BkF 100+ YEARS
ENGINEERS . SURVEYORS . PLANNERS

Job No. 20109009

FINAL
STORMWATER LID SUBMITTAL

FOR

ELEM TREE STATION

874 NORTH WRIGHT ROAD

SANTA ROSA, CA

APN (035-063-001)

DECEMBER 2018

Developer/Owner:
MD Wine and Liquor
2743 Yulupa Avenue
Santa Rosa, CA 95404
(775) 546-7500

City of Santa Rosa
Planning & Economic
Development Department
Dec 17, 2021
RECEIVED

APPLICANT/OWNER

As the Applicant/Owner, I declare that permanent storm water Best Management Practices will be installed and maintained in accordance with this document and municipal regulations.

_____

CIVIL ENGINEER

This document was prepared by BKF Engineers to summarize storm water Best Management Practices proposed with this development. Storm water elements reflected in this document have been designed using sound engineering principals in general conformance with the municipality's guidelines.

ERIC D. WADE, P.E. (No. C-81862)
BKF Engineers 12.21.18

REGISTERED PROFESSIONAL ENGINEER
ERIC DANIEL WADE
C 81862
Exp 3.31.20
CIVIL
STATE OF CALIFORNIA

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GENERAL INFORMATION REGARDING THE PURPOSE OF STORM WATER BMPS

Storm water runoff Best Management Practices (BMPs) are programs, processes or engineered systems designed to reduce pollutants in storm water. Temporary Best Management Practices such as straw wattle and silt fence are used to reduce pollutants in storm water during construction while permanent storm water Best Management Practices are intended to reduce pollutants in storm water for the life of the development following construction.

Studies suggest that approximately 85% of our annual rainfall volume is produced from the predominant population of smaller storms. Therefore, in an effort to treat storm water in a cost effective manner, storm water quality management is typically designed to target these smaller events.

The Low Impact Development Technical Design Manual

The manual requires that a "Determination Worksheet" be prepared by the Applicant to evaluate whether or not stormwater BMPs are required with each development. Developments which require permanent stormwater BMPs also require a maintenance agreement between the municipality and the legally responsible entity which assigns the responsibility for maintaining BMPs. The agreement is recorded as a covenant, runs with the land and passes with Title. A copy of the maintenance agreement that has been provided to the City is included in the appendix of this report.

Permanent stormwater Best Management Practices are categorized in the LID Technical Design Manual as being Pollution Prevention Measures, Volume Control Measures or Treatment Control Measures, which are described in the following sections of this document.

Permanent storm water Best Management Practices are categorized in the LID Technical Design Manual as being Pollution Prevention Measures, Volume Control Measures or Treatment Control Measures which are described in the following sections of this document.

Storm Water Pollution Prevention Measures

Pollution Prevention Measures, sometimes referred to as Source Control Measures, are practices such as street sweeping which help keep pollutants from coming into contact with storm water rather than attempting to remove pollutants after they have interacted with storm water. Educational outreach programs and stenciling storm water inlets with graphics which inform people that the storm water drains to the creek are effective Pollution Prevention Measures. Trees are another effective Pollution Prevention Measure and provide several storm water management benefits. They hold water on leaves / branches and allow water to evaporate, retaining flow and dissipating the energy of runoff. Trees also reduce the amount of water coming into contact with other impervious surfaces such as parking lots, which minimizes pollution in downstream water bodies

Our local municipalities recognize the environmental benefit to incorporating Pollution Prevention Measures into designs and allow area offset credits with the implementation of trees which intercept falling precipitation, pervious pavements which encourage infiltration and storm water discharge through landscape areas as a pre-treatment measure. The pollution prevention credits reduce the size of required Volume and Treatment Control Measures.

Storm Water Volume Control Measures

The LID Technical Design Manual prioritizes BMPs and requires that the designer first consider measures which capture stormwater runoff from impervious surfaces and encourage infiltration. Developments in areas subject to contaminated soil or high groundwater are discouraged from integrating measures which infiltrate stormwater and are required to incorporate alternative designs which harvest stormwater and treat runoff from impervious surfaces. Offset areas are sometimes used within a site when it is more practical to treat stormwater from and existing impervious surface of similar character.

Storm Water Treatment Control Measures

Treatment Control BMPs are engineered systems that are designed to remove pollutants from stormwater and are often categorized as being landscape-based or mechanical.

Landscape-based treatment controls are required to make up at least 50% of a BMP. Mechanical treatment controls such as subsurface vaults that filter stormwater through sand or engineered media are generally only allowed when used in conjunction with other landscape based controls.

All treatment control BMPs for this project are categorized as Bioretention Areas.

PROJECT DESCRIPTION

The project site, APN 035-063-001, is a currently undeveloped parcel located on the western edge of Santa Rosa along North Wright Road. Most of the approximately 1.12 acre site is proposed to be developed for construction of a retail market, gas service station, electric car recharging station and a small commercial building. Both construction and final vehicle access to the development will be provided at North Wright Road. The parcel is bordered by Blue Star Gas to the south (APN 035-063-002), undeveloped land to the east (APN 035-063-005) and the Joe Rodota Trail to the north (APN 035-051-028 and APN 035-063-061).

Permanent Storm Water Best Management Practices are required with this development because the project requires a building permit for a new structure and it proposes more than 10,000sf of new impervious surfaces. The improvement will create less than one acre of impervious area. Since this project proposes to impact an existing isolated wetlands area, a 401 clean water certification from the Regional Water Quality Control Board and 404 permit from the Army Corps of Engineers are required. Therefore, the proposed BMPs will be reviewed by these agencies simultaneously with the City of Santa Rosa Engineering Department review.

The area-wide drainage is currently overland flow with numerous depressions which catch rainwater in pools and shallow swales. The lands to the east and south of this site generally flow in a westerly direction. The development proposes to integrate a series of Bioretention Areas which capture site runoff during light precipitation events in accordance with the priority 1 objective of the City's LID Technical Design Manual. Storm water for larger events is anticipated to drain similar to the pre-developed condition, utilizing the existing established storm drain system. The site has been designed to have positive gradients away from structures with overland relief.

STORM WATER BMPS SELECTED FOR THIS SITE

This project has been designed to incorporate temporary and permanent stormwater Best Management Practices to minimize the introduction of pollutants in downstream water bodies.

Pollutants of Concern

The primary pollutants of concern for this project are: liquefied hydrocarbons, sediments, trash, and debris. Spill prevention measures will be implemented as required by the Santa Rosa Fire Department, the fueling canopy will discourage rainwater from washing small amounts of fuel into the storm drain, and a diversion valve on the downstream stormdrain inlet should be installed to divert larger spills from entering the stormdrain system. Sediments due to exposed dirt during construction are required to be contained within the site by using temporary erosion and sediment control measures. The vegetated Bioretention Area has been designed to treat or remove the aformentioned pollutants of concern to the maximum extent practical. The surface of the Bioretention Area should be planted with a dense ground over to help capture trash.

Temporary Measures

An Erosion Control Plan is included with the construction drawings requiring the contractor to implement temporary stormwater BMPs. The contractor will be required to use fiber rolls or similar measures to collect sediment and filter water before allowing its discharge to downstream areas. A construction entrance is shown on the drawings as having a blanket of rock to assist with removing dirt from trucks to minimize soil tracked into adjacent streets during construction.

Pollution Prevention Measures

As part of this project, storm water inlets will be stenciled with graphics which identify that the inlets drain to the creek. The trash enclosure will be roofed, and the surrounding pavement has been designed to prevent storm water from entering the enclosure. Irrigation systems will be designed to minimize overspray to help prevent chlorinated water from entering the storm drain.

Pollution Prevention Credits

The LID Technical Design Manual allows area offset credits with the implementation of certain Pollution Prevention Measures. New trees will be planted with this development creating an opportunity to intercept precipitation from falling on impervious surfaces beneath them. Tree reduction credit computations were performed using the municipality's storm water calculator and may be observed in the appendix of this report.

Permanent Volume Control Measures

The Storm Water LID Technical Design Manual requires that measures be incorporated into each site which capture storm water runoff from impervious surfaces and encourage infiltration for the life of the development following construction. The low percolation rate of Sonoma County soils does make infiltration a challenging objective. The LID manual acknowledges this, suggesting that designs incorporate engineered media and similar mechanisms which create void space to store water and allow infiltration over time.

Vegetated Swales containing porous engineered media are being incorporated into the site to capture the post development storm water runoff during light precipitation events and encourage infiltration in harmony with the Priority 1 objectives of the LID Technical Design Manual. An exhibit has been included in the body of this report which reflects the proposed geometry and location of the Vegetated Swales.

A Landscape Architect was retained to design attractive water efficient landscaping best suited on the surface of the volume capture areas and tree species best suited to be classified as "interceptor trees". An exhibit has been included in the body of this report which reflects the proposed location of each interceptor tree.

The Soil Conservation Service, known today as the Natural Resource Conservation Service, developed a process to estimate storm water runoff and compute storm water volumes for reservoirs in small watersheds. This process is based on a soil designation relating to how well the underlying soil drains and a curve number which reflects the runoff condition. The LID manual developed by the City of Santa Rosa and County of Sonoma suggests that this method be used when determining the volume of water which should be stored for the 85th percentile storm (defined in the Santa Rosa and Sonoma County areas as generating approximately 1-inch of precipitation) in order to emulate the predevelopment condition.

A geotechnical report for the site was prepared by Bauer Associates dated October 16, 2012. The report indicates that the site is primarily overlain by porous natural sandy clays of moderate to high expansion potential. These surface soils would typically be classified a class D type soil having an infiltration rate of 0 to 0.05in/hr. According to the report groundwater was observed in the test borings at between 7 and 12 feet below the surface. The "State Water Resources Control Board's" "GeoTracker" system was observed and does not report groundwater contamination within 50ft of proposed storm water treatment areas.

