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Stormwater Control Plan & Best Management Practices

Truchard Family Winery P14-00330-UP & P14-00331-VAR
Planning Commission Hearing Date September 20, 2017

STORMWATER CONTROL PLAN FOR A REGULATED PROJECT

Prepared for

TRUCHARD WINERY
NAPA

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:
Anthony Truchard
4062 Old Sonoma Road
Napa, CA 94559

RSA+ Project No. 4113042.0

October 13, 2016

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TABLES

ATTACHMENTS

I. Project Data

Table 1. Project Data Form

Project Name/Number	Truchard Winery (4113042.0)
Application Submittal Date	August, 2016
Project Location	4062 Old Sonoma Road Napa, California 94559 APN: 043-040-001
Project Phase	Use Permit
Project Type and Description	New winery
Total Project Site Area (acres)	2.5 Acres
Total New and Replaced Impervious Surface Area	51,068 sq. ft
Total Pre-Project Impervious Surface Area	0 sq. ft
Total Post-Project Impervious Surface Area	51,068 sq. ft

II. Setting

II.A. Project Location and Description

The Truchard Winery project is located at 4062 Old Sonoma Road, Napa, California 94559. The APN is 043-040-001. The project well will be located on an adjacent 126.1 acre. Refer to Attachment 1 for Vicinity Map. The parcel is currently used as vineyard and the winery location is south of the existing farm management storage. The neighboring parcels have rural residential, vineyard, and winery development. 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, Bioretention Facility Cross-section and Bioretention Construction Inspection Checklist.

The proposed area to be disturbed is greater than 1 acre, so this project will require a Stormwater Pollution Prevention Plan and A Notice of Intent (NOI). The project's expected SWPPP risk level is 3, high. Refer to Risk Level Assessment in Attachment 3.

II.B. Existing Site Features and Conditions

The existing site is currently used for the cultivation of vineyard. The new winery will be located near the existing agricultural barn in the northwest corner of the property. Access to the winery is off of Old Sonoma Road. Features of the site include the agricultural barn, and a reservoir. The site is bounded by the Old Sonoma Road and other agricultural parcels.

The predominant soil type in the project area is Bressa-Dibble 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 west toward the creek on the property. 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. Bioretention Facilities will be installed in these locations to treat stormwater runoff prior to discharge from the site. Runoff will be conveyed to Bioretention Facilities 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 existing on this previously developed site include the creek on the property along Old Sonoma Road. Bioretention Facilities will be installed to treat and retain storm water before it enters the natural drainage of the site.

3. Setbacks from creeks, wetlands, and riparian habitats

   A setback exists from the blue line creek on the west side of the property.

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.

5. Use of drainage as a design element

   Bioretention Facilities are 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 landscaped areas to the maximum extent practicable.

III.D. Stormwater Control Measures

Bioretention Facilities have been incorporated as a stromwater control measures. The Bioretention Facilities will collect and treat onsite stormwater. Refer to Attachment 3 for Bioretention Facility Cross-section and Bioretention Construction Inspection Checklist.

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	3,175	11,414	14,589
DMA-2	1,388	3,847	5,235
DMA-3	435	0	435
DMA-4	10,169	2,269	12,438
DMA-5	6,076	5,766	11,842
DMA-6	19,787	11,496	31,283
DMA-7	3,745	0	3,745
DMA-8	135	5,207	5,342
DMA-9	1,811	2,124	3,934
DMA-10	11,135	16,193	27,298

Drainage Management Area Descriptions

DMA 1, totaling 14,589 square feet, consists of the portion of the driveway between Old Sonoma Road and the access bridge off of Old Sonoma Road. Storm water sheet flows south to the self-retaining area.

DMA 2, totaling 5,235 square feet, consists of the portion of the proposed driveway east of the access bridge. Storm water sheet flows north to the self-retaining area.

DMA 3, totaling 435 square feet, consists of the small portion of the driveway west of the parking area. It drains north through a swale to Bioretention Facility 3. Bioretention Facility 3 is north of DMA 3 at the end of a drainage swale and has a total area of 80 square feet.

DMA 4, totaling 12,438 square feet, consists of the parking area, surrounding landscaped areas and the lower portion of the driveway just east of the barn. It drains to the northeast to Bioretention Facility 4. Bioretention Facility 4 is located in the landscaped area between the parking area and driveway and has an area of 420 square feet.

DMA 5, totaling 11,842 square feet, consists of the northwest portion of the winery roof, the landscaped vineyard area and surrounding pathways in the southwest corner of the site. It drains to the east via sheet

flow to storm drains that outlet to Bioretention Facility 5. Bioretention Facility 5 is located on the western edge of DMA 5 and has an area of 340 square feet.

DMA 6, totaling 31,283 square feet, consists of the majority of the winery roof, delivery and crush pad area as well as a portion of the landscaped area south of the winery facility. Drainage from this area sheet flows mainly to the east and is then conveyed south via storm drains to Bioretention Facility 6. Bioretention Facility 6 is located in the southeast corner of the site and has an area of 1,000 square feet.

DMA 7, totaling 3,745 square feet, consists of the portion of the proposed driveway that drains to the reservoir east of the proposed site.

DMA 8, totaling 5,342 square feet, consists of a very small portion of the pathway north of the main winery building, and the landscaped area north of the path. Drainage from this area is self-treated.

DMA 9, totaling 3,934 square feet, consists of a portion of the driveway and the small landscaped area in the northeast corner of the site. It drains to the south and then flows east via a swale in the landscaped area to Bioretention Facility 9. Bioretention Facility 9 is located within the landscaped area and has an area of 463 square feet.

DMA 10, totaling 27,328 square feet, consists of the existing barn and proposed tank area as well as the northern driveway. A portion of the driveway drains via a storm drain and combines with drainage from the barn area. The majority of the northern driveway sheet flows across the paved area. All drainage ultimately outlets to the self-retaining vineyard area to the west.

IV.B. Tabulation and Sizing Calculations

Table 3. Information Summary for Bioretention Facility Design

DMA	Total Project Area (Square Feet)
$DMA\text{-}3_{imp}$	435
$DMA\text{-}4_{imp}$	10,169
$DMA\text{-}4_{perv}$	2,269
$DMA\text{-}5_{imp}$	6,076
$DMA\text{-}5_{perv}$	5,766
$DMA\text{-}6_{imp}$	19,787
$DMA\text{-}6_{perv}$	11,496
$DMA\text{-}9_{imp}$	1,811
$DMA\text{-}9_{per}$	2,124

Table 4. Self-Treating Areas

DMA Name	Area (square feet)
$DMA\text{-}8_{imp}$	135
$DMA\text{-}8_{perv}$	5,207

Table 5. Self-Retaining Areas

DMA Name	Area (square feet)
$DMA\text{-}1_{imp}$	3,175
$DMA\text{-}1_{perv}$	11,414
$DMA\text{-}2_{imp}$	1,388
$DMA\text{-}2_{perv}$	3,847
$DMA\text{-}10_{imp}$	11,135
$DMA\text{-}10_{perv}$	16,193

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]
$DMA\text{-}1_{imp}$	3,175	Paved	1	3,175	$DMA\text{-}1_{perv}$	11,414	28%
$DMA\text{-}2_{imp}$	1,388	Paved	1	1,388	$DMA\text{-}2_{perv}$	3,847	36%
$DMA\text{-}10_{imp}$	11,135	Paved	1	11,135	$DMA\text{-}10_{perv}$	16,193	69%

