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Stormwater Control Plan & Treatment and Maintenance Plan

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**Stormwater Control Plan
For a Regulated Project for
Yountville Washington Street Winery**

January 28, 2016 (Original Submittal)

May 4, 2016 (Revision #1)

This plan was prepared using the instructions, criteria, and minimum requirements in the Bay Area Stormwater Management Agencies Association's (BASMAA's) *Post-Construction Manual*.

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Project Data

Table 1. Project Data Form

Project Name/Number	Yountville Washington Street Winery
Application Submittal Date	February 2016
Project Location	6170 Washington Street Napa, CA 94558 APN 036-110-009
Project Phase No.	N/A
Project Type and Description	New Winery Facility
Total Project Site Area (acres)	2.1 +/- (total disturbed area)
Total New and Replaced Impervious Surface Area	43,295 square feet (approximate)
Total Pre-Project Impervious Surface Area	0 square feet (approximate)
Total Post-Project Impervious Surface Area	43,295 square feet (approximate)

I. Setting

I.A. Project Location and Description

James Keller is applying for a Use Permit to construct and operate a new winery at the property located at 6170 Washington Street in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 036-110-009, is located along the east side of Washington Street approximately 1.2 miles south of downtown Yountville.

The roughly 10.5 acre parcel is zoned Agricultural Preserve (AP). Topography can be described as gently sloping with average slopes less than 5%. The United States Department of Agriculture Soil Conservation Service Soils Map for Napa County shows the entire property mapped as Clear Lake clay, drained (Hydrologic Soil Group D).

Existing improvements on the property include approximately 9.2 acres of vineyard and the associated access and utility infrastructure that support the existing agricultural uses.

A culvert conveys water underground from north to south across the central portion of the property. The culvert empties into a blueline stream that runs along the southern property boundary from east to west. The blueline stream is tributary to Dry Creek and the Napa River.

Proposed onsite improvements include three winery buildings, a trash enclosure and fire pump house, water tanks, wastewater systems, a driveway and parking. Offsite improvements include a new driveway approach on Washington Street. The planned site improvements are illustrated on the Yountville Washington Street Winery Conceptual Site Improvement Plans prepared by Applied Civil Engineering Incorporated.

I.B. Opportunities and Constraints for Stormwater Control

Opportunities for stormwater control include

1. Generally flat topography and elevation that will be afforded due to the building pad being raised above flood elevations. This will allow roof and impervious area runoff to be routed to treatment areas at lower elevations
2. Large vegetated buffer (vineyard with cover crop or stream setback area) between all site improvements and drainage ways.

Constraints for stormwater control include:

1. Potential for high seasonal groundwater conditions
2. Very slowly permeable soils (HSG D)
3. Lack of undeveloped areas given that most of the site is developed in vineyard

II. Low Impact Development Design Strategies

II.A. Optimization of Site Layout

II.A.1. Limitation of development envelope

The building site was selected to be as close to Washington Street as possible while maintaining the required 600' setback from highway 29. This minimizes the amount of new driveway needed to access the building site. The building site is also already disturbed due to its current use as a vineyard.

The proposed buildings and access roads have been carefully designed to preserve as much existing vegetation as possible.

II.A.2. Preservation of natural drainage features

All natural drainage features on the property will be preserved.

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

The project has been designed to provide stream setbacks as required by the Napa County Conservation Regulations. A 45 foot setback buffer will be provided between the development area and the top of bank of the adjacent blue line stream.

II.A.4. Minimization of imperviousness

All access ways and parking areas will be designed to the minimum width standards required for safe access to ensure that excess impervious surfaces are not created.

All buildings have been carefully designed to house the required functions with the minimum foot print necessary.

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

Drainage design will be coordinated with the landscape design to provide an aesthetically pleasing site layout that addresses stormwater control requirements.

II.B. Use of Permeable Pavements

Permeable pavements have not been designated at this time. If permeable pavements are incorporated into the final design they will be designed in accordance with manufacturers' recommendations and the BASMAA Post-Construction Manual requirements.

II.C. Dispersal of Runoff to Pervious Areas

The site layout and topography will allow for dispersal of runoff from impervious surfaces to pervious areas.