Given the depth to ground water and the fact that there appears to be no reported active groundwater contamination sites in close proximity to the proposed BMPs, the integration of storm water BMPs which infiltrate water is feasible with this project; and, it may not be necessary to integrate a subsurface liner or subdrain system for the Bioretention Areas. Therefore, BMPs are proposed which are in harmony with the priority 1 objectives in the LID Technical Design Manual.

Computations were prepared to size each Bioretention Area using the municipality's storm water calculator to assess the post development storm water runoff volume. The civil drawings recommend that Bioswale Media Mix having a porosity of at least 60% be used throughout the private Bioretention Areas to achieve the required capture volume.

A material data sheet has been included with the calculations which suggest that this material is available having a porosity of nearly 65%. A porosity of 60% was used to conservatively assess the required capture volume and slightly increase storage to accommodate sediment accumulation. The bioretention areas east of the bike path are shown on the civil drawings as using City of Santa Rosa Structural soil having a porosity of at least 30% due to the proximity of these areas to property lines and the path which is expected to see occasional maintenance vehicle traffic. Computations are shown in the Appendix of this document and reflect that the void space in the proposed measures exceeds the required storm water capture volume.

MAINTENANCE OF THE SELECTED PERMANENT STORM WATER BMPs

Maintenance of permanent storm water Best Management Practices is essential to ensure that the BMPs continue to function effectively and that they do not become a nuisance. An exhibit has been included in the body of this report which identifies the locations of the permanent storm water BMPs referred to in this report which will require inspection and maintenance. It is the responsibility of the Applicant/Owner to ensure that permanent storm water BMPs are installed and maintained in accordance with municipal policy until this responsibility is legally transferred.

The Regional Water Quality Control Board requires the legally responsible party to inspect and maintain permanent storm water BMPs at least once a year. A sample inspection and reporting template has been included in the Appendix of this document for reference. Reports which document maintenance activities should be completed when maintenance is performed and kept on file for a period of at least five years. These reports shall be made available to City staff and the Regional Water Quality Control Board staff upon request.

The maintenance of permanent storm water Best Management Practices will be performed by the property owner and includes things such as pruning, weeding, mowing, trash/sediment removal, and the inspection/replacement of plants and media. The LID Technical Design Manual requires that the owner enter into a signed agreement and that this agreement be recorded as a perpetual covenant which runs with the land. The maintenance agreement has been included in the Appendix of this document for reference. Every site requires some level of maintenance such as sweeping, restriping, pavement replacement, irrigation repair and replanting. The following inspection and maintenance activities are additional measures which are necessary with this development as a result of the required permanent storm water BMPs:

- Drainage inlets will be stenciled with verbiage or a graphic which suggests that the storm water system drains to a creek. Stenciling should be refreshed every 5 years. If the BMP has been removed or has experienced significant fading, then the BMP should be replaced.
- The surface of volume capture areas should be inspected on a quarterly basis, and following larger storm events for signs of erosion, damage to vegetation, foreign debris and sediment accumulation. The BMP should be repaired to maintain its character and function in substantial conformance with the original design.
- Additional information has been included in the Appendix of this report which describes the function and recommended maintenance of measures proposed in this report.

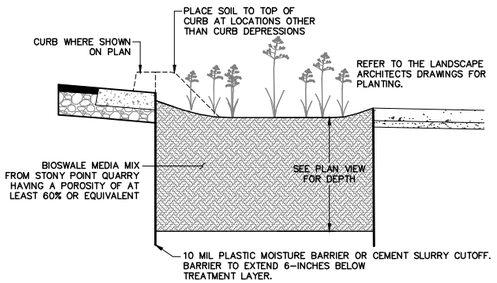
Although the proposed BMPs are anticipated to provide effective treatment for more than 10-years, their life will depend on the quality of water draining to them and how well these areas are maintained. BMP maintenance and replacement should be conducted as required to ensure that their character and function are in substantial conformance with the original design. Approximate anticipated average annual costs are summarized below to assist the Owner(s) in budgeting for BMP inspection and maintenance activities. The costs reported are predicated on these activities being conducted while performing other routine maintenance which would ordinarily be performed on site.

Approximate Average Annual Inspection and Maintenance Costs

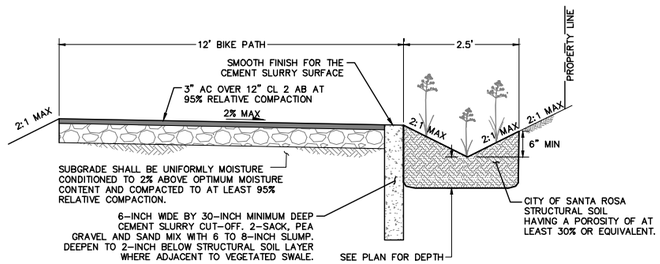
Inspections and Associated Paperwork	$1,500
Stenciling Inlets	$60
Sediment Removal/Erosion Repair	$3,000
Bioretention Area Replacement	$2,200

APPENDIX A

POST DEVELOPMENT EXHIBIT



1 BIORETENTION AREA
NO SCALE



2 VEGETATED SWALE
NO SCALE

SYMBOLS & LEGEND

EXISTING	PROPOSED	
●	●	IRON PIPE
◎	◎	CENTERLINE MONUMENT
⋈	⋈	GATE VALVE
⋈	⋈	CHECK VALVE
⋈	⋈	BACKFLOW PREVENTION DEVICE
⋈	⋈	FIRE DEPARTMENT CONNECTION
⋈	⋈	FIRE HYDRANT
⋈	⋈	POST INDICATOR VALVE
⋈	⋈	STREET SIGN
⋈	⋈	STREET LIGHT
●	●	TREE
		PROPERTY LINE
		EASEMENT
		CENTERLINE
		GRADE BREAK
		FLOW LINE
X X	X X	FENCE
	SIZE" SD-LENGTH'	STORM DRAIN
W		WATER
G		UNDERGROUND GAS LINE
		ASPHALT
		CONCRETE

