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Kamman Hydrological Assessment with Arger Cover Letter

Mountain Peak Winery P13-00320
Planning Commission Hearing January 4, 2017

October 11, 2016

John McDowell
Deputy Planning Director
Napa County Planning, Building & Environmental Services Department
1195 Third Street, Suite 210, Napa, California
Fax: (707) 299-1358
Email: John.Mcdowell@countyofnapa.org

Re: Mountain Peak Winery, Use Permit # P13-00320-UP

Dear Deputy Planning Director McDowell,

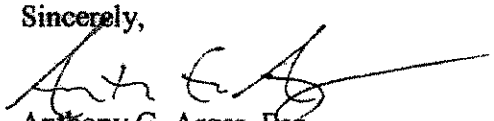
On behalf of the Soda Canyon Group, attached please find a peer review of Mountain Peak Winery's hydrology assessment from Mr. Greg Kamman, PG, CHG, Principal Hydrologist. Please place it in the Mountain Peak file and submit to the Napa County Planning Commissioners in advance of the October 19, 2016 hearing.

Please note that Mr. Kamman concludes that the analysis performed by Mountain Peak's experts is flawed and does not accurately disclose the project's significant impacts. As we understand it, under CEQA if there is any substantial evidence that the project may have a significant impact on the environment, the County must prepare an EIR. In other words, if the County is presented with a "fair argument" that the project may have significant impacts, it should prepare an EIR even if the applicant's reports show the project will not have a significant effect. As Mr. Kamman concludes, an EIR is plainly required here.

Lastly, I note that in recent email communications, you indicated to me that it is your understanding Mountain Peak Winery does not intend to supplement any additional materials in advance of the October 19, 2016 hearing. In the event that Mountain Peak does submit additional materials, we respectfully reserve the right to ask for a continuance and thereafter submit materials rebutting any additional materials submitted by the applicant.

Thank you for your continued assistance and please do not hesitate to contact me with any questions or concerns.

Sincerely,



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Telephone: (415) 491-9600
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October 11, 2016

Attn: Glenn Schreuder
The Soda Canyon Group
c/o 2882 Soda Canyon Road
Napa, CA 94558

Subject: Review of Initial Study and Negative Declaration
Mountain Peak Winery: Use Permit #P13-00320-UP
3265 Soda Canyon Road, Napa, CA 94558 (APN: 032-500-033)

Dear Mr. Schreuder:

I am a hydrologist with over twenty seven years of technical and consulting experience in the fields of geology, hydrology, and hydrogeology. I have been providing professional hydrology and geomorphology services in California since 1991 and routinely manage projects in the areas of surface- and groundwater hydrology, water supply, water quality assessments, water resources management, and geomorphology. Most of my work is located in the Coast Range watersheds of California, including the Northern and Southern San Francisco Bay Counties. My areas of expertise include: characterizing and modeling watershed-scale hydrologic and geomorphic processes; evaluating surface- and ground-water resources/quality and their interaction; assessing hydrologic, geomorphic, and water quality responses to land-use changes in watersheds and causes of stream channel instability; assisting and leading in the development of CEQA environmental compliance documents and project environmental permits; and designing and implementing field investigations characterizing surface and subsurface hydrologic and water quality conditions. I co-own and operate the hydrology and engineering consulting firm Kamman Hydrology & Engineering, Inc. in San Rafael, California (established in 1997). I earned a Master of Science in Geology, specializing in Sedimentology and Hydrogeology as well as an A.B. in Geology from Miami University, Oxford, Ohio. I am a Certified Hydrogeologist (CHg) and a registered Professional Geologist (PG). My resume is included as Attachment A.

I have been retained by the Soda Canyon Group to review technical materials associated with the Mountain Peak Winery Use Permit and evaluate if the project may impact surrounding properties and environment. I have reviewed the following documents.

- Bartelt Engineering, 2016, Mount Peak Winery Use Permit Drawings. Five (5) sheets, March.
- Bartelt Engineering, 2016, On-site wastewater disposal feasibility study for the Mountain Peak Winery, 3265 Soda Canyon Road, Napa County, CA 94558. 29p.
- Bartelt Engineering, 2016, Water availability analysis for the Mountain Peak Winery, 3265 Soda Canyon Road, Napa County, CA 94558. 10p.

- Bartelt Engineering, 2016, Stormwater control plan for a regulated project, Mountain Peak Vineyards, 3265 Soda Canyon Road, Napa County, CA 94558. Prepared for: Mountain Peak Vineyards, LLC, March 2016, 21p.
- Condor Earth Technologies, Inc., 2013, Data and feasibility report, wine cave – Mountain Peak Vineyards, 3265 Soda Canyon Road, Napa, California. Prepared for: Mountain Peak Vineyards, LLC, August 30, 47p.
- Richard C. Slade & Associates LLC (RCS), 2015, Draft Updated Memorandum, updated summary of April 2014 constant rate pumping test, existing onsite water well, 3265 Soda Canyon Road, Napa County, California. October 31, 34p.

Based on my review of these materials and interviews with long-term residents, it is my professional opinion that the project has the potential to significantly impact: local groundwater levels and supply; groundwater conditions that sustain a neighboring spring-fed pond; spring/seep flows that sustain creek flow and pool habitat in an adjacent channel; water quality; and biological resources (vegetation and wildlife) in the Rector Creek watershed. The rationale for this opinion is based on multiple findings presented below.

