip	0.81	0.37	1590	589	15,736	106	5 GAL
8	SAL MID	SALVIA LEUCANTHA `MIDNIGHT`	LOW	0.3	Drip	0.81	0.37	2310	856	22,862	154	5 GAL
							TOTALS:	**23,448**	**6,583**	**175,917**		
Special Landscape Areas												
		N/A										
		ETAF Calculations										
		Regular Landscape Areas										
		Total ETAF x Area	6,583							**ETWU Total =**		**175,917**
		Total Area	23,448							**Maximum Applied Water Allowance (MAWA)* =**		**289,810**
		Average ETAF	0.28									
										*MAWA calculation: 44.3*0.62*(0.45*23,448)*		
		All Landscape Areas										
		Total ETAF x Area	6,583									
		Total Area	23,448									
		Average ETAF	0.28									

NAPA STATE HOSPITAL, CA

Monthly Sum of Precipitation (Inches)

(46074)

File last updated on Sep 29, 2015
a = 1 day missing, b = 2 days missing, c = 3 days, ..etc..,
z = 26 or more days missing, A = Accumulations present
Long-term means based on columns; thus, the monthly row may not
sum (or average) to the long-term annual value.
MAXIMUM ALLOWABLE NUMBER OF MISSING DAYS : 5
Individual Months not used for annual or monthly statistics if more than 5 days are missing.
Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

