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Stormwater Control Plan

Diamond Creek Vineyards Use Permit Major Modification P19-00177-MOD and
Exception to the Roads and Street Standards
Planning Commission Hearing – January 21, 2026



PRELIMINARY STORMWATER CONTROL PLAN FOR A REGULATED PROJECT

For

DIAMOND CREEK VINEYARDS
1500 DIAMOND MOUTAIN ROAD
CALISTOGA, CA 94515

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:

Diamond Mountain Vineyard Company, Inc.
Attn: Nicole Carter
1500 Diamond Mountain Road
Calistoga, CA 94515

January 23, 2025

Project No. 4120020.0



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I. Project Data

Table 1. Project Data Form

Project Name/Number	Diamond Creek Vineyards (4120020.0)
Application Submittal Date	November 04, 2022
Project Location	1500 Diamond Mountain Road Calistoga, CA 94515 APN: 020-440-004 & 020-400-012
Project Phase No.	Use Permit Modification
Project Type and Description	New winery building and conversion of existing building to a residence.
Total Project Site Area (acres)	2.69 Acres
Total New and Replaced Impervious Surface Area	48,000 sq. ft
Total Pre-Project Impervious Surface Area	46,600 sq. ft
Total Post-Project Impervious Surface Area	68,636 sq. ft

II. Setting

II.A. Project Location and Description

The Diamond Creek Winery project is located at 1500 Diamond Mountain Road south of Calistoga, California. The APNs are 020-440-004 & 020-400-012. The parcels have an area of $77.69 \pm$ acres. The project parcels are bounded by a blue-line creek which flows through the parcel then runs along the northeastern property line. There are two residential parcels and one winery parcel to the north, a residential parcel and Diamond Mountain Road to the south, a residential parcel to the east, and an undeveloped parcel to the west. See Vicinity Map in Attachment 1. The project will include the construction of a new winery building that will serve all winery operations. The project will also include improvements to the existing driveway to establish a new winery loop driveway, parking areas on the south side of the winery building, a maintenance building, and new landscaped areas around the facility. Once winery operations have been moved to the new winery building, the existing structure will be remodeled as a residence under separate permit. A separate Single-Family Stormwater Control Plan will be completed at that time.

II.B. Existing Site Features and Conditions

The existing site is currently developed with vineyard, a winery building, and a few agricultural structures. The remainder of land is native trees and grasses. The site contains a blue-line creek that runs through the parcel and a pond that is located in the western portion of the site. A residence exists on parcel 020-400-012. This existing structure will remain. The site has a shared driveway off of Diamond Mountain Road.

Runoff from the project site flows northward and eastward via surface flows and existing storm drains to a blue-line creek and subsequently to the Napa River.

The project area is on a ridge, with slopes of 5-30%. The site drains north and east to roadside ditches along the main driveway, and existing storm drains into a blue line creek, which ultimately drain to the Napa River. Refer to the USGS Map in Attachment 1.

The predominant soil type on the project site is Boomer-Forward-Felta complex, which are of the Hydrologic Soil Group B. These soils have a moderate infiltration rate when thoroughly wet, and a moderate rate of water transmission. Refer to Attachment 1 for the Soils Map.

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 the large continuous pervious areas which can help to promote infiltration. This also includes new proposed landscaped areas surrounding the building. In addition, the site has existing driveway and culvert improvements which can limit impacts of new grading and drainage work. Four (4) bioretention facilities will be installed around the site to treat stormwater runoff prior to discharge from the site. All runoff from new impervious areas around the winery will be directed to bioretention facilities for treatment before discharging to a blue-line creek and runoff from new impervious areas along the driveway will be directed to vegetation.

Constraints include limitations for potential locations for bioretention areas due to the sloping nature of the site, and constraints for treating the driveway due to the existing proximity to the property line.

III. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

1. Limitation of development envelope

The footprint of the building has been kept to a minimum based on intended uses, and utilizes two stories to reduce the building envelope.

The development of the structure will occur within the building setback lines.

2. Preservation of natural drainage features.

Existing natural drainage features will be preserved. The site will utilize existing outfalls and surface flows to the maximum extent practicable to limit impacts to the drainage features.