1. Inaccurate water demand estimates that underestimated impacts to groundwater

The estimate of current (existing) groundwater use at the subject property presented in both the RCS groundwater report (2015) and Bartelt Water Availability Analysis (2016) is 14.75 acre-feet per year (AF/yr). However, measured groundwater extraction reported by RCS between January 1 and September 15 of 2015 was significantly higher at 22.4 AF and would certainly be even greater for the full calendar year. Bartelt's water demand estimate for existing conditions is 34% lower than the actual (measured) groundwater withdrawal volume. This inconsistency between estimated and measured existing condition values calls into question the validity of the Bartelt's assumptions, methods and results in calculating existing and future project water demands. The future project water demand is estimated at 16.46 AF/yr. Increasing this estimate by 34% similar to the measured disparity between estimated and measured existing conditions demands results in an estimated project water demand of 25.00 AF/yr – a value notably higher than the estimated average annual groundwater recharge[1]. Sustained groundwater withdrawals that exceed annual recharge will lead to groundwater overdraft and falling groundwater levels and aquifer supply, a clear adverse impact under CEQA. Recent vineyard groundwater withdrawals exceed recharge and surely increasing these demands on groundwater resources under proposed project operations will further exacerbate this potentially significant impact.

[1] RCS estimate the average annual groundwater recharge at the subject property at between 20.7 and 11 AF/yr assuming a deep percolation rate equal to between 17% and 11% of mean annual rainfall. Groundwater withdrawals during 2015 were greater than 22.4 AF, which significantly exceeds the estimated annual groundwater recharge rate of 17 AF/yr at the project property.

2. Well yield test results that don't evaluate potential impacts to groundwater

Assuming groundwater production wells are pumped 50% of the time, RCS reports that the project would need to pump the onsite wells at a rate of 20.6 gallons per minute (gpm) to meet the average annual demand for the project and at a rate of 44.5 gpm to meet the greatest average month (July) demand. In order to evaluate the effects of anticipated project pumping, the April 2014 pumping test included pumping the existing well at a rate of 50 gpm. RCS states, "*Clearly, this pumping test rate was much higher than the pumping rates needed to meet the average annual demand and the short-term peak day demand for the proposed project*."

RCS describes the April 2014 constant rate pumping test, which resulted in 3.3 feet of water level drawdown while pumping the well at 50 gpm (see Figure 4 and 7 of the RCS 2015 report, provided in Attachment B). The effects of this pumping were not monitored in any surrounding on- or off-site wells, ponds or springs. However, during background water level monitoring of the existing well for multi-day periods before and after the pump test, small (less than 0.5 feet) changes in water levels are attributed to pumping effects by off-site wells or "natural diurnal fluctuations in the aquifer system."

RCS also presents continuous water level monitoring data in the existing site well for the summer/fall period of 2014 and 2015 as well as winter of 2014/15. During the summer/fall monitoring periods, the drawdown in the well ranged from 6 to 7 feet, twice the magnitude of drawdown measured during the 50 gpm pump test. Typically, increases in water level drawdown in a pumping well are in response to higher pumping rates. With everything else being equal, this would suggest that the existing well was pumped at much higher rates than 50 gpm. Water level hydrographs also indicated that pumping was completed on a continual basis for multiple days over several intervals. This raises a number of questions and concerns. First, why would the vineyard pump at rates higher than 50 gpm, which is presented as a maximum project pumping rate? Acknowledging that the effects of well pumping at off-site wells may be seen at the existing site well, what is the effect of pumping the existing and proposed project wells on surrounding off-site wells? What is the radius and magnitude of influence of pumping the existing well on the surrounding aquifer?

One possible explanation for the greater magnitude drawdown observed at the existing well during summer/fall periods versus April 2014 is the seasonal difference in aquifer storage that tempers pumping induced drawdown. Many Counties such as Marin, Sonoma, Monterey and San Luis Obispo all require that groundwater yield (pump) testing be completed during the dry season (e.g., July through October). Many wells, particularly those that are supplied from fractured rock aquifers, may show significant declines in well yields during later summer and fall dry seasons compared to production rates observed during spring or early summer months[2]. This is because during the dry season, wells mainly draw upon less transmissive deeper fractures containing less accessible stored ground water than in the wet season. During the wet season, the aquifer includes more saturated shallow transmissive fractures and there is more stored ground

[2] California Groundwater Association, 2006, Article 495 – well yield pumping for residential property transfers. CGA Standard Practice Series, October 14, 7p.

water available. Thus, the impacts (i.e. drawdown) of well pumping on aquifer water levels and storage are commonly greater in magnitude during the late summer and fall (dry season) months.

The well yield test completed in April 2014 fails to look for or evaluate potential project impacts on groundwater levels and seasonal storage surrounding the site. Completing the well pump test during the wet season precludes the analysis and evaluation of greater drawdown that is more pronounced during the dry season. The lack of monitoring the effects of project pumping on off-site wells, springs and seeps precludes the ability to evaluate potential significant impacts on groundwater resources.

