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Memorandum

date September 22, 2006

to Napa County Conservation, Development, and Planning Department:
Mary Doyle
Brian Bordona

from Vick Germany, Peter Hudson, and Kelly White

subject Response to Comments on Initial Study/Mitigated Negative Declaration
Napa Canyon LLC Vineyard - #02253 Erosion Control Plan

Introduction

This document provides the County's responses to comments received on the Initial Study/Mitigated Negative Declaration, dated December 2004 (2004 IS/MND) (ESA, 2004) and Technical Appendix: Geology and Hydrology (ESA, 2004) for the Napa Canyon LLC Vineyard #02253 – Erosion Control Plan Agriculture (#02253-ECPA) project.

In accordance with Section 15073 of the CEQA Guidelines, Napa County submitted the 2004 IS/MND to the State Clearinghouse for a 30-day public review period starting on December 20, 2004. The public review period ended January 18, 2005. During the public review period, Napa County received a total of eight comment letters on the 2004 IS/MND:

- Letter from United States Army Corps of Engineers (Corps) dated December 27, 2004 [Letter A]
- Letter from Napa County Resource Conservation District (RCD) dated January 3, 2004 [Letter B][1]
- Letter from City of American Canyon dated January 14, 2005 [Letter C]
- Letter from Dennis Jackson dated January 15, 2005 [Letter D]
- Letter transmittal of Attachments and Exhibits by Thomas Lippe dated January 17, 2005 [Letter E]
- Letter from Thomas Lippe dated January 18, 2005 [Letter F]
- Notice from State Clearinghouse dated January 18, 2005 [Letter G]
- Letter from Marc P. Hayes dated January 18, 2005 [Letter H]

No additional comments have been received since close of the comment period on January 18, 2005. This memorandum presents responses to comments on the comment letters received regarding the 2004 IS/MND. Annotated copies of the comment letters are provided as attachments to this memorandum.

[1] It should be noted that the date on Letter B is January 3, 2004; however, this is a typo and should read January 3, 2005.

Letter A – Corps, dated December 27, 2004

Response to Comment A-1

Comment acknowledged. Page 2-8 of the 2004 IS/MND acknowledges that a permit from the Corps may be required.

Response to Comment A-2

Comment acknowledged. Page 2-8 of the 2004 IS/MND acknowledges that a permit from the Corps may be required.

Letter B – Napa County RCD, dated January 3, 2004

Response to Comment B-1

Comment noted for future reference. This comment does not change the impact analysis because the comment merely points out that the black tail deer, not the mule deer, is the local species. The black tail deer is a common species and not considered rare or threatened; therefore, the 2004 IS/MND will not be revised to incorporate this comment.

Response to Comment B-2

As required by Measure HWQ-6, the project applicant, with concurrence from the project engineer and representatives of the Napa County RCD, is required to identify areas where excessive slope length and gradient may result in unmanageable and localized concentration of stormwater flow and develop a feasible mid-slope flow dissipation strategy for long slopes susceptible to erosion. At the time of this writing, drain tiles ("French drains") is the flow dissipation strategy incorporated into #02253-ECP for slope length reduction, as recommended by Napa County RCD. Therefore, structures and mechanisms that would be employed to prevent soil erosion would require pre-approval by the Napa County RCD.

The Project Revision Statement, signed by the project applicant on June 5, 2005, includes changes that must be incorporated into the project description prior to project approval. Measure HWQ-6 is included in the Project Revision Statement as Provision No. 12. As noted in the above paragraph, drain tiles across long slopes is the dissipation strategy that will be implemented to meet the requirements of Provision No. 12. The provisions of the Project Revision Statement are analogous to Conditions of Approval.

Response to Comment B-3

The commenter's concurrence with the general conclusions regarding soil loss and sediment delivery is acknowledged. It is also acknowledged that Napa County RCD prefers to analyze soil loss and evaluate ECP effectiveness using the Universal Soil Loss Equation (USLE) rather than the Revised Universal Soil Loss Equation (RUSLE). Therefore, based on the commenter's comment, and to retain consistency with Napa County erosion control standards, ESA analyzed the pre- and post-project soil loss from the project site using the USLE. The analysis of the sediment yield and soil loss by USLE shows an overall decrease in soil loss when compared to the results of the RUSLE soil loss quantities (see page 3-18 of the 2004 IS/MND). However, these results do not alter the findings or conclusions reached in the 2004 IS/MND. The USLE methodologies and assumptions are discussed below.

The USLE uses five factors to determine the amount of erosion: R (energy of precipitation), K (soil erosiveness), LS (calculated from slope length and slope steepness), C (cover crop), and P (practice). The results of the USLE analysis show that total soil loss from the project site would be reduced from approximately seven tons per year under existing conditions to six tons per year under the developed vineyard conditions. The reduced soil loss directly reflects the differences in groundcover conditions under pre- and post-project conditions (natural cover versus planted cover crop, respectively) and reduced slope lengths (i.e., flow paths) associated with the development of a mid-slope flow dissipation strategy for long slopes susceptible to erosion (as discussed in Measure HWQ-6 of the 2004 IS/MND and Provision No. 12 of the Project Revision Statement) that includes, but is not limited to, the placement and use of straw wattles across the vineyard areas during the first two years of the vineyard development. The use of straw wattles is part of the proposed project and is indicated on the #02253-ECPA. The USLE factors used in the analysis are presented in **Table 1**. The results of the USLE analysis are discussed below and summarized in **Table 2**.

TABLE 1
UNIVERSAL SOIL LOSS EQUATION DATA SUMMARY

Sub-basin ID	Condition	Slope Length (feet)[a]	Slope (%)[b]	R	K[c]	C	P
Sub-1	existing	900	10%	45	0.28	0.028	1
	future	500	10%	45	0.28	0.029	1
Sub-2	existing	1880	17%	45	0.27	0.033	1
	future	560	17%	45	0.27	0.033	1
Sub-3	existing	1700	19%	45	0.28	0.028	1
	future	500	21%	45	0.28	0.029	1
Sub-4	existing	400	14%	45	0.28	0.028	1
	future	400	14%	45	0.28	0.029	1
Sub-5	existing	540	14%	45	0.28	0.028	1
	future	320	16%	45	0.28	0.029	1

[a] Slope length represents length of flow path within vineyard area, as measured from top of ridge to vineyard area boundary. For future conditions, the slope length is decreased by the placement of straw wattles as indicated on the ECP.
[b] Represents slope along flow path and not the average slope of the vineyard areas.
[c] Cover crop value for existing conditions based on an 80% ground cover comprised of mixed grass and weeds with no appreciable canopy. The C-value for Sub-2 is weighted to reflect noticeably less (60%) ground cover in areas underlain by Henneke gravelly loam. Cover crop value for future conditions is based on tilled vineyard rows from clearing to 1 year old, with 80% ground cover. The C-value for Sub-2 is weighted based on the assumption that it may be more difficult to maintain 80% groundcover (more likely 70%) in area underlain by the Henneke soil.
[d] K-value for Sub-2 is weighted to reflect the higher soil erodibility factor for Henneke gravelly loam in this sub-basin.

TABLE 2
UNIVERSAL SOIL LOSS EQUATION RESULTS

Sub-basin ID	Acreage of Vineyard in Sub-basin [a]	Existing Sediment Yield (tons/ac/yr)	Total Existing Sediment Loss (tons)	Future Sediment Yield (tons/ac/yr)	Total Future Sediment Loss (tons)	Difference in Sediment Loss (tons)
Sub-1	38.6	0.04	1.56	0.04	1.44	-0.12
Sub-2	52.3	0.06	2.93	0.04	2.02	-0.91
Sub-3	42.0	0.05	2.06	0.04	1.69	-0.37
Sub-4	1.7	0.04	0.06	0.04	0.06	0
Sub-5	6.0	0.04	0.22	0.04	0.21	-0.01

[a] This acreage represents area of vineyard blocks and vineyard avenues within each sub-basin. Note that vineyard avenues are planted with cover crop.

While the susceptibility of vineyard areas to erosion decreases as the vines mature and cover crop is established, proper maintenance of all the #02253-ECPA erosion control measures, such as regular maintenance of vegetative ground cover and straw wattles, is integral to controlling soil loss during the life of the vineyard. Maintenance of #02253-ECPA erosion control measures were discussed in the 2004 IS/MND as Measures HWQ-1, HWQ-2, HWQ-3 and HWQ-5 and is included as Provision No. 11 of the Project Revision Statement.

The soil loss predicted by the USLE represents the gross erosion for pre- and post-project conditions on the project site. It does not represent the amount of sediment that would be delivered to downstream receiving waterbodies such as American Canyon Creek. Site characteristics can significantly reduce the amount of eroded sediment that is delivered to streams, also referred to as the sediment delivery ratio. The sediment delivery ratio is the ratio of sediment delivered to a particular location in the stream system to the gross erosion within the drainage area above that location. There are a variety of site characteristics and/or erosion control measures that can affect the sediment delivery ratio. These include: (1) vineyard or natural slope variations that may trap sediment on the slope rather than transporting it all the way downslope as occurs on the uniform slopes typical of existing conditions, (2) connectivity of vineyard or natural slopes to adjacent stream channels where certain slope configurations may disperse sediment along the slope rather than deliver it to the stream, (3) areas where the lowermost slope flattens or the vegetation type and density can cause sediment deposition prior to reaching a stream, and (4) the types and locations of erosion control measures and features designed in the site-specific #02253-ECPA. Energy dissipation structures at each concentrated discharge point, while not accounted for in the USLE analysis, would help to further prevent erosion that could otherwise occur due to increased velocity of flows.

Response to Comment B-4

Comment noted for future reference. This comment does not change the analysis; therefore, the 2004 IS/MND will not be revised to incorporate this comment.

Response to Comment B-5

Comment acknowledged. Although the V-ditches are not specifically identified on the ECPA Site Plan sheet (Figure 3 of the 2004 IS/MND), they are shown and described on the ECPA Details sheet (Figure 4 of the 2004

IS/MND) in association with drop inlets and vineyard avenues. For the 2004 IS/MND, it is assumed that V-ditches would be installed at the drop inlets and on the vineyard avenues where appropriate.

Response to Comment B-6

The preparers of the 2004 IS/MND did not misconstrue RCD's memo of September 22, 2004. For purposes of clarity, in this context, the terms interception and dissipation should be considered synonymous and thus, use of the latter term does not change the analysis. However, for future reference, the terms will be clearly defined.

The requirements of Measure HWQ-6 adequately address Napa County RCD's concerns regarding slope length, drainage system capacity, and excessive soil loss. As discussed in Response to Comment B-3, above, the requirements of Measure HWQ-6 include the development of a feasible subsurface drainage system of adequate capacity to address areas of excessive slope length and gradient. Essentially, the subsurface drainage system would serve to intercept runoff and evenly distribute it to the proposed dissipation structures at the outfalls. The dissipation structures would serve to avoid erosion from concentrated flows at outfall locations. The 2004 IS/MND is consistent with Napa County RCD's recommendations and no change to the 2004 IS/MND is necessary.

Letter C – City of American Canyon, dated January 14, 2005

Response to Comment C-1

Comment noted. No response necessary.

Letter D – Dennis Jackson, dated January 15, 2005

Response to Comment D-1

The USLE soil loss analysis (see Response to Comment B-3) accounts for the portions of vineyard in Sub-Basin 2 that are underlain by the serpentine soils (the Natural Resources Conservation Service [NRCS] classifies the serpentine soils as Henneke gravelly loam). The higher erodibility of Henneke soils are reflected in the weighted K (soil erosiveness) value for Sub-Basin 2. K values used in the updated soil loss analysis match the K values assigned for specific USDA SCS soil types in *The Universal Soil Loss Equation, USLE, Special Applications for Napa County, California* (USDA, 1994). In cases where several soil types occur within an individual sub-basin, the K values were weighted to reflect these soil conditions.

The percent groundcover for the majority of site soils under existing and vineyard conditions was estimated at 80 percent. However, because the higher erodibility of Henneke soils also affects groundcover, existing and future groundcover in vineyard areas underlain by this soil type was estimated at 60 and 70 percent, respectively. Differences in percent groundcover are reflected in the C (crop cover) value and thus, the C value for Sub-Basin 2 is weighted to reflect the potential for less groundcover in areas underlain by Henneke soils. However, although 70 percent post-project groundcover conditions were used in the USLE analysis to provide a conservative estimate of soil loss, the #02253-ECPA indicates that 80 percent groundcover would be maintained at all times.

Because the USLE soil loss analysis accounts for areas underlain by serpentine soils (Henneke gravelly loam), and because the results of the analysis do not alter the findings or conclusions reached in the 2004 IS/MND, no changes to the 2004 IS/MND are necessary.

Response to Comment D-2

The Project Revision Statement (Provision No. 4) and MMRP (BR 1 and 4) developed as part of #02253-ECPA avoids and/or minimizes disturbance to California red-legged frog (CRLF) habitat. Provision No. 4 requires that approximately 170 acres of existing habitat be set aside for CRLF habitat. This 170-acre preserve includes the tributary to American Canyon Creek, which currently supports a CRLF population, and surrounding upland grassland habitat. The hillsides that supply the primary subsurface flow to the CRLF preserve are upgradient to and outside of the proposed vineyard area. The majority of the proposed vineyard area is located downhill of the CRLF habitat. Provision No. 4 further protects CRLF habitat by requiring, with the exception of short-term activities associated with the removal of the culvert on this drainage, a minimum 150-foot setback from CRLF habitat in the tributary to American Canyon Creek.

Although both the TR-55 analysis presented in the 2004 IS/MND and the TR-55 verification analysis conducted as part of this Response to Comments effort (see Response to Comment D-8, below) determined that the implementation of #02253-ECPA and the subsequent vineyard would result in an insignificant increase in stormwater runoff from the project site. Of particular relevance is *Table 4: TR-55 Results for Various Storm Recurrence Intervals* (included as part of Response to Comment D-8), which shows the results of the TR-55 verification analysis. As noted in Table 4, the pre- and post-project stormwater runoff values in Sub-Basin 2, which encompasses the majority of CRLF habitat, are not expected to change. The no-net increase is attributable to the increase in vegetative cover that vineyard development would have on the seven acres of proposed vineyard areas underlain by Henneke soils. As discussed in Response to Comment B-3, above, vegetative groundcover in this portion of the proposed vineyard area was calculated at 60 and 70 percent for pre- and post-project conditions, respectively, to come up with a conservative estimate of soil loss. See Response to Comment B-3 for details regarding the USLE analysis; see Response to Comment D-8 for details regarding the TR-55 analysis.

Furthermore, as discussed on in Section VIII, Hydrology and Water Quality, under checklist item b) of the 2004 IS/MND, implementation of #02253-ECPA and the subsequent vineyard would not result in the creation of new impervious surfaces capable of impeding infiltration of surface water. The majority of subsurface flow to the CRLF habitat is supplied by a large drainage area to the north-northeast of the proposed vineyard boundary. Due to the soil conditions and topography, groundwater that collects in the lowland portions of the drainage is shallow and forms a series of wetlands. Compared to the amount of underflow supplying the undisturbed recharge area and drainage to the northeast, the contribution of subsurface flow to the wetland area and CRLF habitat from the proposed vineyard area is a small fraction.

Soil loss calculations indicate that the amount of sediment generated from the proposed vineyard would decrease overall compared to soil loss quantities under current conditions. If any sediment is generated from the proposed vineyard, it is unlikely that it would reach the CRLF habitat because surface water runoff, which would be the primary transport mechanism for the sediment, would be collected through the proposed drainage system and routed away from the CRLF habitat. The surface water runoff, once intercepted and collected from the vineyard, would be discharged through an energy dissipation structure, and thus, any sediment contained in the runoff would settle out a sufficient distance from the area preserved for the CRLF. Thus, implementation of #02253-ECPA and the subsequent vineyard would not result in a significant reduction in subsurface flows or other adverse impacts to CRLF habitat.

Response to Comment D-3

American Canyon Creek is intermittent on the project site, typically drying by July or August of each year. It does not support spawning riffles or migrating fish. American Canyon Creek flow has been altered through several large culverts to accommodate the extension of Flosden Road at its intersection with American Canyon Road, ¼ mile west of the project site. Although steelhead seasonally migrate through the Napa River, all downstream areas in the river from the confluence to San Francisco Bay do not constitute breeding riffles or habitat.

As indicated by the USLE soil analysis and presented in Tables 1 and 2, above, implementation of soil erosion and sediment transport control mechanisms proposed as part of #02253-ECPA, and as revised in accordance with the Project Revision Statement, would result in a decrease in soil loss from the project site. Therefore, implementation of #02253-ECPA and the subsequent vineyard would not increase suspended sediment load in American Canyon Creek. Thus, implementation of #02253-ECPA and the subsequent vineyard would not affect migrating steelhead or steelhead breeding habitat. See Response to Comment B-3, above, for further discussion regarding the USLE analysis.

Response to Comment D-4

As discussed above in Response to Comment D-2, 170 acres of existing habitat would be set aside for CRLF habitat. The 170-acre CRLF preserve encompasses the tributary to American Canyon Creek that currently supports a CRLF population, as well as surrounding upland grassland habitat. The location, extent, and area of this CRLF preserve has been designed under the guidance of USFWS personnel. The project site is a unique property that has an unusually high number of seeps/springs relative to the surrounding lands. The CRLF population is limited exclusively to these seeps/springs and the primary drainage tributary to American Canyon Creek. These seeps/springs and the primary drainage are protected within the 170-acre preserve. As indicated by topographic maps of the project site and immediate vicinity, the majority of subsurface flow to the CRLF preserve is upgradient to and outside of the proposed vineyard area. Both the TR-55 analysis presented in the 2004 IS/MND and the TR-55 verification analysis (see Response to Comment D-6, below) indicated that the implementation of #02253-ECPA and the subsequent vineyard would not result in a significant increase in stormwater runoff from the project site, and thus, would not significantly affect CRLF habitat. Refer to comment response D-2 for discussion of subsurface flow to the CRLF and the contribution of that flow from the CRLF habitat. The detailed location of spring boxes is not mapped or discussed to protect the special status species from harassment, collection, and tampering. The project files contain information on the location of the spring boxes.

