

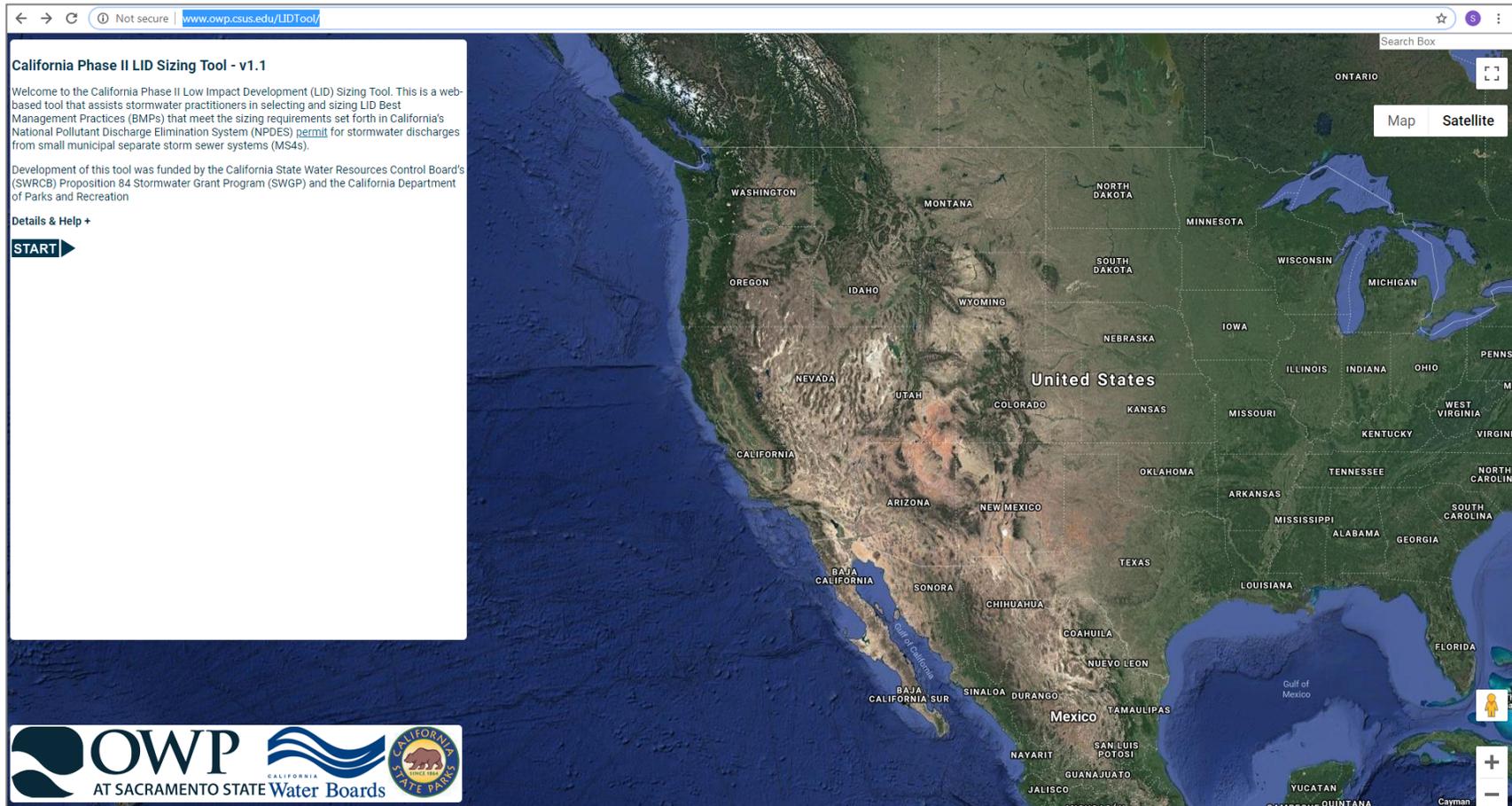


**ATTACHMENT H:**  
OWP LID SIZING TOOL USER GUIDE

## OWP LID Sizing Tool- User Guide

Use the Office of Water Programs online Low Impact Development (LID) Sizing Tool to select and size Stormwater Treatment Measures that meet the sizing requirements described in the MS4 permit. Access the online LID sizing tool at the following link:

<http://www.owp.csus.edu/LIDTool/>. The following steps will need to be completed for *each* Drainage Management Area (DMA).