Table 7. Areas Draining to Bioretention Facilities

DMA Name	DMA Area (Square Feet)	Post-project surface type	DMA Runoff Factor	DMA Area x Runoff Factor	Facility Name		
					Bioretention Facility 3		
$DMA\text{-}3_{imp}$	435	Impervious	1	435	Sizing Factor	Minimum Facility size	Proposed Facility
Total>				435	0.04	17	80

DMA Name	DMA Area (Square Feet)	Post-project surface type	DMA Runoff Factor	DMA Area x Runoff Factor	Facility Name		
					Bioretention Facility 4		
$DMA\text{-}4_{perv}$	2,269	Pervious	0.10	227	Sizing Factor	Minimum Facility size	Proposed Facility
$DMA\text{-}4_{imp}$	10,169	Impervious	1	10,169			
Total>				10,396	0.04	416	420

DMA Name	DMA Area (Square Feet)	Post-project surface type	DMA Runoff Factor	DMA Area x Runoff Factor	Facility Name		
					Bioretention Facility 5		
$DMA\text{-}5_{perv}$	5,766	Pervious	0.10	577	Sizing Factor	Minimum Facility size	Proposed Facility
$DMA\text{-}5_{imp}$	6,076	Impervious	1	6,076			
Total>				6,653	0.04	266	340

DMA Name	DMA Area (Square Feet)	Post-project surface type	DMA Runoff Factor	DMA Area x Runoff Factor	Facility Name		
					Bioretention Facility 6		
$DMA\text{-}6_{perv}$	11,496	Pervious	0.10	1,150	Sizing Factor	Minimum Facility size	Proposed Facility
$DMA\text{-}6_{imp}$	19,787	Impervious	1	19,787			
Total>				20,936	0.04	837	1000

DMA Name	DMA Area (Square Feet)	Post-project surface type	DMA Runoff Factor	DMA Area x Runoff Factor	Facility Name		
					Bioretention Facility 9		
$DMA\text{-}9_{perv}$	2,124	Pervious	0.10	212	Sizing Factor	Minimum Facility size	Proposed Facility
$DMA\text{-}9_{imp}$	1,811	Impervious	1	1,811			
Total>				2,023	0.04	81	463

V. Source Control Measures

V.A. Site activities and potential sources of pollutants

The site activities and potential sources of pollutants for the Truchard Winery 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 and elevator shaft sump pumps	▪ Interior floor drains and elevator shaft sump pumps 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	▪ Maintain landscaping using minimum or no pesticides. ▪ See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance."

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
	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.	▪ Provide IPM information to new owners, lessees and operators.
E. Pools, spas, ponds, decorative fountains, and other water features	▪ Install a sanitary sewer cleanout within 10 feet of the water feature.	▪ See applicable operational BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance."
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. 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	N/A	N/A

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
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 site incorporates five Bioretention Facilities. The Bioretention Facilities require as needed maintenance for any damage that may occur. Semi-annual inspections are required for possible erosion, damaged vegetation, debris, and health of any tress 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. An annual inspection is required to complete the annual report for each Bioretention Facility. During this inspection mulch may be added, and tree stakes and wires replaced. 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
5	Bioretention Facilities	DMA/UP2
6	A. On-site storm drain inlets	UP 3
6	B. Interior floor drains and elevator shaft sump pumps	ARCH
6	D1. Need for Future indoor & structural pest control	
6	D2. Landscape/ outdoor pesticide use/ building and ground maintenance	L1
7	G. Refuse areas	ARCH
7	N. Fire sprinkler test water	ARCH
7	O. Miscellaneous drain or wash	ARCH
8	P. Plazas, sidewalks, and parking lots	ARCH

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.

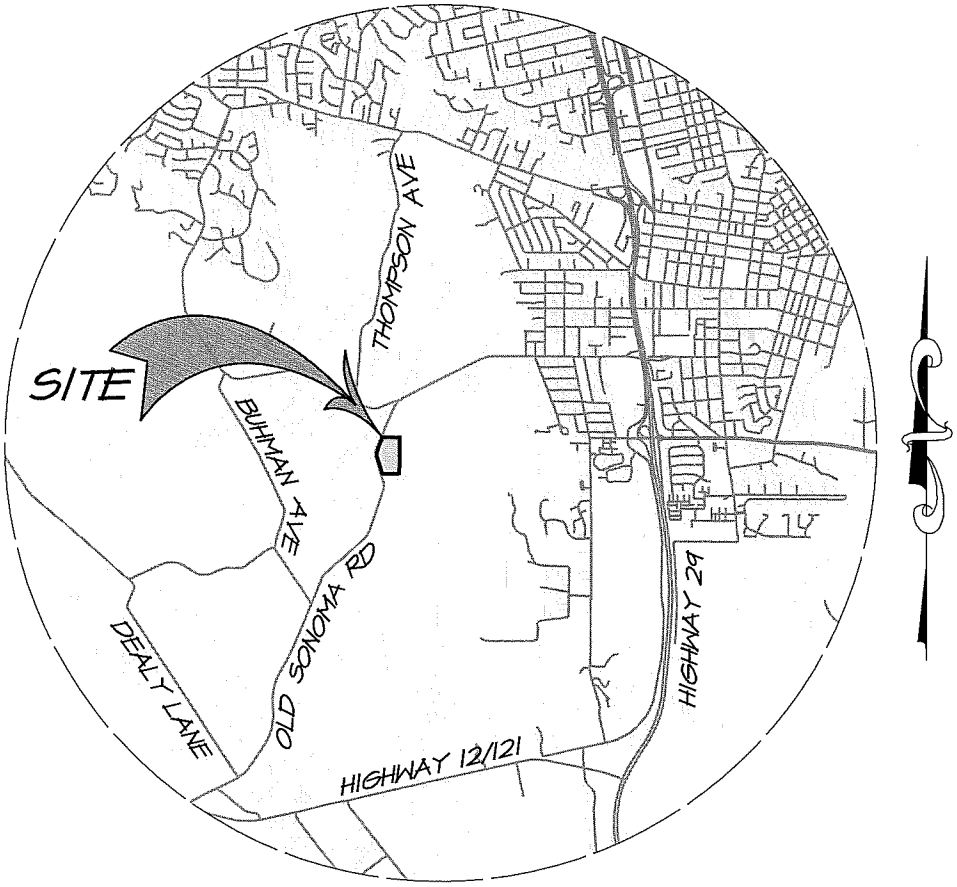
ATTACHMENT 1

VICINITY MAP, USGS MAP, FIRMETTE, SOILS MAP

TRUCHARD WINERY
VICINITY MAP

NAPA CALIFORNIA

SCALE: 1" = 5000'



