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Stormwater Analysis

Fortunati Vineyards Winery P17-00043
Planning Commission Hearing Date February 22, 2016

STORMWATER BEST MANAGEMENT PRACTICE OPERATIONS AND MAINTENANCE PLAN

Prepared for

FORTUNATI VINEYARDS
NAPA, CALIFORNIA

THIS REPORT WAS PREPARED IN CONJUNCTION WITH THE INSTRUCTIONS, CRITERIA, AND MINIMUM REQUIREMENTS IN THE BAY AREA STORMWATER MANAGEMENT AGENCIES ASSOCIATION'S (BASMAA'S) POST CONSTRUCTION MANUAL.

Prepared for:
Gary Luchtel
986 Salvador Avenue
Napa, CA 94558

RSA+ Project No. 4115080.0

February 8, 2016

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ATTACHMENTS

I. Purpose

This report addresses the Operations and Maintenance (O&M) requirements for stormwater treatment facilities at the Fortunati Vineyards. This O&M Plan was prepared in accordance with the July 14, 2014 edition of the BASMAA Post-Construction Manual.

II. Site Description

The Fortunati Vineyards project is located at 986 Salvador Avenue, Napa, California. The APN is 036-180-004 and has an area of 10.28 +/- acres. The parcel is currently used as vineyard with an existing residence to remain. The neighboring parcels are used for residences and vineyards. The project will include the construction of a new winery building, parking area and landscaped areas. Refer to Attachment 2 for Drainage Management Areas Exhibit.

III. Stormwater Treatment Facilities Description

The stormwater treatment facilities listed in Table 1 have been incorporated into this site. Descriptions of each facility type follow. Refer to the Drainage Management Area (DMA) exhibit in Attachment 1.

Table 1 – Treatment Facilities

Drainage Management Area	Treatment Facility	
No.	Name	Minimum Size [sf]
1	Self-Retaining Area	5,823
2	Self-Treating Area	4,320

1. Self-Retaining Areas

Self-retaining areas are landscaped or turf areas with a concave cross section that will retain and infiltrate the first inch of rainfall. Runoff from impervious areas, such as roofs, can be managed by routing it to self-retaining pervious areas at a maximum ratio of 2 parts impervious area to 1 part pervious area. In this case, the pervious self-retaining vineyard area must be graded to store three inches of rainfall between vine rows.

2. Self-Treating Areas

Self-treating areas are landscaped or turf areas that drain directly off site or to the storm drain system. Self-treating areas consist of 5% or less impervious areas and slopes are gentle enough to ensure runoff will be absorbed into the vegetation and soil.

IV. Operations and Maintenance

The Stormwater Control Plan (SCP) for this development specifies Source Control Best Management Practices (BMPs) to reduce pollution generation from the source. The Source Control BMPs listed in Attachment 2 are ongoing activities, and are intended to be integrated in

the daily operations of the Winery. Treatment facilities are installed to treat stormwater to the maximum extent practicable prior to discharging off site. Routine maintenance of these areas is listed in the BMP Maintenance Checklist in Attachment 2.

The owner shall use its best efforts to diligently and adequately maintain in perpetuity the BMPs in a manner assuming peak performance at all times, and shall make such changes or modifications as may be reasonably necessary for the BMPs to continue to operate as designed and approved and to accomplish its intended purpose. The owner shall be responsible for the costs incurred in operating, maintaining, repairing and replacing the BMPs. The owner shall not destroy or remove the BMPs nor modify any measure in any manner that would lessen its effectiveness.

The owner, or its designated BMP Maintenance Technician, shall conduct the inspection and maintenance activities listed in Attachment 2, and complete an Annual Report. Completed Annual Reports shall be maintained on site with the O&M Plan. Refer to Attachment 2 for blank copies of a sample Annual Report form, and inspection checklists.

