

“J”

Stormwater Control Plan

STORMWATER CONTROL PLAN FOR A REGULATED PROJECT

BALDACCI FAMILY VINEYARDS

Prepared for:

Thomas Baldacci
6236 Silverado Trail
Napa, CA 94558
Phone: (707) 944-9261

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. 2015167
December 22, 2015
Revised: March 24, 2016
Revised: June 13, 2016

TABLE OF CONTENTS

I.	PROJECT DATA	1
II.	SETTING	1
II.A.	Project Location and Description	1
II.B.	Existing Site Features and Conditions	1
II.C.	Opportunities and Constraints for Stormwater Control.....	2
III.	LOW IMPACT DEVELOPMENT DESIGN STRATEGIES.....	2
III.A.	Optimization of Site Layout.....	2
III.A.1.	Limitation of development envelope	2
III.A.2.	Preservation of natural drainage features.....	2
III.A.3.	Setbacks from creeks, wetlands, and riparian habitats	2
III.A.4.	Minimization of imperviousness.....	2
III.A.5.	Use of drainage as a design element.....	2
III.B.	Use of Permeable Pavements	3
III.C.	Dispersal of Runoff to Pervious Areas.....	3
III.D.	Stormwater Control Measures.....	3
IV.	DOCUMENTATION OF DRAINAGE DESIGN	3
IV.A.	Descriptions of Each Drainage Management Area	3
IV.A.1.	Table of Drainage Management Areas.....	3
IV.A.2.	Drainage Management Area Descriptions	4
IV.B.	Tabulation and Sizing Calculations	5
IV.B.1.	Information Summary for Bioretention Facility Design	5
IV.B.2.	Self-Treating Areas	5
IV.B.3.	Self-Retaining Areas.....	5
IV.B.4.	Areas Draining to Self-Retaining Areas.....	5
IV.B.5.	Areas Draining to Bioretention Facilities	6
V.	SOURCE CONTROL MEASURES	7
V.A.	Site activities and potential sources of pollutants	7
V.B.	Summary of Maintenance Requirements for Each Stormwater Facility.....	7
V.C.	Features, Materials, and Methods of Construction of Source Control BMPs	9
VI.	STORMWATER FACILITY MAINTENANCE	9
VI.A.	Ownership and Responsibility for Maintenance in Perpetuity	9
VI.B.	Summary of Maintenance Requirements for Each Stormwater Facility.....	9
VII.	CONSTRUCTION CHECKLIST	9
VIII.	CERTIFICATIONS.....	9

TABLES

Table 1. Project Data.....1

Table 2. Drainage Management Areas3

Table 3. Self-Treating Areas5

Table 4. Self-Retaining Areas.....5

Table 5. Areas Draining to Self-Retaining Areas5

Table 6. LID Facility 1.....6

Table 7. LID Facility 2.....6

Table 8. LID Facility 3.....7

Table 9. Source Control Table.....8

Table 10. Construction Checklist9

FIGURES

- Vicinity Map
- Stormwater Control Plan and Drainage Map

This Stormwater Control Plan was prepared using the Bay Area Stormwater Management Agency Associations (BASMAA) template dated July 11, 2014.

I. PROJECT DATA

Table 1. Project Data

Project Name/Number	Baldacci Family Vineyards/ 2015167
Application Submittal Date	December 22, 2015
Project Location	6236 Silverado Trail, Napa, CA 94558
Project Phase No.	1
Project Type and Description	Project Type: Regulated – This project consists of the construction of a paved access road, permeable pavement parking areas with retaining walls, and new production, administration, and hospitality buildings. The project also includes the replacement of an existing septic system.
Total Project Site Area (acres)	30.72 acres
Total New and Replaced Impervious Surface Area	54,161 sqft (1.25 acres)
Total Pre-Project Impervious Surface Area	19,944 sqft (0.46 acres)
Total Post-Project Impervious Surface Area	54,161 sqft (1.25acres)

II. SETTING

II.A. Project Location and Description

The Baldacci Family Vineyards project is approximately 30.72 acres and located at 6238 Silverado Trail, in Napa, California. The project site is located approximately 2 miles northeast of the town of Yountville, 5.5 miles southeast of State Route 128, 0.5 miles east of Napa River, and has approximate coordinates of 38.42088° N & 122.33796° W. See the Vicinity Map.