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

No grading will take place within the setbacks of existing creeks, wetlands and riparian habitats. A road exception letter has been prepared seeking to limit grading within the creek setbacks along the project driveway.

4. Minimization of imperviousness.

Walkways, flatwork and decking 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. Grading and storm drain locations have been designed to direct runoff to the bioretention facilities and existing pervious areas.

III.B. Use of Permeable Pavements

Permeable pavement will not be used.

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

Four (4) bioretention facilities have been incorporated as stormwater control measures. The bioretention facilities will collect and treat onsite stormwater prior to discharge.

Bioretention facilities are designed and will be constructed to the criteria in the BASMAA Post-Construction Manual (Jan 2019)

IV. Documentation of Drainage

IV.A Drainage Management Areas

Table 2. Drainage Management Areas

DMA Name	Pervious Area (square feet)	Impervious Area (square feet)	Total Area (square feet)
DMA-1	1,969	10,712	12,681
DMA-2	11,913	8,245	20,158
DMA-3	2,240	4,816	7,056
DMA-4	10,762	18,292	29,054
DMA-5A	0	5,730	5,730
DMA-5B	39,077	0	39,077

Drainage Management Area Descriptions

DMA 1 consists of the western portion of the site. It contains the western portion of the building roof, walkways, and a portion of the driveway and 1,969 square feet of landscaping. Runoff from this DMA is collected via roof drains and surface flows on the driveway, and is then conveyed to Bioretention Facility 1. Bioretention Facility 1 is located at the northwest corner of the winery building and has an area of 443 square feet.

DMA 2 consists of the northern and eastern portion of the site. This includes the eastern portion of the building roof, the northern portion of the driveway, and 11,913 square feet of landscaping. Runoff from this DMA is collected via surface flow and roof drains to Bioretention Facility 2. Bioretention Facility 2 is located north of the winery building on the west side of the loop road driveway connection, and has an area of 476 square feet.

DMA 3 consists of the eastern portion of the site. This includes a portion of the walkways, basement access area, driveway, and 2,240 square feet of landscaping. Runoff from this DMA is conveyed via surface flows to the north and east toward Bioretention Facility 3. Bioretention Facility 3 is located north of the winery building on the east side of the loop road driveway connection and has an area of 245 square feet.

DMA 4 consists of the southern portion of the site. It includes the southeast portion of the driveway, the parking area to the south and east of the building, the water storage tanks, the trash enclosure, the maintenance building and treatment area, and 10,762 square feet of landscaping. Runoff from this DMA is collected via storm drains and surface flows and conveyed to Bioretention Facility 4 which is located in the southeast corner of the site below the maintenance shed. Bioretention Facility 4 has an area of 985 square feet.

DMA 5 consists of the linear portion of the project driveway in the northeastern section of the site. DMA-5A includes only the new impervious areas. The existing portions of the driveway are not required to be treated. Runoff from this DMA is collected via storm drains and surface flows and conveyed to the downstream pervious areas (DMA-5B) above the creek to the maximum extent practicable.

IV.B. Tabulation and Sizing Calculations

Table 3. Information Summary for Bioretention Facility Design

DMA	Total Project Area (Square Feet)
DMA-1	12,681
DMA-2	20,158
DMA-3	7,056
DMA-4	29,054

Table 4. Self-Treating Areas

The site does not include self-treating areas.

Table 5. Self-Retaining Areas

DMA-5B	39,077
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Table 6. Areas Draining to Self-Retaining Areas

DMA-5A	5,730
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Table 7. Areas Draining to Bioretention

DMA Name	DMA Area (SF)	Post-project surface type	DMA Runoff factor	DMA Area runoff factor	Facility Name		
					Bioretention Facility 1		
DMA-1	1,969	Pervious	0.10	196.9	Sizing Factor	Minimum Facility size (SF)	Proposed Facility Size (SF)
	10,712	Impervious	1	10,712			
Total>			10,908.9	0.04	436.4	443	

DMA Name	DMA Area (SF)	Post-project surface type	DMA Runoff factor	DMA Area runoff factor	Facility Name		
					Bioretention Facility 2		
DMA-2	11,913	Pervious	0.10	1,191.3	Sizing Factor	Minimum Facility size	Proposed Facility Size
	8,245	Impervious	1	8,245			
Total>			9,436.3	0.04	377.5	476	

