

POST-CONSTRUCTION WORKSHEET FOR THE COUNTY OF SHASTA

PROJECT SUMMARY SHEET

**Project Owner Information:**

Project Owner Name:	KEVIN BRINK			
Name of Contact Person:	KEVIN BRINK			
Mailing Street Address:	20501 CHIPETA WAY			
City:	REDDING	State:	CA	Zip: 96003
Telephone:	(530) 275 - 5534	Email:	KBRINK@MORGANCREEKCONST.COM	

JAN 03 2023

UP23-0001

COUNTY OF SHASTA  
PERMIT COUNTER

**Project Information:**

Project Name:	ABERNATHY			
Name of Contact Person:	KEVIN BRINK			
Project Address:	9788 ABERNATHY LANE			
City:	N/A	State:	CA	Zip: 96003
Anticipated construction start date:	2023	Ending date:	2023	
Project size (ft <sup>2</sup> ):	3.48 ACRES (GROSS) 2.72 ACRES (NET)	Construction General Permit Eligible? (Y/N)		

**Information of the Post-Construction Standards Plan Preparer:**

Name of Organization:	DKM ENGINEERING			
Name of Contact Person:	DUANE MILLER			
Mailing Street Address:	6172 MEISTER WAY			
City:	ANDERSON	State:	CA	Zip: 96007
Telephone:	(530) 365 - 5610	Email:	DUANE@DKMENGR.COM	

**Project Applicability:**

Type of Project: (Check one)	<input type="checkbox"/>	Small Project (Impervious Area = 2,500 to 5,000 ft <sup>2</sup> or detached single family home)	
	<input checked="" type="checkbox"/>	Regulated Project (Impervious Area > 5,000 ft <sup>2</sup> )	
	<input type="checkbox"/>	Not applicable to the Post-Construction Standards Plan (provide reason in the space below)	
Is this a redevelopment project? (Yes / No)	NO	Will the project result in an increase of more than 50% of the impervious surface? (Yes / No)	YES
Has the project or the vesting map received approval from the municipality? (Y, N, N/A)		Date of project or vesting map approval:	
Describe the nature and scope of the construction project:	DEVELOPMENT OF 4 WAREHOUSES AND 4 ACCOMPANYING OFFICES		
Number of Drainage Management Areas (DMAs):	2		

POST-CONSTRUCTION WORKSHEET FOR THE COUNTY OF SHASTA  
REGULATED PROJECT DMA SUBMITTAL SHEET

**Drainage Management Area (DMA) & Project Information:**

A separate Regulated Project DMA Submittal Sheet is required to be completed and submitted for each DMA.

Project Name:	ABERNATHY
Project Owner Name:	KEVIN BRINK
Project Address:	9788 ABERNATHY LANE
<b>DMA Name/Number:</b>	DMA #1
DMA area (ft <sup>2</sup> )	67,678

**Source Controls Activities:**

Indicate which of the following activities or pollutant sources are included in this DMA. Appropriate Source Control Measures are required for all source control activities. Please refer to the CASQA New Development & Redevelopment BMP Handbook for information on applicable Source Control Measures.

Source Control Activities	(Y / N)	CASQA Source Control Measure to Be Implemented
Regular activities with potential for spills or leaks	N	
Interior floor drains	N	
Outdoor parking / storage areas and maintenance	Y	
Indoor and structural pest control	N	
Landscape / outdoor pesticide use	N	
Pools, spas, ponds, fountains, and other water features	N	
Restaurants, grocery stores, and other food service operations	N	
Trash containers	N	
Industrial processes	N	
Outdoor storage of equipment or materials	N	
Vehicle and equipment cleaning	N	
Vehicle and equipment repair and maintenance	N	
Fuel dispensing areas	N	
Loading docks	N	
Drain or wash water from boiler drain lines, condensate drain lines, rooftop equipment, drainage sumps, and other sources	N	
Unauthorized non-storm water discharges	N	
Building and grounds maintenance	N	

**Hydrologic Soil Group and Soil Type Information:**

Enter information concerning the soil types within this DMA.

Soil Type Name	HSG Group (A, B, C, or D)
	TYPE C



**Pre-and Post-Development Project Hydrology Information:**

Provide the following hydrology information for this DMA.