California Phase II LID Sizing Tool - v1.1

Welcome to the California Phase II Low Impact Development (LID) Sizing Tool. This is a web-based tool that assists stormwater practitioners in selecting and sizing LID Best Management Practices (BMPs) that meet the sizing requirements set forth in California's National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges from small municipal separate storm sewer systems (MS4s).

Development of this tool was funded by the California State Water Resources Control Board's (SWRCB) Proposition 84 Stormwater Grant Program (SWGPP) and the California Department of Parks and Recreation

Details & Help +

**START** ▶

OWP  
AT SACRAMENTO STATE Water Boards

CALIFORNIA STATE PARKS

# OWP LID Sizing Tool- User Guide

**Step 1:** Select a Climate Station nearest to your project, then click **Next**.

## Step 1 - Select a Climate Station and Project Name

This tool provides results based on 91 climate stations throughout California. Use the drop-down menu to choose the climate station that best represents your project site. Climate stations are also shown on the map to the right. Click on any station on the map to learn its name, years on record, 85th percentile design storm, and other information. You will be able to override the design storm on the following page.

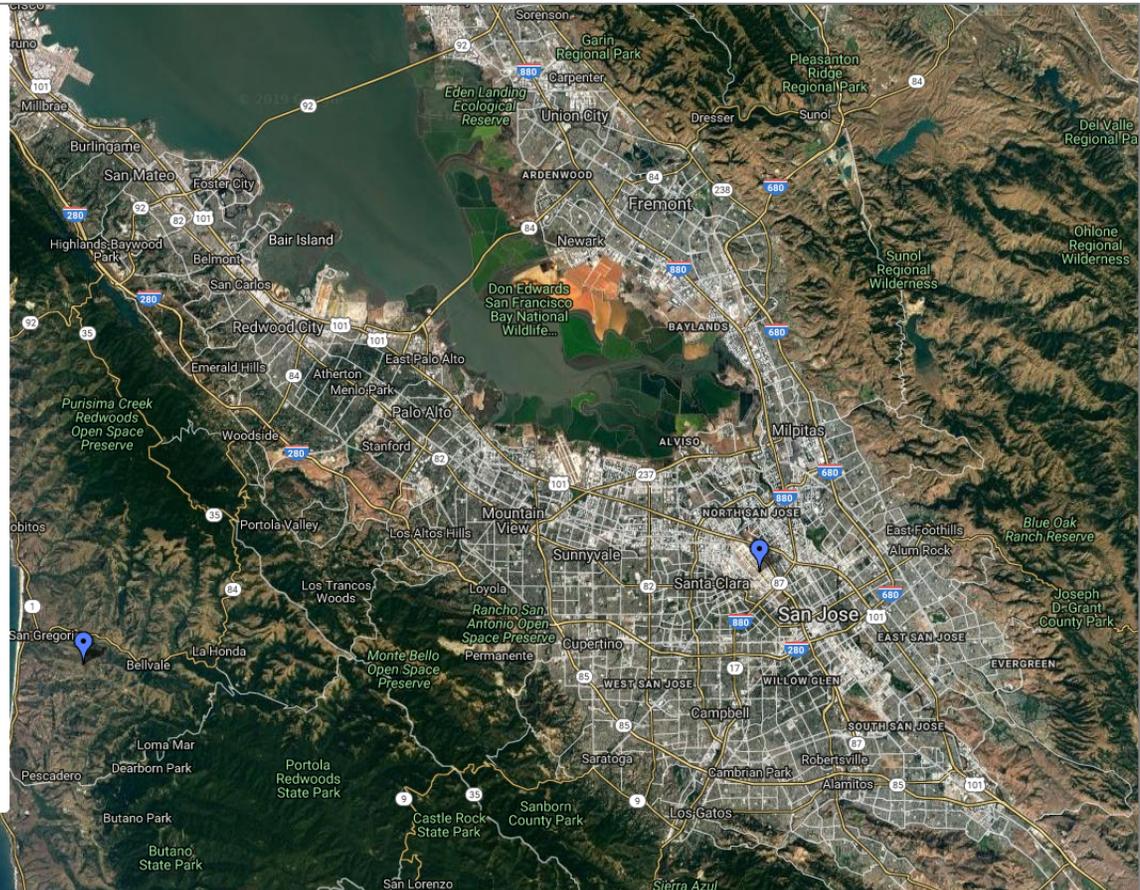
SAN JOSE ▾

If you would like to give your project a name add it to the box below.

Project name (optional)

Stormwater and Schools +

**BACK** **NEXT**



# OWP LID Sizing Tool- User Guide

**Step 2:** Enter your project site's saturated hydraulic conductivity based on on-site field data, then click **Next**.

### Step 2 - Input a saturated hydraulic conductivity

Enter your project site's saturated hydraulic conductivity based on on-site field data.

If you don't know the saturated hydraulic conductivity, check with your local regulator to see if it is acceptable to use estimates from the US Department of Agriculture Natural Resources Conservation Service (USDA NRCS). If it is, you can view the USDA NRCS hydrologic soil group on the map to the right. Click on the color covering your project location to get an estimate of the saturated hydraulic conductivity.

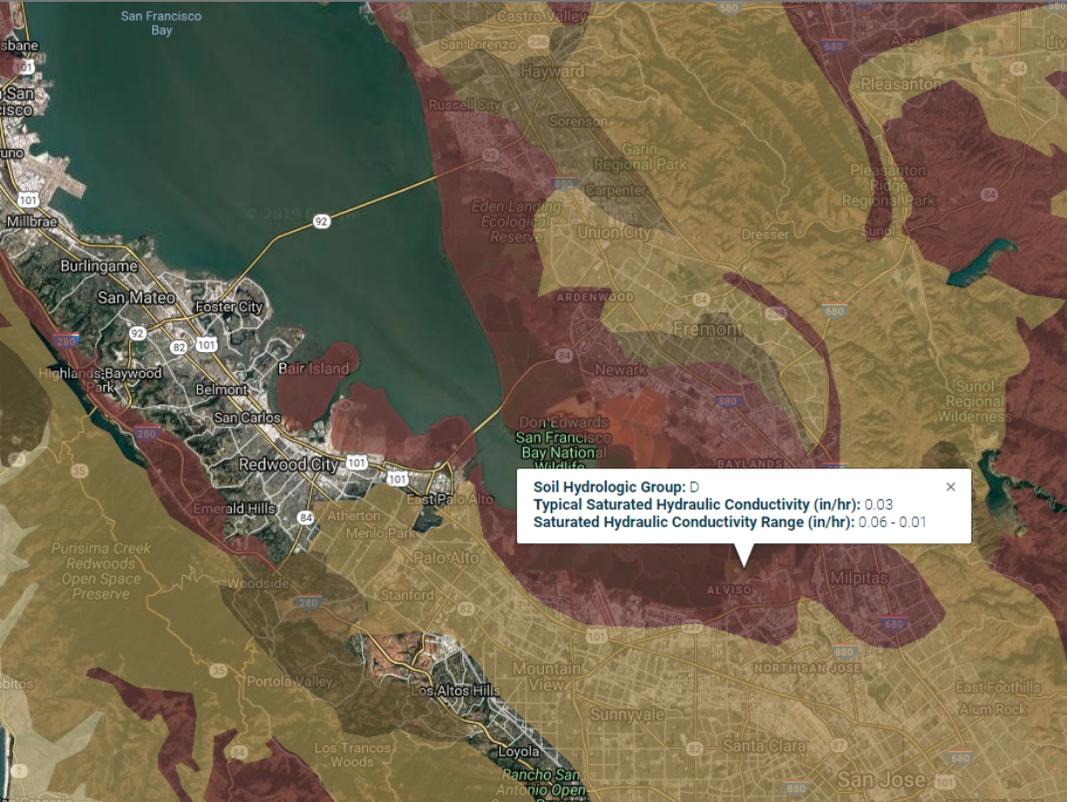
If you want more information on infiltration rates commonly affiliated with different soil hydrologic groups and soil textures expand the "Tables" section below.