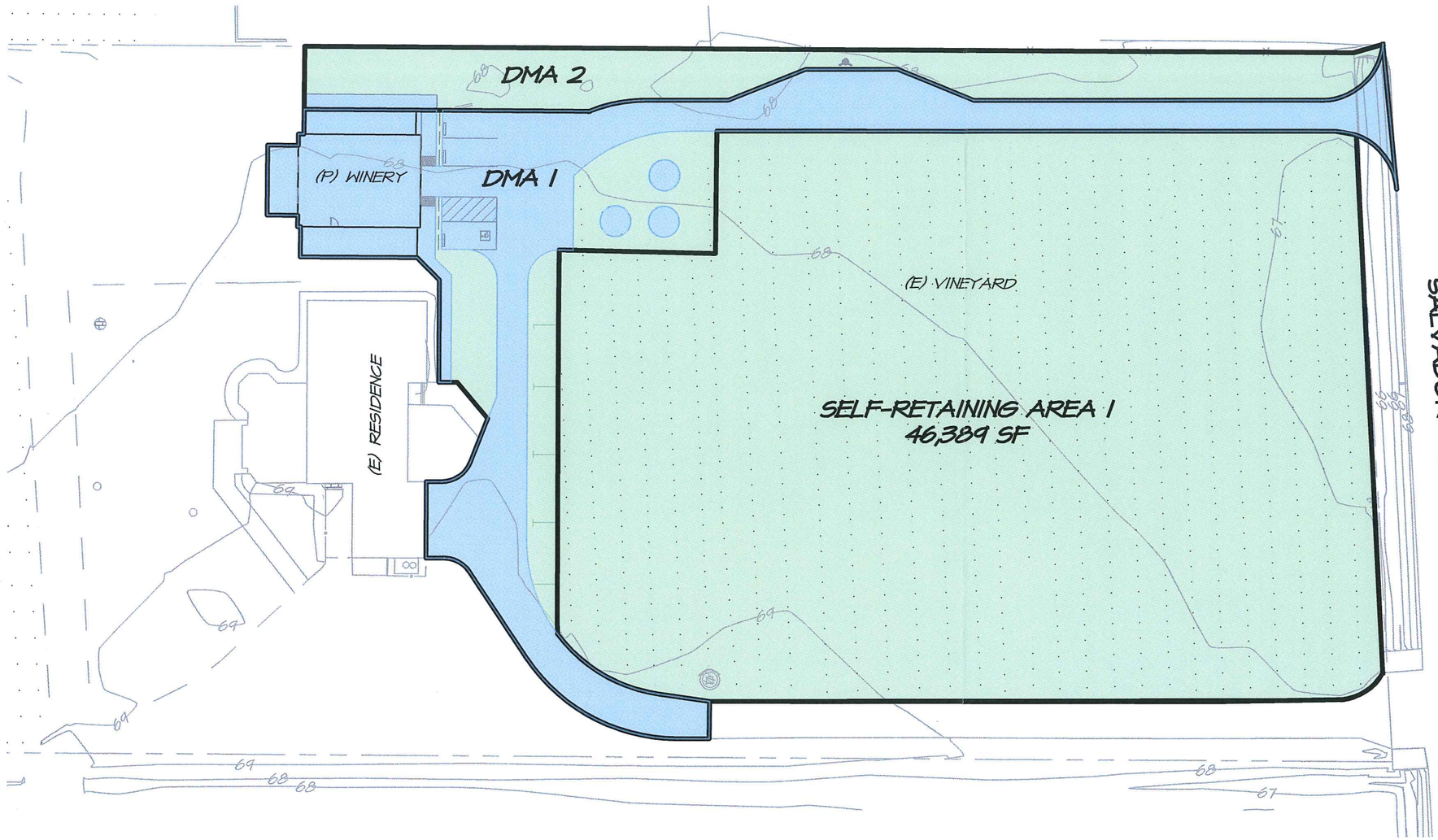
V. Responsible Parties

The owner shall complete the Contacts form in Attachment 3, listing contact information for the person who will have direct responsibility for the maintenance of stormwater controls, employees or contractors who are responsible for carrying out inspections, maintenance, and repair of damaged BMPs, clogged drains, broken irrigation mains, etc.

ATTACHMENT 1

DRAINAGE MANAGEMENT AREA EXHIBIT

FORTUNATI VINEYARDS
DRAINAGE MANAGEMENT AREAS



DRAINAGE MANAGEMENT AREAS

DMA	IMPERVIOUS	PERVIOUS
1	11,309 SF	3,368 SF
2	216 SF	5,248 SF

GRAPHIC SCALE

40 0 40 80

(IN FEET)
1 inch = 40 FT

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FEB 2, 2016 4115080.0 Exh-DMA.dwg

ATTACHMENT 2

ANNUAL REPORT FORM
SOURCE CONTROLS CHECKLIST
BMP MAINTENANCE CHECKLIST

Annual Report

Reporting Period: _____ through _____

In compliance with the Provision E.12 of the Phase II Stormwater National Pollutant Discharge Elimination System (NPDES) Permit for small Municipal Separate Storm Sewer Systems (MS4s) reissued by the California State Water Resources Control Board in February 2013, this Annual Report documents the stormwater Best Management Practice (BMP) inspection and maintenance performed during the Reporting Period.

Site Name: Fotunati Vineyars Manager Name: _____

Site Address: 986 Salvador Avenue Phone: _____

Napa, CA 94558 Email: _____

Source Controls

The Permanent and Operational Source Controls implemented at the time of inspection are as shown on the Source Control Checklist (attach checklist, completed by the inspector).

The Source Control BMPs that require maintenance are as follows:

Permanent Control	Maintenance Required

Operational Control	Maintenance Required

Annual Report

Treatment Facilities

The inspection and maintenance activities performed during the reporting period are as shown on the BMP Maintenance Checklist (attach checklist, completed by the inspector).

The Treatment Control BMPs that require maintenance are as follows:

BMP	Maintenance Required

Corrective Actions

Corrective Actions for any required BMP maintenance noted in this report must be documented in subsequent Annual Reports.