3. Misleading statement on historic vineyard impacts to groundwater levels

In their 2015 report, RCS state (page 16), "*Important to note from Figure 7 is that the water levels in the onsite well have remained essentially unchanged over time. Static water level data available throughout the period of record fluctuate from a high of 15 ft (just after the well was constructed and no significant pumping had occurred) to a low of roughly 24 ft in September 2015, which occurred near the end of this current irrigation season; the onsite well has been pumping for irrigation purposes*." The statement of no change over time is hardly substantiated when presenting only two measurements from a single month in 1991 in comparison to discontinuous measurements over a year and a half period in 2014-15. Typically, temporal trends in groundwater level data require regular measurements over a longer period during similar seasonal periods (e.g., summer or winter) and multiple water year types. At best, comparison of July water level measurements for the three years available in Figure 7 (see Attachment B) indicate a water level decline of 6 feet between 1991 and 2014 and additional 1-foot decline between 2014 and 2015. Arguably, a 7 foot decline in summer water levels as measured during dry water year types reflects a long-term decline in groundwater levels and aquifer storage. Such a change is consistent with a decline in aquifer storage due to long-term annual groundwater withdrawals that exceed annual recharge as measured in 2015.

4. Water Availability Analysis does not comply with current County code

The Bartelt Engineering (Bartelt) Water Availability Analysis (WAA) is not consistent with the current County WAA Guidance adopted May 12, 2015. The Bartelt WAA quantifies the "Allowable Water Allotment" based on outdated WAA guidance. They assume an annual 0.5 acre-feet per acre (AF/acre) allotment for parcels located in the "Mountain Areas." The "Mountain Areas" allotment criteria no longer exists in the current County WAA Guidance Document and has been replaced with the "All Other Areas" water use criteria, which is considered in relation to the average annual recharge available at the project property. The Mountain Peak Vineyard project falls into the "All Other Areas" location and water use criteria is determined by calculation of average annual (groundwater) recharge. Even though the Groundwater Study report prepared by RCS (dated October 31, 2015) contains an annual average recharge estimate, this information is not presented or considered in the Bartelt WAA. From a procedural standpoint, the Bartelt WAA appears inaccurate and does not present the correct (updated) method for determining a safe water use estimate necessary to evaluate potentially significant impacts.

5. Water Availability Analysis does not evaluate impacts to adjacent spring-fed pond

The County's WAA Guidance Document indicates that if the project has the potential to interfere with springs for domestic or agricultural purposes, targeted study, monitoring and/or site-specific spring interference criteria needs to be established. The WAA Guidance Document states the following.

> *Napa County enjoys the occurrence of many natural springs, and the potential for planned projects to affect spring flow has been considered. A spring is defined as: "A place where groundwater flows naturally from a rock or the soil onto the land surface or into a body of surface water. Its occurrence depends on the nature and relationship of rocks, esp. permeable and impermeable strata, on the position of the water table, and on the topography" (Jackson, J. 1997. Glossary of Geology. American Geological Institute). Springs can be formed by multiple causes, including the interception of groundwater by the land surface; permeability differences that can cause groundwater to emerge; flow from faults or fractures; and drainage from landslides. Springs are ephemeral geologic features which may cease to flow due to natural causes such as changes to flow paths, water level declines, porosity lost by mineral precipitation, or sediment plugging.*
>
> *Because springs originate as groundwater, springs are eligible for WAA Tier 2 analysis. It is required that any proposed project wells within 1,500 feet of natural springs that are being used for domestic or agricultural purposes be evaluated to assess potential connectivity between the part of the aquifer system from which groundwater is planned to be produced and the spring(s). Springs exist in complex hydrogeologic environments. Other substantial evidence in the record may result in the need for such an analysis even though the spring(s) is located a greater distance from the planned well site. Where evaluation of potential connectivity between the project well(s) and springs is required, site-specific spring interference criteria will be established as appropriate for the springs(s) under consideration.*
>
> *Although the Tier 2 analyses described above relate to mutual well interference and the avoidance of significant interference, potential pumping effects on springs may result in spring flow depletion. Springs are also commonly observed in locations where little to no quantitative records have been kept relating to the spatial occurrence or temporal variability of spring flow. Therefore, projects located in the vicinity of springs, where potential impacts of pumping are possible but unknown, may require monitoring and further analysis.*

There is an existing off-site spring-fed pond located 700-feet north of the existing vineyard well and 800-feet northwest of the proposed project well site (see Figure 1). According to the property owner, the annual late summer (September) water level in the pond has been getting lower and lower over the past decade. In July of 2016, this spring-fed pond had dried up completely for the first time in at least 22 years (record of

