



May 29, 2012

Erik Lundquist  
City of Calistoga Planning and Building Department  
1232 Washington Street  
Calistoga, CA 94515

RE: City of Calistoga Public Works Memorandum of April 23, 2012

Erik,

Delta Consulting and Engineering has reviewed the memorandum prepared by Dan Takasugi, City of Calistoga Public Works Director and City Engineer of April 23, 2012 regarding the *City Public Works Response on Suggested Drainage Modification at Brian Arden Winery Development Project*.

The topographical maps of the parcel prepared by Albion Surveys of St. Helena show the natural gradient of the land sloping to the southernmost corner of the property which concurs with the City's memorandum. Currently, there appears to be no gravity drainage to the easternmost parcel corner. In addition, the existing concrete culvert under the driveway at the parcel entrance (easternmost corner of the parcel) from the Silverado Trail was installed approximately 8-12 inches above existing grade. These existing conditions do not allow existing storm water runoff to release to the parcel's easternmost corner.

A review of the grading and drainage plans prepared for the Brian Arden Winery use permit application by James Cassayre dated January 18, 2012, show the grading for the project generally following the existing natural drainage patterns toward the southernmost corner of the parcel.

In summary, our firm has completed extensive drainage and hydrology studies referencing the 2, 10, and 100 year design storm events including storm water detention to restrict the 'post-project' storm water flows to the current conditions. The studies utilized industry standard methods for evaluation of storm water hydrology: Natural Resource Conservation Service method (TR-55), the Rational Method for determination of theoretical peak runoff, Rational Method as modified by the City of Santa Rosa, and Intensity-Duration-Frequency curves derived from National Oceanic and Atmospheric Association (NOAA) precipitation maps. The studies were reviewed and commented on by the City of Calistoga Public Works staff, an independent consultant (Green Valley Engineers), and the neighbor's consultant (Bartelt Engineering).

Please feel free to contact me if you need any additional information or have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "AS", is written over the word "Sincerely,".

Andrew Simpson, PE  
Principal