II.D. Stormwater Control Measures

Runoff from all impervious areas at the building site, including roofs and paved areas in the immediate vicinity of the winery facility, will be routed to bioretention facilities as shown on the Stormwater Control Plan Exhibit. The facilities will be designed and constructed to the criteria in the BASMAA Post-Construction Manual (July 2014), including the following features:

- Surrounded by a level concrete curb, wood header, steel edge or compacted soil berm. Where adjacent to pavement, curbs will be thickened and an impermeable vertical cutoff wall will be included if required by the soils engineer.
- Each layer built flat, level, and to the elevations specified in the plans:
 - Bottom of Gravel Layer (BGL)
 - Top of Gravel Layer (TGL)
 - Top of Soil Layer (TSL)
 - Overflow Grate
 - Facility Rim
- 12 inches of Class 2 permeable rock, Caltrans specification 68-2.02F(3)
- 18 inches sand/compost mix meeting BASMAA specifications
- 4 inch diameter SDR 35 PVC perforated pipe underdrain, installed with the invert at the top of the Class 2 permeable rock layer with holes facing down, and connected to the overflow structure at that same elevation
- 6-inch-deep reservoir between top of soil elevation and overflow elevation
- Concrete drop inlet with frame overflow structure, with grate set to specified elevation, connected to storm drain (overflow used where storm drain connection is available and omitted where no storm drain exists)
- Vertical cutoff walls where needed to protect adjacent pavement
- Plantings selected for water conservation
- Irrigation system on a separate zone, with drip emitters and "smart" irrigation controllers
- Sign identifying the facility as a stormwater treatment facility.

The only significant new and reconstructed impervious area on the site which does not drain to a bioretention facility is the long linear driveway. The driveway surface drains to adjacent vineyards and vegetated areas that will filter, disperse and infiltrate runoff before it reaches the receiving waters.

III. Documentation of Drainage Design

III.A.Descriptions of Each Drainage Management Area

III.A.1. Table of Drainage Management Areas

DMA Name	Surface Type	Area (square feet)
DMA #1	AC & Concrete Paving & Landscape	6,760 +/-
DMA #2	Roof, patio, landscape	14,325
DMA #3	Roof, AC and Concrete Paving & Landscape	8,200
DMA #4	Roof, Concrete Patio & Tanks & Gravel Pad & Landscape	7,185
DMA #5	Bike Rack, Driveway & Landscape	7,970
DMA #6	Driveway	6,920

III.A.2. Drainage Management Area Descriptions

DMA #1, totaling 6,760 square feet, drains the visitor parking lot and adjacent landscape area. DMA #1 drains to Bioretention Area #1.

DMA #2, totaling 14,325 square feet, drains the hospitality and production building roofs and adjacent concrete patios and landscape area. DMA #2 drains to Bioretention Area #2.

DMA #3, totaling 8,200 square feet, drains the parking and turnaround area south of the production building and adjacent landscape area. DMA #3 drains to Bioretention Area #3.

DMA #4, totaling 7,185 square feet, drains the concrete patio adjacent to the production building and the gravel equipment pad and adjacent landscape area. DMA #4 drains to Bioretention Area #4.

DMA #5, totaling 7,970 square feet, drains the bike rack, driveway and adjacent landscape areas. DMA #5 drains to Vegetated Receiving Area #5.

DMA #6, totaling 6,920 square feet, drains the driveway and adjacent landscape areas. DMA #6 drains to Vegetated Receiving Area #6.

III.B. Tabulation and Sizing Calculations

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

Total Project Area (Square Feet)	
DMA #1	6,760 +/-
DMA #2	14,325
DMA #3	8,200
DMA #4	7,185

III.B.2. Self-Treating Areas

DMA Area
Name (square feet)

None	
------	--

III.B.3. Self-Retaining Areas

DMA Area
Name (square feet)

None	
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III.B.4. Vegetated Receiving Areas

DMA Area
Name (square feet)

DMA #5	7,970 +/-
DMA #6	6,920 +/-

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]
None							

III.B.5. 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 Area #1		
#1	5,360	Imperv	1	5,360	Sizing factor	Minimum Facility Size	Proposed Facility Size
	1,400	Perv	.1	140			
Total=				5,500	0.04	220	220