II.B. Existing Site Features and Conditions

The project site is consists of winery buildings, driveways, parking, and vineyards. The area surrounding the project boundary consists of vineyards, rural and commercial (wineries) areas. The project site extends over gentle to moderately sloping terrain. The average slopes of the project are approximately 2% towards the southern portion of the property. The elevation of the project site ranges from 110 to 140 feet above mean sea level (msl). Surface stormwater runoff from the site generally sheet flows to the south through the vineyards. Drainage from the site eventually discharges to the Napa River.

Based on mapping from the National Resources Conservation Service (NRCS) Web Soil Survey, the project site soils are classified as Bale clay loam (104 and 105), Bressa-Dibble complex (113), Clear Lake clay (116), and Perkins gravelly loam (169); being in Hydrologic Soil Groups “B”, “C”, “D”, and “C”, respectively. 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. Group "C" Soils have a slow infiltration rate when thoroughly wet, consisting chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission. Group "D" Soils have a very slow infiltration rate (high runoff potential) when thoroughly wet, consisting chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

II.C. Opportunities and Constraints for Stormwater Control

The amount of open vineyard area that is relatively flat provides opportunity to propose self-treatment facilities for stormwater runoff from the impervious surfacing of the access road, DMA 3. This impervious area comprises of less than 5% of the receiving area. Less steep areas along the access road, DMA 13, will provide locations for bioretention LID facilities with surface areas equivalent to at least 4% of the impervious surfacing of which they serve. The conveyance through the adjacent vineyards will allow for additional infiltration opportunities. Runoff from the remaining access road and building impervious areas shall be directed to bioretention facilities.

Constraints of the project include relatively steep slopes in a portion of the site as well as the existing agricultural crops surrounding the project site. These constraints provide limited options for site drainage design.

III. LOW IMPACT DEVELOPMENT DESIGN STRATEGIES

III.A. Optimization of Site Layout

III.A.1. Limitation of development envelope

Existing steep slopes on the northern portion of the project site, as well as close proximity of the access road to the property line provide fewer options for the design layout and limit the development envelope. LID Facilities (SCMs) are proposed to be located adjacent to the proposed impervious areas not draining to self-treating areas.

III.A.2. Preservation of natural drainage features

The existing drainage pattern for the site shall be preserved where feasible.

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

Development is not proposed to be performed within 2,000 feet or more of nearby creeks and riparian habitats.

III.A.4. Minimization of imperviousness

Impervious surfacing of the site is minimized with landscaped areas adjacent to proposed improvements and permeable pavement parking area.

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

Grass-lined interceptor swales adjacent to a portion of the access road shall be utilized for both treatment and aesthetics.

III.B. Use of Permeable Pavements

Permeable pavement shall be used in this project. Most non ADA-accessible parking areas shall have permeable surfacing.

III.C. Dispersal of Runoff to Pervious Areas

Runoff from a portion of the 18’ wide access road will sheet flow into the adjacent vineyard. This will provide opportunities for both infiltration and treatment of runoff.

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 (BASMAA). Bioretention LID Facilities are sized at a minimum of 4% of the equivalent tributary area, as specified in the Phase II Stormwater National Pollutant Discharge Elimination System (NPDES) Permit.

Bioretention LID Facilities shall be located adjacent to the proposed production building, tasting room, and access road areas varying in size depending on the impervious areas for which they serve. These facilities are designed in accordance with the Bioretention Facility Design Criteria beginning on Page 4-3 of the DGSTC, as well as Figures 4-1 and 4-2. Locations of LID facilities can be seen on the attached Stormwater Control Plan and Drainage Map (H1).