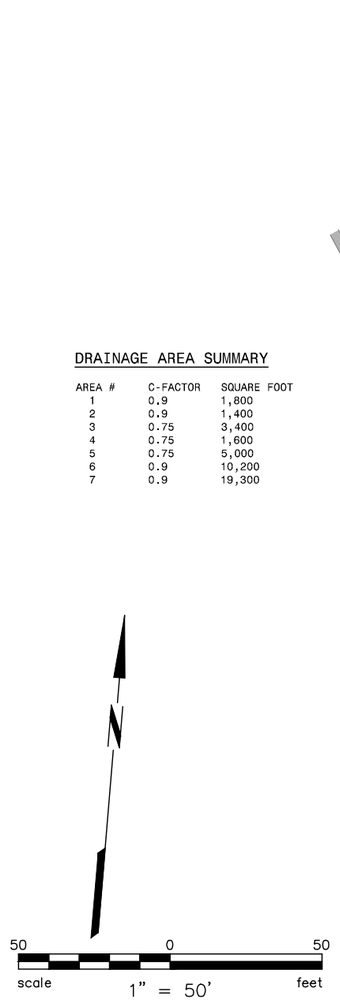
LEGEND

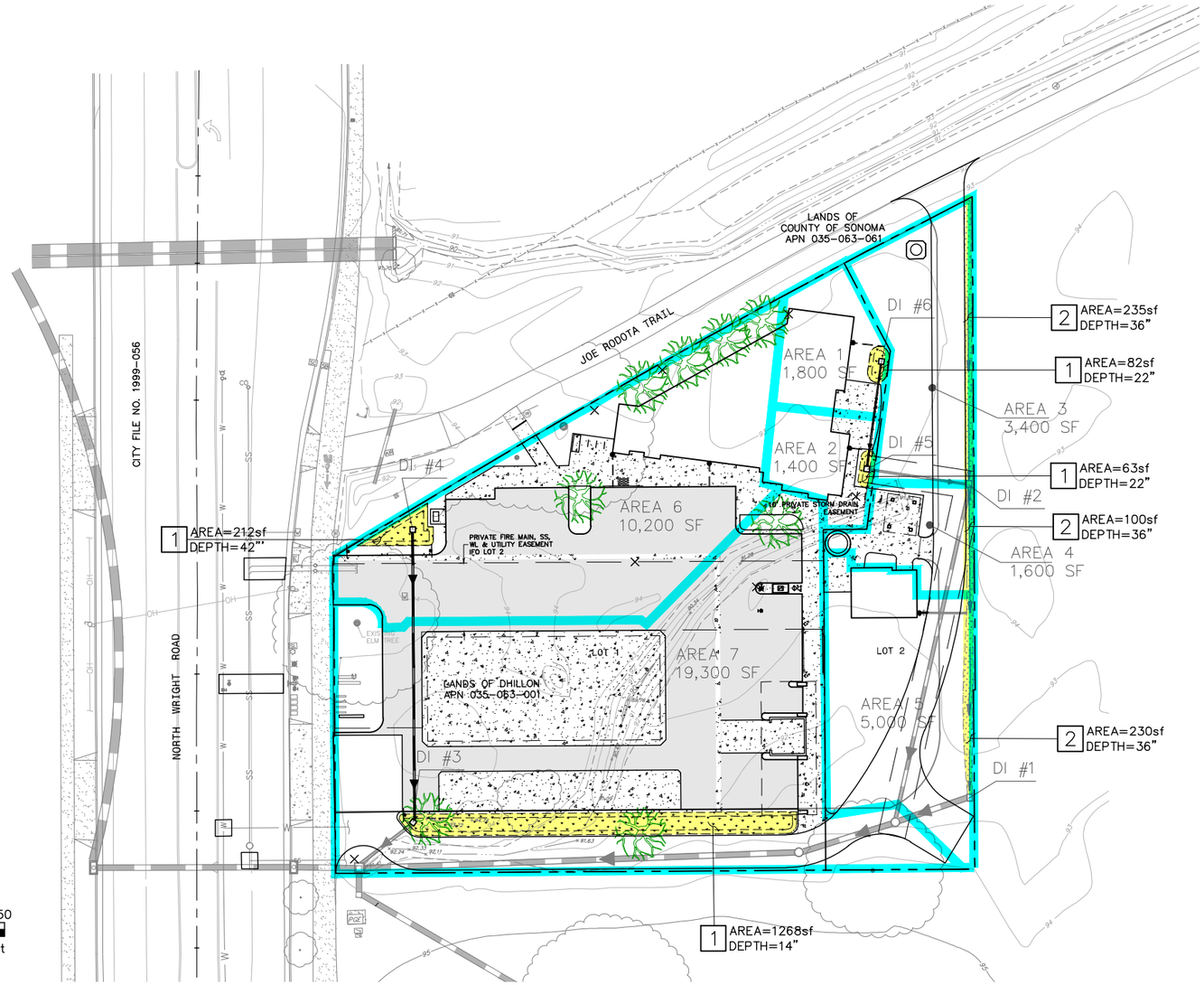
STORM WATER TREATMENT AREA

NEW INTERCEPTOR TREE

DRAINAGE AREA SUMMARY

AREA #	C-FACTOR	SQUARE FOOT
1	0.9	1,800
2	0.9	1,400
3	0.75	3,400
4	0.75	1,600
5	0.75	5,000
6	0.9	10,200
7	0.9	19,300





ABBREVIATIONS

AC	ASPHALT CONCRETE
APN	ASSESSOR'S PARCEL NUMBER
BFP	BACKFLOW PREVENTION DEVICE
BLRD	BOLLARD
BLDG	BUILDING
CB	CATCH BASIN
CONC	CONCRETE
DW	DRIVEWAY
EP	EDGE OF PAVEMENT
E	ELECTRIC
FF	FINISHED FLOOR
FG	FINISHED GRADE
G	GAS
GM	GAS METER
GI	GRATE INLET
ID	INSIDE DIAMETER
INV	INVERT - BOTTOM INSIDE OF PIPE
IP	IRON PIPE
L	LENGTH
OH	OVERHEAD
PG&E	PACIFIC GAS & ELECTRIC
S	SLOPE
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEAN OUT
SSMH	SANITARY SEWER MANHOLE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
STLT	STREETLIGHT
T	TELEPHONE
TB	TOP OF BOX
TC	TOP FACE OF CURB
TG	TOP OF GRATE
TYP	TYPICAL
UB	UTILITY BOX
W	WATER
WM	WATER METER

NOTES:

THE PROJECT GEOTECHNICAL ENGINEER REPORTS THAT SURFACE SOILS ARE TYPICALLY OF MODERATE TO HIGH EXPANSION POTENTIAL. THESE SOILS ARE TYPICALLY CLASSIFIED AS LYING IN HYDROLOGIC SOIL GROUP "D" HAVING AN INFILTRATION RATE OF APPROXIMATELY 0.05 IN/HR.

THE PROJECT GEOTECHNICAL ENGINEER REPORTS THAT GROUND WATER WAS ENCOUNTERED AT THE TIME OF THEIR SUBSURFACE EXPLORATION APPROXIMATELY 7-FEET BELOW THE EXISTING GROUND SURFACE.

A CURVE NUMBER OF 95 HAS CONSERVATIVELY ASSUMED AND USED FOR CALCULATIONS FOR MOST AREAS.

FSWMP EXHIBIT / POST DEVELOPMENT CONDITION

ELM TREE STATION
CITY OF SANTA ROSA, CALIFORNIA
DECEMBER 2018

BKF
ENGINEERS / SURVEYORS / PLANNERS
325 TESCONI CIRCLE SANTA ROSA, CA 95401
(707) 583-8500 FAX: (707) 583-8539

JOB NO. 20109009-11 SHEET 1 OF 1 SHEETS

Plot Dec 20, 2018 at 8:35am

109009_FSMWP.dwg

APPENDIX B

VOLUME CAPTURE CALCULATIONS

BIOSWALE MEDIA MIX MATERIAL DATA SHEET

City of Santa Rosa WATER

STORM WATER CALCULATOR

LID BMP Summary Page & Site Global Values

Project Information:

Project Name:	Elm Tree Station
Address/Location:	874 North Wright Rd
Designer:	BKF Engineers
Date:	12/20/2018

Site Information:

Mean Seasonal Precipitation (MSP) of Project Site:	30.00	(inches)
K=MSP/30 K=	1.00	
Impervious area - pre development:	0.0	ft^2
Impervious area - post development:	21,000.0	ft^2

Based upon the pre and post development impervious area, the post construction BMP requirement is:

Delta Volume & Treatment

Summary of Saved BMP Results:

		Tributary Area		Requirements		BMP Design Results						
							Hydromodification Control		Flow Base Treatment		Delta Volume Capture	
	BMP ID:	Tributary Area (ft^2.)	Runoff Reduction Measures (Y/N)	Type of Requirement Met	Type of BMP Design	Percent Achieved	Required $V_{Hydromod}$ (ft^3)	Achieved (ft^3)	Required Q Treatment (cfs)	Achieved (ft^3)	Required Vdelta (ft^3)	Achieved (ft^3)
1	1	1,800	No	Hydromod Volume Capture	Priority 2: P2-02 Roadside Bioretention - Flush Design	104.8	84.5280	88.5600				
2	2	1,400	No	Hydromod Volume Capture	Priority 2: P2-02 Roadside Bioretention - Flush Design	103.5	65.7440	68.0400				
3	3	3,400	No	Hydromod Volume Capture	Priority 3: P3-07 Vegetated Swale	132.5	159.6640	211.5000				
4	4	1,600	No	Hydromod Volume Capture	Priority 3: P3-07 Vegetated Swale	119.8	75.1360	90.0000				
5	5	5,000	No	Hydromod Volume Capture	Priority 3: P3-07 Vegetated Swale	123.5	167.6000	207.0000				
6	6	10,200	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	105.3	422.6400	445.2000				
7	7	19,300	Yes	Hydromod Volume Capture	Priority 3: P3-04 Roadside Bioretention - Curb Opening	100.5	878.1520	882.5280				
8												
9												
10												
11												
12												
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STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Elm Tree Station**

BMP ID:	1
BMP Design Criteria:	Delta Volume & Treatment
Type of BMP Design:	Priority 2: P2-02 Roadside Bioretention - Flush Design
BMP's Physical Tributary Area:	1,800.0 ft^2
Description/Notes:	

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 84.53 ft^3

Post development hydrologic soil type within tributary area:	D: 0 - 0.05 in/hr infiltration (transmission) rate
Post development ground cover description:	Urban districts - Commercial and business
CN_{POST} :	
User Composite post development CN:	95.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 104.77 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.60			
Depth below perforated pipe if present:	1.80	ft		
Depth:			0.00	ft
Width:	0.00	ft	0.00	ft
Length:	0.00	ft	0.00	ft
Area:	82.00	ft^2	0.00	ft^2

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Elm Tree Station**

BMP ID:	2
BMP Design Criteria:	Delta Volume & Treatment
Type of BMP Design:	Priority 2: P2-02 Roadside Bioretention - Flush Design
BMP's Physical Tributary Area:	1,400.0 ft^2
Description/Notes:	

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 65.74 ft^3

Post development hydrologic soil type within tributary area:	D: 0 - 0.05 in/hr infiltration (transmission) rate
Post development ground cover description:	Urban districts - Commercial and business
CN_{POST} :	
User Composite post development CN:	95.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 103.49 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.60			
Depth below perforated pipe if present:	1.80	ft		
Depth:			0.00	ft
Width:	0.00	ft	0.00	ft
Length:	0.00	ft	0.00	ft
Area:	63.00	ft^2	0.00	ft^2

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Elm Tree Station**

BMP ID:	3
BMP Design Criteria:	Delta Volume & Treatment
Type of BMP Design:	Priority 3: P3-07 Vegetated Swale
BMP's Physical Tributary Area:	3,400.0 ft^2
Description/Notes:	

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 159.66 ft^3

Post development hydrologic soil type within tributary area:	D: 0 - 0.05 in/hr infiltration (transmission) rate
Post development ground cover description:	Urban districts - Commercial and business
CN_{POST} :	
User Composite post development CN:	95.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 132.47 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.30			
Depth below perforated pipe if present:	3.00	ft		
Depth:			0.00	ft
Width:	0.00	ft	0.00	ft
Length:	0.00	ft	0.00	ft
Area:	235.00	ft^2	0.00	ft^2

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Elm Tree Station**

BMP ID:	4
BMP Design Criteria:	Delta Volume & Treatment
Type of BMP Design:	Priority 3: P3-07 Vegetated Swale
BMP's Physical Tributary Area:	1,600.0 ft^2
Description/Notes:	

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 75.14 ft^3

Post development hydrologic soil type within tributary area:	D: 0 - 0.05 in/hr infiltration (transmission) rate
Post development ground cover description:	Urban districts - Commercial and business
CN_{POST} :	
User Composite post development CN:	95.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 119.78 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.30			
Depth below perforated pipe if present:	3.00	ft		
Depth:			0.00	ft
Width:	0.00	ft	0.00	ft
Length:	0.00	ft	0.00	ft
Area:	100.00	ft^2	0.00	ft^2

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Elm Tree Station**

BMP ID:	5
BMP Design Criteria:	Delta Volume & Treatment
Type of BMP Design:	Priority 3: P3-07 Vegetated Swale
BMP's Physical Tributary Area:	5,000.0 ft^2
Description/Notes:	

