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Stormwater Control Plan

STORMWATER CONTROL PLAN FOR A REGULATED PROJECT

Opus One Winery

Prepared for:

Gary Caravantes

P.O. Box 6

Oakville, CA 95462

Phone: 707-948-2421

Prepared by:

Summit Engineering, Inc.

463 Aviation Blvd, Suite 200

Santa Rosa, CA 95403

Phone: 707-527-0775



CIVIL STRUCTURAL ELECTRICAL WATER|WASTEWATER

Project No. 2014096

Date November 12, 2015

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This Stormwater Control Plan was prepared using the template dated July 11, 2014.

I. PROJECT DATA

Table 1. Project Data

Project Name/Number	Opus One Expansion/2014096
Application Submittal Date	11/12/2015
Project Location	7900 Saint Helena Hwy, Oakville, CA 94562
Project Phase No.	1
Project Type and Description	Project Type: Regulated – This project consists a building expansion northeast of the existing winery and an employee parking lot.
Total Project Site Area (acres)	4.6
Total New and Replaced Impervious Surface Area	108,983 sqft (2.50 acres)
Total Pre-Project Impervious Surface Area	99,675 sqft (2.29 acres)
Total Post-Project Impervious Surface Area	145,377 sqft (3.33 acres)

II. SETTING

II.A. Project Location and Description

The Opus One Winery expansion project site comprises approximately 4.6 acres and is located at 7900 Saint Helena Highway, in Oakville, California. The project site is located approximately 4.5 miles southeast of the Town of St Helena, 1,000 feet northeast of Saint Helena Highway 29, 800 feet southwest of Napa River, and has approximate coordinates of 38.441332° N & 122.399795° W. See the Vicinity Map in Appendix A.

II.B. Existing Site Features and Conditions

The project site consists of employee and visitor parking areas, vineyard, and an existing production building with a tasting room and administration offices. Stormwater sheet flows to the vineyards northwest of the project area or is collected in a storm drain system that conveys drainage towards Napa River. The area surrounding the project boundary consists of agricultural vineyard.

The project site extends over relatively flat terrain along the valley floor. The average slope of the project is approximately 1.5% towards Napa River. The elevation of the project site ranges from 131 to 135 feet above mean sea level (msl).

Based on mapping from the National Resources Conservation Service (NRCS) Web Soil Survey, the project site soils are classified as Bale loam (103), Bale clay loam (104), and Yolo loam (181); all being in Hydrologic Soil Groups "B". According to the NRCS, Group "B" consists of soils having a moderate infiltration rate when thoroughly wet, consisting chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

II.C. Opportunities and Constraints for Stormwater Control

The gentle slopes of the site promote natural infiltration and sheet flow stormwater towards Napa River, however, the relatively flat slopes limit the ability to pipe stormwater to a downslope outlet. For the proposed Opus One Expansion project, the existing storm drain utilities will be re-routed or removed and the site will be developed with the intent to direct water to the adjacent vineyard.

The adjacent vineyard area has a moderate infiltration rate, relatively flat slopes, and provides a vegetative buffer before discharging stormwater to the river.

III. LOW IMPACT DEVELOPMENT DESIGN STRATEGIES

III.A. Optimization of Site Layout

III.A.1. Limitation of development envelope

Relatively flat slopes around the project site limit the installation of piped conveyance systems to discharge downslope. Also, the close proximity to the flood plain limits the ability to drain within the area of inundation.

III.A.2. Preservation of natural drainage features

The general slopes of the site and vineyard maintenance activities allow the stormwater to sheet flow and infiltrate without creating well defined channels. The proposed parking lot will be designed to promote stormwater sheet flow to the vineyard and maintain an elevated perimeter above the base flood elevation.

No improvements are proposed near the Napa River.

III.A.3. Setbacks from creeks, wetlands, and riparian habitats

Development will not be performed within 200 feet or more of nearby creeks and riparian habitats.

III.A.4. Minimization of imperviousness

Impervious surfacing of the site is proposed to be minimized to meet the needs and requirements of the winery.

III.A.5. Use of drainage as a design element

The parking lot is designed to promote sheet flow drainage to the adjacent vineyard. As a means to maintain an elevated perimeter, interior drainage inlets will be installed and designed to discharge to bubble up facilities in the vineyard.

III.B. Use of Permeable Pavements

No permeable pavements will be used in this project.

III.C. Dispersal of Runoff to Pervious Areas

Runoff from the new and re-worked impervious surfaces will be directed to sheet flow to the vineyard, promoting infiltration and treatment.