Response to Comment D-5

As discussed in Response to Comment D-8, below, a drainage easement agreement between the Napa Valley Unified School District (NVUSD) and the project applicant ensures that when the school property is developed, stormwater flows originating from the #02253-ECPA parcel would be adequately conveyed through the NVUSD property to American Canyon Creek. Due to the sloped topography of the project site and volume of stormwater discharged from the two outflows, the post-project drainage configuration would not locally concentrate stormwater and lead to the formation of perennial wet areas that would attract bullfrogs (predators to the CRLF). Shallow ponding could occur during and immediately after peak rainfall events. However, the duration of this ponding would be temporary and thus, would not be of sufficient duration to attract bullfrogs. Further, at the time of this writing, the Napa County RCD has requested that #02253-ECPA specify horizontal T-spreaders (energy dissipation structure used to disperse discharge water over a wider area) rather than a rock-lined dissipation

structure. Use of a T-spreader would dampen the energy of the stormwater discharges and distribute overland flow, thereby reducing the potential for the stormwater flows to form gullies.

Response to Comment D-6

As discussed on page 2-4 of the 2004 IS/MND, the proposed project includes the landslide repair for two recently active slides in Blocks B and E. Repair of these two recently active slides is also addressed in Section VI, Geology and Soils (checklist item a-iv, page 3-18) and Provision No. 10 of the Project Revision Statement. Provision No. 10 also requires the incorporation of slope drainage features, as determined by the geotechnical engineer, to adequately drain the slope of excess shallow groundwater and the inspection of the final grading of landslide areas by the geotechnical engineer. The geotechnical engineer or geologist would then be required to submit a final report detailing the final slope repair techniques.

In addition, erosion control measures contained in #02253-ECPA (see page 2-4 of IS/MND) would serve to prevent slope instability and future landslides. Slopes failures (landslides and debris flows) in steeply sloped areas, especially those underlain by colluvial material in swales, occur due to the concentration of subsurface flow and saturation of the shallow soils. Implementation of #02253-ECPA would improve site drainage and install erosion control measures designed to decrease the number of areas on the site where water can accumulate and form planes of slippage. The project would commit to 80 percent vegetative cover in proposed vineyard areas, practice no-till crop management, install a subsurface drain on Block D, and place straw wattles across slopes during the initial phases to prevent excessive runoff. Vineyards are typically most vulnerable to slope instability during the first three years of vineyard establishment. The maintenance of erosion control measures/features are identified in the #02253-ECPA and 2004 IS/MND is addressed by Provision No. 11. Provision No. 12 of the Project Revision Statement deals with the development of a mid-slope flow dissipation strategy and appropriate subsurface drainage system that would be developed with concurrence from the Napa RCD and, as required by Provision No. 10, would also be approved by the geotechnical engineer. See the Response to Comment B-2, above, for further discussion regarding the relevant aspects of Provision No. 12.

On pages 8 and 9 (items A through E) of the comment letter, the commenter summarizes his concerns regarding the effect of implementation of #02253-ECPA and the subsequent vineyards on landslides and slope instability. Although these issues have been addressed in the above paragraphs, concise summary responses are provided as follows:

(A) The two recently active slides on the project site would be repaired as part of the #02253-ECPA. It should be noted that, at the time of this writing, #02253-ECPA has been revised (Revision May 2006) to include the geotechnical recommendations for repairing the two existing landslides (first noted on page 2-4 of the 2004 IS/MND). The applicant would also develop a post-project subsurface drainage system in accordance with Provisions No. 10 and 12 of the Project Revision Statement.
(B) The drainage improvements to colluvium-filled swales recommended by the Geotechnical Engineer are incorporated into #02253-ECPA by reference.
(C) See response to Issue B, above.
(D) Ongoing inspections and maintenance of erosion control measures/features are identified in the #02253-ECPA and 2004 IS/MND is addressed by Provision No. 11 of the Project Revision Statement.
(E) See response to Issue B, above.

The measures included in the #02253-ECPA and the mitigation measures included in the 2004 IS/MND, together with the provisions of the Project Revision Statement, adequately address potential impacts associated with landslides and slope instability. Thus, no changes to the 2004 IS/MND are necessary.

Response to Comment D-7

The commenter's claim that the deep ripping that would occur during vineyard installation would reduce the infiltration capacity of the soil and increase the frequency and volume of overland flow is not based on direct field data. The possibility of the clay loam mixing with the topsoil is a possibility but based on the distribution of clay and loam throughout the Fagan Clay Loam horizon, the effects are not expected to be significantly different from the infiltration and erosion effects observed on undisturbed Fagan soils. As discussed in the Technical Appendix which accompanies the 2004 IS/MND, the Fagan Clay Loam consists of a moist dark to very dark grayish brown clay between the depths of 25 to 28 inches. Depth to bedrock is up to 46 inches, and the effective rooting depth is 40 to 60 inches.

This soil has the ability in many areas to restrict water storage and root penetration. The deep ripping, that would occur only once during the development of the vineyard, could temporarily alter the clay content with depth but the potential that this condition would change the characteristics over the long term is low. Overtime, the clay would redistribute within the soil horizon and with the development of the cover crop, infiltration would increase and erosion would decrease. In addition, considering the shallow depth to bedrock, ripping would also cause additional rock fragments to mix with the soil and increase permeability of the soil at the surface. Deep ripping that would occur during initial vineyard installation would actually increase permeability, particularly where soils have been compacted by year-round grazing.

Potential project-related impacts to CRLF habitat were addressed in Responses to Comments D-2 and D-4, above. Potential project-related impacts to steelhead habitat were addressed in Response to Comment D-3, above. Pre- and post-project stormwater runoff from the project site is appropriately addressed in Response to Comment D-7, below. Responses to all comments received from Napa County RCD (Letter B, dated January 3, 2004) on the 2004 IS/MND are included above as Responses to Comments B-1 through B-6.

The commenter also states that the effects of the V-ditches cannot be estimated if their locations are not clearly shown on the maps. As indicated on Details 3 and 4 on Sheet 3 of the #02253-ECPA, V-ditches would be installed along all vineyard avenues to manage surface water. The locations of proposed vineyard avenues are clearly shown on Sheet 2 of the #02253-ECPA. No additional clarification regarding the location of V-ditches is necessary.

Response to Comment D-8

In the 2004 IS/MND, the effect of implementation of #02253-ECPA and the subsequent vineyards on stormwater runoff was evaluated using the TR-55 precipitation/runoff model on a per-vineyard block basis for the eight proposed vineyard blocks. The TR-55 method is a standard methodology used to estimate runoff from a project site. Established by the NRCS, TR-55 is widely used and accepted throughout the industry to model pre- and post-project surface water flow. The Napa County RCD relies on TR-55 to evaluate the effectiveness of surface water management strategies and erosion potential for ECPs. The TR-55 results calculated in the 2004 IS/MND was reanalyzed to confirm the magnitude of pre- and post-project stormwater runoff predicted in the 2004 IS/MND based on five individual sub-basins rather than on a per vineyard block basis (see Figure1 – Response to Comments). The individual sub-basin TR-55 verification analysis considered the 2-, 5-, 10-, 25-, 50-, and 100-

year storm recurrence intervals and accounts for the presence of Henneke soil in 7 acres of the vineyard area. The TR-55 verification analysis assumed that the post-project conditions closely match the TR-55 ground condition of "row crops"; this is an appropriate assumption and is consistent with the NRCS TR-55 Applications for Napa County Vineyards. Further, the assumption of post-project "row crop" conditions yields an adequately conservative result of surface flow. Project sub-basins are summarized in **Table 3**. The verification analysis of surface water flow using TR-55 on a sub-basin approach did not yield results that change the conclusions, result in new significant impacts, or require mitigation measures not previously set forth in the 2004 IS/MND.

The verification analysis of the TR-55 analysis yielded stormwater runoff values that are consistent with the previous runoff analysis. Overall, the results suggest that the volume and rate of runoff from the project parcel would increase to some degree after vineyard development. The 2004 IS/MND analysis, resulted in a 6.83 cubic feet per second (cfs) and 10.7 cfs overall project increase for the 2-year and 100-year storm events, respectively. The TR-55 verification analysis resulted in an 8.9 and 13.6 cfs overall increase for the 2-year and 100-year storm events, respectively. However, considering the size of the American Canyon Creek watershed (approximately 4,395 acres or 6.9 square miles), project-related increases in peak flow and are not considered significant. Project-related hydrologic changes for the individual sub-basins are discussed below and the results of the reanalyzed stormwater flow predictions are presented in **Table 4**.

TABLE 3
SUB-BASIN SUMMARY

Sub-basin ID [1]	Acreage	Drainage/Outlet Point	Contributing Blocks
Sub-1	141	Drains north-facing vineyard areas and the northwest-trending intermittent tributary to Newel Creek. Outlet point is Newel Creek.	A, B, C
Sub-2	375	Drains eastern half of vineyard area and south-trending tributary to American Canyon Creek. Outlet point is roughly American Canyon Creek. Future discharge point from vineyard area is storm drain outlet downslope of Block G. Flows from the proposed vineyard area would be discharged to NVUSD property.	E, F, H, G
Sub-3	80	Drains south/southwest-facing hillsides of vineyard area. Lack of defined channel indicates the majority of flow is comprised of shallow and subsurface flow. Future discharge point from vineyard area is storm drain outlet between Blocks D and G. Flows from the proposed vineyard area would be discharged to NVUSD property. No specific outlet point.	C, D, G
Sub-4	18	Drains small (1.7 ac) portion of west-facing vineyard area. Flows are conveyed beneath Flosden Rd to the new subterranean storm drain system at Vintage Ranch Subdivision. No specific outlet point for sub-basin.	C
Sub-5	55	Drains small (6.0 ac) portion of vineyard area. Runoff occurs as shallow, concentrated flow to Newel Creek. No specific outlet point. Future discharge point from vineyard area is culvert at north end of Block C.	C

NOTES: [1] Although the drainage areas in Sub-1 and Sub-2 represent true sub-basins (i.e. all drain to a common point at the downstream edge of their respective creek branch), no specific outlet point exists for Sub-3, Sub-4, and Sub-5. Delineation of a true sub-basin that encompasses all of the proposed vineyard area (including the area covered by Sub-3, Sub-4, and Sub-5) would result in a sub-basin so large that the effect of project development on peak discharge would be obscured by the large drainage area.

TABLE 4
TR-55 RESULTS FOR VARIOUS STORM RECURRENCE INTERVALS

Sub-basin ID	Condition	Peak Discharge (cfs) 2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Sub-1 (141 acres)	existing	39.9	62.2	68.2	83.4	108.7	131.7
	future	42.5	65.4	71.4	86.9	112.5	135.7
Sub-2 (375 acres)	existing	125.4	187.8	204.1	245.9	314.7	376.4
	future	125.4	187.8	204.1	245.9	314.7	376.4
Sub-3 (80 acres)	existing	21.8	34.2	37.5	45.9	60.0	72.8
	future	26.7	40.0	43.5	52.4	67.1	80.3
Sub-4 (18 acres)	existing	4.6	7.3	8.1	10.0	13.2	16.1
	future	4.9	7.8	8.5	10.5	13.7	16.7
Sub-5 (55 acres)	existing	14.2	22.5	24.8	30.5	40.1	48.8
	future	15.1	23.7	26.0	31.8	41.5	50.3

Sub-Basin 1 (Sub-1)

Sub-1 represents runoff from all of Block A and portions of Blocks B and C. The vineyard area makes up approximately ¼ of the total sub-basin area. Sub-1 drains to Newel Creek, a first-order tributary to American Canyon Creek. The results of the TR-55 verification analysis indicates project-related increases in peak flow rates in Sub-1 would range from 2.6 cfs (seven percent) for the 2-year storm event to 4.0 cfs (three percent) for the 100-year event. This increase in runoff is likely negligible considering the American Canyon Creek watershed. Temporary straw wattles and energy dissipation structures proposed as part of the ECPA would attenuate excess runoff and reduce erosive flow velocities.

Sub-Basin 2 (Sub-2)

The Sub-2 drainage area is the largest drainage area modeled for the project site. This sub-basin drains all of Blocks F and H and large portions of Blocks E and G. Sub-2 includes two tributaries to American Canyon Creek. The TR-55 verification analysis calculated no net change in runoff from this portion of the project site. The no net increase is attributed to the increase in vegetative groundcover conditions that vineyard development would have in this portion of the project parcel. Approximately seven acres of the 52-acre vineyard area in this sub-basin are underlain by Henneke gravelly loam. The area underlain by the Henneke soils currently exhibits noticeably less vegetation than the remainder of the site due to the high erodibility of this soil type. Existing grazing practices on the property further aggravate this soil type erosion. Initial deep (roughly two to three feet) ripping and continued maintenance of a cover crop would increase the rate of infiltration in this area, thereby generating less runoff and offsetting the increase in runoff in other vineyard areas within the sub-basin. The future cover crop in vineyard areas underlain by Henneke soil was estimated at 70 percent. This is a conservative estimate that accounts for the higher erosion potential of this soil type. The #02253-ECPA, however, specifies that an 80 percent groundcover would be maintained in all vineyard areas. As indicated in #02253-ECPA, under post-project conditions, most runoff from the vineyard area would be conveyed within a storm drain pipe and discharged to an energy dissipater located below Block G.

Sub-Basin 3 (Sub-3)

Sub-3 represents runoff from the majority of Block D and portions of Blocks C and G. The vineyard area makes up more than half of this total sub-basin area. Runoff in this sub-basin consists of overland sheet flow and shallow concentrated flow that moves southwest towards gently-sloped (one to two percent) NVUSD property. Lack of a defined channel in this sub-basin suggests runoff from this area only makes it to American Canyon Creek during

large storm events (i.e., greater than 5-year events). The TR-55 verification analysis indicates post-project increases in peak flow rates would range from 4.9 cfs (23 percent) for the 2-year storm event to 7.5 cfs (10 percent) for the 100-year storm event. During post-project conditions, excess storm water runoff from the vineyard area would be concentrated within a storm drain pipe and discharged to an energy dissipation structure below Blocks D and G. The energy dissipation structure in #02253-ECPA would reduce the potential for gullying and erosion. The approximately 800-foot width of land between the energy dissipation structure in #02253-ECPA and American Canyon Creek would further help to attenuate flows. This land is currently owned by the NVUSD. When this parcel is developed by NVUSD, a drainage easement held by the project applicant would ensure that flows originating on the project site would be adequately conveyed to American Canyon Creek[2].

Sub-Basin 4 (Sub-4)

Sub-4 drains a small portion (1.7 acres) of Block C. Runoff from this sub-basin travels as overland sheet flow and shallow concentrated flow east beneath Flosden Road within newly-installed field collectors to the Vintage Ranch subdivision prior to its discharge to Newel Creek and/or American Canyon Creek. The TR-55 verification analysis calculated project-related increases in runoff in this sub-basin to range from 0.4 cfs (seven percent) for the 2-year event to 0.6 cfs (four percent) for the 100-year event. This increase in runoff over existing conditions is negligible. While these increases in flow would be minor, erosion control measures contained in the #02253-ECPA and Project Revision Statement would attenuate erosive flow velocities.

Sub-Basin 5 (Sub-5)

Sub-5 drains a portion of Block C. Flows in this sub-basin travel as overland sheet flow and concentrated flow northwest towards Newel Creek. As indicated in Table 4, future increases in peak flows range from at 1.0 cfs (seven percent) for the 2-year storm event to 1.5 cfs (three percent) for the 100-year storm event. While these increases in flow would are minor, erosion control measures contained in the #02253-ECPA and Project Revision Statement would attenuate erosive flow velocities.

Response to Comment D-9

See Response to Comments D-5 and D-8.

Response to Comment D-10

As with most development projects, post-project drainage conditions differ from pre-project conditions, often resulting in changes in drainage patterns and concentrated stormwater flows. The purpose of HWQ-7 is to ensure that post-project stormwater runoff conditions do not result in flooding, erosion, or other drainage problems to properties and waterways located downgradient of the project site. For Sub-Basin 1, project-related increases in peak runoff would range from 2.6 cfs to 4 cfs for the 2-year to 100-year storm events, respectively (see Table 4 above). These flows would discharge to Newel Creek (see Figure 1) and do not constitute a significant increase in runoff. Flows from Sub-Basin 2 would remain unchanged for pre- and post-vineyard conditions. Project-related increases in Sub-Basin 3 would range from 4.9 cfs to 7.5 cfs for the 2-year to 100-year storm recurrence intervals. This increase would be accommodated by future drainage infrastructure at the NVUSD parcel and recent drainage improvements to American Canyon Creek at the Flosden Road crossing. As stated in the May 1, 2006 letter from

[2] Subsequent to the publication of the 2004 IS/MND, this assumption was confirmed by a letter from the NVUSD General Services & Facilities Department dated May 1, 2006 and addressed to the Napa County Department of Conservation, Development and Planning. As stated in the May 1, 2006 letter, the storm drainage system currently being design for the school site would be sized and appropriately located to accommodate the expected stormwater flows from the project site and would include energy dissipators, detention/retention basins, or devices all of which are intended to minimize downstream impacts. This letter is included in the appendix to this memorandum.