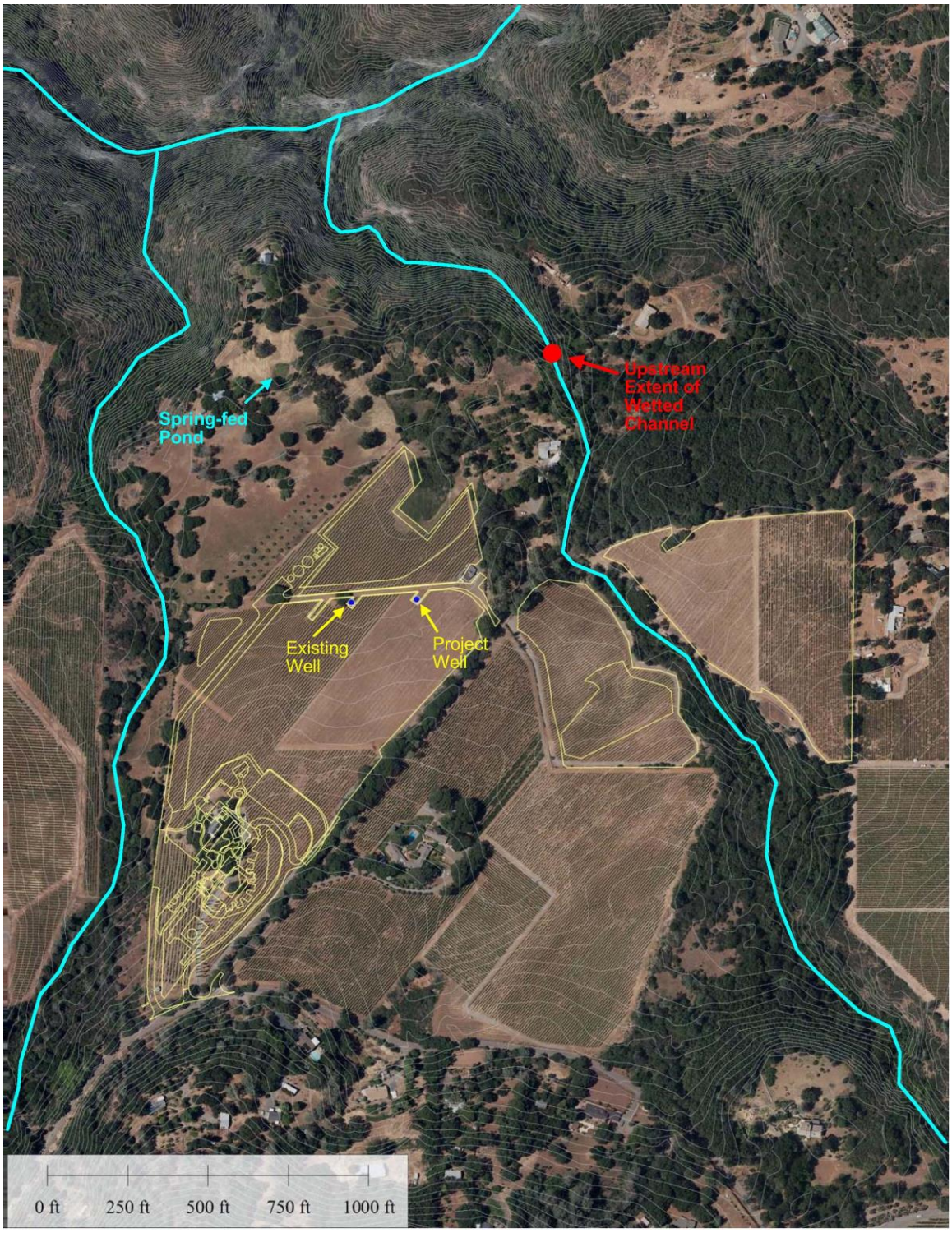


Figure 1: Location of Mountain Peak Vineyard wells, off-site spring-fed pond and upstream extent of wetted channel in tributary to the east of the project site.

observation of current landowner). The impact of increased vineyard groundwater pumping on the spring supply to this pond has not been addressed in project documents. Review of project groundwater level monitoring data indicates that groundwater flow gradients within the project vicinity are generally from south to north (i.e., towards Rector Creek and canyon). The County WAA clearly indicates that a Tier 2 (Well and Spring Interference Criterion) analysis is required for springs located within 1500 feet of the proposed project wells. The project WAA does not provide the results of a Tier 2 analysis. Therefore, the project has not demonstrated that there will be no adverse impact to the adjacent spring-fed pond and associated water supply and ecological benefits associated with the pond.

6. Water Availability Analysis does not evaluate project impacts to groundwater/surface water interaction that sustain adjacent creek flow

The County WAA provides distance standards and project well construction assumptions to determine if a Tier 3 analysis is required. Tier 3 (groundwater/surface water interaction criteria) analysis is intended to evaluate the potential for project induced stream flow depletion to surface waters due to groundwater pumping. The WAA Guidance Document states, "*For the purposes of this procedure, surface waters are defined to include only those surface waters known or likely to support special status species or surface waters with an associated water right; however, as with all of the procedures in this WAA, there may be unique circumstances that require additional site-specific analysis to adequately evaluate a project's potential impacts on surface water bodies."*

On October 6, 2016, I completed a site visit to the property located immediately north of the project vineyard to evaluate spring and creek conditions. This site visit included walking and evaluating the hydrologic and geomorphic conditions of the two tributary channels to Rector Creek that boarder the east and west sides of both properties. This site investigation indicated that eastern tributary is a bedrock lined channel with summer flow maintained by groundwater spring/seep contributions. Figure 1 indicates the location of the upstream limit of wetted channel. Downstream (north) of this location the bedrock dominated channel contains low surface flows with abundant intervening pools, many several feet deep. The wetted portions of the creek channel sustain healthy riparian and aquatic habitats. Upstream (south) of the location indicated on Figure 1, the channel is dry. The upper extent of wetted channel during this site visit is located just under 1000-feet from the existing vineyard well and under 900-feet from the proposed new project well. It is likely that the location of the wetted channel expands seasonally, and extends further south (i.e., closer to vineyard wells) during wetter portions of the year, when groundwater levels are higher.

