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**Engineering Services March 21, 2017  
Preliminary Drainage Observations  
Memorandum**



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## MEMORANDUM

To: Sean Trippi Planning Division	From: Patrick Ryan Engineering Services
Date: March 21, 2017	Re: P15-00215 – WHL Winery Preliminary Drainage Observations APN: 027-460-013

The property at 1561 South Whitehall Lane (APN: 027-460-013) is in an unincorporated portion of Napa County and proposes to develop a new production winery. The property was recently developed with a residential estate and vineyards. The Napa County Engineering Division (“Engineering”) was requested by the Planning Commission to provide an evaluation of the existing drainage and flooding conditions of the subject site and surrounding areas along S. Whitehall Lane.

Following a site visit to the proposed Whitehall Lane (WHL) Winery on the afternoon of March 1, 2017, this memorandum presents Engineering’s opinions and recommendations regarding the drainage along S. Whitehall Lane Road, a private shared driveway, adjacent to the proposed winery development. During larger rain events this winter localized flooding occurred in the vicinity of the subject site which brought concerns that the proposed winery development and approved single family estate development has caused, contributed and/or exacerbated conditions to the existing drainage infrastructure. The opinions and recommendations contained herein are based on site observation and should be considered preliminary in nature and meant to provide additional information about existing drainage conditions and possible contributing factors to the localized flooding occurring in the vicinity of 1561 S. Whitehall Lane.

### Site Conditions

Runoff from the contributing watershed conveys via surface flows along natural drainage patterns and artificial conveyance systems including a drainage swale along the south side of S. Whitehall Lane, a roadside ditch on the north side of S. Whitehall Lane before entering Bale Slough, just upstream of an existing 72” corrugated metal pipe (CMP) culvert. In addition to the surface flows entering the road side ditch, two vineyard sump discharge pipes were observed being discharged in the stormwater conveyance system. A vineyard sump from the Hornberger vineyard development (APN: 027-460-016) discharges into the road side ditch west of the proposed WHL Winery access road and a vineyard sump from the Garvey vineyard development (APN: 027-460-036) discharges directly into Bale Slough at the upstream side of the existing 72” CMP culvert (see exhibit attached for site map).

The 72" CMP under S. Whitehall Lane is half silted providing limited conveyance capacity of the channel, which contributes to a backwater condition within Bale Slough (upstream of the CMP culvert) and the roadside ditch along the north side of S. Whitehall Lane. Backwater is caused when an obstruction, such as a pipe constriction, in a downstream condition raises the upstream water surface elevation. In addition to the limited carrying capacity of the Bale Slough culvert additional evaluation of the vineyard road culvert at the Garvey property (APN: 027-460-036) and its conveyance capacity is needed to determine if it is acting as a channel restriction.



**Photo 1: Bale Slough 72" CMP Culvert at South Whitehall Lane.**



**Photo 2: Roadside Ditch north side of S. Whitehall Lane**



**Photo 3: Vineyard Road Culvert at roadside ditch, north side of S. Whitehall Lane**

Based on accounts from the 1561 S. Whitehall Lane estate development team, during larger rain events runoff is constricted at the Bale Slough culvert causing backwater flooding in the roadside ditch on the north side of S. Whitehall Lane. As backwater builds up in the ditch the water surface elevation increases upstream until it eventually crests the road and conveys across S. Whitehall Lane south toward the subject property at 1561 S. Whitehall Lane. Examining historical photographs as far back as 2002, it appears runoff was concentrated onto the subject property and conveyed via a drainage swale before reentering Bale Slough at the southern property boundary.

### **Review of Development Documents**

Engineering reviewed the 1561 S. Whitehall Lane estate development's grading and drainage plans prepared by Kier & Wright as well as the FEMA Flood Zone Letter of Map Revision (LOMR) prepared by Schaaf & Wheeler as part of this evaluation. The grading and drainage plans for the estate development illustrates that all runoff from the newly constructed estate convey via overland flow and concentrated flow through storm drain pipes to Bioretention swales before eventually infiltrating into soils and/or conveying to Bale Slough downstream of the S. Whitehall Lane.

The results from the Schaaf & Wheeler LOMR Flood Study which focused on the depth of flooding within the confines of the Project Area (i.e. 1561 S. Whitehall Lane) and updating the current effective Special Flood Hazard Area (SFHA) concludes that the SFHA zoning through the project site needs to be updated from the current, effective flood zoning. In the study, Schaaf & Wheeler reach a similar opinion that Bale Slough and the Bale Slough culvert are undersized for the estimated peak flows which contributes to a backwater condition resulting in localized flooding of the area.

### **Preliminary Opinions and Recommendations**

Based on my observations of the site and review of the 1561 S. Whitehall Lane development documents, it appears the existing drainage condition particularly the localized flooding during larger storm events is likely due to historic natural and artificial drainage patterns, conveyance constrictions at the existing 72-inch CMP culvert on Bale Slough due to it being silted and having limited carrying capacity, and possible channel restriction at the vineyard road culvert. The proposed winery development and

approved residential estate is unlikely to cause, contribute negatively or exacerbate the existing drainage condition of the area.