Stormwater conveyances shall be utilized throughout the project to direct stormwater from impervious areas to the bioretention facilities at locations specified in the Stormwater Control Plan and Drainage Map. The capacities of new pipes shall be sized adequately to handle post project flow rates. Self-retaining areas are designed in accordance with the criteria in “Areas draining to self-retaining areas” on page 4-2 of the DGSTC: a maximum ratio of two parts impervious to one part pervious area.

Running parallel to a portion of the access road, grass-lined interceptor swales shall be utilized to convey and treat runoff from the access road. All swales will be designed to convey the 100-year storm event.

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	Surface Type	Area (acres)
1	Asphalt	0.09
2	Native Grass/Trees	0.05
3	Asphalt	9.08
4	Permeable Pavement	0.05
5	Asphalt	0.12
6	Permeable Pavement	0.04
7	Concrete	0.04
8	Native Grass/Trees	0.02
9	Rooftop/Concrete	0.18

DMA Region	Surface Type	Area (acres)
10	Landscaping	0.08
11	Pavers/ Concrete	0.03
12	Landscaping/Gravel	0.06
13	Asphalt	0.18
14	Rooftop	0.06
15	Asphalt	0.11

IV.A.2. Drainage Management Area Descriptions

DMA 1, totaling 4,031 square feet, is comprised of asphalt concrete. DMA 1 drains to the self-retaining area, DMA 2.

DMA 2, totaling 2,119 square feet, is a self-retaining area comprised of native grasses and trees. Native flora in the receiving area provides infiltration and treatment opportunities.

DMA 3, totaling 395,678 square feet, of asphalt concrete surfacing road and sidewalk and draining to a self-treating area consisting of agricultural rows and grass. The impervious asphalt concrete roadway is less than 5% of the area receiving stormwater. Relatively flat surface in the receiving area provides infiltration and treatment opportunities.

DMA 4, totaling 2,167 square feet is a self-treating area comprised of permeable pavement.

DMA 5, totaling 5,234 square feet, is comprised of asphalt concrete surfacing. DMA 5 drains to Stormwater Control Measure LIDF -1.

DMA 6, totaling 1,836 square feet is a self-treating area comprised of permeable pavement.

DMA 7, totaling 1,580 square feet, is comprised of concrete. DMA 7 drains to the self-retaining area, DMA 8.

DMA 8, totaling 1,081 square feet, is a self-retaining area comprised of native grasses and trees. Native flora in the receiving area provides infiltration and treatment opportunities.

DMA 9, totaling 7,886 square feet, is comprised of building rooftop and concrete. DMA 9 drains to Stormwater Control Measure LIDF-2.

DMA 10, totaling 3,411 square feet, is comprised of landscaping. DMA 10 drains to Stormwater Control Measure LIDF-2.

DMA 11, totaling 1,232 square feet, is comprised of pavers and concrete. DMA 11 drains to Stormwater Control Measure LIDF-2.

DMA 12, totaling 2,541 square feet, is comprised of landscaping and gravel. DMA 12 drains to Stormwater Control Measure LIDF-2.

DMA 13, totaling 7,681 square feet, is comprised of asphalt concrete surfacing. DMA 13 drains to Stormwater Control Measure LIDF-2.

DMA 14, totaling 2,655 square feet, is comprised of building rooftop. DMA 14 drains to Stormwater Control Measure LIDF-3.

DMA 15, totaling 4,595, square feet, is comprised of asphalt concrete surfacing. DMA 15 drains to Stormwater Control Measure LIDF-3.