Tables +

0.03

 inches per hour

←
NEXT →



# OWP LID Sizing Tool- User Guide

**Step 3:** Type in the impervious area of the DMA, then click **Next**.

## Step 3 - Input the impervious area

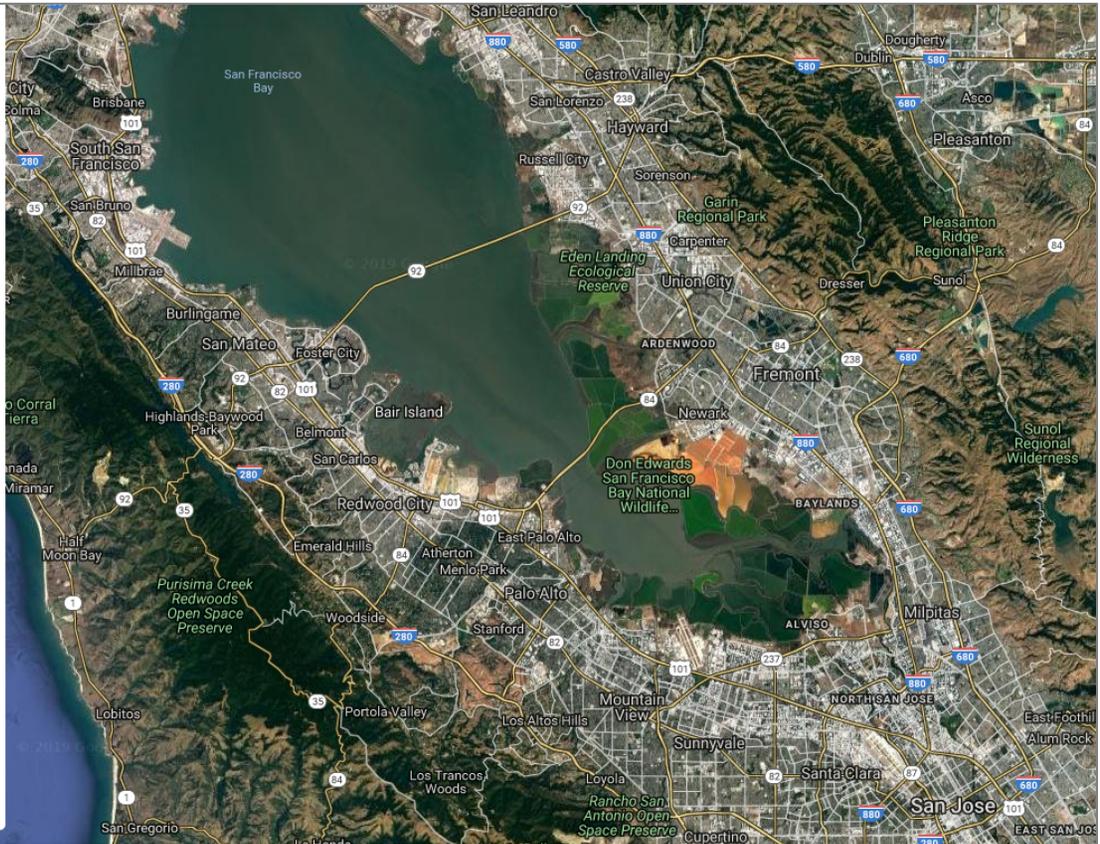
The CA Phase II NPDES [permit](#) requires that the project site be divided into discrete drainage management areas (DMAs). Runoff from each DMA must be managed using LID BMPs that meet specific sizing criteria specified in the permit. The tool assumes that the DMA consists of a 100% impervious catchment draining to a LID BMP. Input the size of the impervious catchment of the DMA of interest for your project.