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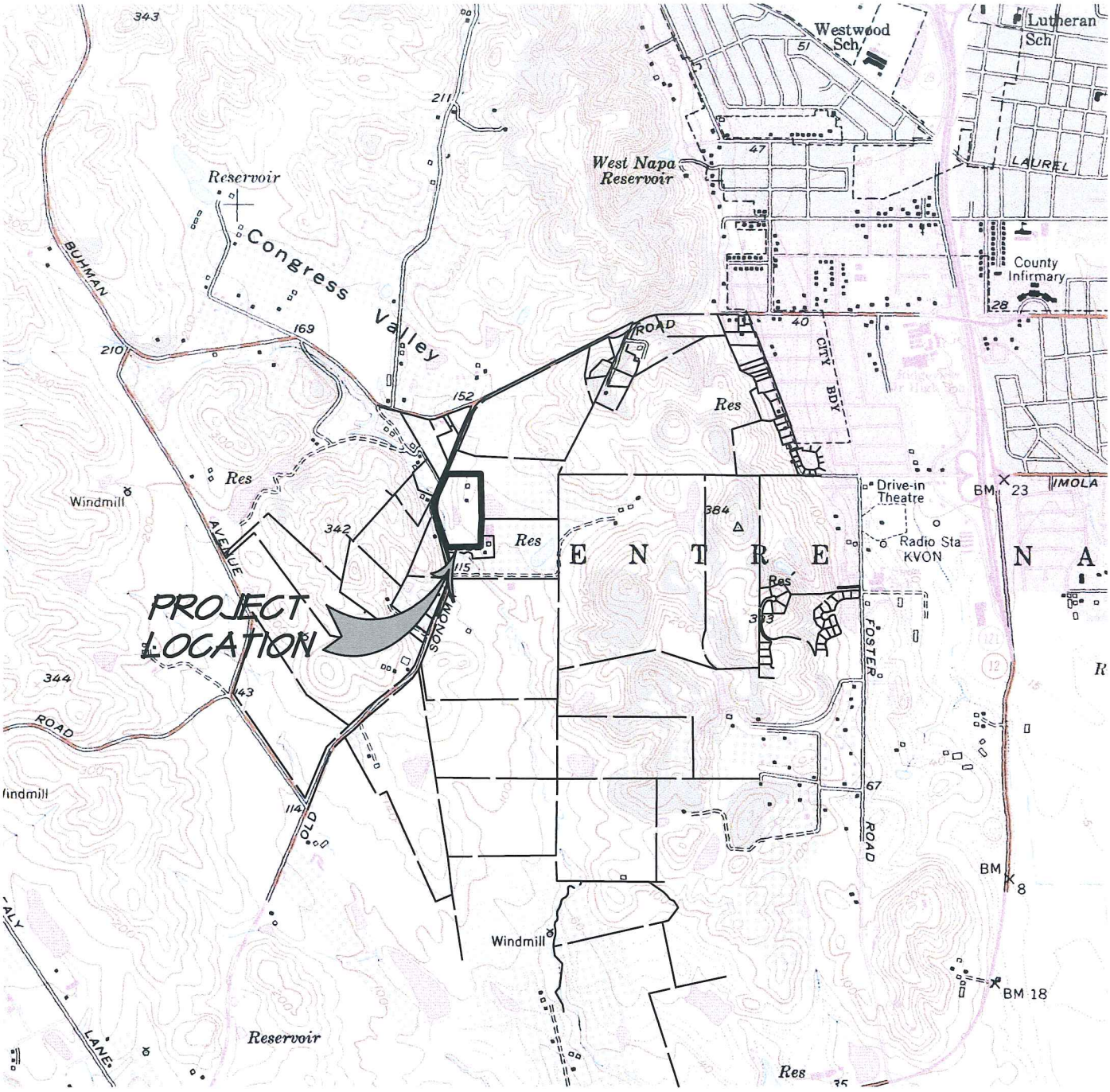
August 15, 2016 4113042.0 Exh-Vic Map.dwg

TRUCHARD WINERY
USGS QUAD MAP



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August 15, 2016 4113042.0 Exh-USGS.dwg

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0512E

FIRM

FLOOD INSURANCE RATE MAP

NAPA COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 512 OF 650

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
NAPA COUNTY	060205	0512	E
NAPA, CITY OF	060207	0512	E

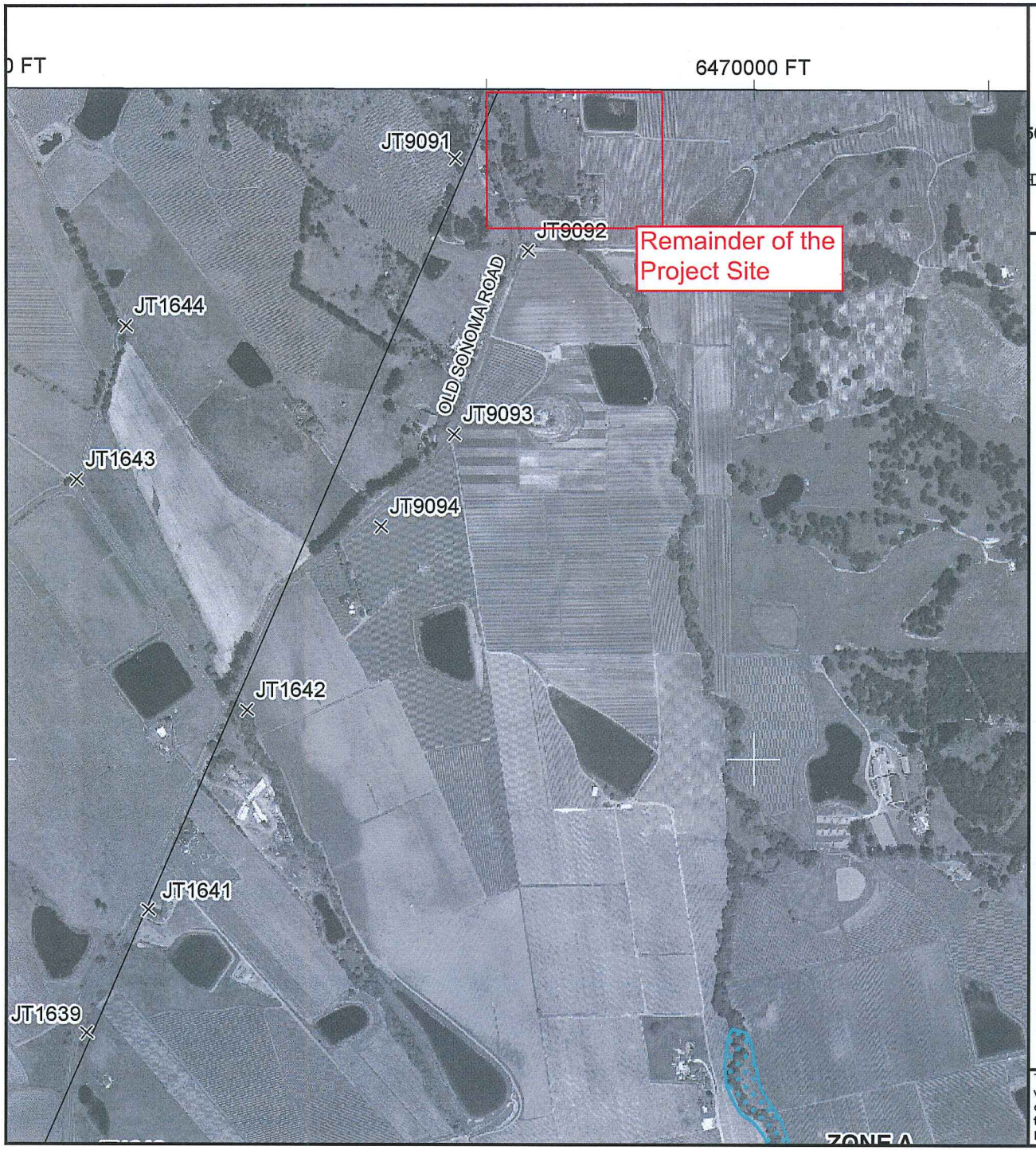
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06055C0512E

EFFECTIVE DATE
SEPTEMBER 26, 2008

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



MAP SCALE 1" = 1000'

500 0 1000 2000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0515E

FIRM

FLOOD INSURANCE RATE MAP

NAPA COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 515 OF 650
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
NAPA COUNTY	060205	0515	E
NAPA, CITY OF	060207	0515	E

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Hydrologic Soil Group—Napa County, California
(Truchard Parcel 1 - Winery Parcel)

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
112	Bressa-Dibble complex, 5 to 15 percent slopes	C	0.8	6.8%
118	Cole silt loam, 0 to 2 percent slopes	C	8.2	65.3%
146	Haire loam, 2 to 9 percent slopes	D	3.5	27.9%
Totals for Area of Interest			**12.5**	**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.