**Pre-development Conditions:**

Percent Impervious	0
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**Post-development Conditions:**

Percent Impervious	41%
Average runoff coefficient for this DMA	.55
Peak flow rate (ft <sup>3</sup> /sec) for this DMA using the 2-year 24-hour design precipitation of 4.0 inches.	3.40 CFS

**Selection of Site Design Measures:**

Select one or more of the following Site Design Measures which will be incorporated into this DMA. List the associated area credit generated by the State's Post-Construction Calculator.

Site Design Measures	Area Credit
Stream Setbacks and Buffers	
Soil Quality Improvement and Maintenance	
Tree Planting and Preservation	
Rooftop and Impervious Area Disconnection	
Porous Pavement	
Green Roofs	
Vegetated Swales	1,496
Rain Barrels and Cisterns	

**Post-Construction Calculator Information:**

Enter the following data from the State's Post-Construction Calculator:

Pre-project Runoff Volume (ft <sup>3</sup> )	2,855
Post-project Runoff Volume (ft <sup>3</sup> )	3,556
Runoff Volume Reduction Credits (ft <sup>3</sup> )	1,362

**Treatment Control Measures:**

Indicate which Treatment Control Measures will be used for this DMA. Provide calculations and design drawings for the selected measures.

Treatment Control Measure	Design Volume Treated	Volume Treated as % of Post Site Design Measure Volume
VEGETATED INFILTRATION BASIN	1680	112.30

**Variations and Exceptions:**

Identify any applicable variations or exceptions for **this DMA**.

Condition	Allowed Variation	Applicable to this DMA? If so, explain.
Facilities located within 10 feet of structures or other potential geotechnical hazards established by the geotechnical expert for the project	May incorporate an impervious cutoff wall between the bioretention / infiltration facility and the structure or other geotechnical hazard	N/A
Facilities with documented high concentrations of pollutants in underlying soil or groundwater, facilities located where infiltration could contribute to a geotechnical hazard, and facilities located on elevated plazas or other structures	May incorporate an impervious liner and may locate the underdrain discharge at the bottom of the subsurface drainage/storage layer (this configuration is commonly known as a "flow-through planter")	N/A
Facilities located in areas of high groundwater, highly infiltrative soils or where connection of underdrain to a surface drain or to a subsurface storm drain are infeasible	May omit the underdrain	N/A
Facilities serving high-risk areas such as fueling stations, truck stops, auto repairs, and heavy industrial sites	Are required to provide additional treatment to address pollutants of concern prior to the flow reaching the infiltration facility	N/A

If infiltration is not feasible for **this DMA**, please provide an explanation of the infeasibility and a description of the alternate non-infiltrating treatment control measure(s) that will be used in accordance with the development requirements in Section 5.4.4.

## California Phase II LID Sizing Tool - v1.2

### Step 8 - Summary

Project name **Abernathy DMA #1**  
 Climate station **REDDING AP**  
 Saturated hydraulic conductivity **0.32 in/hr**  
 Design Storm **0.91 inches**

Method	LID BMP Types	Area Needed (square feet)	Area Available (square feet)	Percent Accomplished	Volume Evaporated (acre-ft/year)	Volume Infiltrated (acre-ft/year)	Volume of Passing Through the Underdrain (acre-ft/year)	Volume Untreated (acre-ft/year)
Design Storm	<a href="#">Vegetated Infiltration Basin</a>	1496	1680	112.30	-	-	-	-
	<b>Total LID BMP Area</b>		1680	112.30	-	-	-	-
	<b>Total Impervious Area</b>		27816	0.00	-	-	-	-
	<b>Totals</b>		29496.00	112.30	-	-	-	-



**Instructions +**

**Background +**

**CA Phase II LID Sizing Tool Methods +**

**Special Notes Regarding the Tables +**

## California Phase II LID Sizing Tool - v1.2

## California Phase II LID Sizing Tool - BMP Details

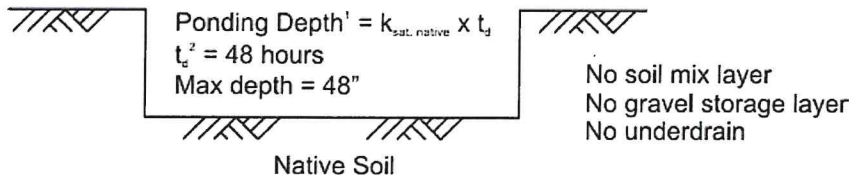
## Summary

Project name	Abernathy DMA #1
Climate station	REDDING AP
Saturated hydraulic conductivity	0.32 in/hr
Impervious area	27816 square feet
LID area	1680 square feet
Total area	29496 square feet
Percent Accomplished	112.3%
LID BMP	Vegetated Infiltration Basin
Methodology	Design Storm User selected design storm is 0.91 inches 85th % design storm is 0.91 inches
Design storm volumetric runoff coefficient	0.892