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 167.60 ft^3

Post development hydrologic soil type within tributary area:	D: 0 - 0.05 in/hr infiltration (transmission) rate
Post development ground cover description:	Urban districts - Commercial and business
CN_{POST} :	
User Composite post development CN:	92.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 123.51 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.30			
Depth below perforated pipe if present:	3.00	ft		
Depth:			0.00	ft
Width:	0.00	ft	0.00	ft
Length:	0.00	ft	0.00	ft
Area:	230.00	ft^2	0.00	ft^2

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Elm Tree Station

BMP ID: 6

BMP Design Criteria: Delta Volume & Treatment

Type of BMP Design: Priority 2: P2-04 Roadside Bioretention - Curb Opening

BMP's Physical Tributary Area: 10,200.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 9,000.0 ft^2

Total Runoff Reduction Measures = 1,200.0 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 6

Number of ***new*** interceptor ***Deciduous Trees***: 0

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 6

Disconnected Roof Drains

Select disconnection condition: Select disconnection condition

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 0 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Select paved area type

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 422.64 ft^3

Post development hydrologic soil type within tributary area: D: 0 - 0.05 in/hr infiltration (transmission) rate

Post development ground cover description: Urban districts - Commercial and business

CN_{POST}:

User Composite post development CN: 95.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 105.34 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.60			
Depth below perforated pipe if present:	3.50	ft		
Depth:			0.00	ft
Width:	0.00	ft	0.00	ft
Length:	0.00	ft	0.00	ft
Area:	212.00	ft^2	0.00	ft^2

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Elm Tree Station

BMP ID: 7

BMP Design Criteria: Delta Volume & Treatment

Type of BMP Design: Priority 3: P3-04 Roadside Bioretention - Curb Opening

BMP's Physical Tributary Area: 19,300.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 18,700.0 ft^2

Total Runoff Reduction Measures = 600.0 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees*** : 3

Number of ***new*** interceptor ***Deciduous Trees*** : 0

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 3

Disconnected Roof Drains

Select disconnection condition: Select disconnection condition

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 0 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Select paved area type

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 878.15 ft^3

Post development hydrologic soil type within tributary area: D: 0 - 0.05 in/hr infiltration (transmission) rate

Post development ground cover description: Urban districts - Commercial and business

CN_{POST} :

User Composite post development CN: 95.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 100.50 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.60			
Depth below perforated pipe if present:	1.16	ft		
Depth:			0.00	ft
Width:	0.00	ft	0.00	ft
Length:	0.00	ft	0.00	ft
Area:	1,268.00	ft^2	0.00	ft^2

E T S

975 Transport Way, Suite 2
Petaluma, CA 94954
(707) 778-9605 / FAX 778-9612
e-mail: entech@pacbell.net

Environmental Technical Services

-Soil, Water & Air Testing & Monitoring
-Analytical Labs
-Technical Support

Serving people and the environment so that both benefit.

		DATE COLLECTED	DATE RECEIVED	DATE of REPORT
CLIENT:	Soils Plus/Soiland Company, 4343 Stage Gulch Road, Sonoma, CA 95476			
ATTN:	Debbie Ternes			
PROJECT:	operations at address as listed above	8/28/12	8/28/12	9/6/12

MOISTURE, DENSITY, SPECIFIC GRAVITY & POROSITY w/ PERMEABILITY TEST RESULTS

SAMPLE NUMBER & ID	BORING/ SAMPLE ID	TEST MASS gm	DRY BULK DENSITY lbs/cuft	PERCENT MOISTURE CONTENT	SPECIFIC GRAVITY gm/cc	TOTAL TEST VOLUME cc	VOLUME SOLIDS cc	VOID VOLUMES		SATURATION PERCENT % of pore vol.	POROSITY (pore volume) PERCENT	PERMEABILITY (stable rate) cm/sec
								AIR FILLED vol %	WATER FILLED vol %			
05037-3 SPBSM1/S	Bio-Swale Mix (@ 0.0')	571.7	58.1	6.12	2.65	580.0	203.6	58.86	6.03	9.30	64.89	5.00×10^{-3}

NOTE:

COMMENTS/NOTES:

While the sample was mostly prepared by the standard methodology for permeability testing, it was not compacted other than tamping and mildly pressing to simulate simple spreading and gravity settling with little compaction. As a result, porosity is very high for a sand, more than double the typical comparable compacted sand. In addition, a good deal of the high porosity is a result of the high organic matter content that is present in this bio-swale mix. The mild compaction and organic content also account for the very low density of the tested sample. In any case, the permeability rate listed above is eqivalent to a rate of ≈7.1 inches per hour. This represent the very best this mateiral is capable of doing under the best of circumstances. Finally, the void space in the tested sample amounted to nearly 65% of the total volume; therefore, only a little more than 35% is solids, but much of the solids is very low density, light weight organic matter materials.

\\\\\NOTES: Testing follows methodology as defined by the American Society for Testing and Materials (ASTM) protocols, State of California Department of Transportation (CalTrans) protocols, or other entities as follows: ASTM D2937 Test Method for Density of Soil in Place by Drive-Cylinder - moisture and density (dry bulk & native densities), or Cal Tests 203/226, Analysis of Soil/Moisture; and Specific Gravity - ASTM D-854 Test Method for Spacific Gravity of Soils, or Cal Test 207, Specific Gravity of Soils and Sediments.

APPENDIX C

DETERMINATION WORKSHEET

SUSMP SUBMITTAL GUIDE CHECKLIST

BMP SELECTION TABLES

Print Form

FOR OFFICE USE ONLY:
Does Project require permanent storm water BMP's?

Y ◯ N ◯

Review Fee Paid?

Y ◯ N ◯

City of Santa Rosa

DETERMINATION WORKSHEET

PURPOSE: Use this form to determine whether or not this project will need to incorporate permanent Storm Water Best Management Practices (BMP's) and submit a Standard Urban Storm Water Mitigation Plan (SUSMP).
APPLICABILITY: Requred with all entitilement application packages, improvement plans and building permit applications. Information presented on this worksheet must reflect the final development condition.

Part 1: Information

Elm Tree Station Project Name	MD Wine and Liquor *Applicant Name
874 North Wright Road Site Address	2743 Yulupa Avenue Mailing Address
Santa Rosa / 95407 City/Zip	Santa Rosa / CA. / 95405 City/State/Zip
 Permit Number(s) - if applicable	(707) 546-7500 / n/a / (707) 546-2883 Phone/Email/Fax
BKF Engineers Engineer Name	325 Tesconi Circle Mailing Address
Santa Rosa / CA. / 95401 City/State/Zip	(707) 583-8520 /gcoleman@bkf.com Phone/Email

Type of Application/Project:

☒ Subdivision ☒ Grading Permit ☒ Building Permit

☐ Design Review ☐ Use Permit ☐ Other ☐

*Applicant is the owner or developer.

Part 2: Other Regulatory Determinations

Initial Determination:

1. Does this Project create or replace 10,000 sq ft or more of impervious surface?

☒ **YES:** Complete the remainder of this worksheet.

☐ **NO:** Continue with this worksheet.

CALGREEN:

2. Does this Project require a non-residential building permit for a newly constructed building without sleeping accomodations? [1]

☒ **YES:** this project must implement permanent Storm Water BMP's and be designed in accordance with the Storm Water Low Impact Development (LID) Technical Design Manual due to CALGreen requirements. **Skip to page 6 and sign the "acknowledgement signature section."**

☐ **NO:** Complete the remainder of the worksheet.

Section 401:

3. Does this Project require a section 401 permit? [2]

☒ Yes ☐ No

3A. if YES, are any of the following a component of this project? (Check all that apply)

☒ Disturbance of 1 acre or more of soil

☐ New Outfall

☒ Any new impervious surface

If you checked any of the boxes in section 3A, please be advised that this Project will require North Coast Regional Water Quality Control Board review and permanent Storm Water BMP's designed in accordance with the Low Impact Development (LID) Technical Design Manual. Skip to page six and sign the "acknowledgement signature section."

1. Additions, alterations, repairs and existing structures are not subject to the requirements of CALGreen. For further information on determining building permit requirements, contact the govering agency's building department.
2. A 401 permit is required from the North Coast Regional Water Quality Control Board (NCRWQCB) if any part of this project is located within or adjacent to "waters of the State" which can be a creek, drainage ditch, wetland or any seasonal waterway.For further information on determining 401 Permit requirements, contact the North Coast Regional Water Quality Control Board.

PART 3: Exemptions

1. Is this a ***routine maintenance activity*** [3] that is being conducted to maintain original line and grade, hydraulic capacity, and original purpose of facility such as resurfacing existing roads and parking lots?
Yes ☐ No ☒

2. Is this an ***emergency redevelopment activity*** [4] required to protect public health and safety?
Yes ☐ No ☒

3. Is this a project undertaken solely to install or reinstall ***public utilities*** (such as sewer or water lines) that does not include any additional street or road development or development activities?
Yes ☐ No ☒

4. Is this a ***reconstruction project***, undertaken by a ***public agency*** [5], of street or roads remaining within the original footprint and less than 48 feet wide?
Yes ☐ N o ☒

5. Is this a stand alone pedestrian pathway, trail or off street bike lane?
Yes ☐ No ☒

Did you answer "YES" to any of the above questions in Part 3?

☐ **YES: Stop.** This project is exempt and will not need to incorporate permanent storm water Best Management Practices. **Please go to Page 6 and complete the exemption signature section.**

☒ **NO:** Proceed to Part 4 below to see if this project will need to incorporate permanent Storm Water BMP's.

Part 4: Project Triggers

Projects that Trigger Requirements:
Please answer the following questions to determine whether this project requires permanent Storm Water BMP's and the submittal of a SUSMP.