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Facility Name		
					Bioretention Area #2		
#2	11,645	Imperv	1	11,645	Sizing factor	Minimum Facility Size	Proposed Facility Size
	2,680	Perv	.1	268			
Total=				11,913	0.04	477	480

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Facility Name		
					Bioretention Area #3		
#3	6,440	Imperv	1	6,440	Sizing factor	Minimum Facility Size	Proposed Facility Size
	1,760	Perv	.1	176			
Total=				6,616	0.04	265	270

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Facility Name		
					Bioretention Area #4		
#4	5,050	Imperv	1	5,050	Sizing factor	Minimum Facility Size	Proposed Facility Size
	2,135	Perv	.1	214			
Total=				5,264	0.04	211	220

III.B.6. Areas Draining to Vegetated Receiving Areas

DMA Name	Area (square feet)	Post-project surface type	Runoff factor	Product runoff factor [A]	Vegetated receiving area DMA	Receiving self-retaining DMA Area (square feet) [B]	Ratio [A]/[B]
DMA #5	7,970 +/-	Impervious	1	7,970 +/-	#5	4,160 +/-	1.9
DMA #6	6,920 +/-	Impervious	1	6,920 +/-	#6	5,100	1.4

IV. Source Control Measures

IV.A. Site activities and potential sources of pollutants

IV.B. Source Control Table

Potential source of runoff pollutants	Permanent source control BMPs	Operational source control BMPs
<input checked="" type="checkbox"/> Storm Drain Inlets	<input checked="" type="checkbox"/> Mark all inlets with the words "No Dumping! Drains to Waterway" or similar.	<input checked="" type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input checked="" type="checkbox"/> Provide stormwater pollution prevention information to all onsite personnel. <input checked="" type="checkbox"/> See applicable BMPs in Fact Sheet SC-44, "Drainage System Maintenance" in the CASQA Stormwater Quality Handbook at: www.casqa.org/resources/bmp-handbooks <input checked="" type="checkbox"/> Include the following in lease agreements (if facility is leased): "Tenant shall not allow anyone to discharge anything to the storm drains or to store or deposit materials so as to create a potential discharge to storm drains."

<input checked="" type="checkbox"/> Interior Floor Drains and Elevator Shaft Pumps	<input checked="" type="checkbox"/> All interior floor drains will be plumbed to the sanitary sewer.	<input checked="" type="checkbox"/> Inspect and maintain drains to prevent blockage and overflow.
<input type="checkbox"/> Interior Parking Garages	<input type="checkbox"/> Parking garage floor drains will be plumbed to the sanitary sewer	<input type="checkbox"/> Inspect and maintain drains to prevent blockage and overflow.
<input checked="" type="checkbox"/> Indoor and Structural Pest Control	<input checked="" type="checkbox"/> Buildings will be designed to meet applicable code requirements to discourage entry of pests.	<input checked="" type="checkbox"/> Provide Integrated Pest Management information to Owners, lessees and operators.
<input checked="" type="checkbox"/> Landscape / Outdoor Pesticide Use / Building and Grounds Maintenance	<input checked="" type="checkbox"/> Landscape will be designed to accomplish the following: Preserve existing native trees, shrubs and groundcover to the maximum extent practicable. Minimize irrigation and runoff, promote surface infiltration where appropriate and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Where landscape areas are used to retain or detain stormwater plants that are tolerant of saturated soil conditions will be used. Pest resistant plants will be specified where practicable. Plants will be selected for site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency and plant interactions.	<input checked="" type="checkbox"/> Maintain landscaping using the minimum required or no pesticides and fertilizers. <input checked="" type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance" in the CASQA Stormwater Quality Handbook at: www.casqa.org/resources/bmp-handbooks <input checked="" type="checkbox"/> Provide IPM information to new owners, lessees and operators.
<input checked="" type="checkbox"/> Pools, Spas, Ponds, Decorative Fountains and other Water	<input checked="" type="checkbox"/> Do not connect to onsite wastewater disposal systems. Drain to landscape	<input checked="" type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance" in the CASQA Stormwater Quality Handbook at:

Features	area for infiltration	www.casqa.org/resources/bmp-handbooks
<input type="checkbox"/> Food Service	<input type="checkbox"/> Restaurants, grocery stores and other food service operations will have a floor sink or other area for cleaning floor mats, containers and equipment located either indoors or in a covered area outdoors.	<input type="checkbox"/> Drain must be connected to grease interceptor and grease interceptor must be pumped whenever solids accumulate to 35% of total tank capacity.
<input checked="" type="checkbox"/> Refuse Areas	<input checked="" type="checkbox"/> Refuse and recycling will be collected in the trash enclosure. The enclosure will be fenced to prevent dispersal of materials. If covered, the area will be drained to the sanitary sewer system. If not covered, all bins will have water tight lids. Adjacent areas will be graded to prevent run-on.	<input checked="" type="checkbox"/> Refuse area must be patrolled and cleaned regularly.
<input checked="" type="checkbox"/> Industrial Processes	<input checked="" type="checkbox"/> All winery processing activities to be performed indoors or outdoors under roof. No processes to drain to exterior or to storm drain system.	<input checked="" type="checkbox"/> See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at: www.casqa.org/resources/bmp-handbooks

<input checked="" type="checkbox"/> Outdoor Storage (Equipment or Materials)	<input checked="" type="checkbox"/> All winemaking materials to be used onsite are to be unloaded and immediately moved to a covered area to minimize exposure to rainfall. <input checked="" type="checkbox"/> Material deliveries shall be scheduled for times when it is not raining to minimize exposure to rainfall. <input checked="" type="checkbox"/> Facility shall comply with Napa County requirements for Hazardous Waste Generation, Storage and Disposal, Hazardous Materials Release Response and Inventory, California Accidental Release (CalARP) and Uniform Fire Code Article 80 Section 103(b) & (c) 1991	<input checked="" 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 at: www.casqa.org/resources/bmp-handbooks
<input checked="" type="checkbox"/> Vehicle and Equipment Cleaning	<input checked="" type="checkbox"/> No vehicle or equipment washing will be performed onsite. All employees will be informed that car washing is prohibited.	<input checked="" type="checkbox"/> Not Applicable
<input checked="" type="checkbox"/> Vehicle and Equipment Repair and Maintenance	<input checked="" type="checkbox"/> No vehicle or equipment repairs will be performed onsite. All employees will be informed that vehicle maintenance onsite is prohibited.	<input checked="" type="checkbox"/> Notify all future owners, lessees and operators that the following restrictions apply to this site: <input checked="" type="checkbox"/> No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinse water from parts cleaning into storm drains. <input checked="" type="checkbox"/> No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. <input checked="" type="checkbox"/> No person shall leave unattended parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.

<input type="checkbox"/> Fuel Dispensing Areas	<p>No vehicle fueling will be performed onsite. All employees will be informed that vehicle fueling onsite is prohibited.</p>	<p><input type="checkbox"/> The property owner, lessee or operator, as applicable, shall dry sweep the fueling area routinely.</p> <p><input type="checkbox"/> See the Business Guide Sheet, “Automotive Service—Service Stations” in the CASQA Stormwater Quality Handbooks at:</p> <p>www.casqa.org/resources/bmp-handbooks</p>
<input type="checkbox"/> Loading Docks	<p><input type="checkbox"/> Loading docks shall be covered and graded to minimize run-on to and runoff from the loading area.</p> <p><input type="checkbox"/> Roof downspouts shall be positioned to direct stormwater away from the loading area.</p> <p><input type="checkbox"/> Water from loading dock areas shall be drained to a containment system that is pumped regularly to avoid overflows.</p>	<p><input type="checkbox"/> Move loaded and unloaded items indoors as soon as possible. See Fact Sheet SC-30, “Outdoor Loading and Unloading” in the CASQA Stormwater Quality Handbooks at:</p> <p>www.casqa.org/resources/bmp-handbooks</p>
<input checked="" type="checkbox"/> Fire Sprinkler Test Water	<p><input checked="" type="checkbox"/> Provide a means to drain fire sprinkler test water to infiltrate into landscaping and not discharge to the storm drain.</p>	<p><input checked="" type="checkbox"/> See the note in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks at:</p> <p>www.casqa.org/resources/bmp-handbooks</p>