Corrective Actions implemented during this Reporting Period for BMP maintenance required in prior Reporting Periods are as follows:

BMP	Maintenance Performed

Inspector Information

Inspector Name: _____ Title: _____

Inspector Signature: _____ Date: _____

Source Controls Checklist

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
A. On-site storm drain inlets (unauthorized non-stormwater discharges and accidental spills or leaks)	▪ Mark all inlets with the words "No Dumping! Flows to River" or similar.	▪ Maintain and periodically repaint or replace inlet markings. ▪ Provide stormwater pollution prevention information to new site owners, lessees, or operators. ▪ See applicable operational BMPs in Fact Sheet SC-74, "Drainage System Maintenance." ▪ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
B. Interior floor drains	▪ Interior floor drains will be plumbed to the sanitary sewer.	▪ Inspect and maintain drains to prevent blockages and overflow.
C. Interior parking garages	N/A	N/A
D_1. Need for future indoor & structural pest control	▪ Building design shall incorporate features that discourage entry of pests.	▪ Provide Integrated Pest Management information to owners, lessees, and operators.
D_2. Landscape / outdoor pesticide use / building and grounds maintenance	▪ Final landscape plans will accomplish all of the following: ▪ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. ▪ 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 plants that are tolerant of saturated soil conditions. ▪ Use 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	▪ Maintain landscaping using minimum or no pesticides. ▪ See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance." ▪ Provide IPM information to new owners, lessees and operators.

Source Controls Checklist

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
	interactions.	
E. Pools, spas, ponds, decorative fountains, and other water features	N/A	N/A
F. Food service	N/A	N/A
G. Refuse areas	▪ Refuse areas shall be paved with an impervious surface, designed not to allow run-on from adjoining areas, and screened to prevent off-site transport of trash. ▪ Refuse areas shall contain a roof to minimize direct precipitation. ▪ No drain connections shall be made to the Refuse area.	▪ Provide adequate number of receptacles. ▪ Inspect receptacles regularly; repair or replace leaky receptacles. ▪ Keep receptacles covered. ▪ Prohibit/prevent dumping of liquid or hazardous wastes. ▪ Post "no hazardous materials" signs. ▪ Inspect and pick up litter daily and clean up spills immediately. ▪ Keep spill control materials available on-site. ▪ Clean by dry-sweeping only, or with wet/dry vacuum. ▪ See Fact Sheet SC-34, "Waste Handling and Disposal"
H. Industrial processes	▪ All process activities to be performed indoors or undercover. No processes to drain to exterior or to storm drain system	▪ Industrial discharge will be mitigated to the winery process wastewater system and will not be discharged to storm drains
I. Outdoor Storage of Equipment or Materials	• Equipment and materials will be kept indoors to the maximum extent possible. If materials and equipment are outside they will be covered and protected.	• See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks
J. Vehicle / equipment cleaning	N/A	N/A
K. Vehicle / equipment repair and maintenance	N/A	N/A
L. Fuel dispensing areas	N/A	N/A
M. Loading docks	N/A	N/A
N. Fire sprinkler test water	▪ Fire sprinkler test water shall be discharged to the sanitary sewer.	▪ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance"
O. Miscellaneous drain or wash water or other sources • Boiler drain lines • Condensate drain lines • Rooftop equipment • Drainage sumps • Roofing, gutters, and trim • Other sources	▪ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain. ▪ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ▪ Rooftop equipment with potential to produce	▪ If architectural copper is used, implement the following BMPs for management of rinsewater during installation: ▪ If possible, purchase copper materials that have been pre-patinated at the factory. ▪ If patination is done on-site, prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling off-site. ▪ Consider coating the copper

Source Controls Checklist

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
	pollutants shall be roofed and/or have secondary containment. ▪ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.	materials with an impervious coating that prevents further corrosion and runoff. ▪ Implement the following BMPs during routine maintenance: ▪ Prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling off-site.
P. Plazas, sidewalks, and parking lots		▪ Sweep plazas, sidewalks, and 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.

BMP Maintenance Checklist

Table 1 - "As Needed" Inspection / Maintenance Activities

BMP	Inspection Activities	Maintenance Activities
Self Treating Areas *TC-31, Vegetated Buffer Strip*	☐ Inspect vegetation and repair eroded areas after major storms.	☐ Mow regularly to maintain vegetation height between 2 - 4 inches, and to promote thick, dense vegetative growth. Cut only when soil is dry to prevent tracking damage to vegetation, soil compaction and flow concentrations. Clippings are to be removed immediately after mowing. ☐ Remove all litter, branches, rocks, or other debris. Damaged areas of the filter strip should be repaired immediately by reseeding and applying mulch. ☐ Irrigate during dry season (April through October) when necessary to maintain the vegetation.
Self Retaining Areas *TC-11, Infiltration Basin*		☐ Stabilize eroded banks. ☐ Maintain access to the basin for regular maintenance activities. ☐ Mow as appropriate for vegetative cover species. ☐ Monitor health of vegetation and replace as necessary. ☐ Control mosquitoes as necessary. ☐ Remove litter and debris from infiltration basin area as required. ☐ Scrape bottom and remove sediment when accumulated sediment reduces original infiltration rate by 25-50%. Restore original cross-section and infiltration rate. Properly dispose of sediment. ☐ Seed or sod to restore ground cover. ☐ Disc or otherwise aerate bottom. ☐ Dethatch basin bottom.