## Description

Vegetated infiltration basins are shallow, vegetated basins designed to provide storage and promote infiltration of runoff into the underlying native soils. The basins modeled by the CA Phase II LID Sizing Tool assume a surface storage depth dependent on the saturated conductivity of the underlying native soils.

## LID BMP - Vegetated Infiltration Basin



## Depths

LID Layer Depth (inches)

Ponding 16

## Notes

1. City of Sacramento et al. 2007, used for design of infiltration trench depth.
2. City of Sacramento et al. 2007, could use 72 hours but 48 hours provides a factor of safety for open-atmosphere ponding and vector issues.

Note: Assumes vertical slopes. If slopes are laid back, areas must be recalculated manually.

## Methodology: Design Storm

The Design Storm Method is based on Section E.12.e.ii.c.1.a of the permit, which allows LID stormwater retention and treatment facilities that evapotranspire, infiltrate, harvest/use, and biotreat stormwater to be designed as follows (SWRCB 2013):

"The maximized capture storm water volume for the tributary area, on the basis of historical precipitation records, determined using the formula and volume capture coefficients in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87 (1998) pages 175-178 (that is, approximately the 85th percentile 24-hour storm runoff event)".

The area reported for the Design Storm Method is based on a default 85th percentile, 24-hour design storm as specified in the Phase II permit. Some areas of the state require use of a different design storm, such as the Central Coast Regional Water Quality Control Board (RWQCB) where the 95th percentile design storm is a common requirement. For such cases, the user may over-ride the default design storm (i.e., the 85th percentile storm) with an alternative precipitation depth in the "Select a design storm depth in inches" cell located below the table and clicking "Submit".

Further details on this method are provided in the [Documentation Manual](#).

## Links



[EPA Fact Sheet for Infiltration Basins](#)

**General**

[CASQA LID Portal](#)

[Central Coast LID Initiative](#)

[EPA Low Impact Development Site](#)

[Low Impact Development Urban Design Tools Website](#)

[EPA BMP Fact Sheet for Post-Construction Stormwater Management in New Development and Redevelopment](#)

[EPA BMP Fact Sheet for On-Lot Treatment](#)

Contech LID Site Planner (LID Feasibility Screening Tool – coming soon...)

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REGULATED PROJECT DMA SUBMITTAL SHEET

**Drainage Management Area (DMA) & Project Information:**

A separate Regulated Project DMA Submittal Sheet is required to be completed and submitted for each DMA.

Project Name:	ABERNATHY
Project Owner Name:	KEVIN BRINK
Project Address:	9788 ABERNATHY LANE
<b>DMA Name/Number:</b>	DMA #2
DMA area (ft <sup>2</sup> )	55,422

**Source Controls Activities:**

Indicate which of the following activities or pollutant sources are included in this DMA. Appropriate Source Control Measures are required for all source control activities. Please refer to the CASQA New Development & Redevelopment BMP Handbook for information on applicable Source Control Measures.

Source Control Activities	(Y / N)	CASQA Source Control Measure to Be Implemented
Regular activities with potential for spills or leaks	N	
Interior floor drains	N	
Outdoor parking / storage areas and maintenance	Y	
Indoor and structural pest control	N	
Landscape / outdoor pesticide use	N	
Pools, spas, ponds, fountains, and other water features	N	
Restaurants, grocery stores, and other food service operations	N	
Trash containers	N	
Industrial processes	N	
Outdoor storage of equipment or materials	N	
Vehicle and equipment cleaning	N	
Vehicle and equipment repair and maintenance	N	
Fuel dispensing areas	N	
Loading docks	N	
Drain or wash water from boiler drain lines, condensate drain lines, rooftop equipment, drainage sumps, and other sources	N	
Unauthorized non-storm water discharges	N	
Building and grounds maintenance	N	

**Hydrologic Soil Group and Soil Type Information:**

Enter information concerning the soil types within this DMA.