Rating Options

Aggregation Method: Dominant Condition

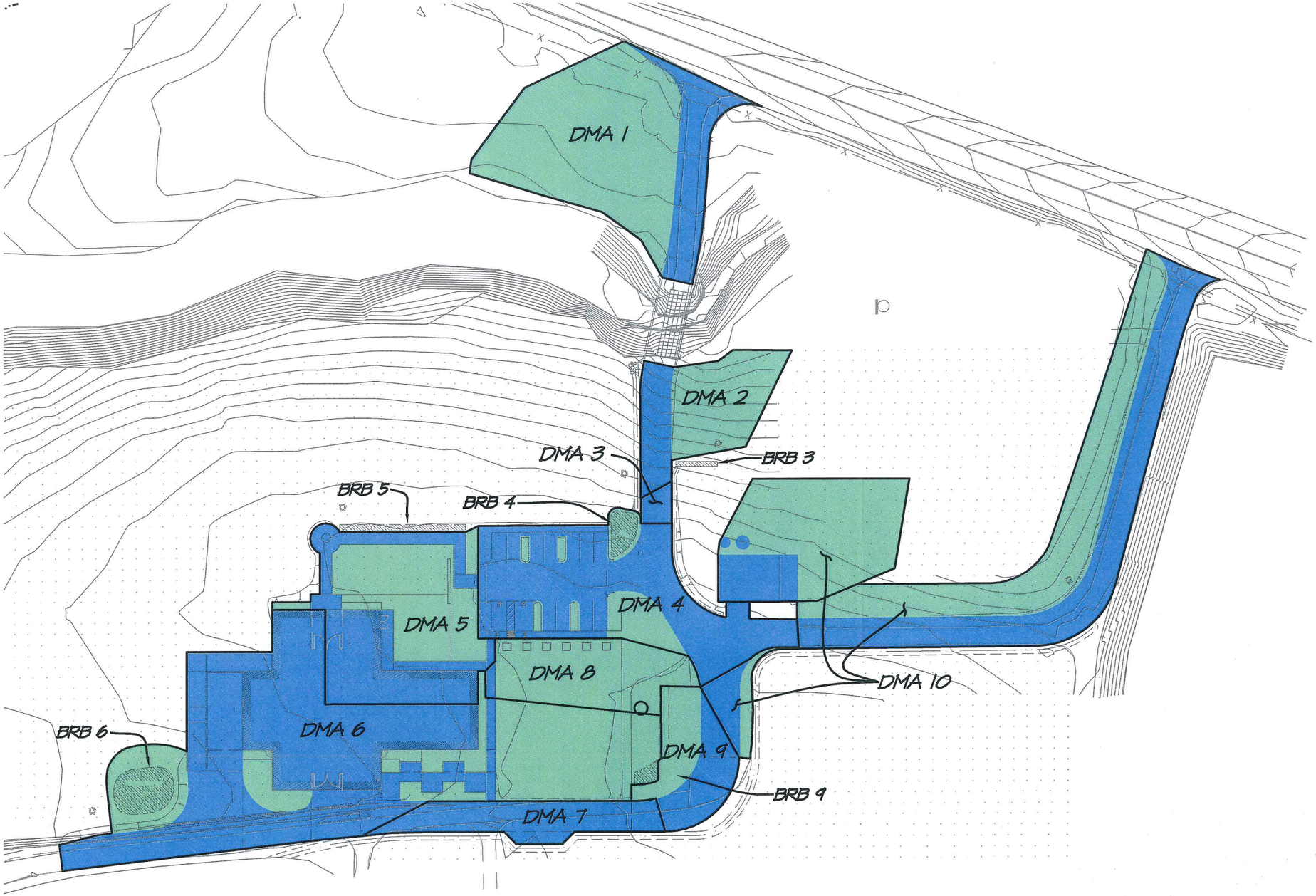
Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

ATTACHMENT 2

DRAINAGE MANAGEMENT AREAS EXHIBIT
BIORETENTION FACILITY CROSS-SECTION
BIORETENTION CONSTRUCTION INSPECTION CHECKLIST

TRUCHARD WINERY
DRAINAGE MANAGEMENT AREAS EXHIBIT



LEGEND	
BRB	BIORETENTION FACILITY

DRAINAGE MANAGEMENT AREAS		
DMA	IMPERVIOUS	PERVIOUS
1	3,175 SF	11,414 SF
2	1,388 SF	3,847 SF
3	435 SF	-
4	10,169 SF	2,269 SF
5	6,076 SF	5,766 SF
6	19,787 SF	11,496 SF
7	3,745 SF	-
8	135 SF	5,207 SF
9	1,811 SF	2,124 SF
10	11,135 SF	16,193 SF

GRAPHIC SCALE

70 0 70 140

1 INCH = 70 FEET

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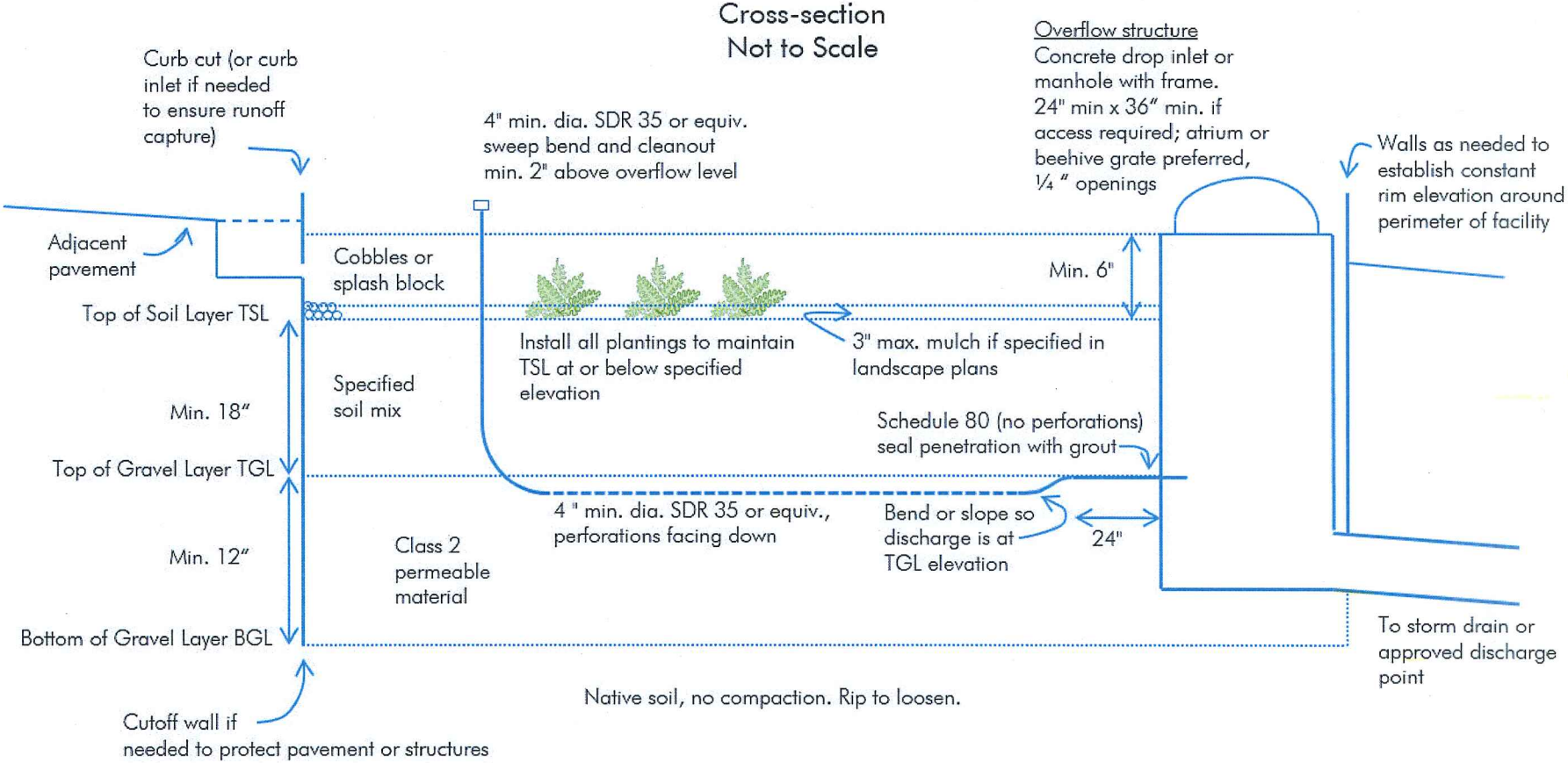
January 6, 2016 4113042.0 Exh-DMA.dwg