BMP Maintenance Checklist

Table 2 - " Semi-annual" Inspection / Maintenance Activities

BMP	Inspection Activities	Maintenance Activities
Self Retaining Areas *TC-11, Infiltration Basin*	Inspect for the following issues: ☐ Erosion of the basin floor ☐ Dead or dying grass on the bottom ☐ Signs of petroleum hydrocarbon contamination ☐ Standing water ☐ Trash and debris ☐ Sediment accumulation ☐ Slope stability	☐ Mow and remove grass clippings, litter, and debris. ☐ Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons. ☐ Replant eroded or barren spots to prevent erosion and accumulation of sediment.

Table 3 - " Annual" Inspection / Maintenance Activities Annual Activities

BMP	Inspection Activities	Maintenance Activities
Self Retaining Areas *TC-11, Infiltration Basin*	N/A	N/A

ATTACHMENT 3

CONTACT LIST

Contacts

Person who will have direct responsibility for the maintenance of stormwater controls, maintain self-inspection records, and sign any correspondence with the municipality regarding the inspections:

Site Name: Fortunati Vineyards Manager Name: _____

Site Address: 986 Salvador Avenue Phone: _____

Napa, CA 94558 Email: _____

Employees or contractors who will report to the designated contact and are responsible for carrying out maintenance:

Company Name: _____ _____

Contact Name: _____ _____

Address: _____ _____

_____ _____

Phone: _____ _____

Email: _____ _____

Contacts for response to problems, such as clogged drains or broken irrigation mains, that would require immediate response should they occur during off-hours:

Company Name: _____ _____

Contact Name: _____ _____

Address: _____ _____

_____ _____

Phone: _____ _____

Email: _____ _____

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TABLES

ATTACHMENTS

I. Project Data

Table 1. Project Data Form

Project Name/Number	Fortunati Vineyards (4115080.0)
Application Submittal Date	
Project Location	986 Salvador Avenue Napa, CA 94558 APN: 036-180-004
Project Phase	Use Permit
Project Type and Description	New winery
Total Project Site Area (acres)	0.42 Acres
Total New and Replaced Impervious Surface Area	11,525 Square Feet
Total Pre-Project Impervious Surface Area	669 Square Feet
Total Post-Project Impervious Surface Area	11,525 Square Feet

II. Setting

II.A. Project Location and Description

The Fortunati Vineyards project is located at 986 Salvador Avenue Napa, California 94558. Refer to Attachment 1 for Vicinity Map, USGS map and FIRMETTE. The APN is 036-180-004. The parcel has an area of 10.28 +/- acres. The parcel is currently used as vineyard with an existing residence to remain. The neighboring parcels are used for residences and vineyards. The project will include the construction of a new winery building, parking area and landscaped areas. Refer to Attachment 2 for Drainage Management Areas Exhibit.

The proposed area to be disturbed is less than 1 acre, so this project will not require a Stormwater Pollution Prevention Plan.

II.B. Existing Site Features and Conditions

The existing site is currently used for the cultivation of vineyard and as a residence. The new winery will be located east of the existing residence in an area that is currently an olive orchard. Access to the winery will be off of Salvador Avenue. Features of the site include an agricultural shed, and a residence. The site is bounded by Salvador Avenue and other agricultural and residential parcels.

The predominant soil type in the project area is Coombs Gravelly Loam Complex, which is of the Hydraulic Soil Group C. Refer to Attachment 1 for Soils Map. The project area is relatively flat with gentle slopes to the southeast toward a roadside ditch at Salvador Avenue. Stormwater is ultimately conveyed to the Napa River.

II.C. Opportunities and Constraints for Stormwater Control

Stormwater treatment facilities have been integrated into the planning, design, construction, operation, and maintenance of the proposed development. The following potential opportunities and constraints were considered in determining the best stormwater control design for this development.

Opportunities for the site include landscaped areas and vineyard areas. The front vineyard will be used as a self-retaining area. Runoff will be conveyed to the self-retaining area via surface flows and on-site storm drains.

Constraints include the site location and existing grades.

III. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

1. Limitation of development envelope

   The shallow slopes of the site make the chosen development areas suitable for development.

2. Preservation of natural drainage features

   Natural drainage features near the site include a roadside ditch along Salvador Avenue on the south edge of the property.

3. Setbacks from creeks, wetlands, and riparian habitats

   There are no riparian areas or setback on the project parcel.

4. Minimization of imperviousness

   Walkways and parking areas are designed to the minimum widths necessary without compromising public safety and a walkable environment. Landscaped areas are used instead of decorative impervious areas. Existing trees will be preserved to the maximum extent practicable. Some of the olive trees marked for removal will be replanted to screen the proposed water tanks.

5. Use of drainage as a design element

   A self-retaining area is incorporated into the aesthetic landscape design of the site.

III.B. Use of Permeable Pavements

Permeable pavements are not in the scope of this project.

III.C. Dispersal of Runoff to Pervious Areas

Stormwater runoff will be directed to vineyard areas to the maximum extent practicable.

III.D. Stormwater Control Measures

A self-retaining area has been incorporated as a stromwater control measure. The self-retaining area will collect and treat onsite stormwater.