The WAA Tier 3 well distance and construction standards indicated that for low capacity well pumping rates (i.e., between 10- and 30-gpm) and a consolidated formation hydraulic conductivity value of 0.5 ft/day, a Tier 3 analysis is required for creeks located within 1000-feet of a project well. For moderate to high capacity pumping rates (i.e., greater than 30 gpm), the well-to-creek distance standard increases to 1500 feet. As indicated in the RCS report (2015), anticipated project pumping rates will vary between

20.6- and 44.5-gpm depending on seasonal demands. Given these pumping rates, the late dry-season wetted portion of the eastern tributary channel lies within the distance standard for Tier 3 analysis. The project WAA does not provide the results of a Tier 3 analysis. Therefore, the project has not demonstrated that there will be no potentially significant adverse impact to adjacent creeks and associated ecological benefits.

7. Groundwater study overestimates groundwater recharge

The RCS (2015) report states that groundwater recharge rates at the project vineyard may range between 9% and 17% of the mean annual rainfall totals. They settle on a value of 14% to estimate the annual deep groundwater recharge rate of 17 AF/yr at the project property. This is the first time I've seen such a high recharge rate applied to the Sonoma Volcanics in Napa and Sonoma County.

On page 13 of their 2015 report, RCS state, "*It is possible that a 17% deep percolation factor is not appropriate for the Sonoma Volcanics. Recharge estimates regularly used for the volcanic rocks throughout the County range from a quite conservative estimate of 7% to perhaps 10.5% or so. RCS has typically assigned a deep percolation estimate of 9% to 10% for the Sonoma Volcanics.*" The 17% of rainfall recharge rate derived in the RCS report is based on an interpretation of estimates of groundwater recharge for a number of watersheds in Napa County in the report titled "Updated Napa County Hydrogeologic Conceptual Model" (LSCE&MBK, 2013[3]) prepared for Napa County. The 17% rainfall recharge estimate is representative of the entire 93.5 square mile Napa River watershed upstream of Napa. Pursuant to LSCE&MBK (2013), the Sonoma Volcanics make up 42% of the surficial geology contained in this area, with the remaining area comprised of alluvial and channel deposits that, in general, have higher infiltration rates than volcanics. However, the Rector Creek watershed that hosts the project site includes a much higher overall percentage of Sonoma volcanics as compared to the Napa River watershed (see Figure 2).

What RCS does not reveal is that the LSCE&MBK report also presents an estimated deep groundwater recharge estimate of 8% for the Milliken Creek watershed. The Milliken Creek watershed is much more similar in size, geology (81% Sonoma Volcanics), slope, land use/cover, rainfall and hydrology to the Rector Creek watershed than the Napa River watershed (see Figure 2). Thus, the recharge estimate of 8% of average annual rainfall for the Milliken Creek watershed is more representative of the Rector Creek watershed and project site than the Napa River watershed recharge value. The 14% rainfall recharge value over-estimates groundwater recharge at the project site. Using a more "conservative" or standard Sonoma Volcanic recharge value of 10% rainfall recharge results in an annual recharge volume of 12.2 AF/yr, a value below both the existing (14.75 AF/yr) and estimated project (16.46 AF/yr) annual water demands. Thus, using previously accepted and applied recharge rates on County projects located in hillside areas and underlain by Sonoma Volcanics (e.g., 10% of average annual rainfall total) results in project recharge estimates that are well below existing and proposed project water demands – a significant impact under CEQA.

[3] Luhdorff & Scalmanini Consulting Engineers and MBK Engineering, 2013, Updated hydrogeologic conceptualization and characterization of conditions. Prepared for: Napa County, January, 181p.