Bioretention Facility

Cross-section
Not to Scale



Allowed variations for special site conditions:

- Facilities located within 10 feet of structures or other potential geotechnical hazards may incorporate an impervious cutoff wall
- Facilities with documented high concentrations of pollutants in underlying soil or groundwater, facilities where infiltration could contribute to a geotechnical hazard, and facilities located on elevated plazas or other structures may incorporate an impervious liner between the native soil and the BGL and locate the underdrain discharge at the BGL (flow-through planter configuration).
- Facilities located in areas of high groundwater, highly infiltrative soils, or where connection of the underdrain to a surface drain or subsurface storm drain are infeasible may omit the underdrain.

Notes:

- No liner, no filter fabric, no landscape cloth.
- Maintain BGL. TGL, TSL throughout facility area at elevations to be specified in plan.
- Class 2 perm layer may extend below and underneath drop inlet.
- Elevation of underdrain discharge is at top of gravel layer.
- See Chapter 4 for instructions on facility sizing and additional specifications.

Appendix B. Bioretention Construction Inspection Checklist

Layout (to be confirmed prior to beginning excavation)

- ❒ Square footage of the facility meets or exceeds minimum shown in Stormwater Control Plan
- ❒ Site grading and grade breaks are consistent with the boundaries of the tributary Drainage Management Area(s) (DMAs) shown in the Stormwater Control Plan
- ❒ Inlet elevation of the facility is low enough to receive drainage from the entire tributary DMA
- ❒ Locations and elevations of overland flow or piping, including roof leaders, from impervious areas to the facility have been laid out and any conflicts resolved
- ❒ Rim elevation of the facility is laid out to be level all the way around, or elevations are consistent with a detailed cross-section showing location and height of interior dams
- ❒ Locations for vaults, utility boxes, and light standards have been identified so that they will not conflict with the facility
- ❒ Facility is protected as needed from construction-phase runoff and sediment

Excavation (to be confirmed prior to backfilling or pipe installation)

- ❒ Excavation conducted with materials and techniques to minimize compaction of soils within the facility area
- ❒ Excavation is to accurate area and depth
- ❒ Slopes or side walls protect from sloughing of native soils into the facility
- ❒ Moisture barrier, if specified, has been added to protect adjacent pavement or structures.
- ❒ Native soils at bottom of excavation are ripped or loosened to promote infiltration

Overflow or Surface Connection to Storm Drainage

(to be confirmed prior to backfilling with any materials)

- ❒ Overflow is at specified elevation
- ❒ No knockouts or side inlets are in overflow riser
- ❒ Overflow location selected to minimize surface flow velocity (near, but offset from, inlet recommended)
- ❒ Grating excludes mulch and litter (beehive or atrium-style grates with ¼" openings recommended)
- ❒ Overflow is connected to storm drain via appropriately sized piping

Underground connection to storm drain/outlet orifice

(to be confirmed prior to backfilling with any materials)

- ❒ Perforated pipe underdrain (PVC SDR 35 or approved equivalent) is installed with holes facing down
- ❒ Perforated pipe is connected to storm drain at specified elevation (typ. bottom of soil elevation)
- ❒ Cleanouts are in accessible locations and connected via sweep bends

Drain Rock/Subdrain (to be confirmed prior to installation of soil mix)

- ❒ Rock is installed as specified, 12" min. depth. Class 2 permeable, Caltrans specification 68-2.02F(3) recommended
- ❒ Rock is smoothed to a consistent top elevation. Depth and top elevation are as shown in plans
- ❒ Slopes or side walls protect from sloughing of native soils into the facility
- ❒ No filter fabric is placed between the subdrain and soil mix layers

Soil Mix

- ❒ Soil mix is as specified.
- ❒ Mix installed in lifts not exceeding 12"
- ❒ Mix is not compacted during installation but may be thoroughly wetted to encourage consolidation
- ❒ Mix is smoothed to a consistent top elevation. Depth of mix (18" min.) and top elevation are as shown in plans, accounting for depth of mulch to follow and required reservoir depth

Irrigation

- ❒ Irrigation system is installed so it can be controlled separately from other landscaped areas. Smart irrigation controllers and drip emitters are recommended and may be required by local code or ordinance.
- ❒ Spray heads, if any, are positioned to avoid direct spray into outlet structures

Planting

- ❒ Plants are installed consistent with approved planting plan, consistent with site water allowance
- ❒ Any trees and large shrubs are staked securely
- ❒ No fertilizer is added; compost tea may be used
- ❒ No native soil or clayey material are imported into the facility with plantings
- ❒ 1"-2" mulch may be applied following planting; mulch selected to avoid floating
- ❒ Final elevation of soil mix maintained following planting
- ❒ Curb openings are free of obstructions

Final Engineering Inspection

- ❒ Drainage Management Area(s) are free of construction sediment and landscaped areas are stabilized
- ❒ Inlets are installed to provide smooth entry of runoff from adjoining pavement, have sufficient reveal (drop from the adjoining pavement to the top of the mulch or soil mix, and are not blocked
- ❒ Inflows from roof leaders and pipes are connected and operable
- ❒ Temporary flow diversions are removed
- ❒ Rock or other energy dissipation at piped or surface inlets is adequate
- ❒ Overflow outlets are configured to allow the facility to flood and fill to near rim before overflow
- ❒ Plantings are healthy and becoming established
- ❒ Irrigation is operable
- ❒ Facility drains rapidly; no surface ponding is evident
- ❒ Any accumulated construction debris, trash, or sediment is removed from facility
- ❒ Permanent signage is installed and is visible to site users and maintenance personnel

ATTACHMENT 3

SWPPP RISK LEVEL ASSESSMENT

EPA United States Environmental Protection Agency

Water: Stormwater

LEW Results

Rainfall Erosivity Factor Calculator for Small Construction Sites

Facility Information

Start Date:	03/16/2016
End Date:	10/10/2018
Latitude:	38.2816
Longitude:	-122.3238