IV.B. Tabulation and Sizing Calculations

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

Total Project Area: 30.72 acres	
LIDF 1 Area: 254 ft²	DMA 5 Area: 5,234 ft²
LIDF 2 Area: 736 ft²	DMA 9, 10, 11, 12, 13 Area: 22,751 ft²
LIDF 3 Area: 375 ft²	DMA 14, 15 Area: 7,986 ft²

IV.B.2. Self-Treating Areas

Table 3. Self-Treating Areas

DMA Region	Area (square feet)
DMA 3	395,678
DMA 4	2,167
DMA 6	1,836

IV.B.3. Self-Retaining Areas

Table 4. Self-Retaining Areas

DMA Region	Area (square feet)
DMA 2	2,119
DMA 8	1,081

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

Table 5. Areas Draining to Self-Retaining Areas

DMA Region	Area (square feet)	Post-project Surface Type	Runoff Factor	Receiving self-retaining DMA	Receiving self-retaining DMA Area (square feet)
1	4,031	Asphalt	1.0	DMA 2	2,119
7	1,134	Concrete	1.0	DMA 8	1,081

IV.B.5. Areas Draining to Bioretention Facilities

Table 6. LID Facility 1

DMA Region	DMA Area (ft ²)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor (ft ²)	Facility Name: LIDF 1		
					SCM Sizing factor	Minimum SCM Size (ft ²)	Proposed SCM Size (ft ²)
5	5,234	Asphalt	1.0	5,234			
Total				5,234	0.04	209	254

Table 7. LID Facility 2

DMA Region	DMA Area (ft ²)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor (ft ²)	Facility Name: LIDF 2		
					SCM Sizing factor	Minimum SCM Size (ft ²)	Proposed SCM Size (ft ²)
9	7,886	Rooftop/ Concrete	1.0	7,886			
10	3,411	Landscaping	0.1	341			
11	1,232	Pavers	1.0	1,232			
12	2,541	Landscaping	0.1	254			
13	7,681	Asphalt	1.0	7,681			
Total				17,394	0.04	696	736

Table 8. LID Facility 3

DMA Region	DMA Area (ft ²)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor (ft ²)	Facility Name: LIDF 3		
					SCM Sizing factor	Minimum SCM Size (ft ²)	Proposed SCM Size (ft ²)
14	2,655	Rooftop	1.0	2,655	0.04	290	375
15	4,632	Asphalt	1.0	4,595			
Total				7,250	0.04	290	375

V. SOURCE CONTROL MEASURES

V.A. Site activities and potential sources of pollutants

- On-site Storm Drain Inlets
- Landscaping/ Pesticide Use/ Ground Maintenance
- Parking Areas

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

- Access road shall be designed according to the latest version of the Napa County Road and Street Standards.
- Parking areas shall be designed to minimize impervious surface areas and graded to direct runoff to nearby Treatment Control BMPs to treat and remove oil and petroleum hydrocarbons.
- Energy dissipaters constructed of rip rap shall be specified at the outlets of new and reconstructed storm drains and swales to minimize erosion.
- Grass lined swales shall be incorporated into the design to treat runoff and minimize erosion.
- Existing trees, shrubs and groundcover shall be preserved where feasible.
- Plant species tolerant of saturated soil conditions shall be specified in landscaped areas to be utilized for stormwater infiltration and treatment.
- Trash storage areas will be paved and stormwater from adjacent areas shall not be directed to the storage area. Containers will have lids.
- All roofs, gutters, and downspouts made of unprotected metals shall discharge to landscaped areas designed to infiltrate and detain stormwater runoff.

Table 9. Source Control Table

Potential Source of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
On-site Storm Drain Inlets	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. - See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance”
Landscaping/ Pesticide Use/ Ground Maintenance	<p>State that final landscaping will accomplish all the following:</p> <ul style="list-style-type: none"> - Preserve existing native trees, shrubs, and ground cover to maximum extent possible - Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. - Where landscaped areas are used to retain or detain stormwater, specify plats that are tolerant of saturated soil conditions. - Consider using pest-resistant plants, especially adjacent to hardscape. - To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions. 	<ul style="list-style-type: none"> - Maintain landscaping using minimum or no pesticides - See applicable operational BMPs in Fact Sheet SC-41, “building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks - Provide IPM information to new owners, lessees, and operators
Parking Areas		<ul style="list-style-type: none"> - Sweep parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

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 bioretention facilities will be financed and implemented by the owner of the Baldacci Family Vineyards. All 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 10. Construction Checklist (this table to be completed prior to submitting Construction Documents).