1. Does this ***development or redevelopment project*** create or replace a combined total of 1.0 acres or more of impervious surface[6]? Yes ☐ No ☒

---

3 "***Routine Maintenance Activity***"- This exemption includes activities such as overlays and/or resurfacing of existing roads or parking lots as well as trenching and patching activities and reroofing activities.

4 "***Emergency Redevelopment***"- The Regional Water Quality Control Board must agree that the activities are needed to protect public health and safety to qualify for this exemption.

5 "***Reconstruction***" is defined as work that replaces surfaces down to subgrade. Street width is measured from face-of-curb to face-of-curb. Overlays, resurfacing, trenching, and patching are considered maintenance activities and are exempt.

6 "***Impervious Surface***" is defined as an area that has been modified to reduce storm water runoff capture and percolation into underlying soils. Such surfaces include rooftops, walkways, and parking areas. Permeable pavementsshall be considered impervious for this section if they have subdrains to preclude infiltration into underlying soils.

Determination Worksheet

2. Does this project create or replace a combined total or 10,000 ft² or more of ***impervious street, roads, highways, or freeway construction or reconstruction?*** Yes ☒ No ☐

3. Does this project include ***four or more new homes***? Yes ☐ No ☒

4. Is this project an ***industrial park***[7] creating or replacing a combined total of 10,000 ft² or more of impervious surface[6]? Yes ☐ No ☒

5. Is this project a ***Commercial strip mall***[8] creating or replacing a combined total of 10,000 ft² or more of impervious surface[6]? Yes ☐ No ☒

6. Is this project a **retail gasoline outlet** creating or replacing a combined total of 10,000 ft² of more or impervious surface[6]? Yes ☒ No ☐

7. Is this project a **restaurant** creating or replacing a combined total of 10,000 ft² or more of impervious surface[6]? Yes ☐ No ☒

8. Is this project a **parking lot** (not included as part of a project type listed above) creating or replacing a combined total of 10,000 ft² or more or impervious surface or with 25 or more parking spaces? Yes ☐ No ☒

9. Is this project an **automotive service facility** creating or replacing a combined total of 10,000 ft² or more or impervious surface[6]? Yes ☐ No ☒

Did you answer "YES" to any of the above questions in Part 4?

☒ **YES**: The project must implement permanent Storm Water BMP's and be designed in accordance with the Storm Water LID Technical Design Manual. Please complete the remainder of this worksheet. sign under the "Acknowledgment Section" on page 6.

☐ **NO: Stop**. The project will **not** need to incorporate permanent Storm Water BMP's. Please continue to Page 6 and complete the exemption signature section.

---

7 "***Industrial Park***" is defined as industrial facility or building and associated impervious surface on a site zoned or planned to allow industrial or commercial development (planning for mixed-use residential, industrial or commercial development and redevelopment is included).

8"***Commercial Strip Mall***" is defined as commercial facility or impervious surface on a site zoned or planned to allow commercial or industrial use (planning for mixed-use residential, industrial or commercial development and redevelopment is included) with street access and onsite parking.

Part 5: Project Description

1. Total Project area: [ ] Square feet or [1] acres.

2. Existing land use(s): (check all that apply)

☐ Commercial ☐ Industrial ☒ Residential ☐ Public Other [ ]

Description of buildings, significant site features , etc.:

Empty Lot

3. Existing impervious surface area: [ ] square feet or [0] acres.

4. Proposed Land Use (s): (check all that apply)

☒ Commercial ☐ Industrial ☐ Residential ☐ Public Other [ ]

Description of buildings, significant site features, etc.:

Retail Market, Residential Apartment, and Fuel Facility

Determination Worksheet

Acknowledgment Signature Section:

As the property owner or developer, I understand that this project is required to implement permanent Storm Water Best Management Practices and the submittal of a SUSMP. Any unknown responses must be resolved to determine if the project is subject to these requirements.

Signature of Property Owner or Developer — Date: 8/15/2012

Exemption Signature Section:

As the property owner or developer, I understand that this project as currently designed does not require permanent Storm Water BMP's nor the submital of a SUSMP. I understand that redesign may require submittal of a new Determination Worksheet and may require permananet Storm Water BMP's .

Signature of Property Owner or Developer — Date

Implementation Requirements: *All calculations shall be completed using the "Storm Water Calculator" available at:* www.srcity.org/stormwaterLID

Design Goal: Capture (infiltration and/or reuse) of 100% of the volume of runoff generated by the 85th percentile 24 hour storm event, as calculated using the "Urban Hydrology for Small Watersheds" TR-55 Manual. 100% volume capture is the ideal condition and if achieved satisfies all requirements so that no additional treatment is required and pages 2 and 3 of this calculator do not need to be completed. This is a retention requirement.

Design Requirements: If the Design Goal of 100% volume capture is not achieved; then both Requirement 1-100% Treatment AND Requirement 2- Volume Capture must be achieved.

Requirement 1: Treatment of 100% of the flow generated by the 85th percentile 24 hour storm event, as calculated using the Rational Method and a know intensity of 0.20 inches per hour.

Requirement 2: Capture (infiltration and/or reuse) of the increase in volume of storm water due to development generated by the 85th percentile 24 hour storm event, as calculated using the "Urban Hydrology for Small Watersheds" TR-55 Manual. This is a retention requirement.

City of Santa Rosa

Final SUSMP Submittal Guide

PROJECT INFORMATION

Applicant Name (owner or developer)	MD Wine and Liquor
Mailing Address	2743 Yulupa Avenue
City/State/Zip	Santa Rosa/ CA / 95405
Phone/Email/Fax	(707)546-7500/ n/a / (707)546-2883

Project Name	Elm Tree Station
Site Address	874 North Wright Road
City/State/Zip	Santa Rosa / CA / 95407
Permit # (s)	

Engineer Name	BKF Engineers
Mailing Address	325 Tesconi Circle
City/State/Zip	Santa Rosa / CA / 95401
Phone/Email/Fax	707-583-8520 / gcoleman@bkf.com

TYPE OF APPLICATION/PROJECT

☑ Subdivision ☑ Grading Permit ☑ Building Permit ☐ Design Review ☐ Use Permit ☐ Other

WHAT YOUR FINAL PLAN MUST INCLUDE

NARRATIVE

Project Description

- Description of proposed project type, location, and any specific uses or features.
- Description of any sensitive features (creeks, wetlands, trees, etc) and weather they are going to be preserved, removed or altered.
- Description of the existing site.
- Description of how this project triggers these requirements (impervious area, CALGreen, 401 Permit*, etc).

City of Santa Rosa

Final SUSMP Submittal Guide

Pollution Prevention and Credits

- Description of all proposed pollution prevention measures (street sweeping, covered trash enclosures, indoor uses, etc).
- Description of all credits utilized (Interceptor Trees, Impervious Area Disconnection, and/or Alternative Driveway Design).
- Summary of tributary area reduction due to credits.

Type of BMPs proposed

- Description of the types of BMPs selected including priority group that each is in.
- Description of level of treatment and volume capture achieved (if 100% Capture is achieved treatment is not required).

Maintenance

- Description of maintenance for each type of BMP.
- Description of funding mechanism.
- Designation of Responsible Party.
- Copy of ~~signed~~ Maintenance Agreement (appropriate for private BMPs on private land), CC&R language (for common BMPs on common land), or Special Tax District (for BMPs in the public right-of-way).

Note:A typed and signed agreement will be provided prior to building permit issuance at the time of city approval

EXHIBITS

Proposed SUSMP Exhibit

- Exhibit should include: street names, property lines, storm drainage system, waterways, title block, scale, and north arrow.
- Tributary areas shown for all inlets (including offsite drainage areas).
- C value for each tributary area.
- Soil Type of existing site.
- New or replaced impervious area.
- All inlets shown (including identifier).
- All interceptor trees shown.
- All proposed BMPs shown.

City of Santa Rosa

Final SUSMP Submittal Guide

Existing Condition Exhibit

- ➢ *Not necessary if no impervious area existed on the undeveloped site or if the Design Goal of 100% Volume Capture is achieved.*
- ■ Exhibit should include: street names, property lines, proposed storm drainage system, waterways, title block, scale, and north arrow.
- ■ Soil Type of existing site.
- ■ Proposed tributary areas shown for all proposed inlets (including offsite drainage areas).Existing impervious areas.

ON PLANS

- ■ All applicable elements appear on the appropriate plan sheets

CALCULATIONS

- ■ Storm Water Calculator

BMP Selection Table

	Best Management Practice (BMP)	Detail Sheet	Detail Title	Can be used with...	High Ground Water	Contamination	Slope Constraints	Achieves...	Treatment	Volume Capture	Pollution Prevention Credit	BMP in priority selected?	Yes	No	Explanation of selection
Universal LID Features- to be considered on all projects.	Living Roof	N/A	N/A		x	x	x		x	x			O	⊙	1 see note below
	Rainwater Harvesting	N/A	N/A		x	x	x			x			O	⊙	
	Interceptor Trees	N/A	N/A		x	x	x				x		⊙	O	
	Vegetated Buffer Strip	UN-01	Vegetated Buffer Strip								x		O	⊙	
	Bovine Terrace	UN-02	Bovine Terrace		x						x		O	⊙	
	Impervious Area Disconnection	N/A	N/A		x	x	x				x		O	⊙	

Additional Notes:

1 - Interceptor trees will be incorporated into the project because they fit into the context of the site

BMP Selection Table

	Best Management Practice (BMP)	Detail Sheet	Detail Title	Can be used with...	High Ground Water	Contamination	Slope Constraints	Achieves...	Treatment	Volume Capture	Pollution Prevention Credit	BMP in this priority selected?	Yes	No	Explanation of selection
Priority 1 and 1A BMPs- to be installed with no underdrains or liners. Must drain all stading water within 72 hours.	Rain Garden	P1-01	Rain Garden						x	x			O	⊙	2 see note below
	Roadside Bioretention	P1-02	Roadside Bioretention - no C & G						x	x			O	⊙	
	Vegetated Swale-with Bioretention	P1-06	Swale with Bioretention						x	x			⊙	O	
	Constructed Wetlands	N/A	N/A						x	x			O	⊙	
	Infiltration Trench	P1-07	Infiltration Trench						x	x			O	⊙	

Additional Notes:

2 - Vegetated Swale with Bioretention will be incorporated into the project because it fits into the context of the site

APPENDIX D

BIORETENTION AREA FACT SHEET

VEGETATED SWALE FACT SHEET

FACT SHEET- BIORETENTION

BIORETENTION

Also know as: Street rain garden, roadside bioretention, and bioretention cell

DESCRIPTION

The bioretention area best management practice (BMP) functions as a soil and plant-based filtration and infiltration feature that removes pollutants through a variety of natural physical, biological, and chemical treatment processes.