NVUSD, the storm drainage system currently being designed for the school site would include energy dissipaters, detention/retention basins, or devices, all of which minimize downstream impacts. As of the time of this writing, #02253-ECPA acknowledges that overland flow from the project site would be conveyed through the NVUSD property, as agreed upon in the NVUSD General Services & Facilities Department letter to the Napa County Department of Conservation, Development and Planning, dated May 1, 2006. Sheet 1 of the revised #02253-ECPA denotes facilities that would accommodate this proposed stormwater conveyance. Project-related increases in Sub-Basin 4 would range from 0.4 to 0.6 cfs; in Sub-Basin 5, these increases would range from 1 to 1.5 cfs. Drainage infrastructure associated with Vintage Ranch subdivision was designed to accommodate flows originating from Sub-Basins 4 and 5. Flows from the subdivision ultimately discharge to Newel Creek and American Canyon Creek. Due to the relatively small increase project-related stormwater flows and recent and planned drainage infrastructure improvements, implementation of #02253-ECPA and the subsequent vineyard would not result in flooding, erosion, or other drainage problems to downstream properties.

Response to Comment D-11

As described in Response to Comments B-3, D-2, and D-7, pre- and post-project soil loss from the project site was evaluated using the USLE. Pre-project groundcover conditions presented in the analysis were based on a visual site reconnaissance conducted by ESA in July 2005. In areas underlain by Henneke soils, pre- and post-project groundcover was estimated at 60 and 70 percent, respectively, to reflect the higher erodibility of these soils and produce a conservative estimate of post-project soil loss from the project site. The presence of these soils is reflected in the weighted K and C values assigned to Sub-Basin 2. As previously mentioned, the initial deep ripping would not significantly alter the infiltration characteristics of site soils because of the clay content throughout the horizon and therefore, the K-values indicated in Table 1 are appropriate.

Response to Comment D-12

The commenter states that there is no discussion of the water tanks or the associated all-weather road in the Hydrology and Water Quality section of the IS/MND. These items were not discussed in the Hydrology and Water Quality section of the 2004 IS/MND because they are not part of the proposed project; however, the cumulative effects of the water tanks and access road were discussed under XVIII b, page 3-34 of the 2004 IS/MND.

Letter E – Thomas Lippe, dated January 17, 2005

The following represents a brief review of exhibits submitted by the Law Offices of Thomas N. Lippe to Napa County.

Exhibit Review

1. Omernik, James M., 2003. *The Misuse of Hydrologic Unit Maps for Extrapolation, Reporting, and Ecosystem Management*. This exhibit discusses how hydrologic units (i.e., drainage subbasins) are commonly misused in water resource planning. The misuse of hydrologic units in planning stems from the fact that many hydrologic units do not represent true topographic watersheds. Topographic watersheds are areas within which apparent surface water drains to a common point at the downstream edge of a respective creek branch. The limitations of using hydrologic units to characterize project impacts on hydrologic systems are recognized by the authors of the 2004 IS/MND and this memorandum. The TR-55

verification and USLE analyses acknowledges this and discusses the instances where the project sub-basins do not represent true watersheds[3].

2. *Phase II Report: Independent Scientific Review Panel on Sediment Impairment and Effects on Beneficial Uses of the Elk River and Stitz, Bear, Jordan and Freshwater Creeks.* Humboldt Watersheds Independent Scientific Review Panel; August 12, 2003. This exhibit evaluates the effectiveness of the timber harvesting management process and associated water quality standards in protecting watersheds under the jurisdiction of the North Coast Regional Water Quality Control Board. The proposed project does not include timber harvesting and thus, this exhibit is not applicable. Vineyard practices are not comparable to timber harvesting. Additionally, the proposed project is not expected to result in increased erosion and sedimentation. As indicated by Response to Comment B-3 and Table 2 above , the results of the USLE soil loss analysis indicates soil loss from the project site would actually be reduced with project implementation from approximately seven tons per year under existing conditions to six tons per year under vineyard conditions. No additional discussion is necessary.

3. National Marine Fisheries Service Endangered and Threatened Species: *Listing of Several Evolutionary Significant Units (ESUs) of West Coast Steelhead Final Rule* Fed. Reg. Vol. 62, page 43937. August 18, 1997. This exhibit discusses the final determination of the Central California coast coho salmon ESU as a federally threatened species under the Endangered Species Act of 1973. According to the Napa RCD website, Coho salmon are no longer found in the Napa River and the steelhead population has been greatly reduced. The authors of the 2004 IS/MND and this memorandum are aware that agricultural practices, including viticulture, are a factor contributing to steelhead decline in the Napa River. However, American Canyon Creek is not a steelhead stream and does not support spawning riffles or migrating fish. Furthermore, given that the proposed project would result in a decrease in soil erosion from the project site, very little (if any) sediment from the proposed project is expected to migrate from the project site to the Napa River. Potential project impacts to steelhead populations were addressed in Response to Comment D-3.

4. *Napa River Limiting Factors Analysis*. Prepared by Stillwater Sciences and Professor William Dietrick for San Francisco Bay RWQCB and California State Coastal Conservancy. June 14, 2002. This exhibit was created for the purpose of assisting the RWQCB in the sediment Total Maximum Daily Load process; to develop a better understanding of steelhead conditions in the Napa River system; and to make recommendations regarding planning and implementation of measures to protect beneficial uses in the Napa River watershed. The purpose of the project ECPA is to minimize disturbance and associated environmental effects of vineyard operations on slopes greater than five percent (see page 2-1 of the 2004 IS/MND). In particular, the project ECPA is aimed at proper design and implementation of erosion control measures, such as regular maintenance of ground cover, energy dissipation structures, landslide stabilization, straw wattles, straw bales, subsurface drains, etc. to reduce the potential for migration of sediment to downstream waters. The USLE soil loss analysis indicates that project implementation would in fact reduce soil erosion and sedimentation at the project site. This is further discussed under Response to Comment B-3 and in Table 2 above.

5. Curry, Robert R. PhD., 2000. *Cumulative Effects of Conversion of Upland Woodlands and Chaparral to Vineyards Report*. This exhibit discusses the effects of upland vineyard conversions on woodland and chaparral. The exhibit focuses on the effects of deep raking, tilling, and localized rock removal on the infiltration capacity of vineyard conversion sites, practices common to modern vineyard planting or

[3] Note that while the drainage areas in Sub-1 and Sub-2 represent true sub-basins (i.e., all drain to a common point at the downstream edge of their respective creek branch), no specific outlet point exists for Sub-3, Sub-4, and Sub-5. Delineation of a true sub-basin that encompasses all of the proposed vineyard area (including the area covered by Sub-3, Sub-4, and Sub-5) would result in a sub-basin so large that the effect of project development on peak discharge would be obscured by the large drainage area.

replanting. The #02253 - ECPA site is located in a grazed area covered by nonnative grasslands and not in an area dominated by upland woodlands or chaparral. Project site soils are predominantly Fagan clay loam (132 acres, or 95 percent of the proposed vineyard area), a soil type not characterized as having rocks and stones throughout the soil profile. The remainder of the proposed vineyard area is underlain by Henneke gravelly loam (seven acres, or five percent of the proposed vineyard area) and is characterized as having between 30 and 50 percent gravel throughout the soil profile. However, rock removal is not proposed as part of the preparation of the vineyard area. Finally, the exhibit maintains that deep tilling mixes varied parent material and brings clays to the soil surface, thereby reducing the infiltration capacity of site soils. As discussed in Response to Comment D-7, the effects of initial deep tilling and ripping would be temporary and would actually increase permeability, particularly where soils have been compacted by year-round grazing. Deep tilling and ripping would occur only during initial vineyard installation. Following planting, vineyard operations would be committed to no-till management. No additional discussion is necessary.

6. *Expert Witness Report: Cumulative Impacts on Fisheries Resources from Intensive Viticulture Practices in Napa County, CA.* Prepared by Robert R. Abbot, PhD., and Robert N. Coates, PhD. February 1, 2001. This exhibit summarizes fisheries resource, water quality, and riparian habitat issues in the Napa River with the objective of characterizing cumulative impacts on steelhead resulting from vineyard cultivation practices. See the discussion for Exhibit 3, above. No additional discussion is necessary.

7. *Habitat Fragmentation as a Cumulative Impact of Winery Expansion and Other Developments in Napa County*: The effects of habitat loss and degradation on wildlife are discussed in the 2004 IS/MND (see page 3-13). The purpose of CEQA review is to mitigate those impacts to the extent possible while allowing development as approved under land use plans. As discussed in Response to Comment D-2, the proposed vineyard conversion project includes a 150-foot setback from wetlands and CRLF habitat. The proposed project also includes a constructed wetland basin and a dedicated 170-acre CRLF preserve. As discussed on page 3-13 (under checklist item IV-d) of the 2004 IS/MND, upland portions of the project parcel provide a migratory route for common wildlife species that are found throughout the project region. The long-term survival of large wildlife species that may migrate through the parcel, such as coast black-tailed deer and gray fox, would not be inhibited by the proposed activities because the vineyards would only occupy approximately 44 percent of the parcel and the majority of the parcel would be preserved. Thus, no additional discussion is necessary.

8. *Disrupting the Balance, Ecological Impacts of Pesticides in California.* Pesticide Action Network, 1999. This exhibit discusses the effects of pesticide exposure on fish, birds, and wildlife. The 2004 IS/MND acknowledged the potential detrimental effects of pesticides (pages 3-9 and 3-20). State law requires that pesticide applicators be licensed by the state. Pesticides and pesticide applicators are also regulated by the Napa County Agricultural Commissioner. Vineyard growers are required to submit Monthly Summary Pesticide Use Report forms, identify hazardous material storage sites and submit inventories of stored materials which exceed threshold quantities on an annual basis. On vineyards, fertilizers are applied through the drip irrigation system; fungicides are applied directly to the leaves or foliage of the vines; insecticides are applied via foliage application on an as-needed basis; and herbicides are applied under vines. Thus, agrichemicals would be judiciously applied in accordance with the limitations and requirements imposed on them under state and federal law. Furthermore, because many agrichemicals adhere to soil particles, erosion control measures inherent in the project description (see Section 2.0 of the 2004 IS/MND) would help prevent the migration of agrichemicals to downstream waters. It is anticipated that integrated pest management (IPM) techniques are to be applied with site-specific applications. In an IPM system, the timing and types of pesticides to be used are based on knowledge of the life cycle of the pest and the effects of environmental conditions on its populations. The potential migration of agrichemicals is further discussed in Response to Comment F-3. No additional discussion is necessary.

9. *Pesticide Toxicity Index (PTI) for Freshwater Aquatic Organisms.* USGS, 2001. The PTI is used to rank or compare the toxicity of samples or sites on a relative basis for use in further analysis or additional assessments. The PTI has not been applied to the proposed project nor is it commonly applied to vineyard conversion projects in Napa County. Furthermore, the exhibit itself states the relation of the PTI values to biological effects remains to be tested. No additional discussion is necessary.

10. *Studies Relating Pesticide Concentrations to Potential Effects on Aquatic Organisms in the San Francisco Bay-Estuary, California.* USGS, 1999. See the discussion for Exhibit 8, above. No additional discussion is necessary.

11. *Hazard Assessment of the Insecticide Chlorpyrifos to Aquatic Organisms in the Sacramento-San Joaquin River System.* CDFG, Environmental Services Division, 1994. The project site is not located in the Sacramento-San Joaquin River System. See the discussion for Exhibit 8, above for a discussion of the potential migration of pesticides from the project site. No additional discussion is necessary.

12. *Hazard Assessment of Insecticide Diazinon to Aquatic Organisms in Sacramento San Joaquin River System, Environmental Services Division.* CDFG, Environmental Services Division, 1994. The project does not drain to the Sacramento-San Joaquin River System. See the discussion for Exhibit 8, above for a discussion of the potential migration of pesticides from the project site.

13. *Diminishing Returns: Salmon Decline and Pesticides, Northwest Coalition for Alternatives to Pesticides.* R.D. Ewing, 1999. See the discussion for Exhibit 8, above for a discussion of the potential migration of pesticides from the project site.

14. C. Cox, 2000. *Lethal Lawns: Diazinon use Threatens Salmon Survival.* Published by the Oregon Pesticide Education Network. See the discussion for Exhibit 8, above for a discussion of the potential migration of pesticides from the project site.

15. Lind, Pollyana, 2002. *Poisoned Waters, Pesticide Contamination of Waters and Solutions to Protect Pacific Salmon.* Published by the Northwest Coalition for Alternatives to Pesticides, Washington Toxics Campaign. See the discussion for Exhibit 8, above for a discussion of the potential migration of pesticides from the project site.

16. C. Cox, 2000. *Diazinon: Part 3: Ecological Effects and Environmental Contamination, Insecticide Fact Sheet.* Published in the Journal of Pesticide Reform, Vol. 15, No. 3, Fall 2000. See the discussion for Exhibit 8, above, for a discussion of the potential migration of pesticides from the project site.

17. *Chlorpyrifos, Part 3: Ecological Effects.* See the discussion for Exhibit 8, above, for a discussion of the potential migration of pesticides from the project site.

18. Suttle, et al. 2001. How Fine Sediment in Riverbeds Impairs Growth and Survival of Juvenile Salmonids. Published in *Ecological Applications*, 14(4), 2004, pp. 969-974 q 2004 by the Ecological Society of America. See Response to Comment B-3 for a discussion of pre- and post-develop soil loss from the project site.

Letter F – Thomas Lippe, dated January 18, 2005

Response to Comment F-1

Response to Comment D-3 addresses the suitability of American Canyon Creek for steelhead habitat; Response to Comment D-6 discusses landslide repair and measures that would be employed to address potential slope

instability issues on the project site; Response to Comment D-8 discusses pre- and post-project stormwater runoff, as estimated using the TR-55 method for the five sub-basins draining the project site; and, Response to Comment B-3 summarizes pre- and post-project soil loss, as calculated using the USLE for the project sub-basins. Based on the lack of suitable steelhead habitat along American Canyon Creek, particularly in the vicinity of the project site, repair of the two recently active landslides on the project site, proposed slope stability and erosion control measures, proposed drainage improvements, and the results of the TR-55 and USLE analyses presented in this memorandum, implementation of the #02253-ECPA and the subsequent vineyard would not affect migrating steelhead or steelhead breeding habitat.

Response to Comment F-2

See Response to Comment D-2 regarding potential impacts to CRLF habitat and Response to Comment D-5 regarding the potential for post-development runoff conditions to provide habitat for CRLF predators such as bullfrogs.

Response to Comment F-3

See responses to exhibits 6 and 8 – 17 above.

As discussed in Response to Comment D-3, American Canyon Creek, particularly in the project vicinity, does not provide suitable habitat for steelhead. The Napa River, located several miles downstream of the project site, supports migration habitat for steelhead. However, the Napa River transports significant volumes of water and thus, the water quality of the river should not be affected in any measurable way by fertilizer use on the project site. Regarding the potential for fertilizers to affect CRLF habitat, as indicated on #02253-ECPA, post-development runoff from the vineyard areas would be routed away from CRLF habitat to discharge points at Blocks D and G. Additionally, as prescribed by Provision No. 4 of the Project Revision Statement, a minimum 150-foot setback shall be maintained from CRLF habitat in American Canyon Creek with the exception of short-term activities associated with the removal of the culvert in this drainage.

Response to Comment F-4

The Mitigation Monitoring and Reporting Program (MMRP) is contained in Section V of the 2004 IS/MND. The 2004 IS/MND does not defer mitigation; the project applicant is required to revise the ECPA in accordance with the mitigation measures that are included as provision in the Project Revision Statement and the MMRP prior to approval of #02253-ECPA by the County. The project applicant has signed the Project Revision Statement as written in the 2004 IS/MND.

Response to Comment F-5

The 2004 IS/MND addressed cumulative impacts in the mandatory Findings of Significance, Section XVII, page 3-34. There are no other County pending ECPAs, or other reasonably foreseeable projects anticipated in the vicinity of the project. The City of American Canyon has prepared environmental documents for the residential subdivisions developments west of the project parcel. Furthermore, the 2004 IS/MND identified potential impacts to hydrology, biology, and geology and provided mitigation to ensure that these impacts would remain less than significant. With these mitigation measures, which were the basis of the Project Revision Statement, the contribution of the proposed project impacts to impacts resulting from similar projects is less than significant.

All earthmoving activity associated with new vineyard development on slopes greater than 5 percent require the preparation of an Erosion Control Plan (ECPA), prepared pursuant to Chapter 18.108 of the Napa County Code. County approval of ECPAs are subject to CEQA, requiring the County to adequately review and determine potentially significant impacts associated with each project.

In the fall of 2005, the County completed a Baseline Data Report (BDR) to serve as the initiate framework for the development a Programmatic Environmental Impact Report (PEIR) to serve as background documentation for other major County projects, including an update of the County's General Plan currently underway. The BDR includes many topics mentioned by the commentor, including agriculture, water resources, traffic, air quality and biological resources and provides comprehensive baseline information assisting in determining environmental impacts associated with many potential projects, including new vineyards.

Letter G – State Clearinghouse, dated January 18, 2005

Response to Comment G-1

Comment noted. No response necessary.

Letter H – Marc P. Hayes, dated January 20, 2005

Response to Comment H-1

The biological consultants (Monk and Associates; herein after referred to as M&A) followed survey protocols and resource agency published guidelines for studying special-status species such as the CRLF. These guidelines are prepared by the USFWS and the CDFG, the federal and state agencies (respectively) that are charged with protection of natural resources. Conducting studies pursuant to these guidelines meet the standards of care required by the CEQA.