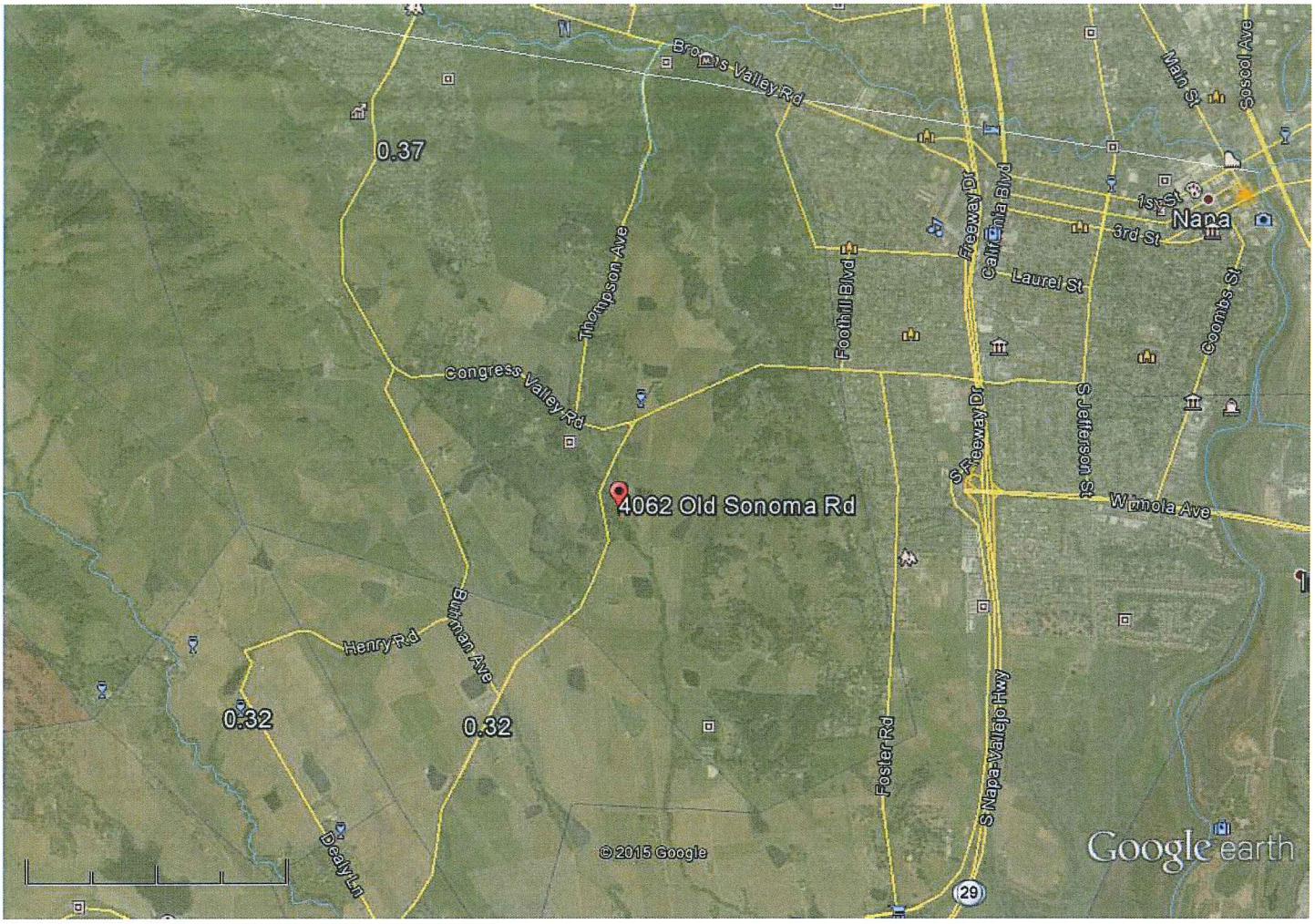
Erosivity Index Calculator Results

AN EROSIVITY INDEX VALUE OF **139.29** HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF **03/16/2016 - 10/10/2018**.

A rainfall erosivity factor of 5.0 or greater has been calculated for your site and period of construction. **You do NOT qualify for a waiver from NPDES permitting requirements**.