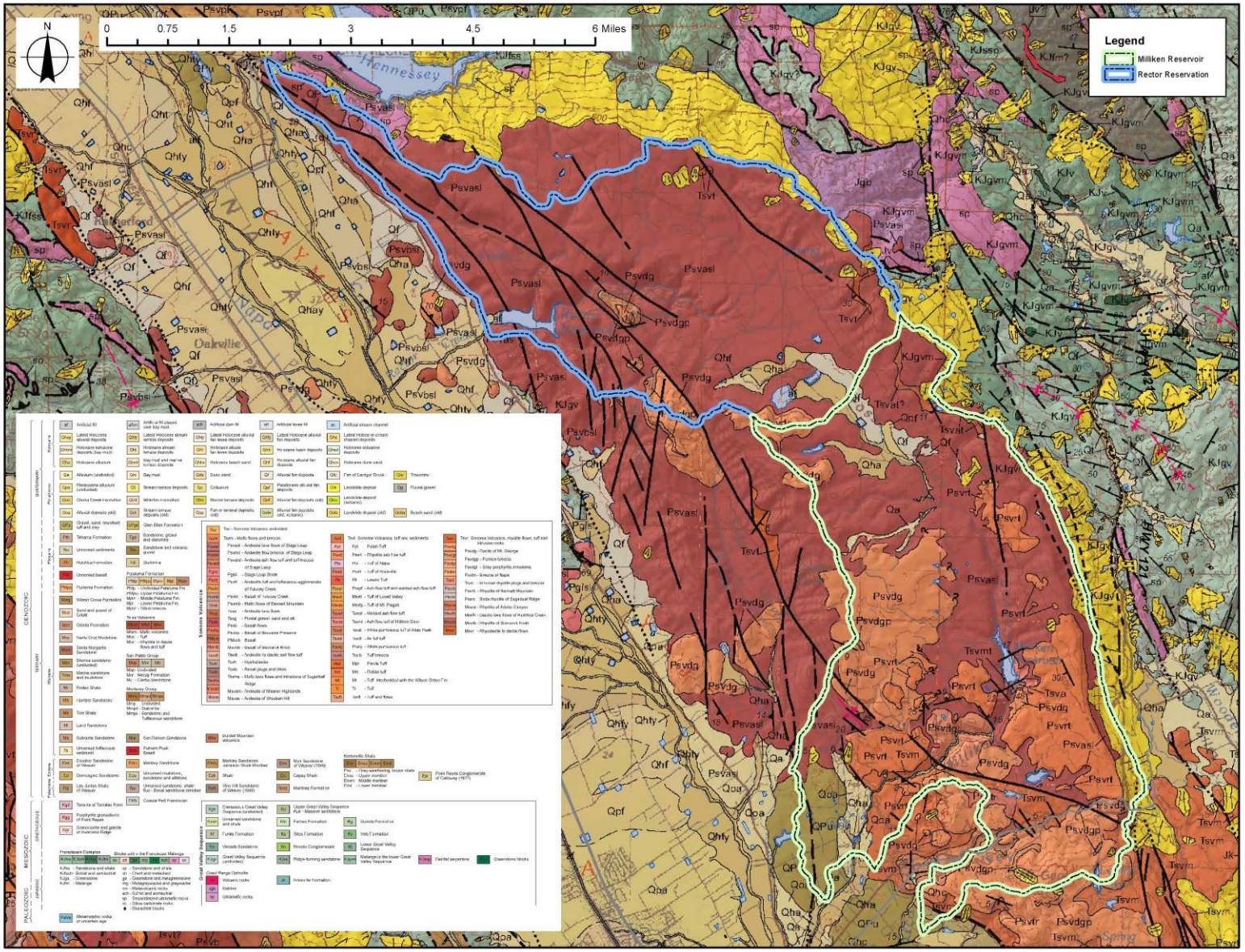


Figure 2: Geology underlying Milliken and Rector Creek watersheds. Note dominance of Sonoma Volcanics in each watershed.

8. Cave excavation spoil placement and earthwork that increases potential for erosion and sediment delivery to adjacent creeks

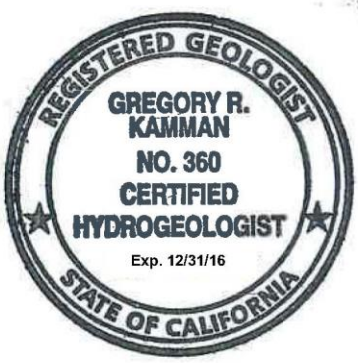
The project description indicates that approximately 24,000 cubic yards of cave spoils will be deposited within the project area. Cave construction and deposition of cave spoil will result in large areas being graded. Other project activities will include earthwork and grading in association with project structures, roads and facilities. All of these activities will expose bare earth to increased erosion potential. County and State environmental regulations mandate that such construction activities include short- and long-term best management practices (BMPs) to address and mitigate for increased erosion potential and associated impacts to surrounding waterways. It is my experience in the design and implementation of projects that require earthwork, that permit conditions will require the installation of erosion and sediment control BMPs. It makes no sense to me that the project Negative Declaration does not acknowledge or include the standard erosion and sediment control mitigation measures necessary to ensure the project does not potentially violate any water quality standards or waste discharge requirements, alter surface runoff magnitude or patterns, or substantially degrade water quality. These potential impacts are routinely mitigated through erosion control plans and/or preparation and filing of the required Stormwater Pollution Prevention Plan with the State Regional Water Quality Control Board. In short, the project must comply with necessary permits and other regulatory requirements that mandate erosion control mitigation measures. These mitigation measures must be acknowledged and described in the environmental compliance document but this is not done it the project's Negative Declaration.

In closing, contrary to the conclusions presented in the Initial Study and Negative Declaration, the material presented above demonstrates that the Mountain Peak Winery project could impart potentially significant negative impacts on the environment and surrounding properties. Because the Project does not accurately evaluate the potential project impacts to hydrology, water quality and associated ecological conditions, the project should be required to prepare an Environmental Impact Report (EIR) in order to correct these deficiencies. There is also considerable evidence presented above (historical drop in groundwater levels, declining pond levels, recent pumping volumes in excess of estimated annual groundwater recharge) that suggest existing groundwater resources are overdrawn and any added increase in project water demand and withdrawals will further exacerbate impacts to groundwater resources and ecological habitats that rely on those resources.

Please feel free to contact me with any questions regarding the material and conclusions contained in this letter.