Mr. Monk and Ms. Lynch are both federally permitted 10(a)(1)(A) CRLF biologists. This means that both Mr. Monk and Ms. Lynch have demonstrated to the USFWS a sufficient amount of experience working with and surveying for the CRLF to obtain a federal permit. Both Mr. Monk and Ms. Lynch have surveyed for and studied the CRLF throughout the Bay Area and Northern California over the past 12 years. The multi-year studies conducted by M&A on the project site exceed the requirements set forth by the USFWS for identifying CRLF populations and identifying their habitats. The commenter's statement about the ambiguity of the CRLF's (actual) occurrence on the project site is not pertinent because both M&A and the USFWS have confirmed that CRLF occur on the project site.

Response to Comment H-2

The studies conducted to date were in accordance with federal survey protocol guidelines. The 2004 IS/MND references M&A's biological resources report, which provides an account of M&A's activities on the project site since 1996. M&A's survey reports prepared for the applicant and the USFWS provide information regarding survey dates and CRLF habitats on the property. There are also data on the CRLF population that are reported to the California Natural Diversity Data Base and, thus, available to the public. M&A's survey efforts are sufficient to demonstrate the areas of the project site that must be protected to preserve the CRLF population.

While the level of study may not include such techniques as radio telemetry studies to verify overland migration routes or over summering habitats of the CRLF, such studies are not required or warranted to meet the tenets for standards of care required by CEQA. In *Association of Irritated Residents v. County of Madera, 107 Cal. App. 4th*

1383 (2003), the court stated that "CEQA does not compel an agency to conduct every recommended test and perform all recommended research." A lead agency's conclusions must be upheld when supported by relevant evidence, even when other agencies with expertise in the subject matter conclude differently. The point being is that studies conducted on the project site are sufficient for the CEQA lead agency to reach conclusions regarding the significance of effects of the project on the CRLF population.

The dedication of a 170-acre preserve incorporating all springs and seeps on the project site, and which contains extensive upland over summering and/or migration habitat, is an adequate measure that would protect the CRLF population on the subject property. Please note the following relevant considerations: 1) USFWS in 1997 originally concluded that a 70-acre preserve would adequately protect the CRLF population on the project site; and, 2) the 170-acre preserve is contiguous with the approximate 1,100-acre Lynch Canyon Preserve in Solano County and with the approximate 600-acre Newell Preserve in Napa County. This extensive, permanently protected habitat provides every opportunity for the CRLFs on the subject property to survive in perpetuity. This statement is qualified with the statement that baring random episodic events (over which the applicant has no control), the applicant has taken sufficient steps to ensure the survival of the CRLF population on the project site.

Response to Comment H-3

See Response to Comment H-2, above, for part of the response to commenter's statements. M&A observed CRLF larvae in one of the spring boxes on the project site during two separate years thus confirming breeding. The 2004 IS/MND states there is a CRLF population and the assessment of impacts is based upon the fact that this population is not ephemeral but rather is self-sustaining (i.e., breeding). As disclosed in the 2004 IS/MND (page 3-11), a CRLF population exists. All aquatic habitats, except for approximately 0.29 acres out of about 14.83 acres (pages 3-13 and 3-15 of the 2004 IS/MND) on the project site would be preserved by the project, is the germane information with respect to determining the affects of the project on the CRLF population. The fact that there is confirmed breeding does not alter any conclusion regarding the significance of potential impacts to the CRLF population in the 2004 IS/MND.

The CRLF population on the project site is relatively small since it is limited to two spring boxes and approximately three seasonal plunge pools in the primary drainage. One seasonal spring box and conceivably in wet years one plunge pool on the site currently provide suitable breeding habitat for the CRLF on the project site. The population of CRLFs on the project site is small owing the limited extent of open water habitats that are suitable for breeding. M&A has never counted more than eight frogs in any year on the project site. All have been adults or subadults.

Regardless of the population size, the 170-acre preserve would protect all perennial aquatic habitats on the project site and all existing suitable breeding habitats. The only other aquatic habitat on the entire project site that would not be entirely in this preserve is American Canyon Creek, which is intermittent to ephemeral on the project site. The portion of American Canyon Creek where the primary tributary enters this creek on the project site is protected within the 170-acre preserve, but other downstream reaches are not. These downstream reaches of this creek are protected by Napa County setback requirements. Thus, this creek is permanently protected via other protections. For the reasons discussed above, the measures described in the 2004 IS/MND ensure that there would be less-than-significant impacts to the CRLF population.

The proposed project is expected to result in a net benefit to this CRLF population. If the project did not include dedication of the CRLF preserve, which requires management and maintenance of the aquatic habitats onsite in

perpetuity, it is likely that, given the nature of the existing unstable soils upslope of the primary drainage, over time the spring boxes and the primary drainage would be lost to land slumping and sedimentation. Eventually all currently used breeding habitat on the property would be lost. Over the last 50 plus years, the CRLF breeding habitat onsite (the spring boxes) has been maintained by cattle ranchers. Since the residence on the property has been vacated and cattle ranching on the property has been limited over the past 10 years, these spring boxes are no longer maintained and are in a state of disrepair.

Response to Comment H-4

The last paragraph on page 3 states that #02253-ECPA may alter onsite hydrology. The project would not alter the current hydrologic regime of the portion of the property encompassed by the 170-acre preserve, nor would it result in creation of perennial water on the project site. See Response to Comment D-2 and D-5.

Response to Comment H-5

The commenter states that directing water off the project site through piping may reduce flows to an intermittent drainage. This drainage is an erosion rill that has, at best, highly ephemeral flows. M&A has observed over the years that it only flows or has water in it during heavy rainfall events. Even during the winter months this drainage does not flow or have residual water in it after cessation of heavy rainfall events. Accordingly, CRLFs would not use this drainage for its hydrologic properties. M&A have not found CRLFs in this drainage.

It should be noted that all significant hydrologic features on this project site are provided water primarily from seeps and springs. No drainage on the site would be anything more than ephemeral without springs and seeps that discharge ground water into these tributaries. Accordingly, overland stormwater contributions to tributaries on the project site in the absence of springs/seeps would only result in flows in these tributaries during and immediately after storm events. Thus, the overland sheet flows into tributaries are far less important to the CRLFs than the steady water contributions provided to the tributaries on the site from these seeps and springs. Accordingly, stormwater collectors that would be installed would not usurp water contributions from the 170-acre preserve, and regardless would have no affect on CRLF habitat. All seeps and springs are preserved in the 170-acre preserve. Thus, there would be no significant affect pursuant to CEQA on the CRLF population from modifications to the ephemeral tributary.

Response to Comment H-6

The commenter letter states that fertilizers have the potential to eutrophy aquatic systems and alter the food base available to the CRLF. See Response to Comment F-3 and Exhibit 8 discussion.

Response to Comment H-7

Comments noted. As noted on page 2-1 of the 2004 IS/MND, the #02253-ECPA was prepared in accordance with Napa County Code and is designed to minimize disturbance and environmental effects in accordance with 18.108.070 of the County Code[4]. The environmental analysis conducted on the project (see Section 3 of the 2004

[4] County Code Chapter 18.108.070 specifically notes that erosion control plans shall create the least potential for erosion; avoid leaving any portion of a disturbed site unprotected from erosion between October 15 and April 1; vegetation removal shall be limited to the minimum amount necessary to accommodate the project and, that the project shall not adversely affect sensitive, rare, threatened, or endangered plants or animals, or their habitats; temporary erosion control measures shall be sufficient to stabilize the soil; and all erosion control facilities shall be maintained in accordance with the approved erosion control plan.

IS/MND) identified potential impacts and mitigation measures to reduce those impacts to less-than-significant levels; thus, minimizing potential impacts to the CRLF.

Response to Comment H-8

Comment noted. See Responses to Comments H-1 through H-7.

References:

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), *The Universal Soil Loss Equation, USLE, Special Applications for Napa County, California*. May 1994.

Comment Letter A

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

REPLY TO

Regulatory Branch

DEC 27 2004

RECEIVED

DEC 28 2004

NAPA CO CONSERVATION
DEVELOPMENT & PLANNING DEPT.

SUBJECT: File No. 223401N

Ms. Mary Doyle
County of Napa
Office of Conservation, Development & Planning
1195 Third Street, Suite 210
Napa, California 94559-3092

Dear Ms. Doyle:

This office is responding to your request for comments on the Proposed Mitigated Negative Declaration for Erosion Control Plan Application (02253) for the Napa Canyon LLC Vineyards Project. The 390-acre development parcel (APN 050-040-055) is located just east of the City of American Canyon on the north side of American Canyon Road, opposite of its intersection with Flosden Road, in Napa County, California.

Unless exempt by regulation, all proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters of the United States and within the lateral extent of wetlands adjacent to these waters require Department of the Army authorization and the issuance of a permit under Section 404 of the Clean Water Act (33 U.S.C. § 1344). Waters of the United States generally include the territorial seas, all navigable waters, including waters subject to the ebb and flow of the tide, non-tidal interstate and intrastate waters, and their tributary waters, including lakes, ponds, rivers, streams, intermittent streams, and adjacent wetlands, the use, degradation, or destruction of which could affect interstate or foreign commerce. A-1

The overall development parcel contains several isolated and non-isolated wetlands and other waters of the United States that are adjacent to or a part of tributary waters of American Canyon Creek and ultimately the navigable waters of the Napa River. Portions of the project are in proximity to several of these tributary waters and adjacent wetlands and may, therefore, occur within the jurisdictional purview of the Corps of Engineers (Corps). By copy of this letter, the project proponent's agent, Monk & Associates, will be advised of our likely requirement to obtain a Department of the Army permit for the project. A-2

Information on the Corps' Regulatory Program, including permitting procedures and requirements, permit applications and instructions, and mitigation sequencing requirements, can be obtained on the following website: http://www.spn.usace.army.mil/regulatory/.

Comment Letter A

You may refer any questions on this matter to Mr. Peter Straub of my staff by telephone at 415-977-8443 or by e-mail peter.s.straub@spd02.usace.army.mil. All correspondence should be addressed to the Regulatory Branch, North Section, referencing the file number at the head of this letter.

Sincerely,

for Peter S. Straub

Jane M. Hicks
Chief, North Section

Copy Furnished:

Monk & Associates, Walnut Creek, CA

Comment Letter B

Napa County Resource Conservation District
1303 Jefferson Street, Suite 500B
Napa, CA 94559

Interoffice Memorandum

Date: January 3, 2004

To: Mary Doyle, Napa County CDPD

From: Dave Steiner, Soil Conservationist

Re: Draft Initial Study and Mitigated Negative Declaration for Napa Canyon LLC, new vineyard development, file #02253-ECPA

cc: Pete Hudson, ESA
Bob Zlomke
Phill Blake, District Conservationist, USDA/NRCS

Thank you for the opportunity to comment on the referenced document. RCD's comments are as follows:

1. Under **IV. Biological Resources**, page 3-13, (d.), the reference to mule deer should be replaced by a reference to coast blacktail deer, the local species. B-1
2. Under **VI. Geology and Soils**, page 3-17, (b.), in RCD's opinion the project may result in significant soil loss, without incorporation of mitigations (similar to those described in Measure HWQ-6) to reduce the slope length. (See suggested language change in paragraph #6, below.) B-2
3. ESA's footnoted discussion of USLE and RUSLE prompts RCD to respond, briefly, that we considered and rejected using RUSLE several years ago because it offered *too few* R-factor options in Napa County, and because the interactive C-factors were not specific to vineyard conditions. Since then RCD has worked with District, Area and State NRCS personnel to fine-tune these and other variables to local conditions under RUSLE2, the most-recent iteration of USLE. We recently received from the NRCS State Office a working version of that model, in Windows format, but have not yet adopted it for everyday use. RCD does not take issue with ESA's general conclusions regarding soil loss and sediment delivery. B-3

4. In the discussion of Erosion and Sedimentation at the bottom of page 3-23, RCD infers an assumption that straw wattles are to be maintained as an annual practice throughout the life of the vineyard. These installations are generally considered temporary structures, necessary only pending establishment of the permanent, non-tilled cover crop. Individual wattles may certainly not be relied upon for more than a year or two, at most, after which they should be replaced, if they're still needed. B-4
5. ESA refers, on page 3-24, to V-ditches to be installed at various points in the proposed vineyard. Although the Plan RCD reviewed (September 8, 2004) includes detail drawings for such a structure, there none specified on that Plan map. B-5
6. Measure HWQ-6, on page 3-28 includes an apparent misconstruction of RCD's memo of September 22, 2004. The slope-length reduction strategy RCD recommends in that memo would use drain tiles ("french drains") for mid-slope *interception* (not "dissipation") of surface and shallow, sub-surface flows, which would be routed to the proposed (possibly extended) storm drains. Concentration of flows is implicit in this strategy, and would have to be dealt with via routing and/or dissipation at the outfalls. (Ultimate outfall to a municipal storm drain system may be another option.) RCD recommends the following language for Measure HWQ-6: B-6

   The owner, in consultation with the project engineer and representatives of the Napa County Resource Conservation District (NCRCD), shall identify areas where excessive slope length and gradient may result in excessive soil loss. The project engineer, with concurrence from NCRCD, shall develop a feasible mid-slope flow interception strategy for long slopes susceptible to erosion. A civil and geotechnical engineer shall design a feasible subsurface drain system of adequate capacity. The intent of these features is to reduce slope length, and to distribute storm flows generated in certain vineyard blocks to dissipation structures and/or outfalls in appropriate locations.

Please let me know if you have any questions or if I may otherwise be of assistance.

Comment Letter C

From: Lynn Goldberg [mailto:lynng@ci.american-canyon.ca.us]
Sent: Friday, January 14, 2005 2:56 PM
To: Doyle, Mary
Subject: MND for Napa Cyn Vineyards

Thank you for including us in your distribution for this Neg Dec.

I haven't received any comments on the draft from Public Works, so they must have found it adequate.

My only comment (which has nothing to do with the evaluation, per se) is that Figure 1 should recognize the existence of the City of American Canyon. C-1

Thank you!

Lynn A Goldberg, AICP
Contract Planner
City of American Canyon
3423 Broadway Street, Suite D-2
American Canyon, CA 94503

707 647 4337 tel
707 552 8564 fax

Comment Letter D

Dennis Jackson - Hydrologist

708 - 14th Avenue
Santa Cruz, CA 95062-4002
(831) 477-1546
djackson@cruzio.com

January 15, 2005

Tom Lippe
329 Bryant Street, Suite 3D
San Francisco, CA 94107

Re: Napa Canyon Vineyard - #02253 – Erosion Control Plan Agriculture

Dear Mr. Lippe:

You have asked me to comment on the proposed Mitigated Negative Declaration for Erosion Control Plan Agricultural Application #02253 for Napa Canyon LLC Vineyards dated December 2004. The project is located approximately one-half mile east of the intersection of American Canyon Road and Flosden Road. The project is to convert 139-acres of grassland to vineyard, on a parcel covering 316.7 acres. The proposed vineyard is on slopes greater than 5% and so is the preparation of an Erosion Control Plan Agricultural (ECPA) is required. The majority of the proposed vineyard drains to American Canyon Creek. The northern portion of the proposed vineyard drains to an intermittent stream to the north.

Physical Setting

Figure 1 is a topographic map showing the location of the proposed vineyard.

Figure 2 shows the soils surrounding the proposed vineyard. The proposed vineyard is on primarily on soil mapping unit 132. A portion of the west and northwestern edge of the proposed vineyard appears to be on soil mapping unit 131. Several acres on the southeast edge of the proposed vineyard are on soil mapping unit 154. The soil mapping units are: 131 – Fagan clay loam on 5-15% slopes; 132 – Fagan clay loam on 15-30% slopes; and 154 – Henneke gravelly loam series on 30-75% slopes. The soil map may have mis-characterized the Henneke soil present as having 30-75% slopes, the topographic map suggests that mapping unit 154 – Henneke gravelly loam on 5-30% slopes may be more accurate. The unnamed tributary of American Canyon Creek that is east of the proposed vineyard is on mapping unit 116 – Clear Lake clay, drained.

D-1

Figure 3 shows the geologic map (Graymer, Jones and Brabb, 2002) in the vicinity of the proposed vineyard. The proposed vineyard is underlain by primarily Great Valley Complex sandstone and shale (late Cretaceous). The southeast edge of the proposed vineyard is underlain by serpentinite (Jurassic). Alluvial fan deposits are found between the proposed vineyard and American Canyon Creek.

The Serpentinite of the Great Valley Complex is, "Mainly sheared serpentinite, but also includes massive serpentinized harzburgite. In places, pervasively altered to silica carbonate rock" (Graymer, Jones and Babb. 2002).

The presence of the serpentine rock and soils in the southeastern portion of the project is acknowledged in the Initial Study and Environmental Checklist discussion of the biologic communities present on the site (p 3-3). But the presence of the serpentine is ignored in the discussion of soils, hydrology and geology in

the ECPA and in the Mitigated Negative Declaration. Failure to discuss the presence of the serpentine in the environmental analysis is a serious flaw and may invalidate some of the conclusions drawn.

The soil map shown in Figure 2 shows that an area of soil mapping unit 154 (Henneke gravelly loam – derived from serpentine) is located just to the north and west of the unnamed tributary to American Canyon Creek. The geology map in Figure 3 appears to confirm the presence of the serpentinite. The serpentinite outcrop and the associated Henneke gravelly loam appears to be mostly in vineyard Block H but may extend into Blocks G and E may.