YEAR(S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1893	4.27	2.19	4.28 n	1.05	0.49	0.00	0.00	0.00	0.19	0.17	4.03	1.86	14.25 a
1894	8.17	2.97	1.15	----- z	1.49 y	0.85	----- z	0.04	----- z	----- z	1.34	9.37	23.89 e
1895	9.35	2.92	2.21	1.11	----- z	----- z	----- z	----- z	1.16	0.03	1.72 w	1.47 v	16.78 f
1896	9.28	0.25	3.59 r	6.28	1.10	----- z	0.00	----- z	----- z	1.20	5.03	3.41	26.55 d
1897	----- z	5.68	5.37 r	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	5.68 k
1898	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	0.00 l
1899	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	0.00 l
1900	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	0.00 l
1901	----- z	----- z	----- z	----- z	1.11	0.00	0.00	0.00	0.89	1.32	3.88	2.15	9.35 d
1902	1.58	12.16	3.66	2.55	1.23	0.00	0.00	0.02	0.00	4.84 y	4.13	2.94 y	25.33 b
1903	3.22 w	2.11	5.15 s	----- z	0.00	0.00	0.00	0.00	0.00	----- z	4.25	----- z	6.36 e
1904	0.92	8.23 m	7.93	1.70 t	0.04	0.00	0.00	0.08	4.79	2.63	2.01	2.40	20.80 b
1905	4.40	2.77	3.44 s	----- z	----- z	0.00	0.00	0.00	0.00	----- z	1.00	1.17	9.34 d
1906	6.36 u	4.28	6.77 p	0.43	3.23 y	0.45 y	0.00	0.00	0.14	0.00	----- z	5.87 t	4.85 f
1907	6.50	4.44 s	8.37	0.42	0.26	0.85	0.00	0.00	0.01	0.62	----- z	4.37 q	17.03 c
1908	4.15 s	3.96 v	0.80	0.14	0.75	----- z	0.00	0.00	0.00	----- z	2.25	2.43 v	3.94 e
1909	15.04 g	7.22 k	3.02 w	0.00	0.00	0.02	0.00	0.00	----- z	1.62 w	2.45	6.61 s	2.47 f
1910	3.19	2.01	3.59 s	0.54	0.00	----- z	0.00	0.00	0.13	0.84	0.39	1.35	8.45 b
1911	13.50	2.22	5.17 v	1.32	0.21	0.03	0.00	0.00	0.00	0.53	0.75	2.05	20.61 a
1912	3.16	0.58	3.37	1.47	2.12	----- z	0.00	----- z	2.52	0.54	3.94	1.35	19.05 b
1913	4.53	0.30	2.08	0.94	0.55	0.20	0.01	0.00	0.00	0.51	5.22	7.45	21.79
1914	12.81	6.01	0.99	0.88	0.48	0.15	0.00	0.00	0.00	1.11	0.61	----- z	23.04 a
1915	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	----- z	0.80	6.65 v	0.80 k
1916	15.12	3.23	----- z	----- z	0.23	----- z	----- z	----- z	----- z	----- z	----- z	----- z	18.58 i
1917	----- z	6.19	1.28	0.92	0.51	0.00	0.00	0.00	0.09	0.00	0.47	1.30	10.76 a
1918	1.04	6.48	2.91	0.75	0.06	0.00	0.00	0.00	2.65	0.43	3.61	1.82	19.75
1919	3.75	11.46	2.98 a	0.14	0.02	0.00	0.00	0.00	0.44	0.37	0.30	4.62	24.08
1920	0.39	1.03	3.53	1.54	0.00	0.18	0.00	0.00	0.15	1.91	4.56	6.19	19.48
1921	6.44	1.28	1.55	0.64	1.19	0.00	0.00	0.00	0.04 a	0.62	1.55	----- z	13.31 a
1922	2.16	5.87	2.46	0.68	0.38	0.21	0.00	0.00	0.00	3.86	4.45	9.21	29.28
1923	3.09	0.54	0.02	4.92	0.00	0.00	0.00	0.26	0.64	0.26	0.35	0.84	10.92
1924	2.58	3.53	1.35	0.35	0.10	0.00	0.00 d	0.16	0.00	3.20	2.50	6.27	20.04
1925	1.37	10.39	2.64	2.49	2.83	0.02	0.00	0.00	0.45	0.56	2.91	1.14	24.80
1926	5.15	8.27	0.12	4.98	0.50	0.00	0.00	0.07	0.00	2.31	10.35	1.21	32.96
1927	3.56	10.83	2.96	2.50	0.56	0.51	0.00	0.00	0.00	2.21 a	4.04	5.77	32.94
1928	3.19	2.21	6.54	0.63	0.32	0.00	0.00	0.00	0.01	0.07	0.75	4.96	18.68
1929	1.08	1.18	1.80	1.87	0.08	1.95	0.00	0.00	0.00	0.04	0.00	5.10	13.10
1930	5.30	2.47	3.90	1.36	0.54	0.00	0.00	0.00	0.96	1.60	1.88	0.56	18.57
1931	6.20	0.95	2.01	0.62	1.46	0.52	0.00	0.00	0.00	0.66	2.88	11.58	26.88
1932	3.81	1.45	0.96	1.01	0.95	0.12	0.00 a	0.00	0.00	0.00	0.83	3.16	12.29
1933	5.59	1.07	2.02 j	1.87 a	0.08	1.95	0.00	0.00	0.00	2.19	0.00	4.91	17.66 a
1934	1.52	3.96	0.42	0.68	0.78	0.04	0.00	0.05	0.03	1.52	5.07	3.34	17.41
1935	5.54	1.85	4.42	3.52	0.02	0.00	0.00	0.21	0.02	2.10	0.88	2.45	21.01
1936	5.98	8.69	1.85	1.62	0.26	0.70	0.03	0.04	0.00	0.30	0.00	2.94	22.41
1937	4.14	6.27	6.40	0.91	0.03	0.65	0.20	0.00	0.00	1.23	3.75	5.17	28.75
1938	4.29	11.38	6.31	1.88	0.00	0.00	0.00	0.00	0.11	1.49	1.14	1.12	27.72
1939	2.58	1.87	2.38	0.36	1.22	0.00	0.00	0.00	0.03	0.49 c	0.12	1.32	10.37
1940	10.11	9.47	6.31	0.76	1.32	0.00	0.00	0.00	0.20	1.26	1.61	10.90	41.94
1941	8.84	7.27	5.26	5.20	1.45	0.07	0.00	0.00	0.00	2.60	2.88	9.52	43.09