IV. Documentation of Drainage

IV.A Drainage Management Areas

Table 2. Drainage Management Areas

DMA Name	Impervious Area (sf)	Pervious Area (sf)	Total Area (sf)
DMA-1	11,309	3,368	14,677
DMA-2	216	5,248	5,464

Drainage Management Area Descriptions

DMA 1, totaling 14,430 square feet, consists of almost the entire winery area, tank area and the paved driveway. Stormwater enters the vineyard self-retaining area to the south through sheet flow and the underground storm drain system.

DMA 2, totaling 5,464 square feet, consists of the small impervious walkway on the northeast side of the winery and the pervious area between the property line and the proposed driveway. Stormwater enters the vineyard self-retaining area through sheet flow and underground storm drain system.

IV.B. Tabulation and Sizing Calculations

Table 3. Information Summary for Bioretention Facility Design

There are no Bioretention facilities on this site.

Table 4. Self-Treating Areas

DMA Name	Area (square feet)
$DMA\text{-}2_{imp}$	216
$DMA\text{-}2_{perv}$	5,248
Percent Impervious	4%

Table 5. Self-Retaining Areas

DMA Name	Area (square feet)
SRA-1	46,389

Table 6. Areas Draining to Self-Retaining Areas

DMA Name	Area (square feet)	Post-project surface type	Runoff factor	Product (Area x runoff factor)[A]	Receiving self-retaining DMA	Receiving self-retaining DMA Area (square feet) [B]	Ratio [A]/[B]
$DMA\text{-}1_{imp}$	11,309	Paved	1	11,309	SRA-1	46,389	0.25:1
$DMA\text{-}1_{perv}$	3,368	Unpaved	0.1	337			
Total Drainage to SRA-1				11,646			

Table 7. Areas Draining to Bioretention Facilities

There are no Bioretention facilities on this site.

V. Source Control Measures

V.A. Site activities and potential sources of pollutants

The site activities and potential sources of pollutants for the Fortunati Vineyards project are listed in table 8, below

Table 8. Control Table

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
A. On-site storm drain inlets (unauthorized non-stormwater discharges and accidental spills or leaks)	▪ Mark all inlets with the words "No Dumping! Flows to River" or similar.	▪ Maintain and periodically repaint or replace inlet markings. ▪ Provide stormwater pollution prevention information to new site owners, lessees, or operators. ▪ See applicable operational BMPs in Fact Sheet SC-74, "Drainage System Maintenance." ▪ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
B. Interior floor drains	▪ Interior floor drains will be plumbed to the sanitary sewer.	▪ Inspect and maintain drains to prevent blockages and overflow.
C. Interior parking garages	N/A	N/A

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
D_1. Need for future indoor & structural pest control	▪ Building design shall incorporate features that discourage entry of pests.	▪ Provide Integrated Pest Management information to owners, lessees, and operators.
D_2. Landscape / outdoor pesticide use / building and grounds maintenance	▪ Final landscape plans will accomplish all of the following: ▪ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. ▪ 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 plants that are tolerant of saturated soil conditions. ▪ Use 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.	▪ Maintain landscaping using minimum or no pesticides. ▪ See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance." ▪ Provide IPM information to new owners, lessees and operators.
E. Pools, spas, ponds, decorative fountains, and other water features	N/A	N/A
F. Food service	N/A	N/A
G. Refuse areas	▪ Refuse areas shall be paved with an impervious surface, designed not to allow run-on from adjoining areas, and screened to prevent off-site transport of trash. ▪ Refuse areas shall contain a roof to minimize direct precipitation. ▪ No drain connections shall be made to the Refuse area.	▪ Provide adequate number of receptacles. ▪ Inspect receptacles regularly; repair or replace leaky receptacles. ▪ Keep receptacles covered. ▪ Prohibit/prevent dumping of liquid or hazardous wastes. ▪ Post "no hazardous materials" signs. ▪ Inspect and pick up litter daily and clean up spills immediately. ▪ Keep spill control materials available on-site. ▪ Clean by dry-sweeping only, or with wet/dry vacuum. ▪ See Fact Sheet SC-34, "Waste Handling and Disposal"

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
H. Industrial processes	▪ All process activities to be performed indoors or undercover. No processes to drain to exterior or to storm drain system	▪ Industrial discharge will be mitigated to the winery process wastewater system and will not be discharged to storm drains
I. Outdoor Storage of Equipment or Materials	• Equipment and materials will be kept indoors to the maximum extent possible. If materials and equipment are outside they will be covered and protected.	• See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks
J. Vehicle / equipment cleaning	N/A	N/A
K. Vehicle / equipment repair and maintenance	N/A	N/A
L. Fuel dispensing areas	N/A	N/A
M. Loading docks	N/A	N/A
N. Fire sprinkler test water	▪ Fire sprinkler test water shall be discharged to the sanitary sewer.	▪ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance"
O. Miscellaneous drain or wash water or other sources • Boiler drain lines • Condensate drain lines • Rooftop equipment • Drainage sumps • Roofing, gutters, and trim • Other sources	▪ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain. ▪ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ▪ Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. ▪ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.	▪ If architectural copper is used, implement the following BMPs for management of rinsewater during installation: ▪ If possible, purchase copper materials that have been pre-patinated at the factory. ▪ If patination is done on-site, prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling off-site. ▪ Consider coating the copper materials with an impervious coating that prevents further corrosion and runoff. ▪ Implement the following BMPs during routine maintenance: ▪ Prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling off-site.
P. Plazas, sidewalks, and parking lots		▪ Sweep plazas, sidewalks, and 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

Source control BMPs will be designed and implemented per construction specifications and CASQA BMP fact sheets.