<p>Miscellaneous Drain, Wash Water or Other Sources</p> <p><input checked="" type="checkbox"/>Boiler Drain Lines</p> <p><input checked="" type="checkbox"/>Condensate Drain Lines</p> <p><input checked="" type="checkbox"/>Rooftop Equipment</p> <p><input type="checkbox"/>Drainage Sumps</p> <p><input checked="" type="checkbox"/>Roofing, Gutters and Trim</p> <p><input type="checkbox"/>Other:</p>	<p><input checked="" type="checkbox"/>Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.</p> <p><input checked="" type="checkbox"/>Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur.</p> <p><input checked="" type="checkbox"/>Condensate drain lines may not discharge to the storm drain system.</p> <p><input checked="" type="checkbox"/>Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.</p> <p><input type="checkbox"/>Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.</p> <p><input type="checkbox"/>Include controls for other sources as specified by local agency.</p>	<p>If architectural copper is used, implement the following BMPs for management of rinsewater during installation:</p> <p><input type="checkbox"/>If possible, purchase copper materials that have been pre-patinated at the factory.</p> <p><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.</p> <p><input type="checkbox"/>Consider coating the copper materials with an impervious coating that prevents further corrosion and runoff.</p> <p><input type="checkbox"/>Implement the following BMPs during routine maintenance:</p> <p><input type="checkbox"/>Prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling offsite.</p>
<p><input checked="" type="checkbox"/>Plazas, Sidewalks and Parking Lots</p>	<p>None.</p>	<p><input checked="" type="checkbox"/>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 haul offsite to municipal waste treatment plant for disposal, do not discharge to a storm drain.</p>

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

Full design specifications for all source control BMPs will be submitted with the building permit drawing package.

V. Stormwater Facility Maintenance

V.A. Ownership and Responsibility for Maintenance in Perpetuity

The Applicant must commit to executing a Post Construction Stormwater BMP Maintenance Agreement which will be recorded with Napa County. This agreement will obligate the applicant to accept responsibility for operation and maintenance of stormwater treatment and flow-control facilities in perpetuity or until such time as this responsibility is formally transferred to a subsequent property owner. Refer to the Stormwater Treatment Facilities Operation and Maintenance Plan for Yountville Washington Street Winery for detailed requirements.

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

The bioretention facilities will be maintained on the following schedule at a minimum. Details of maintenance responsibilities and procedures will be included in a Stormwater Facility Operation and Maintenance Plan to be submitted for approval prior to the completion of construction.

At no time will synthetic pesticides or fertilizers be applied, nor will any soil amendments, other than aged compost mulch or sand/compost mix, be introduced.

Daily: The facilities will be examined for visible trash during regular policing of the site, and trash will be removed.

After Significant Rain Events: A significant rain event is one that produces approximately a half-inch or more rainfall in a 24-hour period. Within 24 hours after each such event, the following will be conducted:

The surface of the facility will be observed to confirm there is no ponding.

- Inlets and outlets will be inspected, and any accumulations of trash or debris will be removed.
- The surface of the mulch layer will be inspected for movement of material. Mulch will be replaced and raked smooth if needed.

Prior to the Start of the Rainy Season: In September or each year, the facility will be inspected to confirm there is no accumulation of debris that would block flow, and that growth and spread of plantings does not block inlets or the movement of runoff across the surface of the facility.

Annual Landscape Maintenance: In December – February of each year, vegetation will be cut back as needed, debris removed, and plants and mulch replaced as needed. The concrete work will be inspected for damage. The elevation of the top of soil and mulch layer will be confirmed to be consistent with the 6-inch reservoir depth.

Refer to the Stormwater Treatment Facilities Operation and Maintenance Plan for Yountville Washington Street Winery for additional stormwater facility maintenance requirements.