DMA Name	DMA Area (SF)	Post-project surface type	DMA Runoff factor	DMA Area runoff factor	Facility Name		
					Bioretention Facility 3		
DMA-3	2,240	Pervious	0.10	224	Sizing Factor	Minimum Facility size	Proposed Facility Size
	4,816	Impervious	1	4,816			
Total>			5,040	0.04	201.6	245	

DMA Name	DMA Area (SF)	Post-project surface type	DMA Runoff factor	DMA Area runoff factor	Facility Name		
					Bioretention Facility 4		
DMA-4	10,762	Pervious	0.10	1,076.2	Sizing Factor	Minimum Facility size	Proposed Facility Size
	18,292	Impervious	1	18,292			
Total>			19,368.2	0.04	774.7	985	

V. Source Control Measures

V.A. Site activities and potential sources of pollutants

The site activities and potential sources of pollutants for the Diamond Creek 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)	<input type="checkbox"/> Mark all inlets with the words "No Dumping! Flows to River" or similar.	<input type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input type="checkbox"/> Provide stormwater pollution prevention information to new site owners, lessees, or operators. <input type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-74, "Drainage System Maintenance." <input type="checkbox"/> 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	<input type="checkbox"/> Interior floor drains shall be plumbed to sanitary sewer.	<input type="checkbox"/> Inspect and maintain interior drains to prevent blockages and overflow.
D ₁ . Need for future indoor & structural pest control	<input type="checkbox"/> Building design shall incorporate features that discourage entry of pests.	<input type="checkbox"/> Provide Integrated Pest Management information to owners, lessees, and operators.
D ₂ . Landscape / outdoor pesticide use / building and grounds maintenance	<p>Final landscape plans will accomplish all of the following:</p> <input type="checkbox"/> Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. <input type="checkbox"/> 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. <input type="checkbox"/> Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. <input type="checkbox"/> Use pest-resistant plants, especially adjacent to hardscape. <input type="checkbox"/> To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	<input type="checkbox"/> Maintain landscaping using minimum or no pesticides. <input type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance." <input type="checkbox"/> Provide IPM information to new owners, lessees and operators.

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs	
G. Refuse areas	<input type="checkbox"/> 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. <input type="checkbox"/> Refuse areas shall include a roof to minimize direct precipitation. <input type="checkbox"/> No drain connections shall be made to the Refuse area/Refuse areas shall drain to sanitary sewer	<input type="checkbox"/> Provide adequate number of receptacles. <input type="checkbox"/> Inspect receptacles regularly; repair or replace leaky receptacles. <input type="checkbox"/> Keep receptacles covered. <input type="checkbox"/> Prohibit/prevent dumping of liquid or hazardous wastes. <input type="checkbox"/> Post "no hazardous materials" signs. <input type="checkbox"/> Inspect and pick up litter daily and clean up spills immediately. <input type="checkbox"/> Keep spill control materials available on-site. <input type="checkbox"/> Clean by dry-sweeping only, or with wet/dry vacuum. See Fact Sheet SC-34, "Waste Handling and Disposal"	
H. Industrial processes	<input type="checkbox"/> All process activities to be performed indoors or undercover. No processes to drain to exterior or to storm drain system	<input type="checkbox"/> 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	<input type="checkbox"/> Equipment and materials will be kept indoors to the maximum extent possible. If materials and equipment are outside they will be covered and protected.	<input type="checkbox"/> See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials," in the CASQA Stormwater Quality Handbooks.	
N. Fire sprinkler test water	<input type="checkbox"/> Fire sprinkler test water shall be discharged to the sanitary sewer.	<input type="checkbox"/> See the note in Fact Sheet SC-41, "Building and Grounds Maintenance"	
O. Miscellaneous drain or wash water or other sources	<ul style="list-style-type: none"> • Boiler drain lines • Condensate drain lines • Rooftop equipment • Drainage sumps • Roofing, gutters, and trim • Other sources 	<input type="checkbox"/> Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain. <input type="checkbox"/> 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. <input type="checkbox"/> Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.	If architectural copper is used, implement the following BMPs for management of rinsewater during installation: <input type="checkbox"/> If possible, purchase copper materials that have been pre-patinated at the factory. <input type="checkbox"/> 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. <input type="checkbox"/> Consider coating the copper materials with an impervious coating that prevents further corrosion and runoff. <input type="checkbox"/> Implement the following BMPs during routine maintenance: <input type="checkbox"/> 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		<input type="checkbox"/> Sweep plazas, sidewalks, and parking lots regularly to prevent	

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
		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.B. 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 will be prepared for this project prior to project closeout.