Start Over

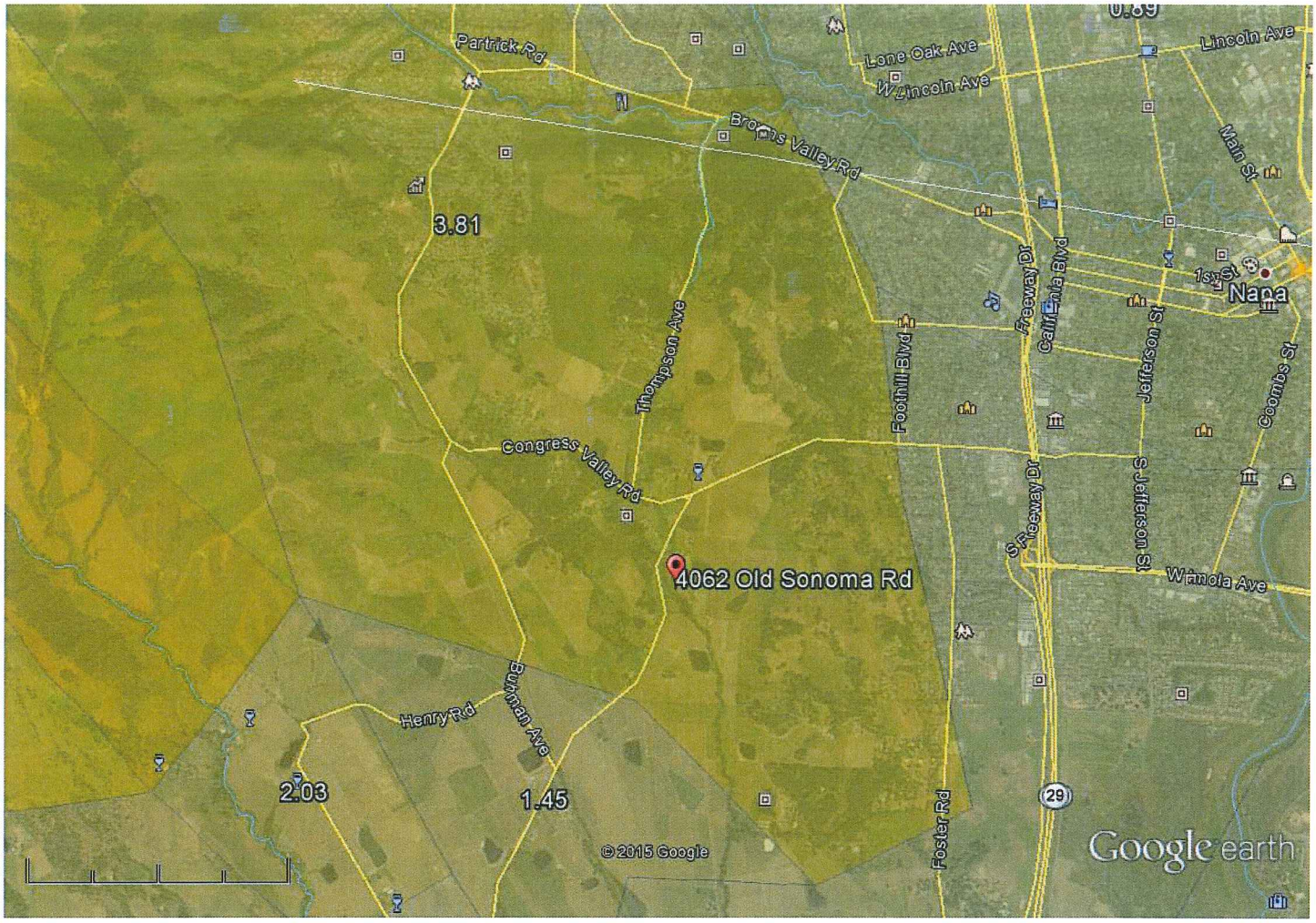
Last updated on Monday, July 28, 2014



Google earth

miles 2
km 3

K=0.37



Google earth

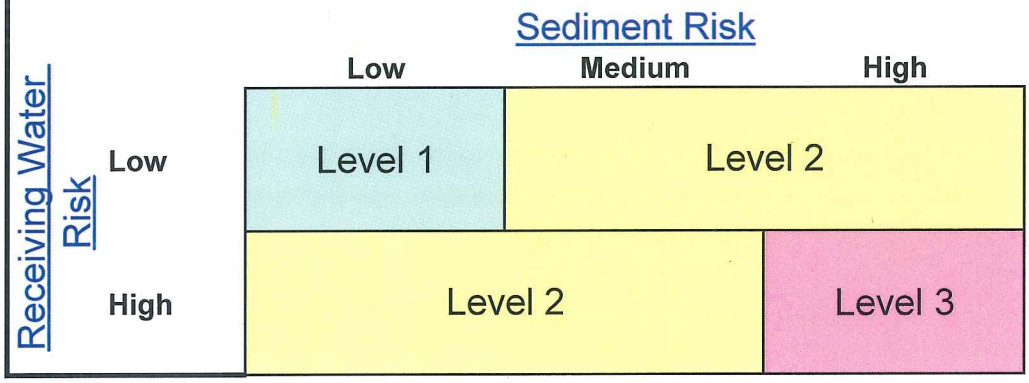
miles 2
km 3

LS=3.81

	A	B	C
1	**Sediment Risk Factor Worksheet**		**Entry**
2	**A) R Factor**		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	**R Factor Value**		139
6	**B) K Factor (weighted average, by area, for all site soils)**		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	**K Factor Value**		0.37
10	**C) LS Factor (weighted average, by area, for all slopes)**		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	**LS Factor Value**		3.81
14			
15	**Watershed Erosion Estimate (=RxKxLS) in tons/acre**		196.4
16	**Site Sediment Risk Factor**		**High**
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment** (For help with impaired waterbodies please visit the link below) or has a **USEPA approved TMDL implementation plan for sediment**?: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml	**Yes**	**High**
OR		
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan) http://www.waterboards.ca.gov/waterboards_map.shtml		

Combined Risk Level Matrix



Project Sediment Risk:	**High**
Project RW Risk:	**High**
Project Combined Risk:	**Level 3**

STORMWATER BEST MANAGEMENT PRACTICE OPERATIONS AND MAINTENANCE PLAN

For

TRUCHARD WINERY
4062 OLD SONOMA ROAD
NAPA, CA

PREPARED FOR COMPLIANCE WITH THE:
BASMAA POST-CONSTRUCTION MANUAL
DESIGN GUIDANCE FOR STORMWATER TREATMENT AND CONTROL
FOR PROJECTS IN MARIN, SONOMA, NAPA, AND SOLANO COUNTIES

Prepared for:

Anthony Truchard
4062 Old Sonoma Road
Napa, CA 94559

RSA Project No. 4113042.0

October 13, 2016

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TABLE OF CONTENTS

ATTACHMENTS

I. Purpose

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

II. Site Description

The Truchard Winery project is located at 4062 Old Sonoma Road, Napa, California 94559. The APN is 043-040-001. The project well will be located on an adjacent 126.1 acre parcel. Most of the property is relatively level and is currently used for vineyards. Congress Valley Creek runs roughly north to south on the western side of the property. There is a vineyard barn located on the east side of Congress Valley Creek. The proposed winery location is south of the existing barn. Public access to the proposed winery will be from Old Sonoma Road. The proposed winery building, driveway, and parking lot will be entirely outside of the 100-year flood plain.

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	-
2	Self-Retaining Area	-
3	Bioretention Basin 3	17
4	Bioretention Basin 4	416
5	Bioretention Basin 5	266
6	Bioretention Basin 6	837
7	-	-
8	Self-Treating Area	-
9	Bioretention Basin 9	81
10	Self-Retaining Area	-

1. Self-Treating Areas

Self-treating areas are landscaped or turf areas that drain directly off site or to the storm drain system. They typically include no impervious areas, unless the impervious area is very small (5% or less) and slopes are gentle enough to ensure runoff will be absorbed into the vegetation and soil.

2. 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 area must be graded to store three inches of rainfall.

3. Bioretention Facilities

Bioretention facilities are landscape features that are designed to treat and infiltrate stormwater runoff. They may be configured in free-form fashion as "rain gardens" or in linear fashion as swales. Landscape is professionally designed to incorporate native plants that tolerate brief inundation and fast-draining soils. A shallow surface reservoir is designed to fill up like a bathtub to ensure all the storage is used and avoid erosion of the soil mix. Captured runoff filters through the surface mulch and a layer of sand/compost mix. The treated runoff is stored in a lower gravel layer, where it either infiltrates into the native soil below, or is collected by a perforated underdrain.

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.