VI. Construction Checklist

Stormwater
Control

Plan Source Control or Treatment Control
Page # Measure

C4	Bioretention Areas #1, #2, #3, #4, #5	
C4	Storm Drain Inlets	
C4	Interior Flood Drains and Elevator Shaft Pumps	
N/A	Interior Parking Garages	
C4	Indoor and Structural Pest Control	
C4	Landscape / Outdoor Pesticide Use / Building and Grounds Maintenance	
C4	Pools, Spas, Ponds, Decorative Fountains and other Water Features	
N/A	Food Service	
C4	Refuse Areas	
C4	Industrial Processes	
C4	Outdoor Storage (Equipment or Materials)	
N/A	Vehicle and Equipment Cleaning	
N/A	Vehicle and Equipment Repair and Maintenance	
N/A	Fuel Dispensing Areas	
N/A	Loading Docks	
C4	Fire Sprinkler Test Water	
C4	Miscellaneous Drain, Wash Water or Other Sources Boiler Drain Lines Condensate Drain Lines Rooftop Equipment	

	Drainage Sumps Roofing, Gutters and Trim Other:	
C4	Plazas, Sidewalks and Parking Lots	

VII. Certifications

This preliminary design of stormwater treatment facilities and other stormwater pollution control measures in this plan are intended to be in accordance with the current edition of the BASMAA *Post-Construction Manual* as required by Napa County.

DRAFT

**Stormwater Treatment Facilities
Operation and Maintenance Plan
Yountville Washington Street Winery**

January 28, 2016 (Original Submittal)

May 4, 2016 (Revision #1)

This plan was prepared using the instructions, criteria, and minimum requirements in the Bay Area Stormwater Management Agencies Association's (BASMAA's) *Post-Construction Manual*.

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I. Introduction

I.A. Project Description

James Keller is applying for a Use Permit to construct and operate a new winery at the property located at 6170 Washington Street in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 036-110-009, is located along the east side of Washington Street approximately 1.2 miles south of downtown Yountville.

The roughly 10.5 acre parcel is zoned Agricultural Preserve (AP). Topography can be described as gently sloping with average slopes less than 5%. The United States Department of Agriculture Soil Conservation Service Soils Map for Napa County shows the entire property mapped as Clear Lake clay, drained (Hydrologic Soil Group D).

Existing improvements on the property include approximately 9.2 acres of vineyard and the associated access and utility infrastructure that support the existing agricultural uses.

A culvert conveys water underground from north to south across the central portion of the property. The culvert empties into a blueline stream that runs along the southern property boundary from east to west. The blueline stream is tributary to Dry Creek and the Napa River.

Proposed onsite improvements include three winery buildings, a trash enclosure and fire pump house, water tanks, wastewater systems, a driveway and parking. Offsite improvements include a new driveway approach on Washington Street. The planned site improvements are illustrated on the Yountville Washington Street Winery Conceptual Site Improvement Plans prepared by Applied Civil Engineering Incorporated.

II. Designation of Responsible Individuals (to be updated in final O & M plan)

II.A. Designated Contact for Operation and Maintenance

James Keller
1775 Lincoln Avenue
Napa, CA 94558
(707) 258-5230
Jfkeller33@yahoo.com

II.B. Off-Hours or Emergency Contact

James Keller
1775 Lincoln Avenue
Napa, CA 94558
(707) 258-5230
Jfkeller33@yahoo.com

II.C. Corporate Officer (authorized to execute agreements with the City, Town, or County)

James Keller
1775 Lincoln Avenue
Napa, CA 94558
(707) 258-5230
Jfkeller33@yahoo.com

II.D. Initial Training of Responsible Individuals

Following completion of construction, the bioretention facilities will be maintained by the contractor for one month, except for routine policing for trash, which will be done by the owner's personnel. During this one month period, the owner's landscape maintenance crew will coordinate to meet with the contractor's personnel on-site during maintenance. At these times, the contractor's personnel will demonstrate proper maintenance procedures.

III. Facilities to be Maintained

III.A. Facility Descriptions

There are four bioretention facilities onsite. All of the bioretention facilities have the following general features:

- Surrounded by a concrete curb, wood header, steel edge or earth berm. Where adjacent to pavement, curbs are thickened and an impermeable vertical cutoff wall protects the pavement subgrade from moisture intrusion.
- Each layer built flat and level. See Figure 1.
- 12 inches of Class 2 permeable, Caltrans specification 68-2.02F(3)
- 18 inches sand/compost mix
- 4 in. dia. PVC SDR 35 perforated pipe underdrain, installed with the invert at the top of the Class 2 permeable layer with holes facing down, and connected to the overflow structure at that same elevation