The Henneke gravelly loam is in hydrologic group D which is considered to generate more surface runoff than the Fagan clay loam, which is in hydrologic group C. The Henneke soil is excessively well drained and the soil is thin with bedrock within about 20 inches of the surface. The Henneke gravelly loam has a moderate to high erosion hazard. In contrast, the Fagan clay loam has a moderate erosion hazard and bedrock is about 46 inches below the surface. D-1 (con't)

If a site investigation discovered that the soil map shown in Figure 2 and the geology map shown in Figure 3 are incorrect in regards to the presence of the serpentinite and Henneke soil, this fact should be discussed in the Initial Study.

Sensitive Aquatic Species

California Red-legged Frog (CRLF) habitat is known to exist along the unnamed tributary to American Canyon Creek that drains the eastern portion of the project, see Figure 4. The CRLF is a federally *Threatened* species and a *California Species of Special Concern*. The unnamed tributary and the CRLF are outside of the project boundary but sediment from the project has the potential to damage the CRLF habitat. The decrease in volume of infiltrated water on the project site may have the potential to adversely impact the habitat of the CRLF to the east of the project. D-2

The *Current Stream Habitat Distribution Table* prepared for the National Marine Fisheries by Weldon Jones (2000) shows that steelhead have not been observed in American Canyon Creek as of 2001. The comments for American Canyon Creek state: "*Personal observations: the stream becomes dry every summer.*" However, the following quote from the section of the Solano County Water Agency Habitat Conservation Plan (LSA Associates 2004) discussing steelhead distribution shows that steelhead have been recently reported using American Canyon Creek. Steelhead is a federally listed species.

> **Population Levels and Occurrence in the County**. Little historical information is available on steelhead distribution in Solano County (JRP Historical Consulting Services 2001). Numerous documents contain references to steelhead or other salmonids, but few detailed surveys have been conducted. Currently, Green Valley Creek and Suisun Creek are known to have or are suspected to occasionally support small steelhead runs (Leidy 2000). **Steelhead have also been recently reported within American Canyon Creek**. Sampling surveys conducted by the Solano County Water Agency have also identified rainbow trout in several locations in Green Valley Creek and Suisun Valley Creek during the summer; however, it is unknown if these fish are the resident trout or the anadromous steelhead (TRPA 2001). Steelhead can also be expected to occur at least periodically in any of the perennial streams in Solano County such as Ulatis, Alamo, Jameson Canyon, and Ledgewood creeks and their tributaries.
>
> For most streams in Solano County and Plan Area, the lower stream reaches with the major agricultural and urban areas would be used primarily as passage habitat. Summer stream temperatures are typically too warm for steelhead. The upper reaches of the streams in the western portion of the County, however, may provide suitable conditions. (Emphasis Added)

D-3

So it appears that steelhead use lower American Canyon Creek in the winter and may be using the upper portions of American Canyon Creek as rearing habitat through the summer. Therefore, it is appropriate to assume that steelhead may be present in American Canyon Creek near the project site in the winter.

Consequently, the project should not be allowed to cause an increase in either suspended sediment load or water discharge reaching American Canyon Creek. D-3 (con't)

Concerns

The following concerns force me to conclude that the Mitigated Negative Declaration for #02253 ECPA is inappropriate. Page 2-8 of the Draft Initial Study and Mitigated Negative Declaration for #02253 ECPA states that:

> In accordance with CEQA Guidelines Section 15070, a MND shall be prepared if the following criteria are met:
>
> There is no substantial evidence that the project may have a significant effect; or
>
> Where there may be a potentially significant effect, revisions to the project would avoid or mitigate the effects to a point where clearly no significant effects would occur.

Several of the concerns I state below demonstrate that the project presented in #02253 ECPA has the potential to cause significant adverse effects to the environment, even after adopting the proposed mitigations. In addition, one of the proposed project Hydrologic and Water Quality mitigation measures, HWQ-7, appears to lack a clearly defined performance standard and does not appear to be feasible.

California Red-legged Frog Habitat

The Initial Study (p. 3-11) notes that California red-legged frogs have been observed in the drainage along the eastern edge of the project and in perennial seeps and spring boxes. No consideration is given in the ECPA, the Initial Study or the Mitigated Negative Declaration to the risk of loss of CRLF habitat due to changes in the local hydrology arising from the proposed vineyard described in #02253 ECPA.

The Initial Study gives a brief description of the aquatic habitats on and near the project site (p. 3-3 and 3-4). The discussion of perennial seeps notes that:

> The relatively large number and extent of seeps on the project site is unusual in a mostly dry landscape.

Perennial seeps are found in the southern portion of the property, the far eastern part of the property and in the valley bottom between opposing hillslopes in the northern portion of the property. The locations of the spring boxes where the CRLF were found are not mentioned.

The description of the *Intermittent Drainages to American Canyon Creek* notes that the drainage along the eastern project boundary flows from seven to eight months of the year and often remains saturated for an additional two months. Most of the channel of this eastern drainage is shown as *Wetland* on the *Napa Canyon Wildlife Habitats* map presented as Figure 5 of the Initial Study (reproduced as Figure 4 of this letter). The Habitat Map shows a second intermittent stream paralleling the larger eastern drainage. This shorter drainage is about one-third the length of the larger drainage. The shorter drainage is closer to the project boundary. The shorter drainage is marked as a mixture of wetland and *Other Waters of the US.* D-4

American Canyon Creek is described as drying up by late-summer in its reach adjacent to the project boundary. The presence of spring-fed pools is noted approximately one-quarter of a mile upstream.

The presence of such a relative abundance of water through most of the summer is an expression of the interaction between the rainfall, the soil conditions and the geology of the area around the project site. The proposed project is expected to increase runoff. The Technical Appendix (p. 11) notes that:

> The results of the TR-55 model analysis (see Table 3) suggests that the volume and rate of runoff leaving the project parcel after vineyard development would increase in most of the project parcels.

An increase in the volume of storm runoff from the project indicates that the volume of water that would percolate down to the ground water system would be decreased. This raises the question of whether the

proposed project would significantly decrease the subsurface and ground water flow that creates the CRLF habitat near the project boundary. A reduction in the amount of subsurface and ground water flow from the project has the potential to decrease the extent of the present wetlands and/or the length of time that they are saturated.

The ECPA and the Initial Study do not contain sufficient information to determine the source of the shallow subsurface or ground water that is expressed as wetlands in the large drainage to the east of the project. Since the source of the water supporting these wetlands is unknown, it is not possible to ascertain the significance of the reduction of ground water recharge resulting from the project. Consequently, the Initial Study is making an *unsupported* statement when it claims that Hydrology and Water Quality (HWQ) impact VIII (b) is less than significant. In the analysis of HWQ VIII (b), only the fact that irrigation water would be supplied by the City of American Canyon was mentioned. No analysis was done to determine the effect of reducing the amount of water percolating into the subsurface. Therefore, an Environmental Impact Report should be prepared

The Habitat Map shows a shorter intermittent stream paralleling the larger eastern drainage. This shorter drainage is about one-third the length of the larger drainage. The shorter drainage is closer to the southeastern project boundary. The shorter drainage is marked as a mixture of wetland and *Other Waters of the US*. The hydrology of this shorter drainage will be affected by the reduction of subsurface flow from the project and it will also be deprived of storm water that is collected in the piping system from Blocks E, F and H and delivered to the southern property line. The topographic map shown in Figure 3 of the Initial Study/Negative Declaration and the Habitat Map shown in Figure 5 of the Initial Study/Negative Declaration (see Figure 4 of this letter) strongly suggest that Blocks E, F and H are the primary source of water for the shorter drainage. So, the decrease in the volume of water that will percolate into the subsurface coupled with piping storm flows past the shorter drainage is expected to result in a reduction in the size and temporal extent of the wetland that is mapped on the shorter drainage. This could result in an adverse impact to the habitat of the CRLF. D-4 (con't)

The ECPA and the Initial study failed to even address the potential reduction in the spatial and temporal extent of the wetland on the short drainage that parallels the southeast boundary of the project. As a result of this serious oversight, it is my opinion that the proposed Mitigated Negative Declaration should be abandoned and that an EIR should be prepared.

The ECPA proposed capturing the surface runoff in a storm drainage system of pipes and delivering it to the property boundary at two points. Storm runoff is also collected in Block B, but it is discharged to the headwaters of the unnamed stream that flows to the northwest along the northern boundary of the proposed vineyard. Let us name the other two discharge points as follows, discharge point (1) is between Blocks D and G and discharge point (2) is near the storage yard, directly south of Block G. Discharge point (1) handles storm flow from Blocks D, E and G. Discharge point (2) handles storm flow from Blocks E, F, G and H. Both discharge points release storm flow on to property owned by the Napa Valley Unified School District. When the project was first proposed, only discharge point (1) released water on to the School District property. However, the land downslope of discharge point (2) was recently sold to the School District so now both these discharge points are on the boundary of Napa Valley School District property. D-5

Storm flow would be collected in the proposed vineyard by the piping system and delivered to the Napa Valley Unified School District parcel boundaries. The water released from the storm drainage pipe would be released into an energy dissapator so presumably no erosion would be caused by the discharge of the storm water from the pipe. However, no thought has been given as to how an increase in storm discharge at a single point would affect the hydrologic conditions in the vicinity of the discharge point.

The storm water delivered to discharge points (1) and (2) has the potential to create localized wet areas near the two energy dissapators. These new localized wet areas could attract CRLF. However, if enough

water was delivered by the storm piping system, a perennial wet area might be created. If an area of perennial surface water is created, it could be colonized by bullfrogs, a serious predator of CRLF.

Besides having the potential of creating a perennial wet area, the discharge of water from the storm drainage pipe might become re-concentrated as it moves downslope towards American Canyon Creek, which would have the potential to cause surface erosion or the formation of a gully. The likelihood of the discharged stormwater causing some form of erosion depends on the nature of the soils and on the topography between the discharge point and American Canyon Creek.

D-5 (con't)

If the storm water released at discharge points (1) and (2) causes erosion of the ground surface downslope, the sediment generated by the erosion would be carried to American Canyon Creek, where it would pose a threat to steelhead.

Again, the ECPA and the Initial Study do not contain enough information to determine whether the project would result in an adverse environmental impact.

Landslide Processes

There are several types of landslides but only shallow landslides from colluvium-filled swales will be considered here since this is the only type referred to by the Geotechnical Engineer. Presumably, if other types of landslides were a significant hazard, they would have been mentioned by the Geotechnical Engineer.

Bates and Jackson (1984) define colluvium as;

> A general term applied to loose and incoherent deposits, usually at the foot of a slope or cliff and brought there chiefly by gravity. Talus and cliff debris are included in such deposits.

According to the American Heritage Dictionary, a swale is:

1. A low tract of land, especially when moist or marshy.
2. A long, narrow, usually shallow trough between ridges on a beach, running parallel to the coastline.
3. A shallow trough-like depression that carries water mainly during rainstorms or snow melts.

The first and third definitions of swale are of interest. These definitions indicate that a swale is a place where colluvium could collect as it moves downslope by gravity. Both of the relevant definitions indicate that a swale is a place with elevated soil moisture and may be saturated.

D-6

According to Dunne and Leopold (1978, p. 558) the material in a swale

> ...is subject to two major opposing forces: the downslope component of soil weight, which acts to shear the soil along a potential failure plane parallel to the hillslope, and the resistance of the soil to shearing (sometimes called shear strength). If the downward force exceeds the shear resistance, the hillslope will fail.

Dunne and Leopold go on to say that:

> In soil or rocks containing water, the shear strength is strongly affected by the water pressure in voids between the grains or blocks. This pressure supports a portion of the soil's weight and therefore reduces the normal stress that is effective in producing friction.

Here, the phrase *normal stress* refers to the component of the soil weight that is at aright-angle (90-degrees) to the potential failure plane, which in a shallow landslide is essentially parallel to the hillslope.

Dunne and Leopold (1978) list the following controls on hillslope stability:

Controls of the Downslope Force

- Hillslope gradient
- Steepening of the slope by tectonic tilting
- Undercutting of the slope by geomorphic processes or human interference
- Loading the upper end of the slope
- Short-term downslope stresses generated by earthquakes

Controls of the Shear Strength

- Nature of the geologic materials and weathering products
- Water-pressure changes due to fluctuations of precipitation; diversion of stormwater; irrigated fields; reduction of evapotranspiration through changes in vegetation; concentration of groundwater flow by joints or the sequence of geologic materials
- Earthquake vibrations
- Tree roots, which can increase the cohesion of soils which can be lost if the trees are removed by logging or fire.

Dunne and Leopold note that,

> ... features, such as a concentration of joints or topographic depressions, which focus subsurface water, also localize failures. These therefore occur most often in topographic hollows and swales. O'Loughlin, for example, found that 65 percent of the landslides he examined originated in drainage depressions or seepage hollows. The role of water also explains why most landslides occur during wet seasons, severe rainstorms, or periods of snowmelt.

D-6 (con't)

Pike and Graymer (2001) analyzed the slope of recent landslides in the 10-county area around San Francisco, including Napa County. They note that the slope of old landslide deposits appear to have a steeper slope than recently active landslides.

> The slopes of failed and unfailed terrain in the study area differ dramatically, as shown by the histograms in figures 5A and B. Slopes on old landslide deposits are near-normally distributed (fig. 5B) and peak at about 16°-17°, whereas unfailed slopes (fig. 5A) are strongly skewed toward low values, with the mode at zero. Much of this contrast reflects the widespread coastal flatlands that hosted few old landslides. The distribution of slope for the 1,192 cells that hosted recent landslides (fig. 5C) has the same near-normal shape as that for cells on the old deposits in figure 5B, although the mode (approximately 12°) is lower by about 4°. Figures 5A and B do not express the exact relation between slope and prior landsliding, however, because Nilsen (1973a, b) did not identify the entire area affected by each old failure. The steeper slopes on terrain occupied by landslide crowns and head scarps upslope

The slopes of the landslide deposits are normally distributed around a peak of about 16-degrees or 28% whereas the slopes of recently active landslides are normally distributed around 12-degrees or 21%.

Landslides on the Project Site

The site of the proposed vineyard is covered by a thin mantle of soil over Great Valley Complex sandstone or over serpentinite. The soil mantle is about 46 inches deep over the sandstone and about 20 inches deep over the serpentinite. The serpentinite appears to be confined to the vicinity of Block H.

The Environmental Checklist (p. 3-18) notes that the project parcel is within a high landslide risk area, but notes that the project is within a relatively stable region of the high risk area. The Environmental Checklist states that no re-contouring or terracing will occur and that grading is not expected to create

unstable slopes. The Checklist goes on to note that no structures are planned so there is no adverse to people or structures.

The *Vineyard Potential of American Canyon Golf Course* report by Don Clark and Julie Nord (August 2001) notes that

> The State of California has specifically determined this general area to be a high landslide risk area, and has prepared maps specifically addressing landslips which have occurred in this area. As can be seen on the following map, most of the property is given a landslide hazard rating of 3, on a 1-4 scale, on the Landslide Hazards Identification Map. A hazard of 3 is considered "Generally Susceptible to landslides, with 1 being slight/no hazard. According to the map, "slopes within this area are at or near their stability limits due to a combination of weaker materials and steeper slopes. Although most slopes within area 3 do not currently contain landslide deposits, **they can be expected to fail, locally when modified.**" (Emphasis added)

A letter to Mark Power, Napa Canyon LLC, dated 21 May 2002, from William Langbehn, Geotechnical Engineer states that:

> As noted above, the grading for the vineyard will be minimal but should include repair of two small, recently active landslides within the planting area. These small slides are located in secondary, colluvium-filled drainage swales at the lower west side of **Block E** and near the extreme northern tip of **Block B**. These locations are shown in Figure 3 of the soil report, although the slide areas currently appear somewhat larger due to probable re-activation in 1998. The remedial grading required in these local areas can be used to create smoother slope contours across the swales and can generally follow the recommendations given in the text of the soil report, **including extensive subdrain installations**. However, deep sub-excavation into bedrock may not be required due to the shallow nature of the sliding at these locations. Fortunately, the colluvium-filled swales that flank the slopes in other areas of the vineyard appear stable and should not be de-stabilized by the proposed vineyard **provided the drainage improvements and erosion control measures are properly installed and maintained**. Any earthwork operations for gully repair or to locally fill-in the swales for smoother slope contours should also follow the recommendations given in the soil report to minimize the risk of slope stability problems in these sensitive areas. (Emphasis added)

D-6 (con't)

The two landslides that occurred in Blocks B and E of the proposed vineyard were in colluvium-filled swales. The Environmental Checklist does not point out that the Geotechnical Engineer recommends that the other colluvium-filled swales in the vineyard area should be provided with drainage improvements. It appears that the two recently active landslides in Blocks B and E failed because they were saturated. The Geotechnical Engineer speculates that the heavy rains that occurred in 1998 may have re-activated the slides, which seems very reasonable. Failure to provide proper drainage of the colluvium-filled swales may result in landslides occurring after the vineyard is installed. While it is likely that any landslides that occur will be shallow, the debris that is set in motion has a distinct possibility of overwhelming the erosion control installations downslope. The mass of the material moving in the landslide will be very much larger than the erosion control measures are designed to handle. A moving slide mass would be expected to overtop installations such as straw wattle or push hay bales out of the way.

The colluvium-filled swales are typically located upslope of the beginning of the defined channel. If a colluvium-filled swale fails, after the installation of the vineyard, the failed colluvium will move downslope towards and probably into the upper end of the defined channel. If a slide mass reaches a defined channel it will likely be during or shortly after and intense rain event. So, water is expected to be moving in the defined channel when the slide mass arrives. The flowing water in the channel will erode at least a portion of the slide mass. A portion of the eroded material will be carried as suspended sediment, which will likely be transported to American Canyon Creek. Any suspended sediment that is transported to American Canyon Creek has the potential to adversely impact steelhead.