You can use your own measured area or calculate an area using the measure tool below.

Measure Tool +

1000 Square Feet

BACK NEXT



**Step 4:** Type in the 85<sup>th</sup> percentile design storm depth in inches. This will be auto-calculated based on the location previously selected. Click **Next**.

### Step 4 - Input the Design Storm

Climate station	SAN JOSE
Saturated hydraulic conductivity	0.03 In/hr
Impervious area	1000 square feet

Select a design storm depth in inches (The 85th percentile design storm for this location is: 0.57 in)

inches

← BACK
NEXT →

**Step 5:** Type in the area (SF) devoted to each Site Design Runoff Reduction Measure selected in **Attachment E** (Site Design Runoff Reduction Measure Checklists) of VTA’s Landscaping and Design Criteria Manual. Click on the **LID BMP Types** or **Instructions for Site Design Measures** for descriptions of each type of Runoff Reduction Measure. Note the percent accomplished from the Site Design Runoff Reduction Measures. Click **Next**.

### Step 5 - Site Design Measures

Climate station	SAN JOSE		
Saturated hydraulic conductivity	0.03 in/hr		
Impervious area	1000 square feet		
Design storm	0.57 in		

Site Design Measures (SDMs) must first be implemented to the extent technically feasible before implementing Storm Water Treatment Measures (SWTMs). SDMs must be sized using the 85th percentile, 24-hour storm, or another design storm as adopted by local regulators.

#### Site Design Measures Using a Design Storm of 0.57 Inches

LID BMP Types	Area Needed (square feet)	Area Available (square feet)	Percent Accomplished
Porous Pavement	278.00	<input style="width: 50px;" type="text" value="200.00"/>	71.94
Strip, Amended 6"	413.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Strip, Amended 12"	168.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Strip, Amended 18"	105.00	<input style="width: 50px;" type="text" value="10"/>	9.52
Swale, Amended 6" <sup>2</sup>	413.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Swale, Amended 12" <sup>2</sup>	168.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Swale, Amended 18" <sup>2</sup>	105.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Capture and Use Storage <sup>3</sup>	43.05 cf	<input style="width: 50px;" type="text" value="0.00"/> cf	0.00
<b>Totals</b>	<b>210.000</b>		<b>81.47</b>

← BACK
NEXT →

---

Instructions for Site Design Measures +

---

Footnotes +

---

Background +

---

CA Phase II LID Sizing Tool Methods +

# OWP LID Sizing Tool- User Guide

**Step 6:** Select the Stormwater Treatment Measure Method used to size the Stormwater Treatment Measures selected in **Attachment D2** (Stormwater Control Plan for Regulated Projects) of VTA’s Landscaping and Design Criteria Manual. **Note:** The **Central Coast Simple Method** should not be selected, as this method is not applicable to VTA projects and is not included in the MS4 permit (2013). Click **Compare Method Results** for a comparison of sizing criteria based on the available methods. Click **Next**.

**Step 6 - Select a Storm Water Treatment Measure Method**

Climate station	SAN JOSE
Saturated hydraulic conductivity	0.03 in/hr
Impervious area	1000 square feet
Design storm	0.57 in
Percent accomplished by site design measures	100.00%
Percent needed	0.00%

**Choose a Method:**

- Design Storm**  
This method sizes the LID BMP to treat the selected design storm.
- 80% Capture**  
This method uses continuous simulation to size the LID BMP to capture 80% of the runoff.
- Bioretention Equivalent**  
This method uses continuous simulation to size the LID BMP to match the performance of bioretention cell with 18" of soil and 12" of gravel storage treating 4% of the impervious area.
- Central Coast Simple Method**  
This method is similar to the Design Storm Method, except that for LID BMPs with an underdrain, any storage volume above the underdrain is not credited.