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

The site incorporates 4 Bioretention Facilities. The BMPs all 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 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. An annual inspection is required to complete the annual report for all Stormwater Facilities. During this inspection mulch may be added, and tree stakes and wires replaced.

For all Stormwater facilities, 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	See Plan Sheet #s
6	Bioretention Facilities	UP5.0
7	Self-retaining Areas	EXH - SCP
7	Self-Treating Areas	EXH - SCP
8, 9	A. On-site storm drain inlets	C5.0
9	B. Interior floor drains	Arch
9	D1. Need for Future indoor & structural pest control	Arch
9	D2. Landscape/ outdoor pesticide use/ building and ground maintenance	UP3.0
10	G. Refuse areas	Arch
10	H. Industrial Process	Arch/UP3.0
10	I. Outdoor storage of equipment or materials	Arch
11	N. Fire sprinkler test water	Arch
11	O. Miscellaneous drain or wash	UP5.0
11	P. Plazas, sidewalks, and parking lots	UP3.0

VIII. Certifications

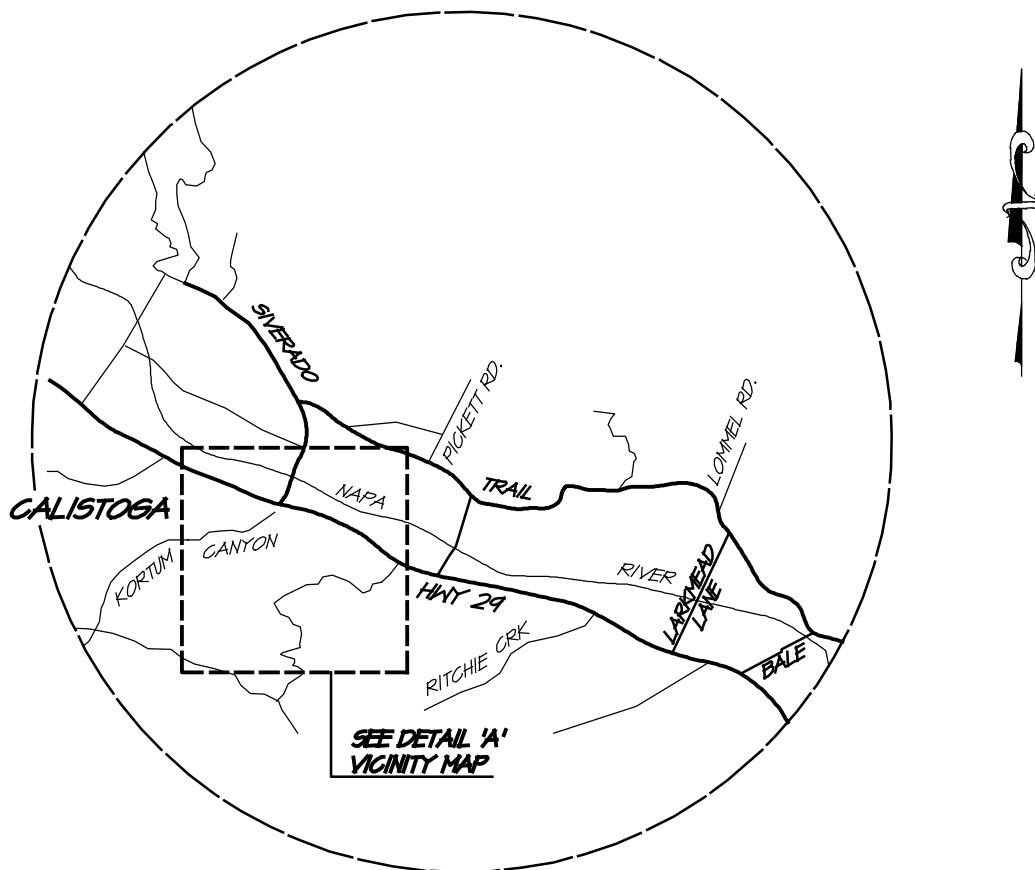
The design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with the current edition of the BASMAA Post-Construction Manual, dated January 2019.