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.

An Operations & Maintenance Plan has been prepared for this project. The owner shall execute a Post-Construction BMP Maintenance Agreement with the County of Napa upon request.

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

The entire site drains to a self-retaining area. The self-retaining area requires as needed maintenance for any damage that may occur. Semi-annual inspections are required for possible erosion, damaged vegetation, debris, and health of any trees or shrubs. These inspections usually occur at the beginning of the wet season and end of the wet season. Any dead or diseased vegetation should be removed and replaced during the inspection. Refer to the Operation & Maintenance Plan for a full description of required inspections and maintenance requirements.

VII. Construction Checklist

Table 9. Construction Checklist

Stormwater Control Plan Page #	Source Control or Treatment Control Measure	Sheet
N/A	Bioretention Facilities	N/A
4	A. On-site storm drain inlets	UP4
4	B. Interior floor drains	Arch
5	D1. Need for Future indoor & structural pest control	Arch
5	D2. Landscape/ outdoor pesticide use/ building and ground maintenance	Arch
5	G. Refuse areas	Arch
6	H. Industrial Process	UP4
6	I. Outdoor storage of equipment or materials	Arch
6	N. Fire sprinkler test water	UP4
6	O. Miscellaneous drain or wash	UP4
6	P. Plazas, sidewalks, and parking lots	UP4

VIII. Certifications

The 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, dated July 14, 2014.

ATTACHMENT 1

VICINITY MAP, USGS MAP, FIRMETTE, SOILS MAP

FORTUNATI VINEYARDS
VICINITY MAP
NAPA COUNTY CALIFORNIA

VICINITY MAP

SCALE: 1" = 3000'

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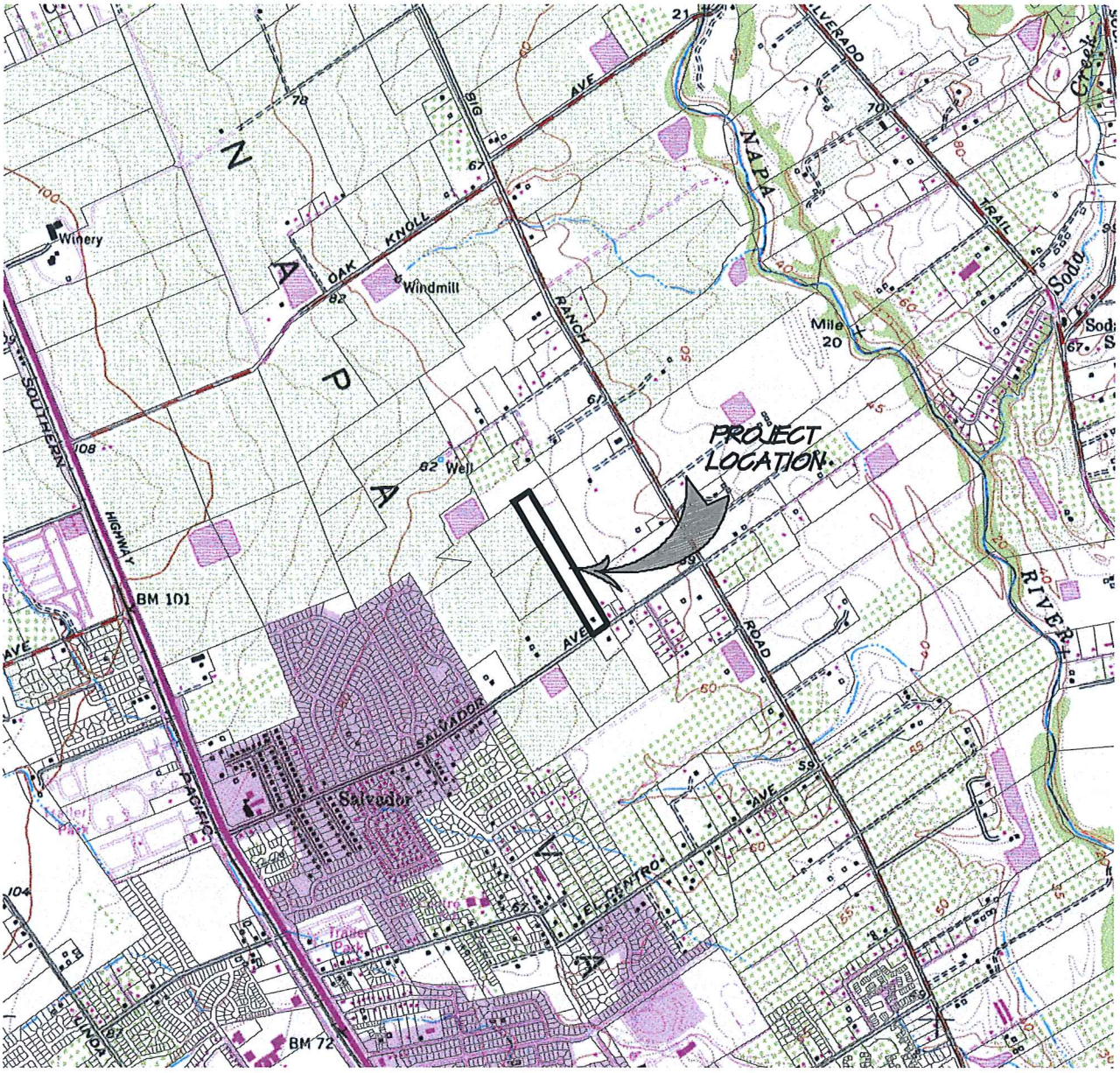
OCTOBER 20, 2015 4115080.0 Exh-Vicinity Map.dwg