III.D. Stormwater Control Measures

This project will follow the "Design Guidance for Stormwater Treatment and Control for Projects in Marin, Sonoma, Napa, and Solano Counties (DGSTC)", prepared for the Bay Area Stormwater Management Agencies

Association. Based on our meeting and phone conversation with Patrick Ryan from Napa County Engineering Department it was decided to treat the adjacent vineyard area as a Self-Retaining area as defined by the BASMAA Post Construction Manual. The Self-Retaining area was sized at a minimum of 2:1 (pervious to impervious).

Design principles for the Self-Retaining area are provided on page on Page 4-3 of the DGSTC, as well as Figures 4-1 and 4-2. Locations of Self-retaining and impervious areas can be seen in the Stormwater Control Plan (Appendix B).

Storm drains will be utilized throughout the project to convey stormwater from drain inlets and roof downspouts to bubble ups in the vineyard as reflected in the Stormwater Control Plans (Appendix B). Existing storm drains will be re-routed or removed. The capacity of the storm drain system will be sized to accommodate post project 100-year flow rates.

IV. DOCUMENTATION OF DRAINAGE DESIGN

IV.A. Descriptions of Each Drainage Management Area

IV.A.1. Table of Drainage Management Areas

Table 2. Drainage Management Areas

DMA Region	DMA Sub-Region	Surface Type	Area (acres)
1	-	Winery Roof	0.65
2	-	Asphalt Concrete	1.00
3	-	Asphalt Concrete	0.79
4	-	Vineyard Area	10.33

IV.A.2. Drainage Management Area Descriptions

DMA 1, totaling 28,483 square feet, includes the new winery roof area. This area will drain to the vineyard through a bubble up shown on the Stormwater Control Plan (Appendix B). Relatively flat slopes, moderate soil infiltration rates, and a vegetative buffer in the receiving area provides infiltration and treatment opportunities.

DMA 2, totaling 43,669 square feet, includes the new and reworked portion of the parking lot and access areas that will directly sheet flow to the vineyard. This area is entirely comprised of asphalt paving. Relatively flat slopes, moderate soil infiltration rates, and a vegetative buffer in the receiving area provides infiltration and treatment opportunities.

DMA 3, totaling 34,227 square feet, includes the new and reworked portion of the parking lot area that drains to inlets near the center of the parking area and is conveyed to a bubble up within the vineyard, see Stormwater Control Plan (Appendix B). Relatively flat slopes, moderate soil infiltration rates, and a vegetative buffer in the receiving area provides infiltration and treatment opportunities.

DMA 4, totaling 449,834 square feet, is a Self-Retraining area that comprises the adjacent vineyard within the drainage area of DMA's 1-3. This Self-retaining area provides more than a 4:1 (pervious to impervious) ratio, well above the 2:1 requirement of the BASMAA Post Construction Manual.

IV.B. Tabulation and Sizing Calculations

IV.B.1. Information Summary for Bioretention Facility Design

No Bioretention Facilities are proposed for this project.

IV.B.2. Self-Treating Areas

No Self-Treating areas are proposed for this project.

IV.B.3. Self-Retaining Areas

Table 3. Self-Retaining Areas

DMA Name	Area (square feet) [B]
DMA 4	449,834

IV.B.4. Areas Draining to Self-Retaining Areas

Table 4. Areas Draining to Self-Retaining Area DMA 1-3

Tributary DMA Regions	Area (square feet) [A]	Post-project surface type	Runoff Factor	Minimum Self-retaining Area (square feet)	Proposed Self-retaining Area (square feet) [B]	Ratio [A]/[B]
DMA 1-3	106,379	Asphalt/Roof	1.00	212,758	449,834	1/4.23

IV.B.5. Areas Draining to Bio-retention Facilities

No Bioretention Facilities are proposed for this project.

V. SOURCE CONTROL MEASURES

V.A. Site activities and potential sources of pollutants

- On-site Storm Drain Inlets
- Parking lot oil & grease

V.B. Source Control Table

Table 5. Source Control Table

Potential source of runoff pollutants	Permanent source control BMPs	Operational source control BMPs
Parking Lot pollutants and contaminants	Mark all inlets with the words “No Dumping! Flows to Creek” or similar.	<ul style="list-style-type: none"> - Maintain and periodically replace inlet markings. - Provide stormwater pollution prevention information to new site owners, lessees, or operators. - Clean and properly dispose of any spills and/or leaks

V.C. Features, Materials, and Methods of Construction of Source Control BMPs

All Source Control BMPs listed in the previous section will be implemented with corresponding and appropriate features, materials, and methods of construction.

VI. STORMWATER FACILITY MAINTENANCE

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

The applicant accepts responsibility for interim operation and maintenance of stormwater treatment and flow-control facilities until such time as this responsibility is formally transferred to a subsequent owner. The owner then accepts full responsibility for the proper operation and maintenance of all stormwater facilities.