YEAR(S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1942	5.32	6.35	4.07	4.51	1.36	0.00	0.00	0.00	0.01	1.15	4.81	4.29	31.87
1943	8.17	1.68	3.47	1.60	0.00	0.06	0.00	0.00	0.00	0.66	1.54	2.29	19.47
1944	4.93	6.90	1.47	1.94	1.25	0.99	0.00	0.00	0.00	1.58	4.67	2.01 g	23.73 a
1945	1.10	4.87	3.88	0.26	0.95	0.00	0.00	0.00	0.00	3.40	3.21	9.69	27.36
1946	1.26	1.96	2.03	0.25	0.62	0.00 b	0.01	0.00 a	0.03	0.34	----- z	3.24	9.74 a
1947	0.80	2.87	4.63	0.78	0.43	1.16	0.00	0.00	0.00	4.65	0.96	0.58	16.86
1948	1.70	1.21	4.08	4.61	1.35	0.09	0.00	0.00	0.21	0.90	1.24	3.98	19.37
1949	1.87	2.75	6.33	0.00	0.20	0.00	0.00	0.20 a	0.00	0.00	2.44	2.16	15.95
1950	7.71	3.75	2.41	1.07	0.28	0.00	0.00	0.00	0.00	3.17	6.81	8.18	33.38
1951	5.59	2.11	2.09	0.84	1.52	0.00	0.00	0.00	0.06	1.24	3.83	8.64	25.92
1952	10.05	2.32	4.46	0.77	0.37	0.59	0.00	0.00	0.02	0.00	2.39	11.70	32.67
1953	5.03	0.00	3.37	3.17	0.63	0.58	0.00	0.10	0.00	0.44	3.35	0.88	17.55
1954	3.60	2.91	4.34	2.25	0.41	0.16	0.00	0.44	0.00	0.15	3.13	5.26	22.65
1955	3.04	1.96	0.53	1.93	0.20	0.00	0.00	0.00	0.58	0.07	2.32	16.13	26.76
1956	8.16	4.14	0.24	2.46	0.76	0.03	0.00	0.00 a	0.22	1.77	0.06	0.42	18.26
1957	2.95	5.18	2.06	1.57	3.60	0.25	0.00	0.00	1.31	2.88	0.75	3.67	24.22
1958	5.83	10.78	5.38	5.93	1.14	0.37	0.00	0.00	0.00	0.15	0.12	1.40	31.10
1959	5.48	7.60	1.09	0.19	0.00	0.00	0.00	0.00	2.37	0.00	0.00	1.92	18.65
1960	4.52	4.61	3.37	1.22	1.70	0.00	0.00	0.00	0.00	0.23	4.23	3.05	22.93
1961	4.10	1.63	3.92	1.21	0.21	0.03	0.00	0.08	0.23	0.14	3.01	3.02	17.58
1962	1.23	8.02	3.28	0.37	0.00	0.00	0.00	0.11	0.20	10.37	0.97	3.93	28.48
1963	4.71	3.79	4.91	5.66	0.44	0.00	0.00	0.00	0.29	2.83	5.71	0.73	29.07
1964	3.46	0.19	2.09	0.10	0.15	0.65	0.10	0.06	0.00	1.48	3.37	7.93	19.58
1965	5.18	0.80	1.68	3.29	0.00	0.00	0.04	0.85	0.00	0.03	5.11	3.78	20.76
1966	5.69	3.14	0.33	0.75	0.19	0.19	0.04	0.18	0.06	0.00	6.61	4.55	21.73
1967	11.65	0.46	6.08	5.42	0.12	1.95	0.00	0.00	0.09	0.80	1.49	2.07	30.13
1968	6.50	2.99	2.41	0.45	0.36	0.00	0.00	0.25	0.00	1.62	2.90	4.87	22.35
1969	8.30	7.58	1.03	1.59	0.00	0.03	0.00	0.00	0.00	3.14	1.30	7.22	30.19
1970	13.77	1.92	1.97	0.08	0.00	0.46	0.00	0.00	0.00	1.55	7.28	8.40	35.43
1971	1.68	0.28	3.57	0.49	0.21	0.00	0.00	0.00	0.24	0.09	2.30	4.81	13.67
1972	0.93	1.50	0.15	1.62	0.12	0.25	0.00	0.00	1.23	3.34	6.95	3.39	19.48
1973	11.37	5.61	3.10	0.11	0.02	0.00	0.00	0.00	0.41	1.64	10.51	4.40	37.17
1974	4.96	1.84	5.71	1.97	0.02	0.00	1.05	0.00	0.00	1.04	0.99	2.92	20.50