FORTUNATI VINEYARDS
USGS QUAD MAP



SCALE: 1"=2000'

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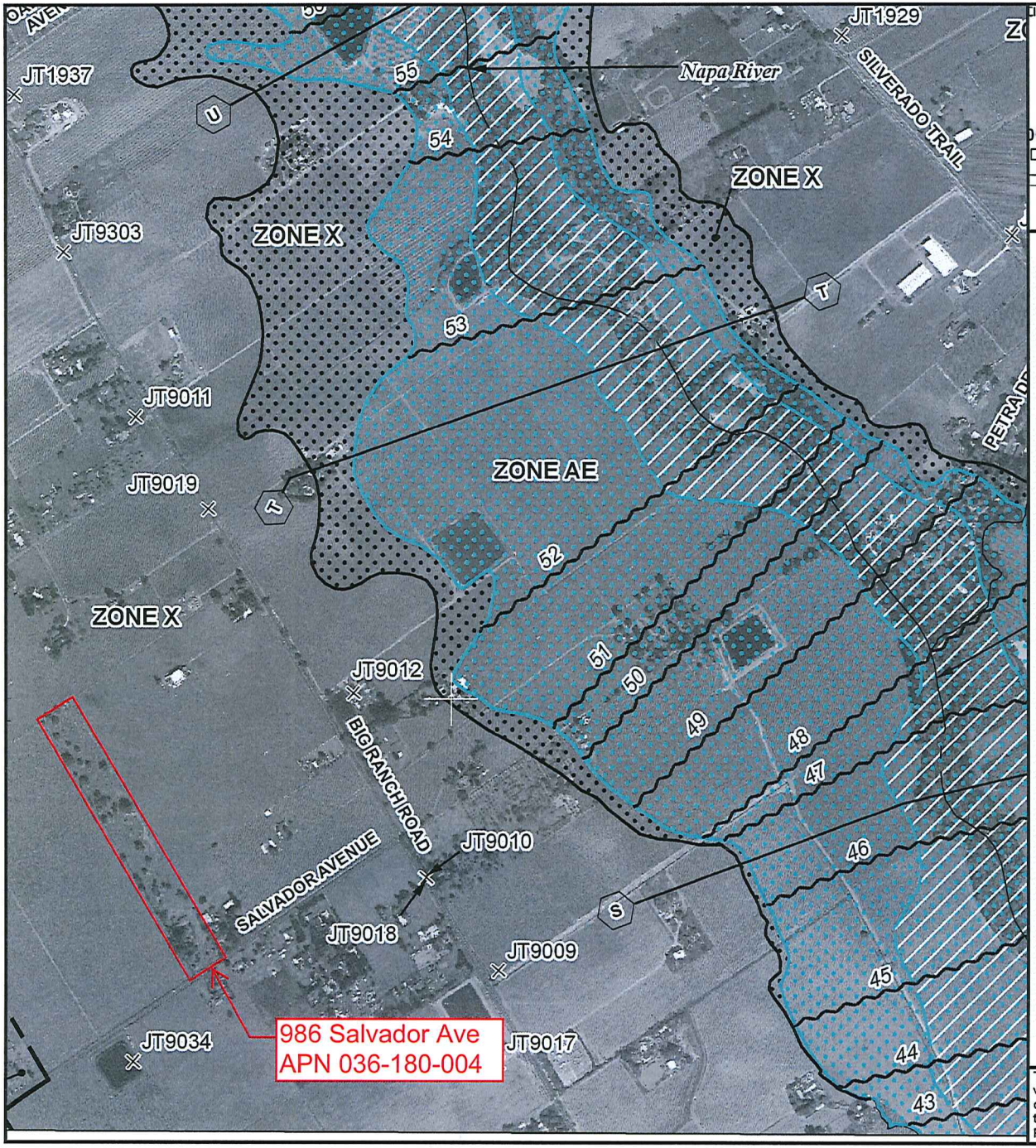
NAPA, CALIF. 94559
OFFICE|707|252.3301
+ www.RSAcivil.com +

RSA+| CONSULTING CIVIL ENGINEERS + SURVEYORS + | est. 1980

OCT 19, 2015 4115080.0 Exh-USGS Map.dwg



tional Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

0 1000 2000 FEET

METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0510F

FIRM

FLOOD INSURANCE RATE MAP

NAPA COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 510 OF 650

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
NAPA COUNTY	060205	0510	F
NAPA, CITY OF	060207	0510	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06055C0510F