As noted in the *Landslide Processes* section above, the ground slope of recently active landslides is normally distributed around 12-degrees or 21% slope. The ECPA estimated the average slope in each vineyard block by measuring the slope along three lines. At least one of the sampled slope-lines in Blocks C, D, E, and H have a slope of 20% or greater. All of the slope-lines in Block D were 20% or greater. Thus, Blocks C, D, E and H all appear to have slopes in the range of recently active slides measured by Pike and Graymer. Interestingly, the three slope-lines used to estimate the average slope of Block B were all under 14%, but there is a recently active slide in Block B. This indicates that slopes required for the occurrence of landslides on the project site may be actually closer to 14% than the 21%. This would imply that landslides have the potential to occur in any vineyard block since all the Blocks are reported to have at least one slope-line with a slope of 14% or greater.

The recently active landslide in Block E is in the lower western portion. {Note that the recently active slide in Block E is not marked on Figure 3 (#02253 – ECPA Site Plan) of the Mitigated Negative Declaration, this oversight should be corrected.} The slopes in the lower western portion of Block E do not appear to be greater than 20%.

Some of the perennial seeps noted in the Initial Study may in fact be saturated colluvium-filled swales that have the potential to slide after vineyard development unless they are properly drained. This is supported by the following description:

> Downstream intermittent drainages[4] receive a near-constant supply of water in the upper reaches of these channels from these perennial seeps.
>
> [4] "Drainages" as used in this context refer to areas of 'preferential flow paths'. While these areas may convey water during storm events, they are not necessarily contained in a defined bed and bank, which are diagnostic features of a stream.

The above description of a perennial seep that sits above an intermittent drainage is a good alternate description of a colluvium-filled swale. The presence of the perennial seeps provide evidence for significant amounts of subsurface flow and underscore the need to follow the recommendation of the Geotechnical Engineer regarding the installation of proper drainage in the colluvium-filled swales. D-6 (con't)

The Environmental Checklist is in error when it assigns a "Less Than Significant Impact" to VI(c). Based on the above evidence, I conclude that if the level of saturation of any the colluvial-filled swales, with slope of about 14%-20% or greater, is increased then it is highly likely that they would fail. Therefore, in my opinion, all of the colluvial-filled swales with slopes of about 14%-20% or greater, have a significant potential of failing if the proposed vineyard is installed. That is, implementation of the project has the potential to cause a significant risk of landsliding. The significant risk of landsliding exists because neither the ECPA nor the Mitigated Negative Declaration take steps to implement the Geotechnical Engineer's recommendation that proper drainage be installed in the colluvial-filled swales.

Summarizing my concerns that the proposed vineyard may trigger landslides I see the following issues

> (A) The existence of two recently active slides should be a warning that slides may occur elsewhere on the proposed vineyard. The recent landslides have not been reported to have any special conditions associated with them except that they occurred in colluvium-filled swales. USGS studies of recent landslides show that the ground slope of recent slides was centered on 21%. One of the two slides on the project site occurred in Block B, which has the lowest average slope of any of the vineyard blocks. The maximum reported slope for Block B was 14%. Slopes of 14%-20%, or greater, occur in all of the proposed vineyard blocks.
>
> (B) Colluvium-filled swales are probably a relatively common feature of the property. The colluvium-filled swales do not appear to have been identified or mapped in the ECPA.
>
> (C) The designs for the drainage improvements to colluvium-filled swales recommended by the Geotechnical Engineer are not in the ECPA.

(D) If a slide occurs after the vineyard is installed, the material released by the slide is likely to overwhelm any erosion control measures it encounters as it moves downslope. Failure to take proactive measures to prevent sliding of the colluvial-filled swales may result in an adverse impact to the environment, including steelhead habitat in American Canyon Creek.

(E) There are no Project Mitigation Measures to implement the drainage of colluvium-filled swales recommended by the Geotechnical Engineer.

D-6 (con't)

Runoff Processes

Before discussing the proposed vineyard's impact on runoff, it is necessary to discuss the runoff process on hillslopes. There are four major pathways (Dunne and Leopold, 1978) that runoff can follow from the hillslope to the channel network. These pathways are;

1. Overland flow
2. Groundwater flow
3. Shallow subsurface stormflow
4. Saturated overland flow

Overland flow is also called Horton overland flow or infiltration excess. Overland flow occurs when the rainfall intensity exceeds the soil infiltration rate. Groundwater flow is the result of infiltrated water percolating down to the groundwater table and then moving laterally to the channel network. Groundwater flow is the process that provides streamflow during dry weather. Shallow subsurface stormflow is water that infiltrates into the soil and then moves downslope to the channel network. The speed at which shallow subsurface stormflow moves is highly variable and depends on may factors. In some cases, shallow subsurface flow can generate storm peaks at the other extreme, shallow subsurface flow is a source of dry weather flow. Saturated overland flow occurs when the soil surface becomes saturate causing the soil infiltration rate to go to zero. Saturated overland flow can be considered a special case of overland flow.

The lower portions of the hillslopes may have higher clay content than the upper portion of the hillslopes. Subsurface drainage and overland flow may have moved clay particles downslope. The accumulation of clay near the bottom of the slopes may explain the poor drainage associated with the isolated wetlands observed on the project site. The downslope movement of clay may also been the source of colluvium that has created the colluvium-filled swales. The lower portions of the hillslopes may also have higher water tables and may experience saturated overland flow. Rainfall does not infiltrate into an area that is experiencing saturated overland flow.

Overland flow also occurs on the property and may be the dominate pathway near the bottom of the hillslopes because shallow subsurface flow appears to raise the level of soil saturation. Overland flow may also be more common on the Henneke soil since it has a lower infiltration rate.

Changes to Runoff Process by Installation of the Vineyard

The project proposes to use deep ripping down to two to three feet to prepare the site for the vineyard. In some places, the ripping may extend down to bedrock. In other places the ripping may penetrate to about 10 inches above the bedrock. Bedrock is expected at about 46 inches below the surface in the Fagan clay loam and bedrock is only about 20 inches below the surface in the Henneke gravelly loam. The deep ripping will mix the high clay content subsoil with the topsoil. This mixing will reduce the infiltration capacity of the surface soil and increase the frequency and volume of overland flow on the site.

D-7

The increase in overland flow after the installation of the vineyard will mean that less water will infiltrate into the soil. The reduced volume of infiltrated water will mean that less water will be available to supply wetland habitats at the base of the hillslope. This is a particular concern along the eastern and southeastern boundaries that are adjacent to California Red-legged frog habitat. The reduced volume of

infiltrated water may result in a decrease in the amount of subsurface flow reaching the CRLF habitat. The decrease in subsurface flow reaching the CRLF habitat may reduce the length of time that the habitat is suitable for the frogs. Since the California Red-legged Frog is a listed species, it is essential that the potential effect of the reduced amount of subsurface flow is carefully studied. The ECPA and the Mitigated Negative Declaration do not explore this potential adverse impact and there is insufficient information in the file to properly investigate the seriousness of the reduction in volume of infiltrated water. As mentioned in the section on CRLF Habitat, the Initial Study and Mitigated Negative Declaration make an unsupported statement that Hydrology and Water Quality Impact VIII(b) will not be significant.

An extensive system of storm drainage pipes will be installed in vineyard Blocks D, E, F, G, and H. The storm drainage pipes will speed the removal of overland flow from the vineyard which will further reduce the overall volume of infiltration. The proposed erosion control measures may reduce the amount of suspended sediment in water leaving the project site, but according to the Technical Appendix, the overall effect of the project is to increase the volume and peak flow rate of runoff leaving the site. In my opinion, the Technical Appendix under-estimates the true increase in runoff from the site since it did not account for the decrease in infiltration resulting from ripping the soil.

D-7 (con't)

It is highly likely that erosion of the bed and banks of the channels that convey the increased storm water to American Canyon Creek will erode. The documented use of American Canyon Creek by steelhead makes it imperative that the project cause no additional erosion either on site or off-site. The high potential for erosion of off-site channels by increases in peak discharges is contrary to the claim in the Initial Study that the mitigated project would not cause significant erosion.

Dave Steiner, Napa RCD, notes in item 5 of his January 3, 2004 letter to Mary Doyle that:

> 5. ESA refers, on page 3-24, to V-ditches to be installed at various points in the proposed vineyard. Although the Plan RCD reviewed (September 8, 2004) includes detailed drawings for such a structure, there are none specified on that Plan map.

The effect of the V-ditches can not be estimated if their locations are not clearly shown on the maps. The location of the V-ditches should be properly mapped and the public comment period should then be reopened.

Problems with the Analysis of Runoff

The Technical Appendix for Geology and Hydrology for the project presents an analysis of the pre-project and post-project runoff. The analysis is flawed in several respects. The analysis is done by vineyard block instead of by watershed. The analysis could be done by vineyard block if each vineyard block was divided into appropriate watersheds. The central flaw in comparing pre and post project runoff by vineyard block instead of by watershed is that the total runoff that will be taken to the property boundary in the storm drainage system can not be estimated. Similarly, the change in runoff in any subbasin on the proposed vineyard can not be estimated either. This is important because the actual effects of increased overland flow, such as the potential for erosion, occur in watersheds. Only vineyard Block F corresponds to an actual subbasin. All the other vineyard blocks span two or more watersheds. Doing the analysis by vineyard block has the potential to obscure significant hydrologic changes.

D-8

The TR-55 computer program can be used to route storm flows from several subbasins to an outlet. The routing procedure gives an estimate of the peak storm discharge. Since the ECPA proposes a system of storm drainage pipes be installed, it is important to know the size of pipe required and the amount of water that will be discharged onto neighboring properties. The pre-project and post-project runoff analysis should be done again and the program should be applied to watersheds not vineyard blocks and the storm flows should be routed through the proposed drainage system to the property boundary.

The TR-55 model is an empirical model and is not process based. Therefore, extrapolating to conditions outside of the ones used to develop the model may result in erroneous results. Furthermore, there is no way the results of an extrapolation can be checked for reasonableness. On page 10 of the Technical Appendix, it is noted that;

> Unfortunately, the TR-55 computer program did not have an option for specific land use of "Vineyard" so "Row Crop, straight row and residue" was assumed to be the closest match.

The substitution of "Row Crop" for "Vineyard" represents an extrapolation. The result of the post-project runoff analysis is also questionable because the effect of the ripping is completely ignored. The hydrologic soil group classification is based on the characteristics of the soil surface. After the soil profile has been churned by ripping, the surface will have a higher clay content and lower infiltration rates than prior to ripping. Row crops may be disked but disking churns a much shallower layer of soil and would likely not result in bringing significant amounts of clay to the surface. The changes due to ripping may even be extensive enough to move the Fagan clay loam from Hydrologic Soil Group C into D. Therefore, it is possible that the ripping may significantly increase the actual overland flow relative to that predicted by the post-project runoff analysis. D-8 (con't)

The runoff from Block H and possibly from portions of adjacent blocks is flawed by the use of the Fagan clay loam instead of the Henneke gravelly loam shown on the soil map.

The runoff analysis limits itself to 24-hour rainfall intensities of various return-periods. Most analysis of change in peak runoff use a storm duration matched to the time of concentration. On a small watershed, the time of concentration is on the order of about 15-minutes.

The Give and Take of Runoff

The Technical Appendix shows that the project will result in an increase in overland runoff. The ECPA proposed capturing the surface runoff in a storm drainage system of pipes and delivering it to the property boundary at two points. Discharge point (1) is between Blocks D and G and discharge point (2) is near the storage yard, directly south of Block G. Discharge point (1) handles storm flow from Blocks D, E and G. Discharge point (2) handles storm flow from Blocks E, F, G and H. Both discharge points release storm flow on to property owned by the Napa Valley Unified School District. When the project was first proposed, only discharge point (1) released water on to the School District property. However, the land downslope of discharge point (2) was recently sold to the District.

The Mitigated Negative Declaration recognizes that discharging an increased volume of storm flow onto the School District property is an adverse environmental impact. So the following mitigation measure was proposed.

> Implementation of Mitigation Measure HWQ-7: D-9
>
> Modify #02253-ECPA, to include appropriate and feasible measures to convey stormwater runoff away from Blocks C, D, and G in order to reduce volumes and rates of surface water entering the adjacent Napa Valley School District (NVUSD) parcel. The conveyance designs shall ensure that stormwater flow rates and volumes entering the NVUSD parcel do not exceed those under the existing, pre-project conditions.

This mitigation measure is not adequate to achieve the achieve the goal of reducing runoff to the School District property to pre-project levels since it only focuses on discharge point (1) and overland flow from Block C flowing directly onto the School District property. However, since the sale of about 17 acres to the School District, the stormflow released at discharge point (2) must also be included in the mitigation measure.

Mitigation Measure HWQ-7 does not have a well defined performance standard. It seeks to reduce the volumes and rates of surface waters entering the NVUSD property to pre-existing conditions. There is no

determination of the pre-existing flow rates or volumes entering the NVUSD parcels. The TR-55 model presented in the Technical Appendix can not be used for this purpose since it was done by vineyard block and not by watershed. In addition, the TR-55 model only looked at stormflow from 24-hour rainfall and not from shorter more intense rainfall events such as 15-minute rainfall. The Technical Appendix specifically states that its results are intended to be used to gauge the general level of change in runoff and the results should not be used as design flows. This is particularly true since the analysis was done by vineyard block and not by watershed. For the same reasons, the output of the TR-55 model can not be used to design the storm drainage pipe system to handle post-project flows. So, the pre-project and post-project flows for meaningful rainfall events such as a 2-year 15-minute rainfall or a 20-year, one-hour rainstorm are not known. D-9 (con't)

Mitigation Measure HWQ-7 is fundamentally flawed, even after its language is altered to reflect the need to control the release of storm flows at discharge point number 2. The reason that the HWQ-7 is flawed is that the system of storm drainage pipes proposed by the ECPA concentrates the project storm runoff in a way that did not occur in the pre-project state.

Mitigation Measure HWQ-7 is further flawed because it was arbitrarily limited to controlling runoff on to the School District property. The true goal of HWQ-7 should be to limit post-project runoff to pre-project levels at all discharge points from the project.

HWQ-7 focuses on protecting the NVUSD parcel from the effects of increased runoff but it should also focus on protecting steelhead in American Canyon Creek from increased post-project runoff and the possible erosion caused by the elevated storm flows downslope of the energy dissapators. D-10

Mitigation Measure HWQ-7 can only be accomplished by either increasing the infiltration into the vineyard to a level approximating the pre-project levels or a runoff detention facilities must be constructed, or both. Given the shallow soil depth and relatively steep slopes, peak flow detention facilities should not be constructed in the vineyard. Increasing the infiltration within the vineyard would require substantial grading to reduce slopes. A substantial increase in grading would contradict the claim that only minor grading is required.

Therefore, HWQ-7 has no clearly defined performance standard and appears unfeasible. Therefore, HWQ-7 is not an effective mitigation measure.

Application of RUSLE

The Technical Appendix attempts to apply the Revised Universal Soil Loss Equation (RUSLE) to estimate changes in soil loss due to the project. However, the analysis is flawed. The analysis used the K value of 0.32 for the Fagan clay loam soil surface to represent the vineyard conditions. This ignores the effect of ripping the soil profile to bedrock. The lower soil horizons in the Fagan soil have K values of 0.37 instead of 0.32. Ripping the soil to bedrock will churn the soil and bring up subsoil to the surface. A K value of 0.37 would be more representative of the vineyard than the value of 0.32 used in the analysis. A K value of 0.32 is appropriate for the pre-project condition but not for the post-project condition. Higher K values indicate a higher susceptibility to sheet and rill erosion by water. D-11

The analysis used a pre-project Percent ground cover of 70% for all of the proposed vineyard blocks to determine the C factor. No evidence is presented that demonstrate that the actual ground cover is 70% throughout the project site. In the runoff analysis, Blocks A and B were said to be in good condition and so they may have a cover greater than 70%. Block C-F were said to be in fair condition, so perhaps they also had a cover greater than 70%. Blocks G and H were said to be in poor condition, so perhaps they had cover less than 70%. The important point is that the condition of the vineyard block clearly is not uniform and that there is no evidence presented of the actual ground coverage.

The ECPA proposes a target of 80% ground cover. No evidence is supplied that this arbitrary level of ground cover will adequately protect the site from erosion and off-site habitats from subsequent sedimentation. D-11 (con't)

Future Projects

The City of American Canyon wants to locate water storage tanks within the vineyard project area. According to a letter dated 17 June 2004 from Mary Doyle, Principal Planner for Napa County, to Mark Power of Napa Canyon LLC, the propose water storage tanks require an all-weather road with an impermeable surface which will affect runoff from the site. In addition, the all-weather road might require extensive cuts and fills which could lead to mass wasting when the cuts or fills failed. Road cuts are particularly problematic since there is a tendency for slides to occur. D-12

There is no discussion of the water tanks or the associated all-weather road in the Hydrology and Water Quality section of the Initial Study and Mitigated Negative Declaration. Therefore, it is apparent the need to accommodate the increase in runoff associated with the all-weather road has not been considered in the design of the drainage system.