Stormwater Control Plan Page #	Source Control or Treatment Control Measure	See Plan Sheet #s

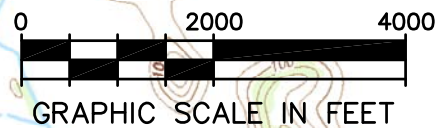
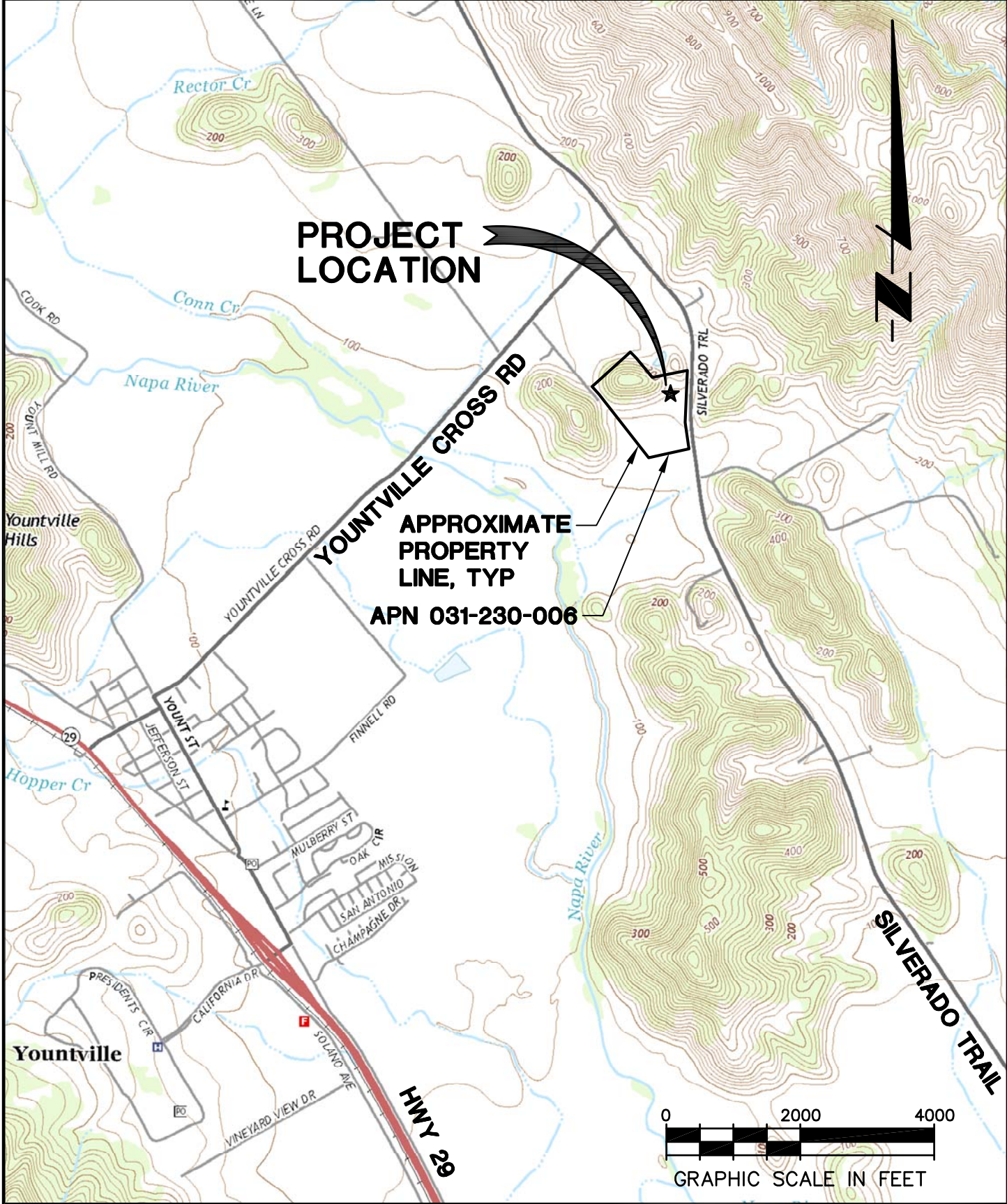
VIII. CERTIFICATIONS