ATTACHMENT 1

Vicinity Map, USGS Map, Aerial Photo, Soils Map

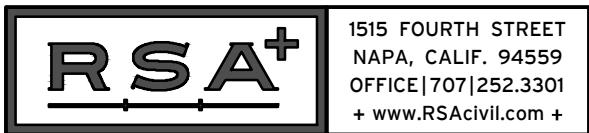
Diamond Creek Vineyards Vicinity Map

NAPA CALIFORNIA



LOCATION MAP

NOT TO SCALE



RSA⁺ | CONSULTING CIVIL ENGINEERS + SURVEYORS + est
1980

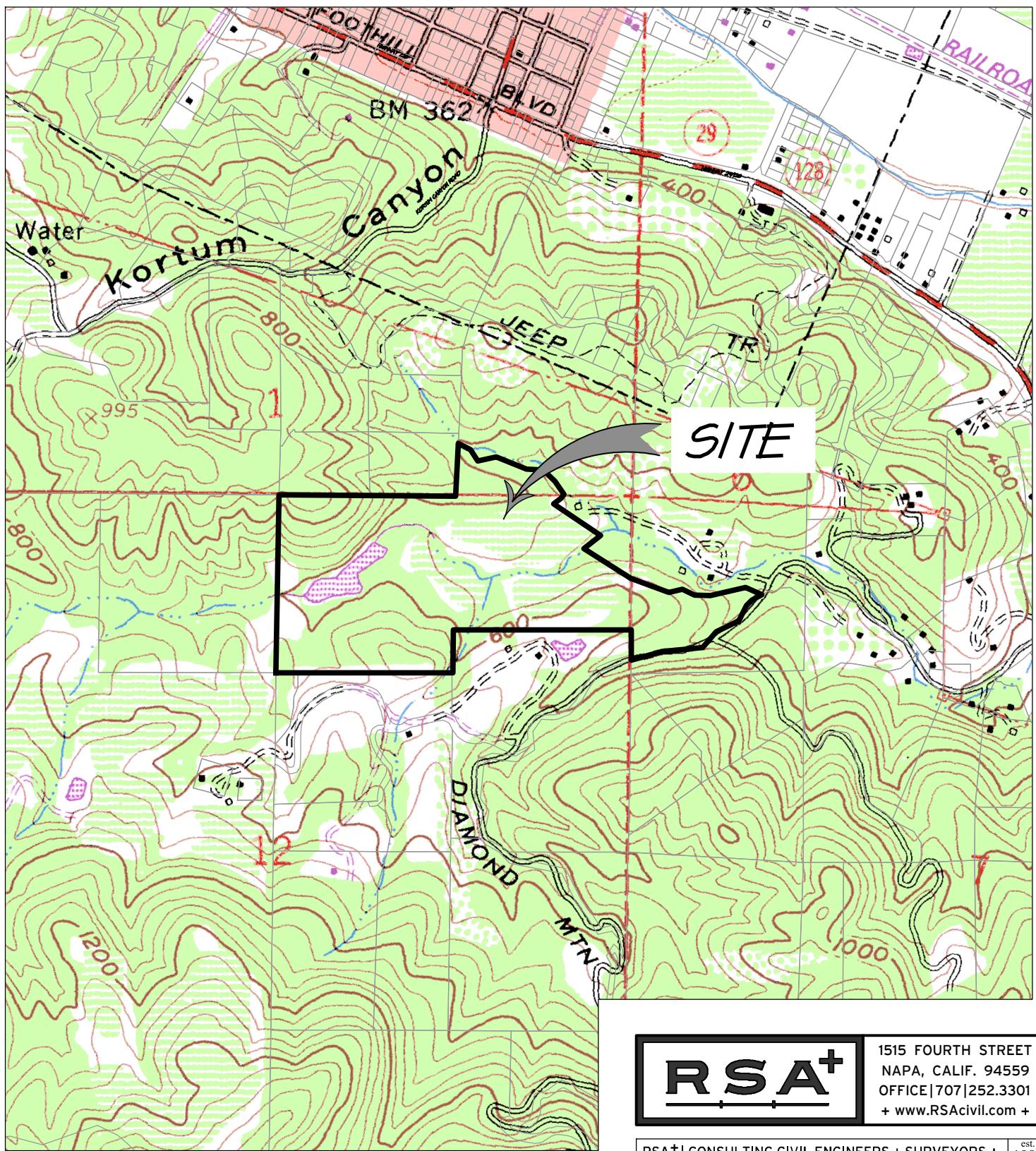
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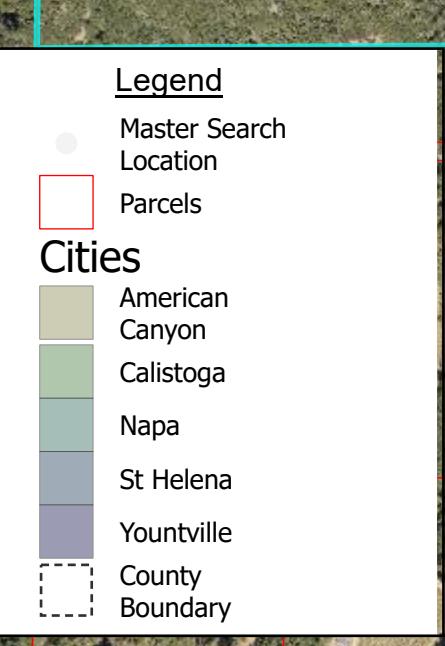
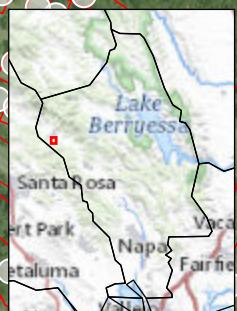
DIAMOND CREEK VINEYARDS USGS MAP