Summary

- Steelhead have been reported using American Canyon Creek. This fact was not noted in the Initial Study.
- Colluvium-filled swales may slide after the vineyard is installed if proper drainage is not provided as per the Geotechnical Engineer's recommendation. All of the colluvium-filled swales need to be identified and mapped and have proper drainage installed prior to planting the vineyard. If a landslide occurs, it is likely that the proposed erosion control measures downslope of the slide will be overwhelmed and lead to sediment moving off site where it could potentially adversely affect the habitat of the California Red-legged frog or steelhead in American Canyon Creek.
- The runoff analysis does not consider the importance the project area may have in supplying surrounding wetlands with subsurface storm flow and subsequent base flows or in keeping seeps saturated. Failure to consider the decrease in the volume of water that enters the subsurface because of the installation of the vineyard might lead to a loss of California Red-legged frog habitat.
- Conversion of the project site to a vineyard will result in a significant increase in overland flow. The increased flow has the potential to adversely impact the use of surrounding properties or to damage habitat of sensitive species away from the vineyard, such as steelhead in American Canyon Creek
- The project's erosion control measures may reduce the suspended sediment concentration of the water leaving the site, but the measures do nothing to reduce the erosive effects of an increase in discharge on downstream channels
- The runoff analysis presented in the Technical Appendix is flawed because it was done by vineyard block and not by watershed and because it does not account for the effects of ripping the soil profile. In addition, it considered only 24-hour rainfalls intensity instead of the more meaningful intensities associated with the time of concentration from small watersheds.
- Mitigation Measure HWQ-7 does not account for the sale of a parcel to the Napa Valley Unified School District
- It does not appear to be feasible to design the runoff control system that would be necessary to implement Mitigation Measure HWQ-7 using information currently available in the file. In

addition, HWQ-7 lacks a clearly defined performance standard since neither the pre-project nor post-projects storm flows are known.

- Arbitrary values were used in the RUSLE to estimate pre-project erosion rates. In addition, values not representative of the post-project conditions were used in the RUSLE.
- The water storage tanks proposed by the City of American Canyon will require an all-weather road which will affect the runoff from the vineyard and may require major modifications of the storm water control system required by mitigation measure HWQ-7. The all-weather road may also require cuts and fill which may lead to landsliding.

Dennis Jackson

Sincerely,

Dennis Jackson
Hydrologist

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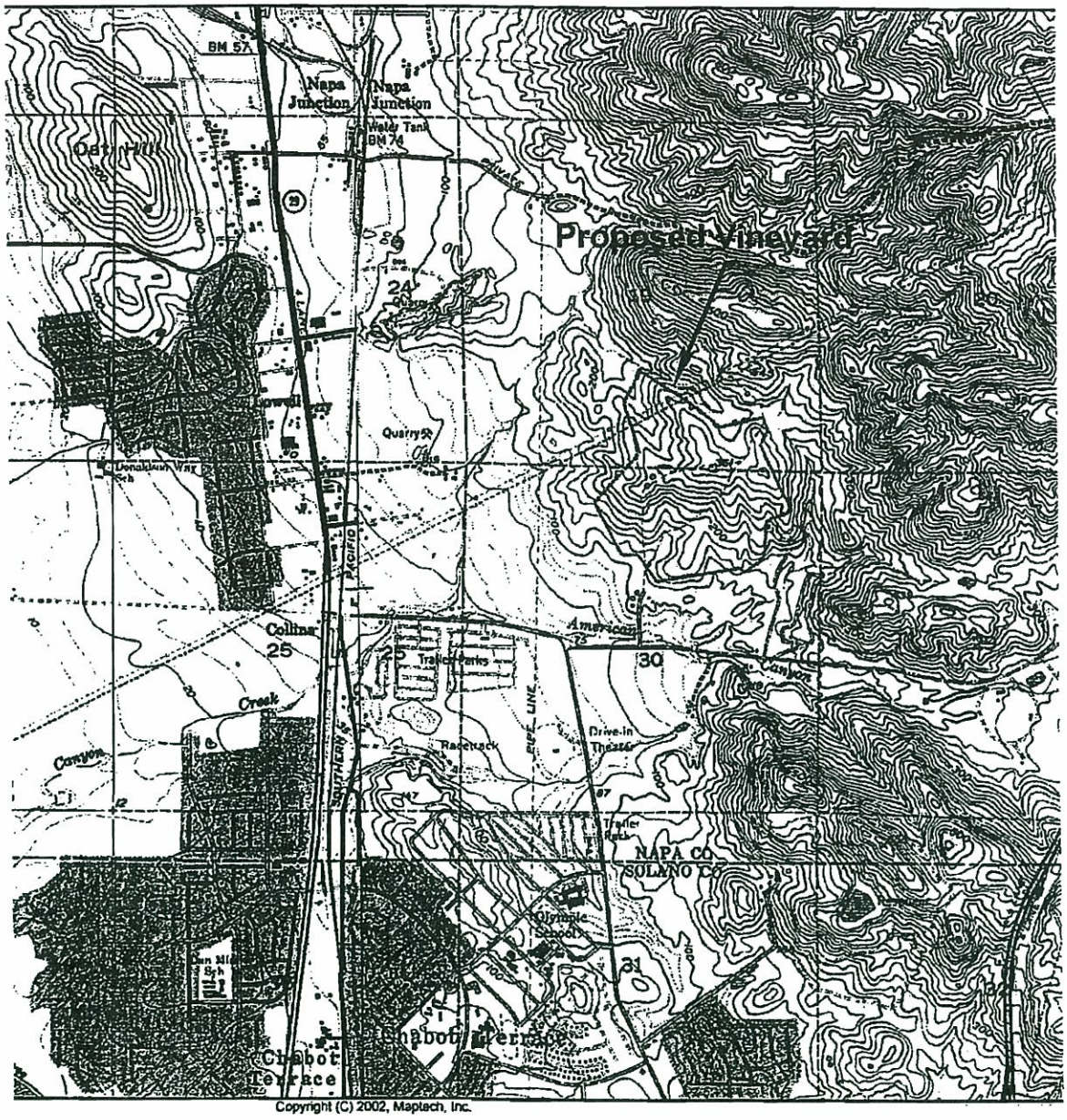

Figure 1. Topographic map of the proposed vineyard.

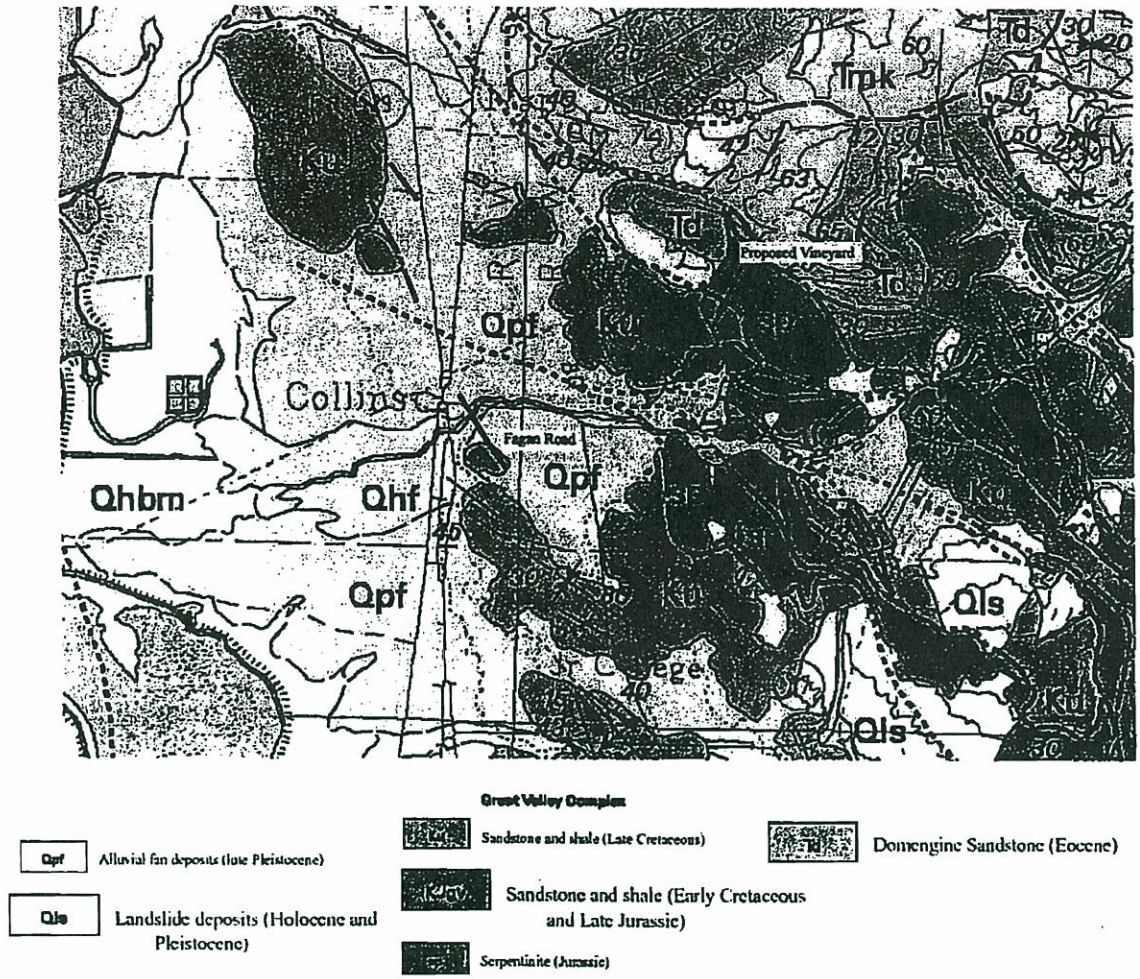

Figure 3. The geologic map (Graymer, Jones and Brabb, 2002) in the vicinity of the proposed vineyard. The proposed vineyard is underlain by primarily Great Valley Complex sandstone and shale (late Cretaceous). The southeast edge of the proposed vineyard is underlain by serpentinite (Jurassic). Alluvial fan deposits are found between the proposed vineyard and American Canyon Creek.

Comment Letter D

DENNIS JACKSON

HYDROLOGIST

Fluvial geomorphology

Sediment transport

River and watershed assessment and restoration

EXPERIENCE

Dennis Jackson is a consulting hydrologist. Mr. Jackson has over 15 years of experience in river and watershed restoration, mitigation planning, policy evaluation, and project implementation. Mr. Jackson has studied watersheds along the north coast of California and in the eastern Sierra Nevada.

Mr. Jackson has completed all the phases of successful stream and watershed restoration projects. His experience includes: obtaining restoration grant funding, design of restoration projects, obtaining permits, facilitating advisory committee meetings, and completion of project implementation and monitoring.

He is currently teaching an upper division class entitled Physical Hydrology at California State University, Monterey Bay. The course focused on runoff generating processes and detecting watershed change through an analysis of discharge records.

Mr. Jackson served on the City of Santa *Cruz's Watershed Management Technical Advisory Task Force*. The Task Force's charge is to guide the preparation of a watershed management plan for the 3,380 acres owned by the City

EMPLOYMENT HISTORY

- Mr. Jackson taught the upper division Physical Hydrology course at California State University, Monterey Bay. The course focused on runoff generating processes and detecting watershed change through an analysis of discharge records.
- In 1995, Mr. Jackson started practice as a consulting hydrologist focusing on river monitoring and watershed dynamics. He has also managed a 319(h) grant for the Sotoyome Resource Conservation District.
- From 1989 -1994, he was the Hydrologist/Director for the Mendocino County Water Agency where he studied the effects of in-stream gravel extraction on the rivers of Mendocino County. He also completed several stream restoration projects from concept to completion.
- From 1986 through 1989, he studied the studied the effect of upwind obstructions on the distribution of snow in the Mammoth Creek watershed for the Mammoth County Water District.
- From 1983 through 1986, he was a hydrologic technician with the U.S. Forest Service, in charge of a network of well, stream and spring monitoring stations.

incised resulting in unstable banks, loss of ground water storage and damage to public works such as bridges and pipelines. Mr. Jackson established a network of monitoring cross sections in 1989. He also conducted an extensive analysis of the USGS gaging station records on the Russian River. His analysis showed that the bed was incising prior to the construction of Coyote Dam. Mr. Jackson was able to obtain a grant from the State Water Resources Control Board to prepare a gravel management plan. The grant funding allowed Mr. Jackson to continue monitoring the cross section network and to retain the USGS to collect total load sediment data for the Russian River.

- Russian River Restoration Program: Mr. Jackson is currently participating in a multi-year effort to restore the riparian wetlands of the Russian River system in conjunction with local agencies and landowners. His work has included a regionalization of flood frequency data for the Russian River tributaries and developing a method to estimate channel dimensions based on watershed area. He is also providing technical assistance to an extensive volunteer monitoring program with watershed residents and landowners in creek and watershed restoration in the tributary basins. He is the co-author of a handbook for volunteer stream monitors prepared for the Sotoyome Resource Conservation District in Santa Rosa, CA. The handbook guides volunteers in obtaining a watershed perspective. The larger perspective is essential in designing a meaningful monitoring program.
- Russian River Watershed – A Voluntary Cooperative Approach for Attaining Water Quality Objectives: The Sotoyome Resource Conservation District had 319(h) grant to fund several water quality improvement. Mr. Jackson was the grant's Project Director. The grant included landowner/volunteer water quality monitoring, development of bioassessment reference conditions, cooperative projects with two high schools and work with dairymen to reduce water pollution from animal waste.
- Redwood Valley Ground Water Study: Mr. Jackson negotiated approval for a cooperative study of the ground water resources of Redwood Valley. The Redwood Valley Water District was under a court ordered moratorium until additional water supplies could be found. Mr. Jackson convinced the Water District's Board of Directors that it would be beneficial to engage the USGS to take a thorough look at the ground water supplies within their District. Mr. Jackson collected data and worked closely with the USGS during the study.
- Review of Proof of Water Tests: The town of Mendocino is on a coastal headland. Water supply is a critical issue within the Mendocino City Community Services District (MCCSD). The state of California granted MCCSD the authority to manage ground water within the District's boundaries. The District requires all new wells to perform a proof-of-water test to demonstrate that the new well will not impact existing wells. As the Hydrologist for MCWA, Mr. Jackson reviewed and commented on proof-of-water tests done for the MCCSD. Mr. Jackson also reviewed ground water studies for the Mendocino County Division of Environmental Health. He also reviewed and commented on the hydrologic aspects of projects before the Mendocino County Planning Department. The projects ranged from subdivisions to zoning changes and quarries.
- CEQA compliance: Mr. Jackson has extensive experience as a government project manager in the preparation and review of all aspects of EIRs.

Comment Letter E

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January 17, 2005

Mary Doyle
Principal Planner
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Napa County
1195 Third St., Suite 210
Napa California 94559

Re: Napa Canyon LLC Vineyard Conversion Project, ECPA # 02253 and Mitigated Negative Declaration

Dear Ms. Doyle:

This office represents Earth Defense for the Environment Now ("EDEN") with respect to the above entitled project. I am submitting the exhibits listed below and attached hereto in support of comments on this project that I will be submitting under separate cover tomorrow.

Thank you for your attention to this.

Very Truly Yours,

Thomas N. Lippe

List of Attachments and Exhibits (Napa Canyon)

Exhibits:

1. Omernik, James M., 2003. The Misuse of Hydrologic Unit Maps for Extrapolation, Reporting, and Ecosystem Management. Journal of the American Water Resources Association (JAWRA) 39(3):563-573

2. Phase II Report: Independent Scientific Review Panel on Sediment Impairment and Effects on Beneficial Uses of the Elk River and Stitz, Bear, Jordan and Freshwater Creeks; Authored by the Humboldt Watersheds Independent Scientific Review Panel; August 12, 2003.

3. National Marine Fisheries Service Endangered and Threatened Species: Listing of Several

Comment Letter E

Evolutionary Significant Units (ESUs) of West Coast Steelhead Final Rule Fed. Reg. Vol. 62, page 43937. August 18, 1997.

4. Napa River Basin Limiting Factors Analysis, prepared by Stillwater Sciences and Professor William Dietrich for San Francisco Bay Water Quality Control Board and California State Coastal Conservancy, June 14, 2002.

5. Cumulative Effects of Conversion of Upland Woodlands and Chaparral to Vineyards Report prepared by Robert R. Curry, PhD. December 24, 2000.

6. Expert Witness Report: Cumulative Impacts on Fisheries Resources from Intensive Viticulture Practices in Napa County, CA prepared by Robert R. Abbot, PhD., and Robert N. Coats, PhD. February 1, 2001.

7. Habitat Fragmentation as A Cumulative Impact of Winery Expansion and other Development in Napa County, Dr. Reed Noss.

8. Susan Kegley, Lars Neumeister, Timothy Martin, Disrupting the Balance: Ecological Impacts of Pesticides in California, Pesticide Action Network, 1999.

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18. How Fine Sediment in Riverbeds Impairs Growth and Survival of Juvenile Salmonids, Kenwyn B. Suttle, Mary E. Power, Jonathan M. Levine, and Camille Mcneely, Department of Integrative Biology, University of California, Berkeley, California. *Ecological Applications*, 14(4), 2004, pp. 969–974 q 2004 by the Ecological Society of America.

Comment Letter F

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January 18, 2005

Mary Doyle
Principal Planner
Office of Conservation, Development and Planning
Napa County
1195 Third St., Suite 210
Napa, California 94559

Re: Napa Canyon LLC Vineyard Conversion Project, ECPA # 02253 and Mitigated Negative Declaration

Dear Ms. Doyle:

This office represents Earth Defense for the Environment Now ("EDEN") with respect to the above entitled project. I am writing on EDEN's behalf to comment on and object to adoption of the proposed Mitigated Negative Declaration ("MND") and to comment on and object to approval of the ECPA for the Project.