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*.



BALDACCI FAMILY VINEYARDS
6236 SILVERADO TRAIL
NAPA, CA
APN 031-230-006
USE PERMIT APPLICATION

PROJECT NO. 2015167
 DATE 2015-12-02
 SHT NO 1 OF 1
 BY TF CHK MS



PLOTTED ON: 12/22/2015 7:10 PM
 \\SE11.SUMMITA.LOCAL\P\2015\2015167 BALDACCI USE PERMIT\CAD\CIVIL\USE PERMIT\15167-UP1-UP5.DWG

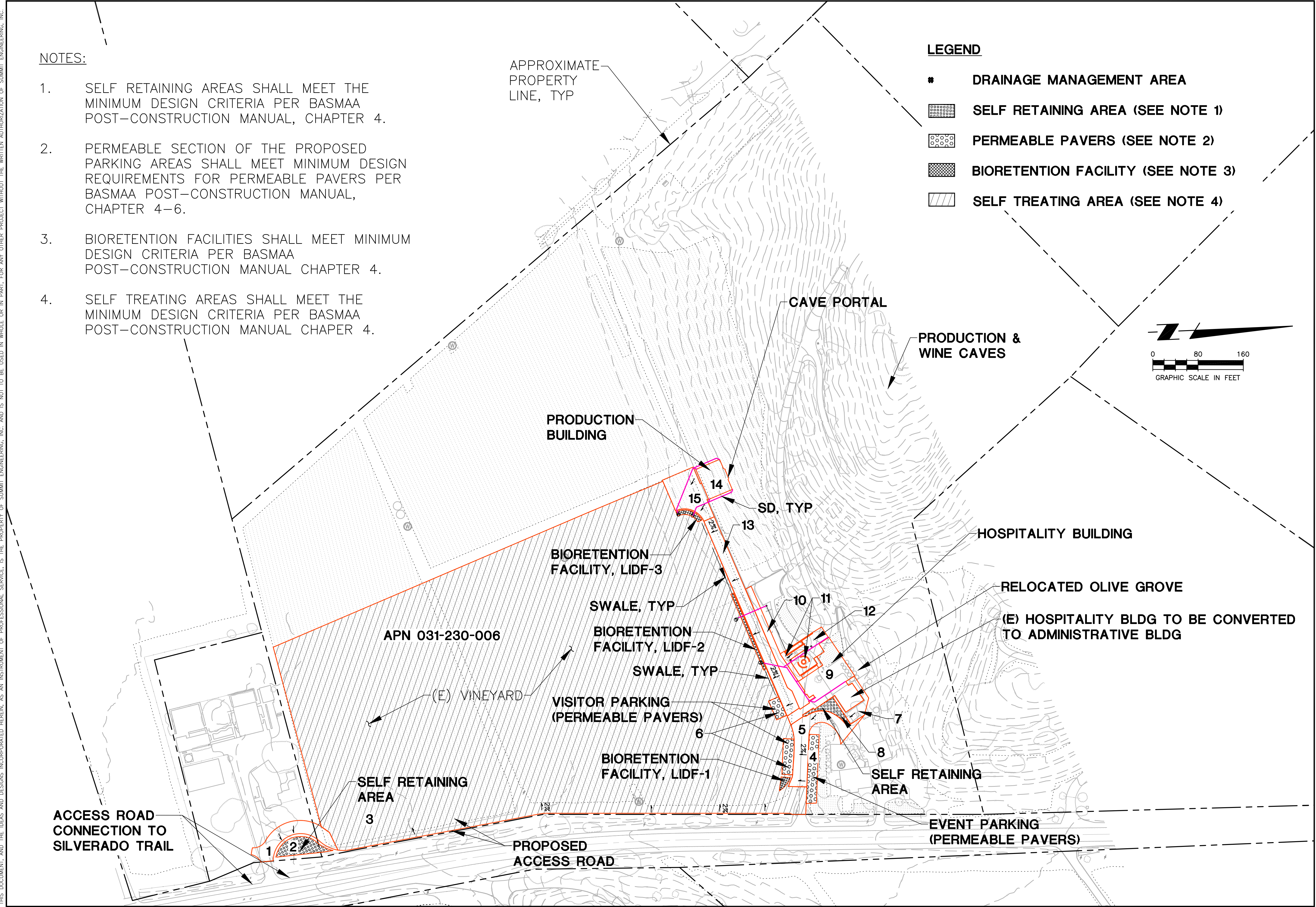
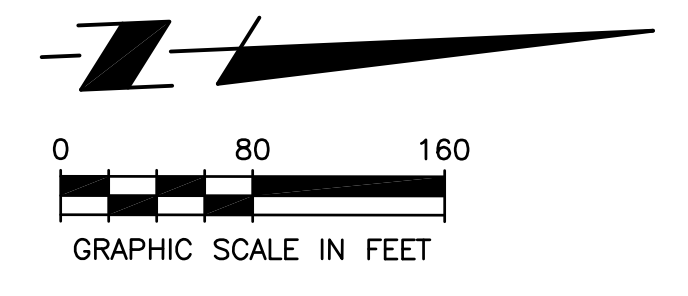
THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF SUMMIT ENGINEERING, INC. AND IS NOT TO BE USED IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF SUMMIT ENGINEERING, INC.