Sincerely,

Greg Kamman, PG, CHG
Principal Hydrologist



Attachment A
Resume for Greg Kamman

Greg Kamman, PG, CHG

Principal Hydrologist

EDUCATION	1989	M.S. Geology - Sedimentology and Hydrogeology Miami University, Oxford, OH
	1985	A.B. Geology Miami University, Oxford, OH
REGISTRATION	No. 360 No. 5737	Certified Hydrogeologist (CHG.), CA Professional Geologist (PG), CA
PROFESSIONAL HISTORY	1997 - Present	Principal Hydrologist/Vice President Kamman Hydrology & Engineering, Inc. San Rafael, CA
	1994 - 1997	Senior Hydrologist/Vice President Balance Hydrologics, Inc., Berkeley, CA
	1991 - 1994	Project Geologist/Hydrogeologist Geomatrix Consultants, Inc., San Francisco, CA
	1989 - 1991	Senior Staff Geologist/Hydrogeologist Environ International Corporation, Princeton, NJ
	1986 - 1989	Instructor and Research/Teaching Assistant Miami University, Oxford, OH

SKILLS AND EXPERIENCE

As a hydrologist with over twenty years of technical and consulting experience in the fields of geology, hydrology, and hydrogeology, Mr. Kamman routinely manages projects in the areas of surface- and ground-water hydrology, stream and wetland habitat restoration, water supply, water quality assessments, water resources management, and geomorphology. Areas of expertise include: stream and wetland habitat restoration; characterizing and modeling basin-scale hydrologic and geologic processes; assessing hydraulic and geomorphic responses to land-use changes in watersheds and causes of stream channel instability; evaluating surface- and ground-water resources and their interaction; and designing and implementing field investigations characterizing surface and subsurface conditions. In addition, Mr. Kamman commonly works on projects that revolve around sensitive fishery, wetland, animal and/or riparian habitat issues and problems. Thus, Mr. Kamman is accustomed to working within a multi-disciplined team and maintains close collaborative relationships with biologists, engineers, planners, architects, lawyers, and various agency staff.

PROFESSIONAL SOCIETIES & AFFILIATIONS	American Geological Institute Society for Ecological Restoration International California Native Plant Society

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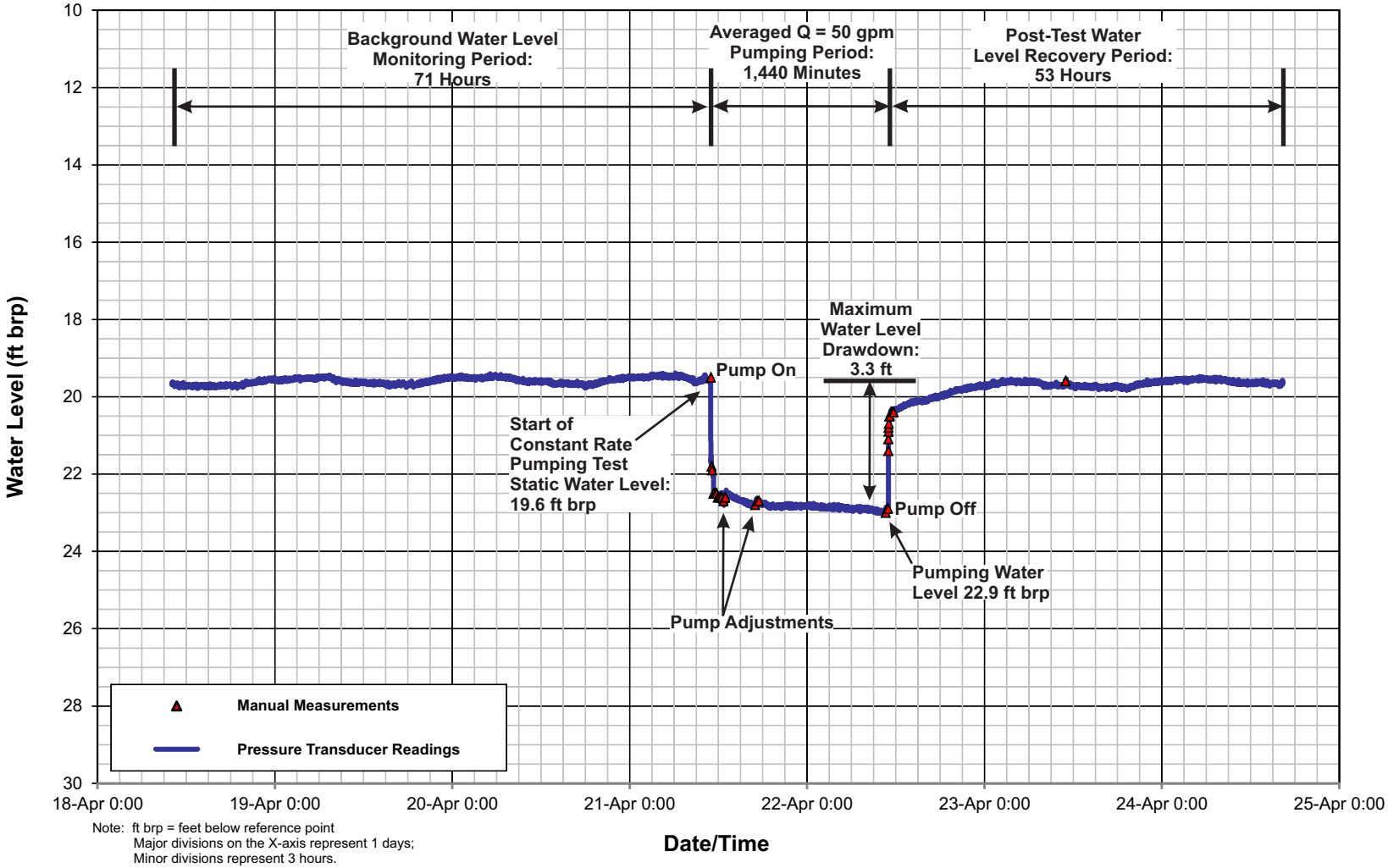
Attachment B
Selected Figures from Richard C. Slade 2015 Report.