1975	2.39	6.79	7.17	1.30	0.03	0.00	0.14	0.00	0.00	3.64	0.79	0.46	22.71
1976	0.34	1.97	1.62	1.40	0.00	0.00	0.00	1.30	0.84	0.46	1.26	1.27	10.46
1977	1.75	1.50	2.58	0.48	1.21	0.00	0.00	0.00	0.72	0.49	7.90	5.91	22.54
1978	10.17	4.64	5.62	3.77	0.02	0.00	0.00	0.00	0.83	0.00	2.53	1.11	28.69
1979	10.34	5.35	1.98	1.79	----- z	0.00	0.00	0.00	0.00	3.59	3.22	7.29	33.56 a
1980	7.45	10.01	1.84	1.48	0.55	0.07	0.13	0.00	0.00	0.24	0.19	3.32	25.28
1981	5.92	1.58	4.03	0.32	0.44	0.00	0.00	0.00	0.17	2.64	7.44	7.66	30.20
1982	10.55	4.42	7.53	3.97	0.00	0.00	0.00 a	0.00	1.58	3.63	7.74	3.41	42.83
1983	7.70	10.62	11.07	3.94	0.49	0.00	0.00	0.73	0.86	0.77	7.98	7.08	51.24
1984	0.37	2.40	2.07	1.09	0.14	0.47	0.04	0.34	0.09	2.03	7.77	1.48	18.29
1985	1.75	2.79	4.42	0.08	0.03	0.05	0.00	0.00	0.79	0.78	3.88	2.97	17.54
1986	4.50	15.29	7.08	0.82	0.19	0.01	0.00	0.00	1.52	0.26	0.15	1.98	31.80
1987	4.11	4.63	4.28	0.16	0.00	0.00	0.00	0.00	0.00	1.52	2.20	7.65	24.55
1988	5.06	0.48	0.13	2.29 a	1.04	0.19	0.00	0.00 a	0.00	0.11	4.41	3.39	17.10
1989	1.37	1.37	6.79	0.90	0.08	0.09	0.00	0.00	2.31	1.48	1.68	0.00	16.07
1990	4.05	3.50	1.18	0.34	3.27	0.00	0.00	0.00	0.36	0.23	0.54 d	0.99	14.46
1991	0.46	3.05	10.64	0.33	0.15	0.40	0.00	0.16	0.01	2.47	0.84	2.18	20.69
1992	2.28	7.34	4.28	0.63	0.00	1.09	0.00	0.00	0.00	3.09	0.27	8.28	27.26
1993	8.90	5.87	2.08	1.54	1.39	0.71	0.00	0.00	0.00	1.15	3.49	3.50	28.63
1994	2.56	3.62	0.19	1.27	1.57	0.04	0.00	0.00	0.00	1.31	6.17	3.84	20.57
1995	13.66	0.54	11.97	1.26	3.10	0.90	0.00	0.00	0.00	0.00	0.18	8.90	40.51
1996	8.21	9.60 b	2.35 f	3.81	3.72	0.00	0.00	0.00	0.03	1.94	3.18	12.92	43.41 a
1997	10.50	0.46	0.86	0.57	0.79	0.23	0.00	0.82	0.03	1.26	7.95	2.56	26.03
1998	8.73	14.15	2.68	1.55	2.99	0.15	0.00	0.00	0.15	0.76	4.76	1.02	36.94
1999	3.15	9.83	2.70	2.88	0.13	0.00	0.00	0.00	0.04	0.75	2.84	0.91	23.23
2000	5.36	9.88	2.92	1.69	1.54	0.12	0.00	0.00	0.11	2.29	1.34	1.22	26.47
2001	4.34	7.26	1.08	0.46	0.00	0.26	0.00	0.00	0.50	0.51	6.17	9.45	30.03
2002	3.50	1.93	2.63	0.30	1.25	0.00	0.00	0.00	0.00	0.00	3.38	13.21	26.20
2003	2.68	3.99	4.98	3.97	1.85	0.00	0.00	0.62	0.03	0.25	3.14	7.70	29.21
2004	3.60	6.52	0.86	0.34	0.10	0.00	0.00	0.00	0.14	2.48	2.51	7.93	24.48
2005	4.31 a	3.88	3.42	1.57	2.37	0.90	0.00	0.00	0.01	0.67	2.25	15.49	34.87
2006	4.69	3.71	8.41	5.75	1.19	0.11	0.00	0.00	0.00	0.66	3.30	3.71	31.53
2007	0.36	5.12	0.35	1.29	0.35	0.00	0.00	0.00	0.05	2.01	1.05	4.10	14.68
2008	10.06	3.44	0.35	0.19	0.08	0.00	0.00	0.00	0.00	0.59	3.00	2.57	20.28