NOTES:

1. SELF RETAINING AREAS SHALL MEET THE MINIMUM DESIGN CRITERIA PER BASMAA POST-CONSTRUCTION MANUAL, CHAPTER 4.
2. PERMEABLE SECTION OF THE PROPOSED PARKING AREAS SHALL MEET MINIMUM DESIGN REQUIREMENTS FOR PERMEABLE PAVERS PER BASMAA POST-CONSTRUCTION MANUAL, CHAPTER 4-6.
3. BIORETENTION FACILITIES SHALL MEET MINIMUM DESIGN CRITERIA PER BASMAA POST-CONSTRUCTION MANUAL CHAPTER 4.
4. SELF TREATING AREAS SHALL MEET THE MINIMUM DESIGN CRITERIA PER BASMAA POST-CONSTRUCTION MANUAL CHAPTER 4.

LEGEND

- # DRAINAGE MANAGEMENT AREA
- [Grid Pattern] SELF RETAINING AREA (SEE NOTE 1)
- [Circle Pattern] PERMEABLE PAVERS (SEE NOTE 2)
- [Cross-hatch Pattern] BIORETENTION FACILITY (SEE NOTE 3)
- [Diagonal Line Pattern] SELF TREATING AREA (SEE NOTE 4)



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

BALDACCI FAMILY VINEYARDS
6236 SILVERADO TRAIL
NAPA, CA
APN 031-230-006

USE PERMIT APPLICATION
STORMWATER CONTROL PLAN
AND DRAINAGE MAP

2015-12-22	PERMIT SUBMITAL
2016-03-24	PERMIT RESUBMITAL
2016-06-13	PERMIT RESUBMITAL

DATE: 2015-12-22
JOB NO: 2015167
SCALE: AS SHOWN
DRAWN: TF/CP
CHECKED: MS
SHEET

H1