ADVANTAGES

- Achieves both water quality and volume capture objectives.
- Bioretention areas provide storm water treatment that enhances the quality of downstream water bodies by using natural processes.
- The vegetation provides shade and wind breaks, absorbs noise, reduces heat island effects and improves an area's landscape.
- Bioretention provides habitat for birds and attracts other pollinators like butterflies and bees.
- Does not interrupt utility installation.
- Does not interfere with tree planting.

FACT SHEET- BIORETENTION

LIMITATIONS

- Bioretention is not recommended for areas where street slopes exceed 10%.
- Should not be used in areas of know contamination. If soil and/or groundwater contamination is present on the site or within a 100' radius of the proposed BMP location, the North Coast Regional Water Quality Control Board will need to be contacted and the site reviewed.
- Should not be used in areas of high groundwater. In general a minimum of 2' of clearance should be provided between the bottom of the bioretention cell and seasonal high groundwater.
- Should not be used in areas of slope instability where infiltrated storm water may cause failure. Slope stability should be determined by a licensed geotechnical engineer.
- Do not use in locations that can negatively impact building foundation or footings. Location shall be approved by a licensed Geotechnical Engineer.

KEY DESIGN FEATURES

ALL BIORETENTION

- Structural soil should be used within the bioretention area consisting of:
  - ¾"-1 ½" highly angular crushed stone (83% of mix, by weight)- with no fines
  - Clay loam (gravel<5%, sand 25%-30%, silt 20%-40%, clay 20%-40%, organic matter 2%-5%)
  - Hydrogel tackifier (0.03% of mix, by weight)

- Structural soil shall be installed as described in Appendix F.
- Native soil should remain uncompacted to preserve infiltration capacity. Fence off the area during construction to protect.
- Bottom of bioretention should be unlined to allow infiltration into native soil.
- Moisture barrier must be installed to protect road sub-base and any trenches adjacent to the bioretention area.
- Pervious concrete shall be designed and installed as described in Appendix F.
- Porous gutter must be protected during construction to prevent sediment loading.
- Bioretention areas shall be planted with plants from the approved plant and tree list included in Appendix G and shall be planted to achieve ___% cover.
- All bioretention areas shall be designed with a designated high flow bypass inlet for storms larger than the design storm.
- 6" perforated pipe to be installed at a depth of 6" below road structural section.
- Perforated pipe shall be installed in straight runs.
- The volume below the perforated pipe must be sufficient to hold and infiltrate the design volume.

FACT SHEET- BIORETENTION

SIZING DESIGN- GOAL AND REQUIREMENTS

- The **design goal** for all bioretention areas is to capture (infiltration and/or reuse) 100% of the volume of runoff generated by the 85th percentile 24 hour storm event. This is a retention requirement. If 100% volume capture is achieved than no additional treatment is required.
- If the design goal is not achievable, then the bioretention area *sizing requirement* is:
    - **Water Quality Treatment** of 100% of the flow generated by the 85th percentile 24 hour storm event, as calculated using the Rational Method and a known intensity of 0.92 inches per hour, **and**
    - **Volume Capture** (infiltration and/or reuse) of the increase in volume of storm water due to development generated by the 85th percentile 24 hour storm event. This is a retention requirement.
- All calculations shall be completed using the "Storm Water Calculator" available at www.srcity.org/stormwaterLID.

INSPECTION AND MAINTENANCE REQUIREMENTS

A maintenance plan shall be provided with the Final SUSMP. The maintenance plan shall include recommended maintenance practices, state the parties responsible for maintenance and upkeep, specify the funding source for ongoing maintenance with provisions for full replacement when necessary and provide site specific inspection checklist.

At a minimum maintenance shall include the following:

- Dry street sweeping upon completion of construction
- Dry street sweeping annually, and
    - When water is observed flowing in the gutter during a low intensity storm.
    - Algae is observed in the gutter.
    - Sediment/debris covers 1/3 of the gutter width or more.
- Inspect twice annually for sedimentation and trash accumulation in the gutter. Obstructions and trash shall be removed and properly disposed of.
- Inspect twice during the rainy season for ponded water.
- Pesticides and fertilizers shall not be used in the bioretention area.
- Plants should be pruned, weeds pulled and dead plants replaced as needed.

FACT SHEET- VEGETATED SWALE

VEGETATED SWALE

Also know as: Bioretention Swale, Treatment Swale, and Grassy Swale

DESCRIPTION

The swale best management practice (BMP) functions as a soil and plant-based filtration and infiltration feature that removes pollutants through a variety of natural physical, biological, and chemical treatment processes. Vegetated swales are open, shallow channels with vegetation covering the side slopes and bottom that collect and slowly convey runoff flow to downstream discharge points. They are designed to treat runoff through filtering by the vegetation in the channel, filtering through a subsoil matrix, and/or infiltration into the underlying soils. They trap particulate pollutants (suspended solids and trace metals), promote infiltration, and reduce the flow velocity of storm water runoff. Vegetated swales can serve as part of a storm water drainage system and can replace curbs, gutters and storm sewer systems.

ADVANTAGES

- Can achieve both water quality and volume capture objectives.

FACT SHEET- VEGETATED SWALE

- Vegetated swales provide storm water treatment that enhances the quality of downstream water bodies by using natural processes.
- The vegetation reduces heat island effects and improves an area's landscape.
- Vegetated swales can be designed to convey high flow as well as water quality flow.

LIMITATIONS

- Can be difficult to avoid channelization, which may cause erosion and limit infiltration potential.
- May not be appropriate for industrial sites or locations where spills may occur.
- Grassed swales cannot treat a very large drainage area. Large areas may be divided and treated using multiple swales.
- A thick vegetative cover is needed for these practices to function properly.
- Not effective and may even erode when flow velocities are high, if the grass cover is not properly maintained.
- Swales are more susceptible to failure if not properly maintained than other treatment BMPs.
- Should not be used in areas of know contamination. If soil and/or groundwater contamination is present on the site or within a 100' radius of the proposed BMP location, the North Coast Regional Water Quality Control Board will need to be contacted and the site reviewed.
- Should not be used in areas of slope instability where infiltrated storm water may cause failure. Slope stability should be determined by a licensed geotechnical engineer.
- Do not use in locations that can negatively impact building foundation or footings. Location shall be approved by a licensed Geotechnical Engineer.

KEY DESIGN FEATURES

- The longest flow path for the swale shall have a minimum retention time of 12 minutes for conditions when the treatment flows enter the Vegetated Swale uniformly along the swale length. The longest flow path for the swale shall have a minimum retention time of 8 minutes if 90 percent or more of the treatment flow enters the swale at the upstream end.
- Swale should be designed so that the water level does not exceed 2/3rds the height of the grass or 4 inches, whichever is less, at the design treatment rate.
- Longitudinal slopes between 1% and 2.5% are recommended.
- Maximum allowable slope is 8% slope. In steep areas, check dams up to 24-inches high and at least 25 feet apart are allowed.
- Trapezoidal channels are normally recommended but other configurations, such as parabolic, can also provide substantial water quality improvement and may be easier to mow than designs with sharp breaks in slope.
- Swales constructed in cut are preferred, or in fill areas that are far enough from an adjacent slope to minimize the potential for gopher damage. Do not use side slopes constructed of fill, which are prone to structural damage by gophers and other burrowing animals.

FACT SHEET- VEGETATED SWALE

- A diverse selection of low growing, plants that thrive under the specific site, climatic, and watering conditions should be specified. Vegetation whose growing season corresponds to the wet season are preferred. Drought tolerant vegetation should be considered especially for swales that are not part of a regularly irrigated landscaped area.
- Vegetated swales shall have a maximum treatment width of 10 feet. The vegetated swale bed shall be at least 2-feet wide and no more than 7-feet wide. Parallel swales may be used if calculations show greater width is needed.
- The bed of the swale flow area shall slope at about 2% from toe of side slope to center of swale. Side slopes shall be no greater than a 3 to 1 slope.
- If vegetation is not established by October 1st, a 1-year biodegradable loose weave geofabric shall be placed on swale surface. If vegetation is not established by October 15th of the year, sod shall be placed over loose soils.
- Vegetated swale shall be sized using the spreadsheet provided by the local agency.
- The Manning's Roughness coefficient shall be taken from the attached table in Appendix XXX.
- The swale shall convey the 10-year storm event with flows contained within the swale. Adjacent to streets, the 100-year storm event shall be conveyed with flows below the top of curb elevation. (Include flow in the gutter in the calculation.)
- If the 10 or 100-year storm event flow velocity is greater than 4 feet per second, a permanent geofabric liner shall be used that is rated for the calculated flow velocity.
- If used, the perforated pipe trench shall be backfilled with ¾" crushed rock with a 2-inch bed underneath and 6-inch cover.