Long term or permanent repairs and/or maintenance of the existing drainage infrastructure along S. Whitehall Lane, in accordance with all State and Local codes and regulations, may significantly improve the conveyance of runoff through the area during smaller, more frequent storm events. However, the risk of flooding and flood damage caused by larger rain events may remain probable. The proposed project is located downstream from the area impacted by localized flooding and does not contribute to the flooding condition therefore it is the opinion of the Engineering Division that there is no nexus to condition drainage improvements within Bale Slough and its associated infrastructure and tributary as part of the subject Use Permit application.

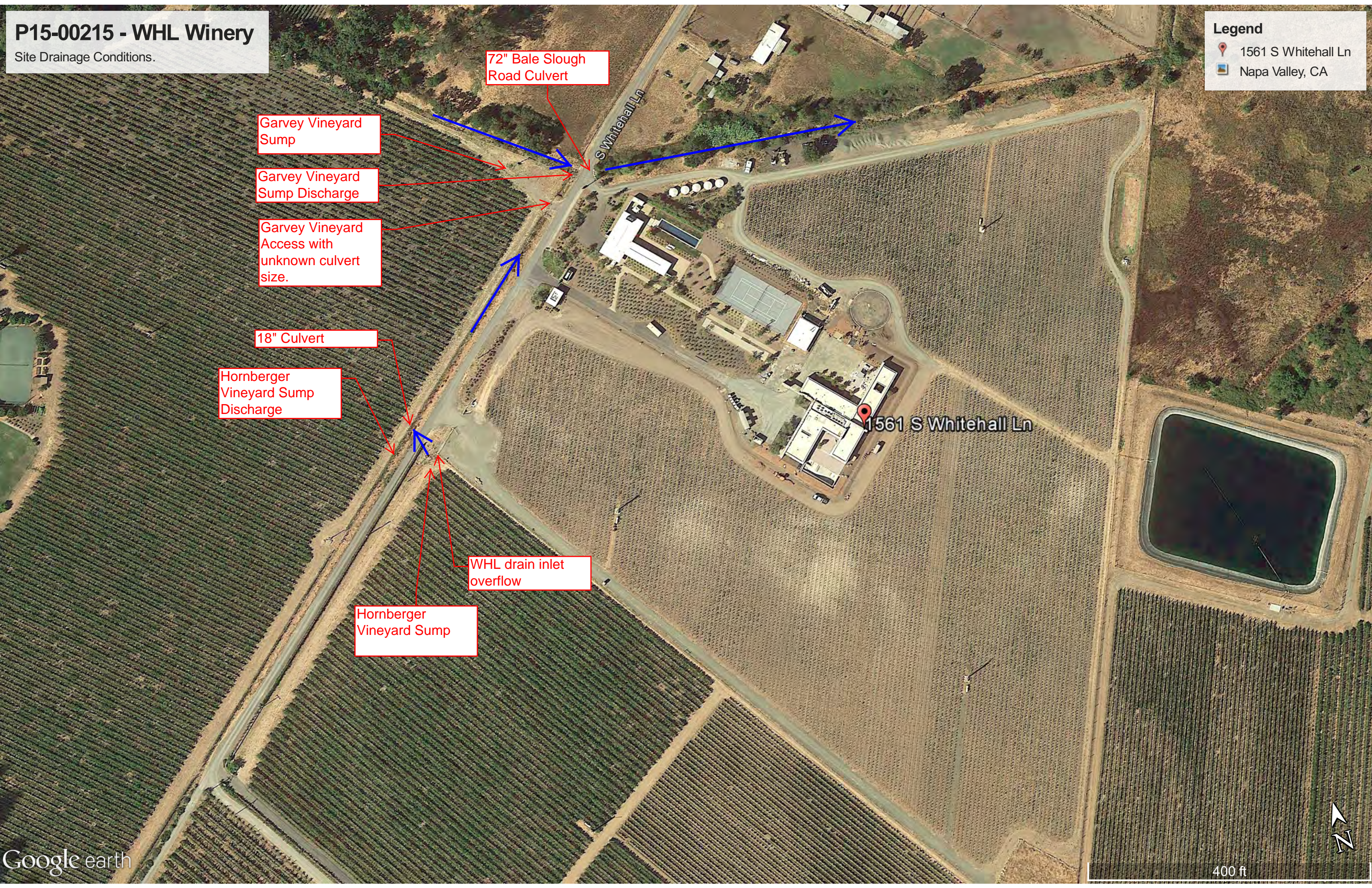
Engineering recommends that the affected property owners and/or concerned neighbors work together on a solution in conjunction with obtaining the appropriate permits from County of Napa Planning, Building and Environmental Services (PBES) Department and Department of Fish and Wildlife to remove the silt and maintaining the existing roadside ditch and 72-inch culvert within Bale Slough.

As noted above, these opinion and recommendations are preliminary in nature and may be revised as additional information of site conditions becomes known. If you have any questions regarding the above items please contact Patrick Ryan from Napa County PBES Department Engineering Division at (707) 253.4892 or via e-mail at [Patrick.Ryan@countyofnapa.org](mailto:Patrick.Ryan@countyofnapa.org).

**P15-00215 - WHL Winery**  
Site Drainage Conditions.

**Legend**

- 📍 1561 S Whitehall Ln
- 🗺️ Napa Valley, CA



72" Bale Slough Road Culvert

Garvey Vineyard Sump

Garvey Vineyard Sump Discharge

Garvey Vineyard Access with unknown culvert size.

18" Culvert

Hornberger Vineyard Sump Discharge

WHL drain inlet overflow

Hornberger Vineyard Sump

1561 S Whitehall Ln