YEAR(S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
2009	0.97	9.20	1.01	0.95	1.47	0.05	0.00	0.00	0.15	5.06	0.83	2.14	21.83
2010	9.19	3.98	2.63	3.86	1.16	0.00	0.00	0.00	0.00	3.71	3.05	8.64	36.22
2011	1.28 w	4.02 t	8.94 l	0.59 w	1.89 v	2.61 w	0.00	0.00	0.00	1.33 x	1.55 s	0.18	0.18 h
2012	4.89	1.50	9.04	2.48 b	0.00	0.04	0.00 a	0.00	0.00	1.51	4.80 c	7.87 b	32.13
2013	0.74	0.35	0.93	1.19 a	0.34	0.68	0.00	0.00	0.67	0.00	1.13 a	0.71 b	6.74
2014	0.11 b	10.91	3.38	2.88 a	0.00 a	0.00	0.00	0.05	0.49	0.98	2.42	11.97	33.19
2015	0.02 a	2.72 a	0.10	2.12 c	0.02 a	0.17 a	0.01 a	0.00	----- z	----- z	----- z	----- z	5.16 d

SUM OF MONTHLY MEAN RAINFALL = 24.53

Period of Record Statistics

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
MEAN	5.01	4.39	3.31	1.66	0.67	0.21	0.02	0.06	0.32	1.35	2.96	4.57	24.78
S.D.	3.51	3.45	2.54	1.53	0.84	0.40	0.10	0.19	0.69	1.47	2.36	3.61	8.16
SKEW	0.78	0.98	1.15	1.32	1.76	2.64	9.50	4.16	3.68	2.56	0.97	1.05	0.50
MAX	15.12	15.29	11.97	6.28	3.72	1.95	1.05	1.30	4.79	10.37	10.51	16.13	51.24
MIN	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74
YRS	111.00	113.00	105.00	111.00	112.00	110.00	115.00	114.00	113.00	109.00	112.00	106.00	91.00
%	20.4	17.9	13.5	6.8	2.7	0.9	0.1	0.2	1.3	5.5	12.1	18.6	100.0