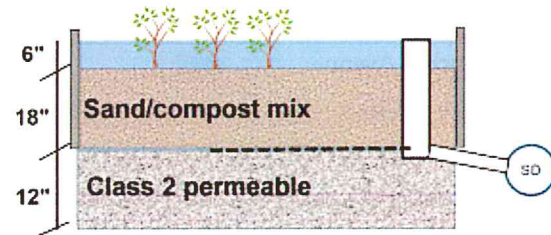


Figure 1. Bioretention Cross-Section (schematic)

- 6-inch-deep reservoir between top of soil elevation and overflow grate elevation
- Concrete drop inlet with frame overflow structure, with grate set to specified elevation, connected to storm drain in Main Street
- Plantings
- Irrigation system with drip emitters and "smart" irrigation controllers
- Sign identifying the facility as a stormwater treatment facility.

There are two vegetated receiving areas that receive runoff from impervious surfaces on the property. These areas are along the driveway within the vineyard are maintained with an annual grass cover crop that filters and disperses runoff from the impervious areas.

III.B. Facility Locations and Tributary Drainage Areas

See attached Stormwater Control Plan Exhibit for location of drainage management areas, bioretention facilities and vegetated receiving areas.

III.B.1. Bioretention Area #1

DMA #1, totaling 6,760 square feet, drains the visitor parking lot and adjacent landscape area. DMA #1 drains to Bioretention Area #1.

III.B.2. Bioretention Area #2

DMA #2, totaling 14,325 square feet, drains the hospitality and production building roofs and adjacent concrete patios and landscape area. DMA #2 drains to Bioretention Area #2.

III.B.3. Bioretention Area #3

DMA #3, totaling 8,200 square feet, drains the parking and turnaround area south of the production building and adjacent landscape area. DMA #3 drains to Bioretention Area #3.

III.B.4. Bioretention Area #4

DMA #4, totaling 7,185 square feet, drains the concrete patio adjacent to the production building and the gravel equipment pad and adjacent landscape area. DMA #4 drains to Bioretention Area #4.

III.B.5. Vegetated Receiving Area #5

DMA #5, totaling 7,970 square feet, drains the bike rack, driveway and adjacent landscape areas. DMA #5 drains to Vegetated Receiving Area #5.

III.B.6. Vegetated Receiving Area #6

DMA #6, totaling 6,920 square feet, drains the driveway and adjacent landscape areas. DMA #6 drains to Vegetated Receiving Area #6.

III.C. Facility Construction Details

Facility construction details to be added following construction to document as-built conditions.

IV. Schedule of Maintenance Activities

IV.A. Routine Activities

The facilities will be examined daily for visible trash during regular policing of the site, and trash will be removed. Any graffiti, vandalism, or other damage will be noted and addressed within 48 hours.

The planted areas will be weeded by hand approximately monthly. At this time plants will be inspected for health and the irrigation system will be turned on manually and checked for any leaks or broken lines, misdirected spray patterns etc. Any dead plants will be replaced.

The vegetated receiving areas will be maintained with a cover crop in accordance with the approved erosion control plan. Additional seeding will be performed as needed to achieve the design cover requirements.

IV.B. Following Significant Rain Events

A significant rain event will be considered to be one that produces approximately a half-inch or more rainfall in a 24-hour period. Within 24 hours after each such event, the following will be conducted:

- The surface of the facility will be observed to confirm there is no ponding. If ponding is observed replacement of soil media may be needed
- Inlets and outlets will be inspected, and any accumulations of trash or debris will be removed.
- The surface of the mulch layer will be inspected for movement of material. Mulch will be replaced and raked smooth if needed.

IV.C. Annual Maintenance

In September or each year, facility inlets and outlets will be inspected to confirm there is no accumulation of debris that would block flow. If not previously addressed during monthly maintenance, any growth and spread of plantings that blocks inlets or the movement of runoff across the surface of the facility will be cut back or removed.

Once, in December – February of each year, vegetation will be cut back as needed, debris removed, and plants and mulch replaced as needed. The concrete perimeter or soil berm will be inspected for damage. The elevation of the top of soil and mulch layer will be confirmed to be consistent with the 6-inch reservoir depth.