SIZING DESIGN- GOAL AND REQUIREMENTS

- The **design goal** for vegetated swale is to capture (infiltration and/or reuse) 100% of the volume of runoff generated by the 85th percentile 24 hour storm event. This is a retention requirement. If 100% volume capture is achieved than no additional treatment is required.
- If the *design goal* is not achievable, then the vegetated swale *sizing requirement* is:
    - **Water Quality Treatment** of 100% of the flow generated by the 85th percentile 24 hour storm event, as calculated using the Rational Method and a known intensity of 0.92 inches per hour, **and**
    - **Volume Capture** (infiltration and/or reuse) of the increase in volume of storm water due to development generated by the 85th percentile 24 hour storm event. This is a retention requirement.
- All calculations shall be completed using the "Storm Water Calculator" available at www.srcity.org/stormwaterLID

FACT SHEET- VEGETATED SWALE

INSPECTION AND MAINTENANCE REQUIREMENTS

A maintenance plan shall be provided with the Final SUSMP. The maintenance plan shall include recommended maintenance practices, state the parties responsible for maintenance and upkeep, specify the funding source for ongoing maintenance with provisions for full replacement when necessary and provide site specific inspection checklist.

At a minimum maintenance shall include the following:

- Mow and irrigate during dry weather to the extent necessary to keep vegetation alive. Where 6-inch high grasses are used, the grass height shall be at least 3 inches after mowing. Where mowed grasses are shown, the grass height shall be mowed when the height exceeds 3 inches.
- Remove obstructions and trash from vegetated swale.
- Pesticides and fertilizers shall not be used in the swale.

Vegetated Swales shall be inspected and maintained monthly during the rainy season to review:

- Obstructions and trash.
- Ponded flow is drained within 72 hours after a rainfall event.
- Condition of grasses.
- If ponding is observed, grading will be required to restore positive drainage.

APPENDIX E

SAMPLE OPERATION AND MAINTENANCE INSPECTION CHECKLISTS

PLANTER STRIP BIORETENTION- CHECKLIST

Planter Strip Bioretention
Inspection and Maintenance Checklist
(aka: Street Rain Garden, Roadside Bioretention, Bioretention Cell)

Date of Inspection: _____
Inspector(s): _____
BMP ID #: _____
Property Owner: _____

Location Description: _____

Type of Inspection: ☐ Pre-rainy Season (PRS) ☐ Rainy Season (RS) ☐ After-rainy Season (ARS)

This Inspection and Maintenance Checklist is to be used in conjunction with its corresponding LID Factsheet and Maintenance Plan. Please review these documents before performing the field inspection.

Inspection Category	When to Inspect	Maintenance Issue	Is the Issue Present?	Require Maintenance	**Comments** (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)
Drainage	RS	Is there standing or pooling of water in the Bioretention area after 3 days of dry weather?		• Check perforated pipe outlet for obstruction or damage. * • Flush perforated pipe to remove obstructions/sediment. * • Remove and replace the first few inches of topsoil. • Remove soil and inspect perforated pipe. Repair or replace perforated pipe, replace with new soil and regrade.	
		Is water not draining into catch basin from the overflow pipe during a high intensity storm? *			
	PRS RS ARS	Is there sediment visible in the gutter?		• In dry weather, use a mechanical sweeper or a Vactor truck to clean gutter pan.	
	RS	Is there water flowing in the pervious concrete gutter section during a low intensity storm? *		• In wet weather, use a Vactor truck to clean gutter pan.	

* If perforated pipe is present.

PLANTER STRIP BIORETENTION- CHECKLIST

Inspection Category	When to Inspect	Maintenance Issue	Is the Issue Present?	Require Maintenance	**Comments** (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)
Erosion	RS ARS	Is there under cutting or washouts along the sidewalks and/or curbs abutting the planter strip?		• Fill in eroded areas and regrade.	
	RS ARS	Is there channelization (gully) forming along the length of the planter area?		• Fill in eroded areas and regrade.	
	RS ARS	Is there accumulation of sediment (sand, dirt, mud) in the planter?		• Remove sediment and check the grading. Add replacement soil and/or mulch.	
	PRS RS ARS	Is the mulch unevenly distributed in the planter area?		• Redistribute and add additional mulch if needed. • Regrade planter area.	
	PRS RS ARS	Are there voids or deep holes present? Is there sediment present in the catch basin and in the overflow pipe?		• Check the perforated pipe for damage.*	
	PRS RS ARS	Is there evidence of animal activity such as holes or dirt mounds from digging or borrowing?		• Repair and fill in damage areas. • Rodent control activities must be in accordance with applicable laws and do not affect any protected species.	

* If perforated pipe is present.

PLANTER STRIP BIORETENTION- CHECKLIST

Inspection Category	When to Inspect	Maintenance Issue	Is the Issue Present?	Require Maintenance	**Comments** (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)
Vegetation	PRS RS ARS	Is the vegetation clogging the inlet flow areas?		• Trim and/or remove the excess vegetation.	
	PRS RS ARS	Is the mulch distributed evenly throughout the planter area?		• Redistribute and add additional mulch if needed. • Regrade planter area.	
	PRS RS ARS	Are there dead or dry plants/weeds? Is the vegetation over grown?		• Remove dead and/or dry vegetation. Replace as needed. • Remove or trim any vegetation that is causing a visual barrier, trip, and or obstruction hazard.	

PLANTER STRIP BIORETENTION- CHECKLIST

Inspection Category	When to Inspect	Maintenance Issue	Is the Issue Present?	Require Maintenance	**Comments** (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)
BMP General	PRS RS ARS	Is there debris/trash in the planter area?		• Remove all trash and debris.	
	PRS RS ARS	Is graffiti present?		• Remove all graffiti from the area.	
	PRS RS ARS	Are there missing or disturbed aesthetics features?		• Replace and/or reposition aesthetics features to original placement. • Placement should not disrupt flow characteristics/design.	
	PRS RS ARS	Is the vegetation irrigation functional?		• Repaired broken missing spray/drip emitters. • Reposition and/or adjust to eliminate over spray and/or over watering.	
	PRS RS ARS	Are the aesthetic features firmly secured in placed?		• Repair and/or replace loose or damage features.	
	PRS RS ARS	Check for damage sidewalk, curb, gutter, and catch basin including uplift and settling.		• Remove and replace damaged areas.	

VEGETATED SWALE - CHECKLIST

Vegetated Swale
Inspection and Maintenance Checklist
(aka: Bioretention Swale, Treatment Swale, Grassy Swale)

Date of Inspection: _____
Inspector(s): _____
BMP ID #: _____
Property Owner: _____

Location Description: _____

Type of Inspection: ☐ Pre-rainy Season (PRS) ☐ Rainy Season (RS) ☐ After-rainy Season (ARS)

This Inspection and Maintenance Checklist is to be used in conjunction with its corresponding LID Factsheet and Maintenance Plan. Please review these documents before performing the field inspection.

Inspection Category	When to Inspect	Maintenance Issue	Is the Issue Present?	Require Maintenance	**Comments** (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)
Drainage	RS	Is there standing or pooling of water after 3 days of dry weather?		• Remove any obstruction in the swale and/or regrade to restore positive drainage.	
	RS	Is there poor drainage during a high intensity storm event?		• Clean the High Flow Bypass Inlet. • Check pipe for damage and/or blockage. Repair if required.	
	RS	Is the flow into the vegetative swale even and uniform?		• Remove any obstruction preventing a uniform flow into the swale.	

VEGETATED SWALE - CHECKLIST

Inspection Category	When to Inspect	Maintenance Issue	Is the Issue Present?	Require Maintenance	**Comments** (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)
Erosion	RS ARS	Is there under cutting or washouts along the impervious surfaces abutting the Vegetative Swale?		• Fill in eroded areas and regrade.	
	RS ARS	Is there channelization (gully) forming along the length of the swale area?		• Fill in eroded areas and regrade.	
	RS ARS	Is there accumulation of sediment (sand, dirt, mud) in the swale?		• Remove sediment and check the grading. Add replacement soil and/or mulch.	
	PRS RS ARS	Is the mulch unevenly distributed in the Vegetative Swale area?		• Redistribute and add additional mulch if needed. • Regrade area.	
	PRS RS ARS	Are there voids and/or holes around the High Flow Bypass Inlet?		• Inspect the High Flow Bypass pipe and Inlet box for damage. Replace or repair as necessary.	
	PRS RS ARS	Is there evidence of animal activity such as holes or dirt mounds from digging or borrowing?		• Repair and fill in damaged areas. • Rodent control activities must be in accordance with applicable laws and do not affect any protected species.	

VEGETATED SWALE - CHECKLIST

Inspection Category	When to Inspect	Maintenance Issue	Is the Issue Present?	Require Maintenance	**Comments** (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)
Vegetation	PRS RS ARS	Is the vegetation clogging or redirecting the inlet/outlet flow areas?		• Trim and/or remove the excess vegetation.	
	PRS RS ARS	Is the mulch distributed evenly throughout the swale area?		• Redistribute and add additional mulch if needed. • Regrade planter area.	
	PRS RS ARS	Are there dead or dry plants/weeds? Is the vegetation over grown?		• Remove dead and/or dry vegetation. Replace as needed. • Remove or trim any vegetation that is causing a visual barrier, trip, and or obstruction hazards. • Mow grass as needed.	

VEGETATED SWALE - CHECKLIST

Inspection Category	When to Inspect	Maintenance Issue	Is the Issue Present?	Require Maintenance	**Comments** (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)
BMP General	PRS RS ARS	Is there debris/trash in the planter/swale area?		• Remove all trash and debris.	
	PRS RS ARS	Is Graffiti present?		• Remove all graffiti from the area.	
	PRS RS ARS	Are there missing or disturbed aesthetics features?		• Replace and/or reposition aesthetics features to original placement. • Placement should not disrupt flow characteristics/design.	
	PRS RS ARS	Is the vegetation irrigation functional?		• Repaired broken missing spray/drip emitters. • Reposition and/or adjust to eliminate over spray and/or over watering.	
	PRS RS ARS	Are the aesthetic features firmly secured in placed?		• Repair and/or replace loose or damaged features.	
	PRS RS ARS	Check for damaged sidewalk, curb, gutter, and catch basin. This includes uplift and settling.		• Remove and replace damaged areas.	