Note: ft brp = feet below reference point
Major divisions on the X-axis represent 1 days;
Minor divisions represent 3 hours.

RICHARD C. SLADE & ASSOCIATES LLC
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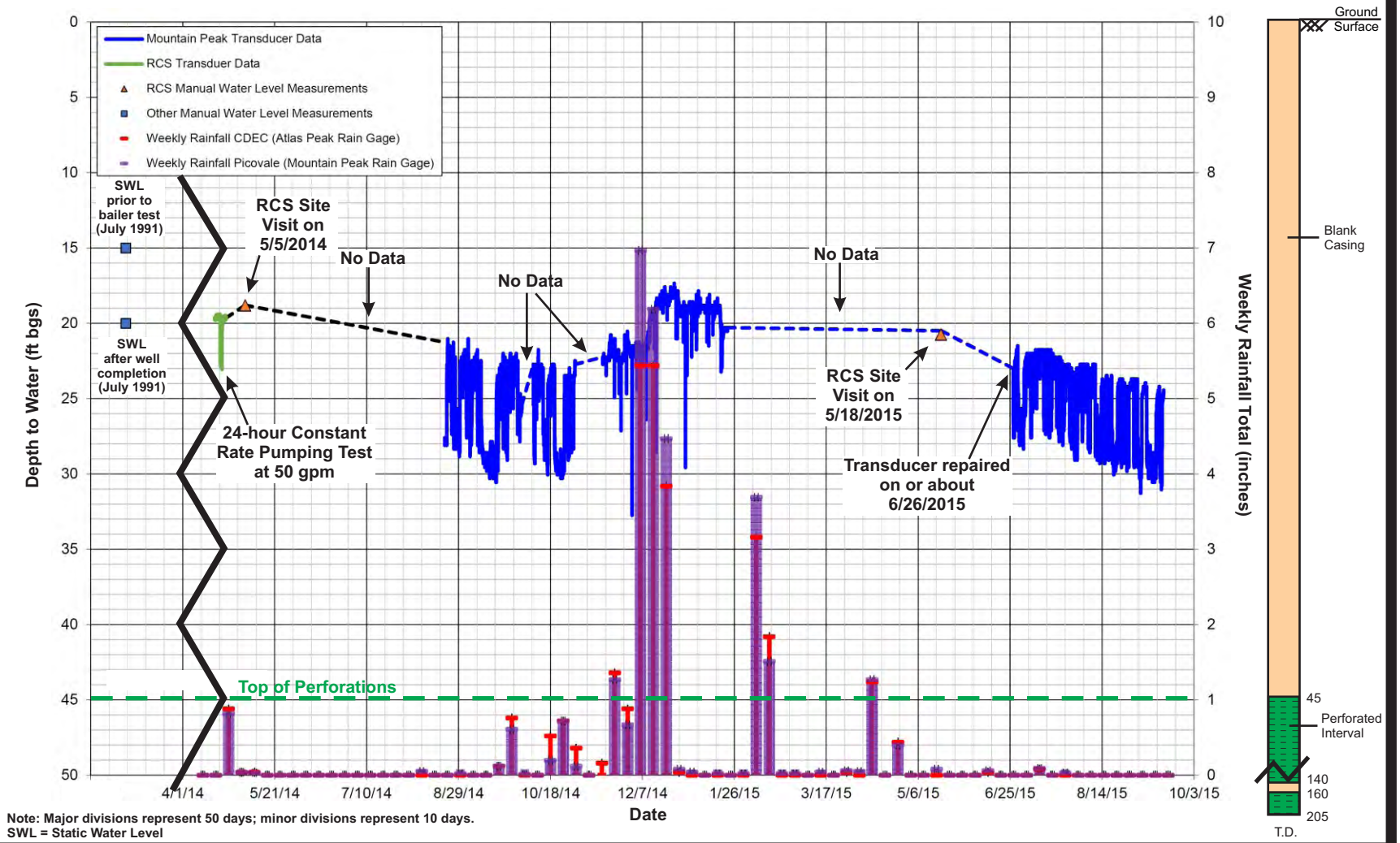
Northern California Phone (707) 963-3914

FIGURE 4
WATER LEVELS DURING CONSTANT RATE PUMPING TEST
3265 SODA CANYON ROAD

Job No. 537-NPA01 **October 2015**



Note: Major divisions represent 50 days; minor divisions represent 10 days.
SWL = Static Water Level

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FIGURE 7
MOUNTAIN PEAK WELL NO. 1
WATER LEVEL DATA

Job No. 537-NPA01

October 2015