VI.B. Summary of Maintenance Requirements for Each Stormwater Facility

Any maintenance of all Self-Retaining area will be financed and implemented by the owner, Opus One Winery. Facilities shall be inspected annually and documented. Any necessary repairs to facilities shall also be documented. Updated information, including contact information, must be provided to the municipality if property is sold and whenever designated individuals or contractors change.

VII. CONSTRUCTION CHECKLIST

Table 6. Construction Checklist

Stormwater Control Plan Page #	Source Control or Treatment Control Measure	See Plan Sheet #s
6	Mark all inlets with the words “No Dumping! Flows to Creek” or similar.	SCP1

VIII. CERTIFICATIONS

The preliminary design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with the current edition of the BASMAA *Post-Construction Manual*.

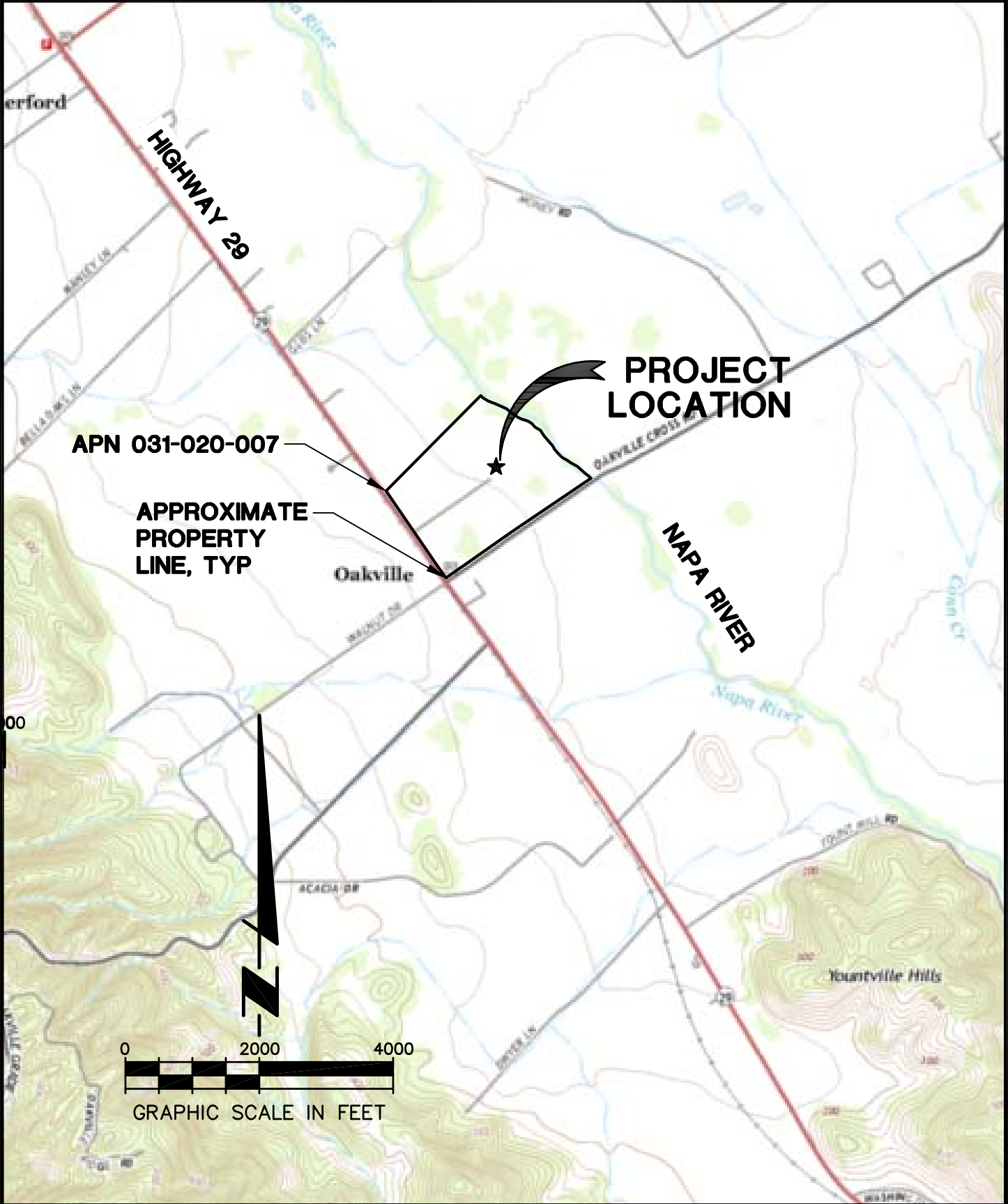
APPENDIX A: VICINITY MAP



OPUS ONE
7900 ST. HELENA HWY
OAKVILLE, CA
APN 031-020-007

PROJECT NO. 2014096
 DATE 2015-11-11
 SHT NO 1 OF 1
 BY RP CHK TCS

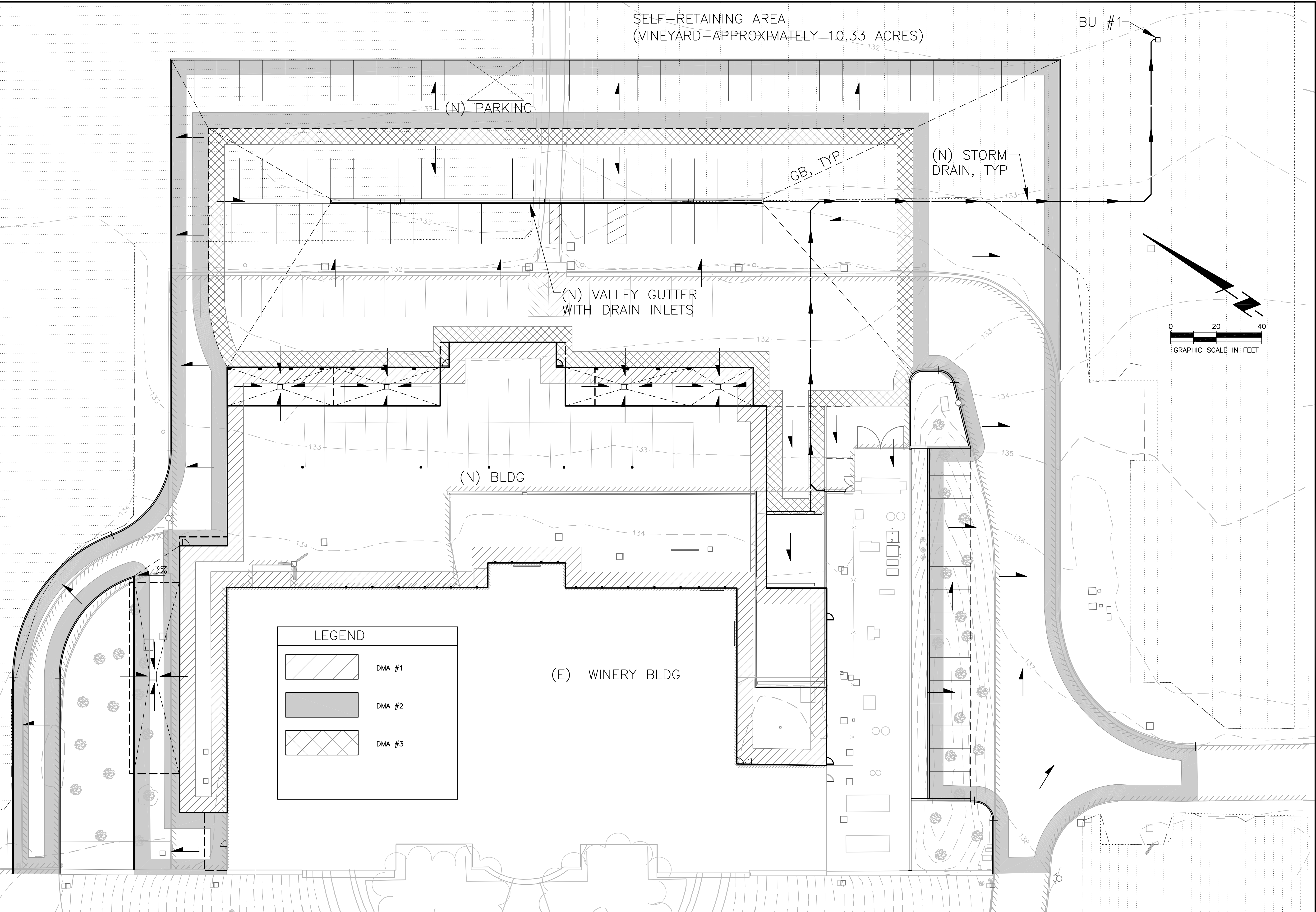
OPUS ONE USE PERMIT



PLOTTED ON: 11/10/2015 11:54 AM
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APPENDIX B: STORMWATER CONTROL PLAN

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LEGEND

	DMA #1
	DMA #2
	DMA #3

SUMMIT
 Summit Engineering, Inc
 463 Aviation Blvd., Suite 200 • Santa Rosa, CA 95403
 707-527-0775 • www.summit-sr.com

OPUS ONE WINERY
 7900 ST. HELENA HWY
 OAKVILLE, CA 94562
 APN 031-020-007

USE PERMIT APPLICATION
STORMWATER CONTROL PLAN

DATE: 2015-11-12
 JOB NO: 2014096
 SCALE: AS SHOWN
 DRAWN: JA
 CHECKED: TCS
 SHEET

SCP1