CALISTOGA

CALIFORNIA

SCALE: 1" = 1000'



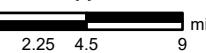


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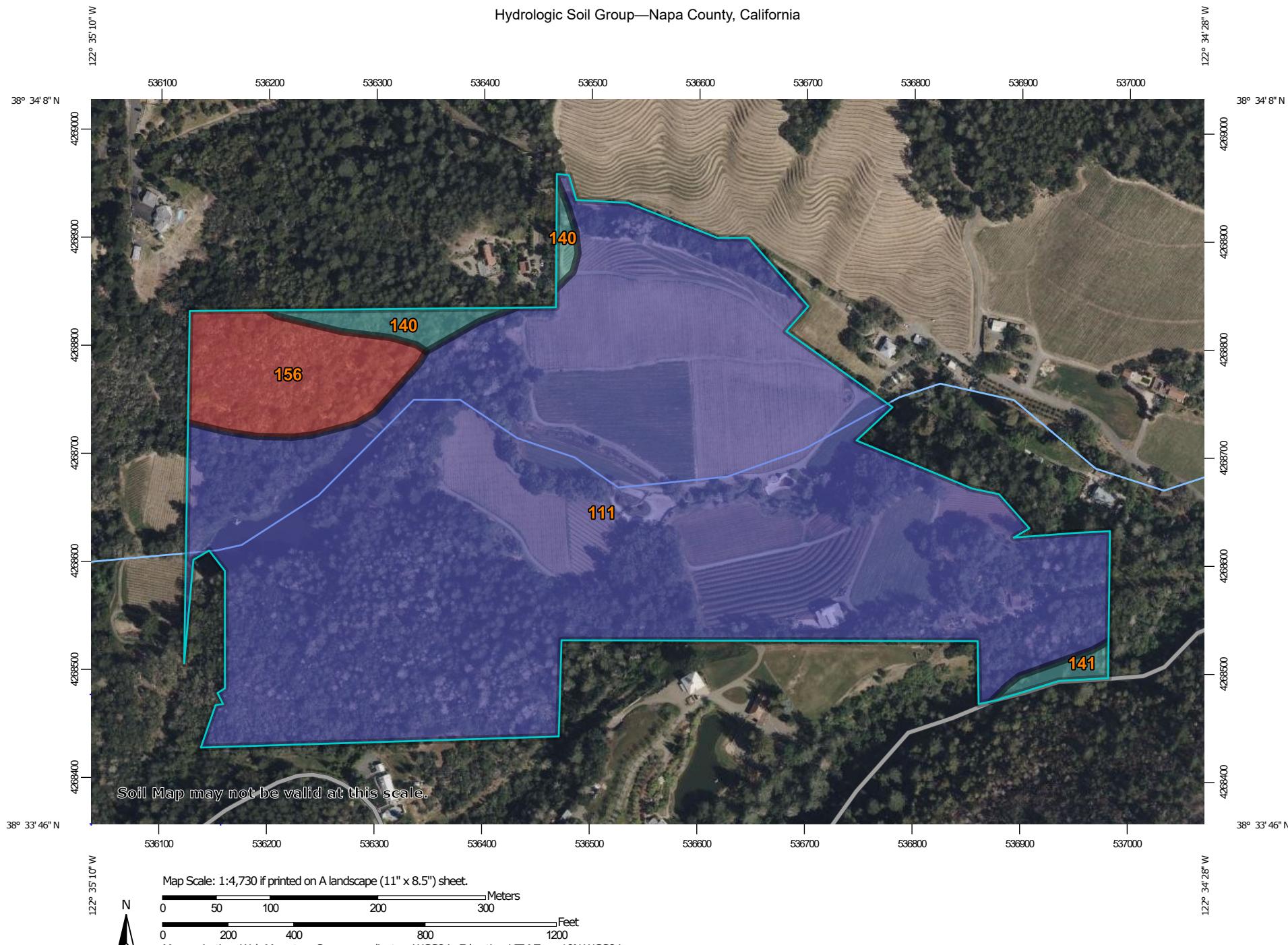
Diamond Creek Vineyards - Aerial