Enclosed herewith please find a comment letter and CV from Dennis Jackson, a hydrologist, regarding the hydrologic, geologic and biological effects of this project. Also enclosed herewith please find a comment letter and CV from Dr. Marc P. Hayes, a herpetologist, regarding the effects of this project on California Red-Legged Frog ("CRLF"). Also, submitted under separate cover are 18 exhibits that are referenced in this letter.

The information in the file for this project, as supplemented by the Jackson and Hayes letters and the exhibits submitted herewith, demonstrate that substantial evidence supports a fair argument that this project will cause or contribute to significant individual and cumulative impacts on a number of environmental values and resources, even after adoption of the recommend mitigation measures. Therefore, the County must prepare and certify an Environmental Impact Report ("EIR") for the project under the California Environmental Quality Act ("CEQA") before approving this project.

The project will likely increase sediment in American Canyon Creek, which may significantly and adversely effect steelhead populations and habitat, as a result of increasing peak runoff and increasing landsliding. See Jackson letter. Exhibit 2, 3, 4, 5, 6 and 18 provide greater detail regarding the status of steelhead in the Napa River and the ways in which land use changes such as this vineyard conversion cause significant, cumulative and adverse effects on this species. The MND does not discuss impacts on steelhead at all, much less from these mechanisms of impact.

F-1

The project will likely cause decreased subsurface flow to existing CRLF habitat, thereby decreasing their available habitat and increasing this species' susceptibility to extirpation from the site. The project will likely create new areas of perennial surface water. This is likely to attract CRLF to new areas that are more exposed to predators (i.e., "predator traps") and to provide habitat for CRLF predators such as bullfrogs. See Hayes letter. The MND does not discuss these mechanisms of impact. F-2

In addition, the MND concedes that the vineyard involves pesticide and fertilizer use, but does not evaluate the potential for these chemicals to adversely effect steelhead and CRLF. Exhibits Exhibit 6 and 8 -17 provide greater detail regarding the effects of chemical pesticides on these and other aquatic species. F-3

Mitigation Measures HWQ-6 and HWQ-7 defer the development of the specific measures to reduce peak runoff until after post-approval studies are conducted in violation of CEQA. *Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 307. Mitigation Measures BR-1, BR-2 and BR-3 also unlawfully defer until after project approval the development of specific measures to reduce impacts.

Also, to avoid significant effects, the MND relies heavily on mitigation measures that involve either maintenance activities to be performed after project construction (see e.g., HWQ-1-5, BR-1) or post-approval site determinations such as surveys that will trigger specific mitigation actions (see e.g., HWQ-1, HWQ-2, HWQ-3, HWQ-4, HWQ-5 and BR-1). Yet the MND does not include a Mitigation Monitoring Plan ("MMP") to ensure that these mitigation measures are implemented as designed. This is another reason an EIR, which must include an MMP where mitigation measures are adopted to reduce significant effects, is required. F-4

Finally, there have been literally hundreds, possibly thousands, of hillside vineyard conversion projects in the Napa Valley basin since the Hillside Ordinance was adopted in 1991. All of theses projects are "closely related" in terms of their hydrological, geological, and biological impacts. (See CEQA Guideline 15355 defining "cumulative impacts"). There are already significant adverse impacts on the aquatic environment, especially on populations and habitat of steelhead and CRLF. This project will contribute to those significant impacts. Even if this contribution may be characterized as "minor," its cumulative impacts when considered with other past, present and probable future projects in the County, are significant. *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 719-722. The CEQA document for this project County must describe the closely related past, present and future projects whose impacts may combine with this project. The MND does not do so. F-5

EDEN requests that the County prepare a programmatic EIR under CEQA analyzing the County's program of approving ECPs for hillside vineyard conversion projects in the County. A programmatic EIR is the only practical way to adequately analyze the cumulative impacts of this

Comment Letter F

ongoing program.

Thank you for your attention to this.

Very Truly Yours,

Thomas N. Lippe

cc: Client

C003 Comm Ltr re MND.wpd

Comment Letter G

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Jan Boel
Acting Director

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JAN 20 2005

NAPA CO. CONSERVATION DEVELOPMENT & PLANNING DEPT.

January 18, 2005

Mary Doyle
Napa County Conservation, Development & Planning Department
1195 Third Street, Room 210
Napa, CA 94559

Subject: #02253 - Erosion Control Plan Agriculture
SCH#: 2004122089

Dear Mary Doyle:

The State Clearinghouse submitted the above named Negative Declaration to selected state agencies for review. The review period closed on January 17, 2005, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. G-1

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

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Comment Letter H

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18 January 2005

Thomas N. Lippe, Esquire
Law Offices of Thomas N. Lippe
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San Francisco, CA 94107

Dear Thomas:

I write this letter to provide both comment and a best available science-based opinion on the adequacy of the Mitigated Negative Declaration for the Napa Canyon LLC Vineyard Erosion Control Plan Agriculture (Application No. 02253) regarding the impacts to, and the mitigation measures for, the California red-legged frog (*Rana draytonii*). In particular, this comment and opinion seeks to identify, based on California Enviromental Quality Act (CEQA) Guidelines Section 15070, whether the criteria for preparation of the Mitigated Negative Declaration are met. Those criteria are that:

- No substantial evidence exists that the project may have a significant effect; or
- Where a potentially significant effect may exist, revisions of the project would avoid or mitigate the effects to a point where clearly no significant effects would occur.

Prior to comment, two issues need mention. First, peer-reviewed published information and other published data that support statements are given in author/year format supporting pertinent statements in the text and linked to their full citations in the LITERATURE CITED section. Second, the California red-legged frog, formerly a subspecies, as *Rana aurora draytonii*, has been elevated to a full species, as *Rana draytonii* (SHAFFER ET AL. 2004), a change the scientific community now accepts. This is noted because documentation that addresses the Napa Canyon LLC Vineyard Project uses the old taxonomy, whereas recent documentation can use the new; that either name refers to California red-legged frog, which has been federally listed as Threatened since 23 May 1996 (USFWS 1996) needs to be unambiguous.

The Napa Canyon LLC Vineyard Erosion Control Plan Agriculture (hereafter THE PLAN) proposes an approximately 178-ac set aside that comprises all perennial and most non-perennial aquatic habitats on the approximately 317-ac project parcel (LSA 2004a). This set-aside encompasses the area within which California red-legged frogs have been found onsite (M&A 2003). Moreover, regarding this set-aside, M&A (2003) state that (quote): H-1

> "...we have...designed a "California red-legged frog preserve" that we believe, barring unforeseen circumstances, will allow this species to survive in perpetuity while allowing for a feasible project on the 390-acre project site."

This conclusion is unverifiable due to lack of selected data that address both California red-legged frogs and available habitat, which prevents an independent assessment of THE PLAN that is unambiguous. I briefly address each of these.

The most basic datum regarding the California red-legged frogs on the project site is ambiguous in that the Biological Resources Report (M&A 2003) provides no independent basis for verifying (e.g., photograph) that frog presence actually constitutes California red-legged frogs. This condition is assumed to have been verified on the basis of at least one meeting that occurred with the US Fish and Wildlife Service (USFWS) on the project site in 1996 (M&A 2003).

H-1 (con't)

Hence, assuming that California red-legged frog presence on the project is unambiguous, California red-legged frog data upon which the Biological Resources Report assessment is based (M&A 2003) are that (items for comment my *italicization*):

> (quote) "In 1996, M&A identified California red-legged frogs on the project site. Between the time of our 1996 sighting and 2002, M&A has spent *many hours* on the project in all tributaries determining the *exact areas* of the site that this species uses for *breeding*, *foraging*, *overland migration*, and *resting*. From our field studies we have determined that *these frogs are restricted to the eastern portion of the project site* along the American Canyon Creek tributary, and to the perennial seeps and spring boxes located on this portion of the project site." (unquote; M&A 2003)

Beyond the qualitatively description of "many hours", details of the amount of survey effort and its timing specifically directed at California red-legged frogs are vague. In 1996, the finding of California red-legged frogs onsite led a nocturnal survey being done in April to determine the extent of the population on the project site (M&A 2003), but the scope of this survey and the time devoted to it were unspecified. This was followed with a diurnal survey in June 1996 (M&A 2003), for which the scope and effort were also not specified. The Biological Resources Report did specify that during surveys for California tiger salamanders (*Ambystoma californiense*), all wetlands onsite were checked to note aquatic conditions; these surveys were conducted on 15 April and 12 May 1998, and again on the 29 March and 24 April 2002 (M&A 2003). If surveys besides those indicated above were conducted for the California red-legged frog, these are also unspecified. Lack of specification on survey effort and timing contributes to an inability to assess whether survey resolution was sufficient to determine the exact areas that California red-legged frogs use for breeding, foraging, overland migration, and resting. Further, the inability to judge whether the exact areas of California red-legged frog habitat use were determined prevents assessment of whether the project may have a significant effect or whether project effects may be migitated by THE PLAN.

H-2

The precise locations from which California red-legged frogs were found must also be surmised. During the site-wide, larval-focused wetland site surveys previously discussed, the Biological Resources Report states that the only amphibians found were larvae of the California newt (*Taricha torosa*) and larvae of the Pacific treefrog (*Hyla regilla*; M&A 2003). In contrast to newts and treefrogs, California red-legged frogs have larger larvae and a relatively long interval to metamorphosis (3.5 to 7 months after eggs are laid; STORER 1925; WRIGHT AND WRIGHT 1949, STEBBINS 2003). Thus, it is unclear why larval California red-legged frogs were undetected during larval surveys given the

H-3

statement of M&A (2003) that they identified the "exact areas of the site used for breeding." At least three alternatives are possible: (1) California red-legged frogs did not reproduce onsite in 1998 and 2002, for which more than one possibility also exists; (2) California red-legged frogs reproduced, but larvae sustained 100% mortality by the survey date; and (3) California red-legged frogs reproduced, but the larvae present on the survey dates went undetected. Information from larval surveys further implies that, of surveyed wetlands, only the man-made pond and one sag ponds may have regularly had hydroperiods long enough to allow successful development of California red-legged frogs to metamorphosis. Specifically, the report indicates that during the latter of the larval surveys conducted 1998 surveys (12 May), of the wetlands onsite, only the man-made pond and one of the sag ponds held water more than an inch deep (M&A 2003). Similarly, only the man-made pond and one sag pond were inundated by the latter of the 2002 larval surveys (M&A 2003). The section of the report that describes the intermittent drainages and American Canyon Creek describes the site's largest drainages as flowing seven to eight months of the year and inundating up to two feet deep (M&A 2003). Collectively, these data imply that if onsite reproduction occurs, when it occurs, one of these three locations or spring boxes associated with the perennial seeps were most likely to support it. The only implication that something may be occurring in the perennial seeps is reflected by the statement that "Amphibians such as...the federal listed California red-legged frog (*Rana aurora draytonii*) thrive in these seeps in summer months when all other water on the project site dries down." (M&A 2003). However, not only were the breeding locations not identified, but habitat data are insufficiently detailed to eliminate alternative sites as supporting reproduction. Lack of precise identification of where California red-legged frogs were found, particularly their breeding sites, contributes to an inability to judge whether the project may have a significant effect on the frogs or whether project effects may be migitated by THE PLAN.

H-3 (con't)

Data are also lacking to identify overland migration or the seasonal pattern of habitat use in which California red-legged frogs may engage on the project site. That California red-legged frogs engage in significant seasonal movements (several hundred meters to ca. 3 km [2 mi]) is well known (RATHBUN ET AL. 1993, BULGER ET AL. 2003; M. HAYES, unpubl. data; see also RATHBUN AND SCHNEIDER. 2001), what is poorly understood is precisely how the scope of those seasonal movements varies with habitat conditions. Identifying overland migration and seasonal movements requires an ability to distinguish and identify individual frogs in order to verify that that individual or those individuals did indeed make a move. Furthermore, if resolution of larval surveys reflects the resolution of the nocturnal and diurnal surveys directed at California red-legged frogs during 1996 (see M&A 2003), based on time alone, the patterns of overland migration and seasonal movements could not have been resolved. Lack of precise identification where individual California red-legged frogs were resighted contributes to an inability to assess whether surveys determined the exact areas that California red-legged frogs use for overland migration or the seasonal pattern of habitat use. Further, the inability to judge whether the exact areas of California red-legged frog overland migration or habitat use were determined prevents assessment of whether the project may have a significant effect on California red-legged frogs or whether project effects may be migitated by THE PLAN.

Question also exists regarding precisely how THE PLAN may alter onsite hydrology. Some effort has been made to ensure that runoff (and what it may carry) does not significantly

H-4

affect most of the intermittent drainage on the set-aside to the east. However, the drainage system that drains water from proposed vineyard subparcels E, F, and H will concentrate flow into an energy dissipater on the southwestern portion of the site (see Figure 3; LSA 2004a). Two potentially undesirable effects, the magnitudes of which are unknown, may occur from this alteration. First, the water accumulation at the energy dissipater, if reliable, could attract California red-legged frogs to that source. In the relatively dry landscape of near-coastal California, a water-rich point, even if only present seasonally, could act as a "predator trap", attracting generalized predators (i.e., raccoons) coming to drink. California red-legged frogs focus on perennial water sources during the dry summer season, as emphasized in both the Biological Resource Report (M&A 2003) and THE PLAN (LSA 2004a), but movement to seasonal water sources also occurs seasonally (BULGER ET AL. 2003); thus, such a trap could increase the risk to California red-legged frogs onsite. Data are currently unavailable to determine whether the energy dissipater has the potential to behave in this way. Second, greater local accumulation of water has the potential to make the point of the adjacent drainage south of the energy dissipater more perennial. The point on the adjacent drainage immediately south of the energy dissipater is located at a stream juncture between the small (**A** in Figure 5) and larger intermittent drainages one the southern portion of site (Figure 5); this point is also close to the juncture with American Canyon Creek. Stream junctures intrinsically have more water because of water contributions from tributaries. Data are unavailable to determine what the hydrologic condition immediately below these stream junctures, but a water contribution from the dissipater could make these points more perennial. If a reach becomes regularly more perennial, its likelihood of colonization by exotic bullfrogs and warmwater fishes is increased (HAYES AND JENNINGS 1988), and this has a high probability of placing California red-legged frogs at risk (e.g., BURY AND WHELAN 1984, HAYES AND JENNINGS 1986, JENNINGS 1988, JENNINGS ET AL. 1992, JENNINGS AND HAYES 1994, COOK 2002). Lack of hydrological information to assess these alternatives prevents assessment of whether the project may have a significant effect on California red-legged frogs or whether THE PLAN may mitigate project effects.

H-4 (con't)

A related question of how hydrology may influence THE PLAN also addresses the small intermittent drainage (**A** in Figure 5). The same piping system that will concentrate flow in the energy dissipater may reduce overland flow to the upper portion of this drainage, and has the potential of making this portion of the system more intermittent. A general reduction in overland flow is also anticipated from movement of more impervious subsurface clays to the topsoil layer during ripping operations for preparation of the vineyard area (D. Jackson, pers. comm.). If California red-legged frogs use this drainage seasonally, these alterations have the potential to decrease their use of this system, reducing available habitat onsite, and placing the species at greater risk of extirpation on the project site. Precise data on California red-legged frog use of this system are unavailable, so data are unavailable to assess the consequences of this alteration.

H-5

Application of fertilizers and wetting agents in the seeding portion of THE PLAN also raises unaddressed questions with regard to potential impacts on California red-legged frogs. THE PLAN specifies the application of Blue Chip 16-20-0 fertilizer at the rate of 200 lbs per acre and the wetting agent 95% alkyl polyethylene glycol either as "commercial in" or equal applied at the rate of 2 quarts per acre. Fertilizers have the potential to eutrophy aquatic systems and alter the food base available to California red-

H-6

legged frogs, or directly affect growth or survival of early developmental stage (e.g., MARCO ET AL. 1999). Lack of precise information on California red-legged frog habitat use and breeding locations coupled with lack of basic delivery pattern information (i.e., distribution and timing) for fertilizers or wetting agents prevents assessment the effect of fertilizer applications or wetting agents may or may not have on California red-legged frogs under THE PLAN.

H-6 (con't)

A final important consideration is the California red-legged frogs that occupy the project site have a high probability of representing a headwater isolate, that is a population in the system headwaters that is isolated by the suite of environmental conditions that currently exist downstream. Historically, California red-legged frogs were common in the vicinity of Napa and adjacent lowlands (Specimens from the MUSEUM OF VERTEBRATE ZOOLOGY, BERKELY [MVZ 4395-4396]; CHARLES L. CAMP, field notes from 1912). Today, introduced bullfrogs and exotic fishes dominate the low-gradient portions of American Canyon Creek (M. Hayes, pers. obs.). One reason that California red-legged frogs survive in association with perennial springs on the project site is that most of these lack significant free-standing water pools (M&A 2003) that bullfrogs and fish require (HAYES AND JENNINGS 1988). This also means that unless California red-legged frogs are not breeding in a free-standing water pool associated with the perennial springs, they are breeding on one of the long-hydroperiod habitats that occurs onsite. Further, unless California red-legged frogs may sometimes migrate from the adjacent Solano County drainage where they occur over the divide (LSA 2004b), this population is autothonous (self-sustaining through reproduction within the drainage). The high likelihood that this condition exists makes it especially important that onsite modifications, as suggested above, do not encourage exotic incursion into the system since the limited number of sites available for reproduction may make it precarious.

H-7

To close, insufficient data exist in the present version of THE PLAN to unambiguously address the criteria needed to make a Mitigated Negative Declaration. If those data exist, they should be incorporated into THE PLAN to enable assessment of risk to the California red-legged frog. Without this information, one cannot assess whether the proposed project will have a significant effect on California red-legged frogs.

H-8

Respectively Submitted,

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