Soil Type Name	HSG Group (A, B, C, or D)
	TYPE C

**Pre-and Post-Development Project Hydrology Information:**

Provide the following hydrology information for this DMA.

**Pre-development Conditions:**

Percent Impervious	0
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**Post-development Conditions:**

Percent Impervious	55%
Average runoff coefficient for this DMA	.62
Peak flow rate (ft <sup>3</sup> /sec) for this DMA using the 2-year 24-hour design precipitation of 4.0 inches.	3.13 CFS

**Selection of Site Design Measures:**

Select one or more of the following Site Design Measures which will be incorporated into this DMA. List the associated area credit generated by the State's Post-Construction Calculator.

Site Design Measures	Area Credit
Stream Setbacks and Buffers	
Soil Quality Improvement and Maintenance	
Tree Planting and Preservation	
Rooftop and Impervious Area Disconnection	
Porous Pavement	
Green Roofs	
Vegetated Swales	1,575
Rain Barrels and Cisterns	

**Post-Construction Calculator Information:**

Enter the following data from the State's Post-Construction Calculator:

Pre-project Runoff Volume (ft <sup>3</sup> )	2,855
Post-project Runoff Volume (ft <sup>3</sup> )	3,556
Runoff Volume Reduction Credits (ft <sup>3</sup> )	2,194

**Treatment Control Measures:**

Indicate which Treatment Control Measures will be used for this DMA. Provide calculations and design drawings for the selected measures.

Treatment Control Measure	Design Volume Treated	Volume Treated as % of Post Site Design Measure Volume
VEGETATED INFILTRATION BASIN	1670	106.03

**Variations and Exceptions:**

Identify any applicable variations or exceptions for this DMA.

Condition	Allowed Variation	Applicable to this DMA? If so, explain.
Facilities located within 10 feet of structures or other potential geotechnical hazards established by the geotechnical expert for the project	May incorporate an impervious cutoff wall between the bioretention / infiltration facility and the structure or other geotechnical hazard	N/A
Facilities with documented high concentrations of pollutants in underlying soil or groundwater, facilities located where infiltration could contribute to a geotechnical hazard, and facilities located on elevated plazas or other structures	May incorporate an impervious liner and may locate the underdrain discharge at the bottom of the subsurface drainage/storage layer (this configuration is commonly known as a “flow-through planter”)	N/A
Facilities located in areas of high groundwater, highly infiltrative soils or where connection of underdrain to a surface drain or to a subsurface storm drain are infeasible	May omit the underdrain	N/A
Facilities serving high-risk areas such as fueling stations, truck stops, auto repairs, and heavy industrial sites	Are required to provide additional treatment to address pollutants of concern prior to the flow reaching the infiltration facility	N/A

If infiltration is not feasible for this DMA, please provide an explanation of the infeasibility and a description of the alternate non-infiltrating treatment control measure(s) that will be used in accordance with the development requirements in Section 5.4.4.



California Phase II LID Sizing Tool - v1.2

**Step 8 - Summary**

Project name **Abernathy DMA #2**  
 Climate station **REDDING AP**  
 Saturated hydraulic conductivity **0.32 in/hr**  
 Design Storm **0.91 inches**

Method	LID BMP Types	Area Needed (square feet)	Area Available (square feet)	Percent Accomplished	Volume Evaporated (acre-ft/year)	Volume Infiltrated (acre-ft/year)	Volume of Passing Through the Underdrain (acre-ft/year)	Volume Untreated (acre-ft/year)
Design Storm	<u>Vegetated Infiltration Basin</u>	1575	1670	106.03	-	-	-	-
	<b>Total LID BMP Area</b>		1670	106.03	-	-	-	-
	<b>Total Impervious Area</b>		29285	0.00	-	-	-	-
	<b>Totals</b>		30955.00	106.03	-	-	-	-



**Instructions +**

**Background +**

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**Special Notes Regarding the Tables +**

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## California Phase II LID Sizing Tool - BMP Details