Printed On: 10/11/2022



Disclaimer: This map was prepared for informational purposes only. No liability is assumed for the accuracy of the data delineated hereon.

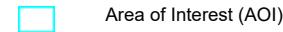
Hydrologic Soil Group—Napa County, California



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/20/2022
Page 1 of 4

MAP LEGEND**Area of Interest (AOI)****Soils****Soil Rating Polygons**

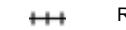
	A
	A/D
	B
	B/D
	C
	C/D
	D
	Not rated or not available

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:

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 14, Sep 9, 2021

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

Date(s) aerial images were photographed: Mar 26, 2022—Apr 25, 2022

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

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
111	Boomer-Forward-Felta complex, 5 to 30 percent slopes	B	60.5	89.9%
140	Forward silt loam, 12 to 57 percent slopes, MLRA 15	C	1.4	2.1%
141	Forward-Kidd complex, 11 to 60 percent slopes, MLRA 15	C	0.5	0.7%
156	Kidd loam, 30 to 75 percent slopes	D	4.9	7.3%
Totals for Area of Interest			67.3	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.

Rating Options

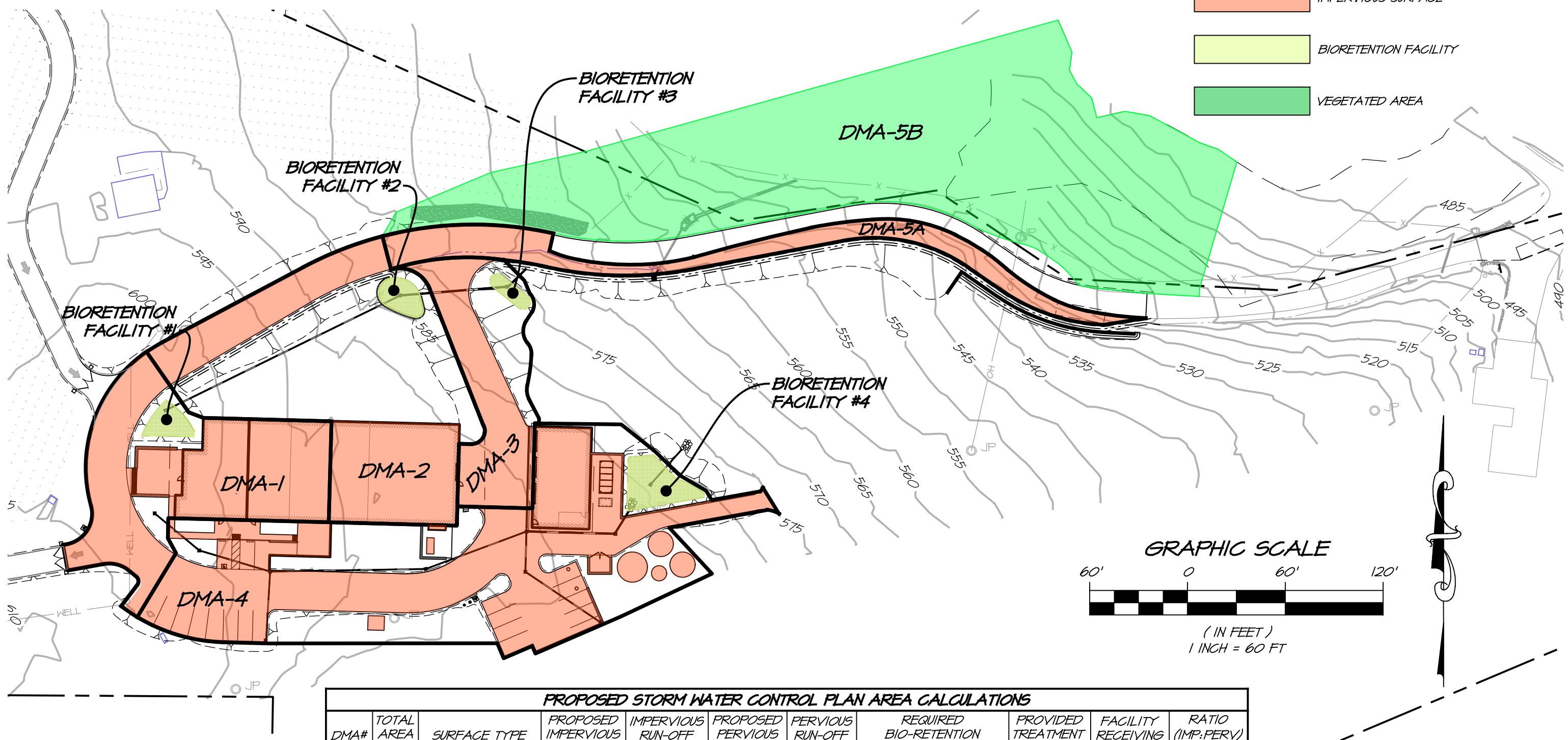
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ATTACHMENT 2
DRAINAGE MANAGEMENT AREA MAP

DIAMOND CREEK VINEYARDS DRAINAGE MANAGEMENT AREA MAP



PROPOSED STORM WATER CONTROL PLAN AREA CALCULATIONS										
DMA#	TOTAL AREA (SF)	SURFACE TYPE	PROPOSED IMPERVIOUS AREA (SF)	IMPERVIOUS RUN-OFF FACTOR	PROPOSED PERVIOUS AREA (SF)	PERVIOUS RUN-OFF FACTOR	REQUIRED BIO-RETENTION TREATMENT AREA (SF)	PROVIDED TREATMENT AREA (SF)	Facility Receiving Run-off	RATIO (IMP:PERV) (2:1 MAX)
1	12,681	DRIVEWAY, PARKING, ROOF, WALKWAY	10,712	1.0	1,969	0.1	436.4	443	BRB-2	
2	20,158	ROOF, DRIVEWAY, LANDSCAPED AREA	8,245	1.0	11,913	0.1	377.5	476	BRB-2	-
3	7,056	DRIVEWAY, WALKWAY	4,816	1.0	2,240	0.1	201.6	245	BRB-3	-
4	29,054	DRIVEWAY, PARKING, ROOF, WALKWAYS	18,292	1.0	10,762	0.1	774.7	985	BRB-4	-
5	5,730	DRIVEWAY	5,730 (DMA-5A)	1.0	0	0.1	-	39,077 (DMA-5B)		0.15