APPENDIX F

MAINTENANCE DECLARATION

RECORDING REQUESTED BY
AND WHEN RECORDED MAIL TO:

MD Wine & Liquor
3343 Industrial Drive
Santa Rosa, CA 95403

With Copy to:
City of Santa Rosa- Utilities Department
Storm Water & Creeks Section- Supervising Engineer
69 Stony Circle
Santa Rosa CA 95401

Project/Property: 874 North Wright Road
APN: 035-063-001
Santa Rosa, California

Space above this line has been reserved for the Recorder's use

DECLARATION OF COVENANTS REGARDING MAINTENANCE OF STORM WATER BMP FACILITIES

This Declaration of Covenants Regarding Maintenance of Storm Water BMP Facilities ("Declaration") is made on this __th day of _____, by MD Wine & Liquor ("Landowner").

RECITALS

A. Landowner is the fee simple owner of certain real property located at 874 North Wright Road in the City of Santa Rosa ("City"), Sonoma County, California, and more fully described in Exhibit A to this Declaration ("Property").

B. The City's National Pollutant Discharge Elimination System ("NPDES") Municipal Separate Storm Sewer System ("MS4") Permit, Order number R1-2009-0050, issued by the North Coast Regional Water Quality Control Board, requires the City to implement and enforce specific requirements for the construction and maintenance of onsite storm water management facilities/best management practices (collectively, "BMP") for development, redevelopment, and other applicable projects with the goal of mitigating impacts to storm water quality and runoff volume discharges into the MS4.

C. Provisions of Chapter 17-12 and other applicable sections of the Santa Rosa City Code shall apply to the construction, inspection and maintenance of BMP facilities and the enforcement of MS4 Permit requirements.

D. On _____, 2018, the City Engineer approved Landowner's Improvement Plans ("Plan"), City File No. 2018 -_____and Final Standard Urban Stormwater Mitigation Plan ("SUSMP") for the Property which requires the construction and maintenance of BMP facilities ("BMP Facilities") on the Property by Landowner. The SUSMP may be inspected at the City of Santa Rosa, Department of Utilities, Storm Water & Creeks Section, 69 Stony Circle upon appointment.

E. The City of Santa Rosa Design Review Resolution Number 11654 requires that Landowner make and execute this Declaration.

DECLARATION OF COVENANTS

NOW, THEREFORE, in consideration of the foregoing recitals, Landowner hereby covenants, agrees and declares as follows:

1. Landowner shall, at Landowner's sole cost and expense, construct, inspect, and maintain the BMP Facilities in accordance with the Plan and the SUSMP. Landowner shall assure that all BMP's remain fully functional and that all areas identified in the Plan and SUSMP for treatment and/or volume capture discharge to the specified BMP as designed.

2. Landowner shall keep all records related to annual inspections of BMP's by City and all records related to BMP maintenance for a period of at least five years. The records shall include records of any BMP Facilities corrections, repairs, and replacements. Landowner shall make these records available to the City upon request.

3. In the event Landowner fails to maintain the BMP Facilities in good working condition as solely determined by the City, the City may enter upon the Property and take whatever steps it deems reasonably necessary to maintain and/or make in good working condition, such BMP Facilities. It is expressly understood that the City is under no obligation to maintain or repair the BMP Facilities, and in no event shall this Declaration be construed to impose such an obligation on the City.

4. In the event that the City performs work of any nature, or expends any funds in the performance of such work for labor, use of equipment, supplies, materials, or the like, due to failure of the Landowner to perform its maintenance obligations under this Declaration, as solely determined by City, Landowner shall reimburse the City within 60 days of receipt of notice for all costs incurred by the City to undertake such work. Costs shall include, but are not limited to, the actual cost of construction, maintenance and/or repair, and administrative costs directly related to such work.

5. Any violation of the Plan or SUSMP by Landowner shall be deemed a public nuisance under Chapter 1-30 of the Santa Rosa City Code and City shall be entitled to the remedies available to it under Chapter 1-30 in addition to those available to it under Chapter 17-12. The remedies identified herein shall be in addition to and cumulative of all other remedies, criminal or civil, which may be pursued by the City.

6. Landowner shall indemnify, defend and hold harmless the City and its employees, officials, and agents, from and against any liability, (including liability for claims, suits, actions, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses or costs of any kind, whether actual, alleged or threatened, interest, defense costs, and expert witness fees), where the same relates to, or arises out of, the construction, presence, existence, inspection, or maintenance of BMP Facilities on the Property or the performance of the covenants underlying this Declaration by Landowner, its officers, employees, agents, contractors or sub-contractors, excepting only that resulting from the sole, active negligence or intentional misconduct of the City, its employees, officials, or agents. This indemnification obligation is not limited in any way by any limitation on the amount or type of damages or compensation payable to or for the Landowner or its agents under workers' compensation acts, disability benefits acts or other employees' benefits acts. If any judgment or claim against the City, its officials, agents, or employees, shall be entered, Landowner shall pay all cost and expenses in connection therewith.

7. If any provisions of this Declaration shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

8. This Declaration shall be governed according to the laws of the State of California. The parties hereto agree that the forum for the adjudication of any dispute related to this Declaration shall be brought exclusively and solely in Sonoma County, California.

9. Landowner shall not assign this Declaration to a third party without the express prior written consent of the City, provided that such consent will not be unreasonably withheld and that such consent shall not be required for Landowner to sell or lease the property to a third party.

10. Landowner binds itself, its partners, successors, legal representatives and assigns to the City, and to the partners, successors, legal representatives and assigns of the City with respect to all promised and agreements contained herein.

11. This Declaration shall be recorded by Landowner, and shall: a) constitute a "covenant running with the land;" b) be binding upon Landowner and Landowner's successors, heirs, and assigns in perpetuity; and, c) benefit the City of Santa Rosa, its successors, and assigns. Any breach of this Declaration shall render Landowner or Landowner's heirs, successors or assigns liable pursuant to the provisions of the Santa Rosa City Code.

12. Any notice, submittal or communication required or permitted to be served on Landowner or City may be served by personal delivery to the person or the office of the person identified below. Service may also be made by mail, by placing first-class postage, and addressed as indicated below, and depositing in the United States mail to:

City Representative:

City of Santa Rosa
Utilities Department
Storm Water & Creeks Section
Supervising Engineer
69 Stony Circle
Santa Rosa CA 95401

Landowner or Landowner Representative:

Name: MD Wine & Liquor
Address: 3343 Industrial Drive
Santa Rosa, CA 95403

Executed as of the day and year first above stated.

LANDOWNER: **MD Wine & Liquor**

Signatures of Authorized Persons:

By: _____

Print Name: Mangal Dhillon

Title: OWNER

SEE ATTACHED NOTARY FORM

ATTACHMENTS: Exhibit A- Property Description

Notary Acknowledgment

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Sonoma)

On 12-12-2018 before me, John McFarlin Notary Public.
Date *Here Insert Name and Title of the Officer*

personally appeared Mangal Dhillon
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

JER-1 JOHN MCFARLIN JER-1
COMM. #2195437
NOTARY PUBLIC - CALIFORNIA
SONOMA COUNTY
My Comm. Expires May 15, 2021

Signature _____
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document
Title or Type of Document: _____ Document Date: _____
Number of Pages: _____ Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: _____
Signer Is Representing: _____

Signer's Name: _____
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: _____
Signer Is Representing: _____

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Exhibit A

All that certain real property situate in the City of Santa Rosa, County of Sonoma, State of California, described as follows:

Parcel One:

Being a portion of Lot No. 17, as said Lot is numbered and designated upon the Plan of the Donohue-Wright Ranch, recorded in the Office of the County Recorder of Sonoma County on September 5, 1891 in Book "C" of Promiscuous Records, page 344, said portion being more particularly described as follows:

Commencing at the point of intersection of the Northerly line of the highway leading from Santa Rosa to Sebastopol with the Easterly line of Hall Road; thence Northerly and along the Easterly line of Hall road, 468 feet to a point, said point being the true point of beginning of the parcel of land to be herein described; thence from said true point of beginning, Easterly and parallel with the Northerly line of said Highway, 256 feet; thence Northerly and parallel with the Easterly line of Hall Road, to the intersection thereof with the Southerly line of the right of way of the San Francisco and North Pacific Railroad; thence Southwesterly and along the Southerly line of said right of way to the intersection thereof with the Easterly line of Hall Road; thence Southerly and along the Easterly line of Hall Road to the point of beginning.

Excepting therefrom that portion conveyed to The City of Santa Rosa, a municipal corporation by Deed recorded August 11, 1999 in the Office of the County Recorder, Instrument No. 1999-0102477, Sonoma County Records.

Parcel Two:

An Easement for private storm drain over the following land lying within the City of Santa Rosa, County of Sonoma, State of California, and being a portion of the Lands of Courtside Village, described by Deed recorded under Document No. 1995-090281, Official Records of Sonoma County, said portion being more particularly described as follows:

Commencing at the Northwest corner of said Land of Courtside Village; thence North 84° 52' 11" East 13.00 feet along the Northerly line of said lands, to the point of beginning; thence from said point North 84° 52' 11" East 6.98 feet along the Northerly line of said lands; thence South 5° 07' 49" East 12.51 feet; thence South 85° 00' 41" West 7.01 feet; thence North 4° 59' 19" West 12.50 feet to the point of beginning.