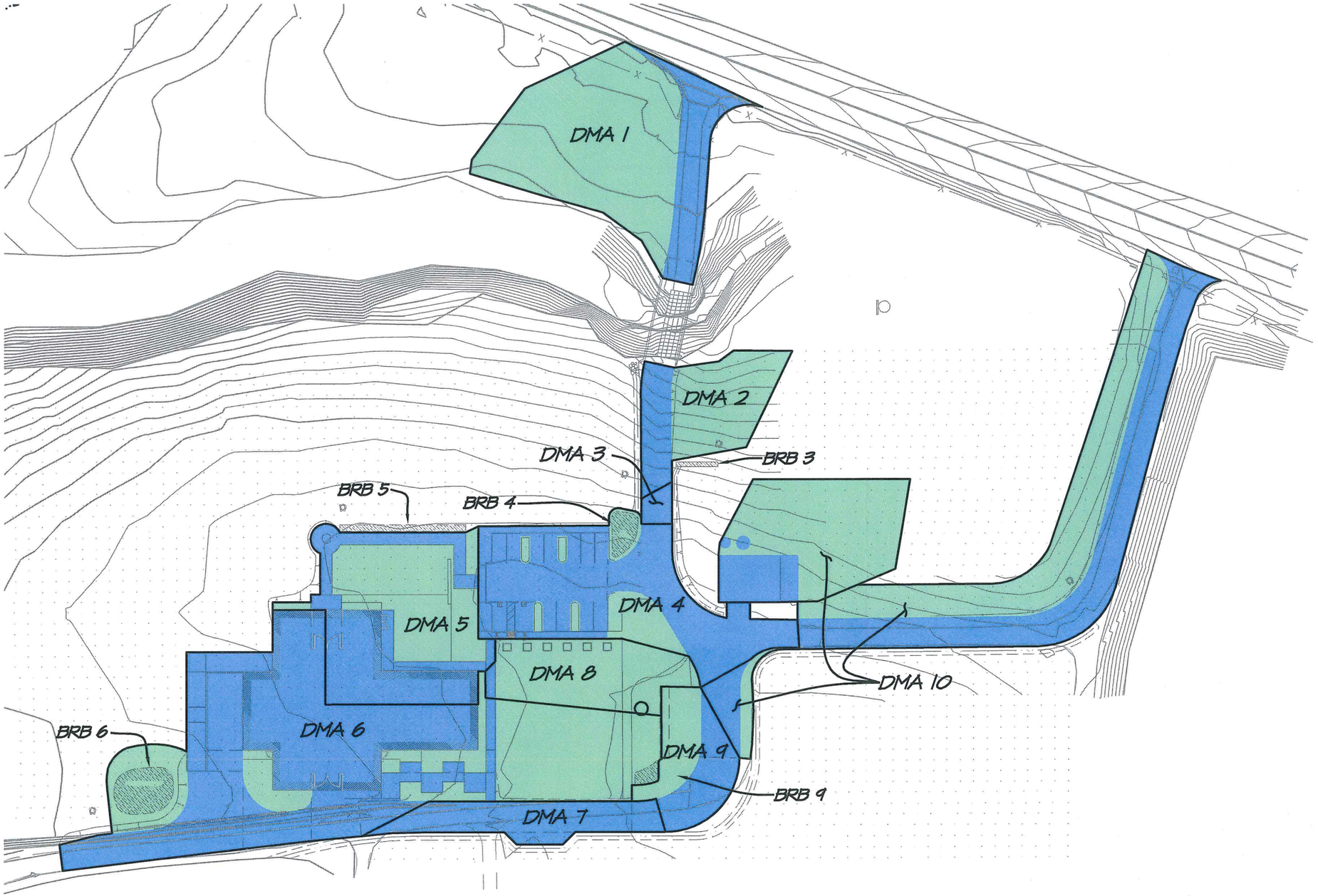
V. Responsible Parties

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

TRUCHARD WINERY
DRAINAGE MANAGEMENT AREAS EXHIBIT



LEGEND	
BRB	BIORETENTION FACILITY

DRAINAGE MANAGEMENT AREAS		
DMA	IMPERVIOUS	PERVIOUS
1	3,175 SF	11,414 SF
2	1,388 SF	3,847 SF
3	435 SF	-
4	10,169 SF	2,269 SF
5	6,076 SF	5,766 SF
6	19,787 SF	11,496 SF
7	3,745 SF	-
8	135 SF	5,207 SF
9	1,811 SF	2,124 SF
10	11,135 SF	16,193 SF

GRAPHIC SCALE

70 0 70 140

1 INCH = 70 FEET

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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: Truchard Winery

Site Address: 4062 Old Sonoma Road

Napa, CA 94559

Manager Name: _____

Phone: _____

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 Controls	Operational 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 and elevator shaft sump pumps	☐ Interior floor drains and elevator shaft sump pumps will b e 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.	☐ 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 Controls	Operational BMPs
	☐ To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant 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. No processes to drain to exterior or to storm drain system.	☐ See Fact Sheet SC-10, "Non-Stormwater Discharges"
I. Outdoor Storage of Equipment or Materials	N/A	N/A
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	☐ 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 architectural copper is used, implement the following BMPs for management of rinsewater during installation: ☐ If possible, purchase copper materials that have been pre-

Source Controls Checklist

Potential Sources of Runoff Pollutants	Permanent Controls	Operational BMPs
• Drainage sumps • Roofing, gutters, and trim • Other sources	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.	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.

BMP Maintenance Checklist

Table 1 - "As Needed" Inspection / Maintenance Activities

BMP	Inspection Activities	Maintenance Activities
Vegetated Swale *TC-30, Vegetated Swale*		☐ Mow grass to maintain a height of 3–4 inches, for safety, aesthetic, or other purposes. Litter should always be removed prior to mowing. Clippings should be composted. ☐ Irrigate swale during dry season (April through October) or when necessary to maintain the vegetation. ☐ Provide weed control, if necessary to control invasive species. ☐ Remove all accumulated sediment that may obstruct flow through the swale. Sediment accumulating near culverts and in channels should be removed when it builds up to 3 in. at any spot, or covers vegetation, or once it has accumulated to 10% of the original design volume. Replace the grass areas damaged in the process. ☐ Rototill or cultivate the surface of the sand/soil bed of dry swales if the swale does not draw down within 48 hours.
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.

BMP Maintenance Checklist

BMP	Inspection Activities	Maintenance Activities
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.
Bioretention Facilities *TC-32, Bioretention*	☐ Inspect soil and repair eroded areas.	☐ Remove litter and debris ☐ Remove sediment. ☐ Remulch void areas. ☐ Treat diseased trees and shrubs. ☐ Mow turf areas. ☐ Repair erosion at inflow points. ☐ Repair outflow structures. ☐ Unclog underdrain. ☐ Regulate soil pH regulation. ☐ Mulch should be replaced every 2 to 3 years or when bare spots appear. Remulch prior to the wet season.

BMP Maintenance Checklist

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

BMP	Inspection Activities	Maintenance Activities
Vegetated Swale *TC-30, Vegetated Swale*	☐ Inspect for signs of erosion, damage to vegetation, channelization of flow, debris and litter, and areas of sediment accumulation. Perform inspections at the beginning and end of the wet season. Additional inspections after periods of heavy runoff are desirable.	☐ Remove litter, branches, rocks blockages, and other debris and dispose of properly. ☐ Repair any damaged areas within a channel identified during inspections. Erosion rills or gullies should be corrected as needed. Bare areas should be replanted as necessary.
Self Treating Areas *TC-31, Vegetated Buffer Strip*	☐ Inspect for erosion or damage to vegetation, preferably at the end of the wet season to schedule summer maintenance and before major fall runoff to be sure the strips are ready for winter. However, additional inspection after periods of heavy runoff is desirable. ☐ Inspect for rolls and gullies. Immediately fill with topsoil, install erosion control blanket and seed or sod. ☐ Inspect to ensure grass is well established. If not, either prepare soil and reseed or replace with alternative species. Install erosion control blanket. ☐ Check for debris and litter, and areas of sediment accumulation.	☐ Remulch void areas ☐ Treat diseased trees and shrubs, remove dead vegetation.
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.

BMP Maintenance Checklist

BMP	Inspection Activities	Maintenance Activities
Bioretention Facilities *TC-32, Bioretention*	☐ Inspect for erosion or damage to vegetation, preferably at the end of the wet season to schedule summer maintenance and before major fall runoff to be sure the strips are ready for winter. However, additional inspection after periods of heavy runoff is desirable. ☐ Inspect to ensure grass is well established. If not, either prepare soil and reseed or replace with alternative species. Install erosion control blanket. ☐ Check for debris and litter, and areas of sediment accumulation. ☐ Inspect health of trees and shrubs.	☐ Remove and replace dead and diseased vegetation.

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

BMP	Inspection Activities	Maintenance Activities
Vegetated Swale *TC-30, Vegetated Swale*		☐ Plant an alternative grass species if the original grass cover has not been successfully established. Reseed and apply mulch to damaged areas.
Self Treating Areas *TC-31, Vegetated Buffer Strip*		☐ Remove sediment and replant in areas of buildup. Sediment accumulating near culverts and in channels should be removed when it builds up to 3 in. at any spot, or covers vegetation. ☐ Limit fertilizer applications based on plant vigor and soil test results. ☐ Rework or replant buffer strip if concentrated flow erodes a channel through the strip.
Bioretention Facilities *Refer to CASQA BMP Fact Sheet TC-32, Bioretention*	☐ Complete Annual Report	☐ Add mulch. ☐ Replace tree stakes and wires.

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: Truchard Winery

Site Address: 4062 Old Sonoma Road

Napa, CA 94559

Manager Name: _____

Phone: _____

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: _____ _____