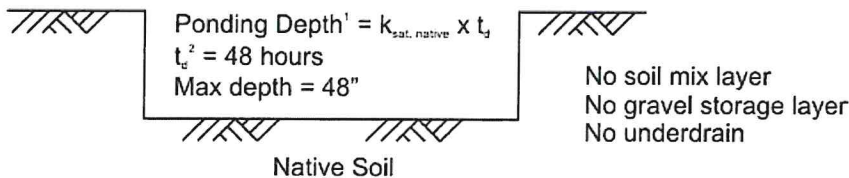
## Summary

Project name	Abernathy DMA #2
Climate station	REDDING AP
Saturated hydraulic conductivity	0.32 in/hr
Impervious area	29285 square feet
LID area	1670 square feet
Total area	30955 square feet
Percent Accomplished	106.03%
LID BMP	Vegetated Infiltration Basin
Methodology	Design Storm User selected design storm is 0.91 inches 85th % design storm is 0.91 inches
Design storm volumetric runoff coefficient	0.892

## Description

Vegetated infiltration basins are shallow, vegetated basins designed to provide storage and promote infiltration of runoff into the underlying native soils. The basins modeled by the CA Phase II LID Sizing Tool assume a surface storage depth dependent on the saturated conductivity of the underlying native soils.

## LID BMP - Vegetated Infiltration Basin



## Depths

LID Layer Depth (inches)

Ponding 16

## Notes

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Note: Assumes vertical slopes. If slopes are laid back, areas must be recalculated manually.

## Methodology: Design Storm

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# Post-Construction Water Balance Calculator

<b>SHASTA</b>								
<b>SHASTA DAM</b>								
<b>Project Information</b>				<b>Runoff Calculations</b>				
Project Name:		ABERNATHY		(Step 2) Indicate the Soil Type (dropdown menu to right):	Group C Soils	Low infiltration. Sandy clay loam. Infiltration rate 0.05 to 0.15 inch/hr when wet.		
Waste Discharge Identification (WDID):		N/A		(Step 3) Indicate the existing dominant non-built land Use Type (dropdown menu to right):	Open Space: grass cover <50%			
Date:		7/14/2022		(Step 4) Indicate the proposed dominant non-built land Use Type (dropdown menu to right):	Solid lawn, grass, pasture or meadow covering the open space			
Sub Drainage Area Name (from map):		Optional				Complete Either		
<b>Runoff Curve Numbers</b>								
Existing Pervious Runoff Curve Number		86		(Step 5) Total Project Site Area:	55700	Acres	1.28	
Proposed Development Pervious Runoff Curve Number		85		(Step 6) Sub-watershed Area:	55700	Acres	1.28	
<b>Design Storm</b>				<b>Percent of total project :</b>				
Based on the County you indicated above, we have included the 85 percentile average 24 hr event - P85 (in)* for your area.		1.68 in		100%				
The Amount of rainfall needed for runoff to occur (Existing runoff curve number -P from existing RCN (in)**)		0.33 in		<b>(Step 7) Sub-watershed Conditions</b>				
P used for calculations (in) (the greater of the above two criteria)		1.68 in						
*Available at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>				Sub-watershed Area (acres)		Complete Either		Calculated Acres
						Sq Ft	Acres	Acres
Existing Rooftop Impervious Coverage				0	0	0.00		
Existing Non-Rooftop Impervious Coverage				0	0	0.00		
Proposed Rooftop Impervious Coverage				14724	0	0.34		
Proposed Non-Rooftop Impervious Coverage				14561	0	0.33		
<b>Credits</b>				Acres		Square Feet		
Porous Pavement				0.00	0			
Tree Planting				0.00	0			
Downspout Disconnection				0.00	0			
Impervious Area Disconnection								
Green Roof				0.00	0			
Stream Buffer				0.00	0			
Vegetated Swales				0.67	29,185			
<b>Subtotal</b>				0.67	29,185			
Subtotal Runoff Volume Reduction Credit				1362 Cu. Ft.				
You need to do more impervious area reduction to meet minimum requirements				<b>(Step 9) Impervious Volume Reduction Credits</b>				
				Volume (cubic feet)				
Rain Barrels/Cisterns				0 Cu. Ft.				
Soil Quality				0 Cu. Ft.				
Subtotal Runoff Volume Reduction				0 Cu. Ft.				
Total Runoff Volume Reduction Credit				1,362 Cu. Ft.				