MAP REVISED
SEPTEMBER 29, 2010

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Hydrologic Soil Group—Napa County, California
(Fortunati Vineyards)

Map Scale: 1:3,290 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Napa County, California
Survey Area Data: Version 8, Sep 23, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 4, 2012—Feb 17, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Napa County, California (CA055)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
104	Bale clay loam, 0 to 2 percent slopes	B	1.1	10.0%
119	Cole silt loam, 2 to 5 percent slopes	C	1.2	10.4%
123	Coombs gravelly loam, 2 to 5 percent slopes	C	2.7	23.6%
145	Haire loam, 0 to 2 percent slopes	D	6.3	55.9%
Totals for Area of Interest			**11.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist 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 having a slow infiltration rate when thoroughly wet. These consist 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.

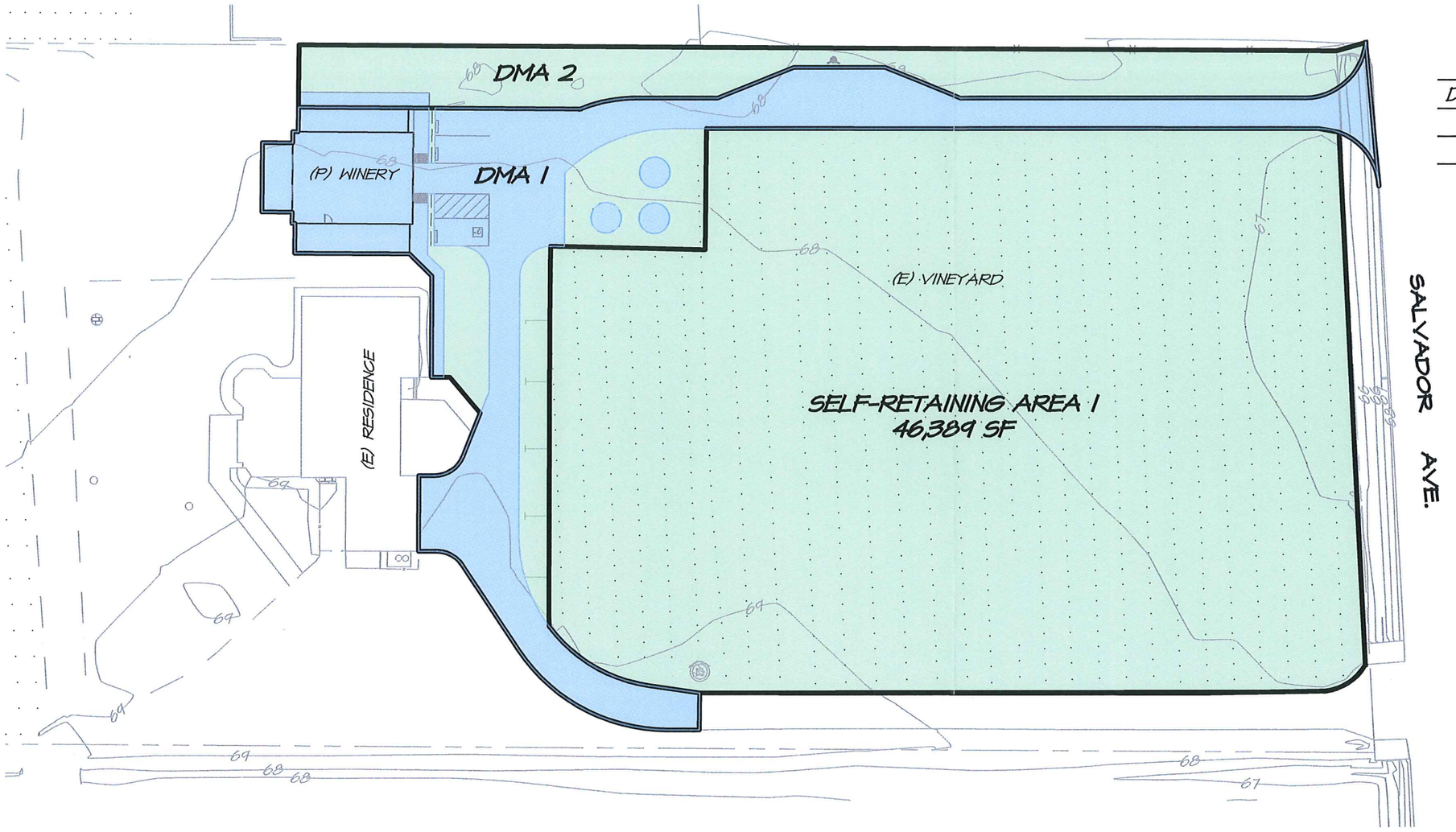
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

ATTACHMENT 2

DRAINAGE MANAGEMENT AREAS EXHIBIT

FORTUNATI VINEYARDS
DRAINAGE MANAGEMENT AREAS



DRAINAGE MANAGEMENT AREAS

DMA	IMPERVIOUS	PERVIOUS
1	11,309 SF	3,368 SF
2	216 SF	5,248 SF

GRAPHIC SCALE

40 0 40 80

(IN FEET)
1 Inch = 40 FT

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