← BACK
NEXT →

---

[Compare Method Results +](#)

---

**Background +**

---

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

---

**Special Notes Regarding the Tables +**

**Step 7:** Type in the area (SF) devoted to each Stormwater Treatment Measure selected in **Attachment D2** (Stormwater Control Plan for Regulated Projects). Click on the **LID BMP Types** or **Instructions for Storm Water Treatment Measures** for descriptions of each type of Stormwater Treatment Measure. Note the percent accomplished from the Stormwater Treatment Measures selected. Click **Next**.

### Step 7 - Use a Storm Water Treatment Measure

Climate station	SAN JOSE
Saturated hydraulic conductivity	0.03 in/hr
Impervious area	1000 square feet
Design Storm	0.57 inches
Method	Design Storm

LID BMP Types	Area Needed (square feet)	Area Available (square feet)	Percent Accomplished
<a href="#">Bioretention Cell - 18" Soil - 12" Gravel Storage</a>	33.83	<input type="text" value="10"/>	29.56
<a href="#">Bioretention Cell - 18" Soil - 24" Gravel Storage</a>	26.44	<input type="text" value="0.00"/>	0.00
<a href="#">Bioretention Cell - 18" Soil - 36" Gravel Storage</a>	21.70	<input type="text" value="0.00"/>	0.00
<a href="#">Bioretention Cell - 24" Soil - 12" Gravel Storage</a>	30.21	<input type="text" value="0.00"/>	0.00
<a href="#">Bioretention Cell - 24" Soil - 24" Gravel Storage</a>	24.18	<input type="text" value="0.00"/>	0.00
<a href="#">Bioretention Cell - 24" Soil - 36" Gravel Storage</a>	20.15	<input type="text" value="0.00"/>	0.00
<a href="#">Bioretention Cell - Soil Depth Varies<sup>5</sup> - No Gravel Storage</a>	218.00	<input type="text" value="0.00"/>	0.00
<a href="#">Infiltration Basin - Vegetated</a>	356.00	<input type="text" value="0.00"/>	0.00
<a href="#">Infiltration Gallery</a>	93.64	<input type="text" value="0.00"/>	0.00
<a href="#">Infiltration Trench</a>	270.00	<input type="text" value="0.00"/>	0.00
<a href="#">Overland Flow no amendment</a>	N/A	<input type="text" value="N/A"/>	N/A
<a href="#">Porous Pavement</a>	278.00	<input type="text" value="0.00"/>	0.00
<a href="#">Strip, Amended 6"</a>	413.00	<input type="text" value="0.00"/>	0.00
<a href="#">Strip, Amended 12"</a>	168.00	<input type="text" value="0.00"/>	0.00
<a href="#">Strip, Amended 18"</a>	105.00	<input type="text" value="0.00"/>	0.00
<a href="#">Swale, Amended 6"<sup>6</sup></a>	413.00	<input type="text" value="0.00"/>	0.00
<a href="#">Swale, Amended 12"<sup>6</sup></a>	168.00	<input type="text" value="0.00"/>	0.00
<a href="#">Swale, Amended 18"<sup>6</sup></a>	105.00	<input type="text" value="0.00"/>	0.00
<a href="#">Capture and Use Storage<sup>7</sup></a>	43.05 cf	<input type="text" value="0.00"/> cf	0.00
<b>Site Design Measures</b>		210.000	81.47
<b>Totals</b>		220.000	111.03

◀ **BACK** **NEXT** ▶

<a href="#">Instructions for Storm Water Treatment Measures +</a>
<a href="#">Footnotes +</a>
<a href="#">Background +</a>
<a href="#">CA Phase II LID Sizing Tool Methods +</a>
<a href="#">Special Notes Regarding the Tables +</a>

# OWP LID Sizing Tool- User Guide

**Step 8:** Ensure that the Total Percent Accomplished is greater than or equal to 100.00. Take a Screen Shot of this Summary and attach it to the Stormwater Control Plan (SWCP).

**Step 8 - Summary**

Climate station	SAN JOSE
Saturated hydraulic conductivity	0.03 in/hr
Design Storm	0.57 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)
Site Design Measure - Design Storm	<a href="#">Porous Pavement</a>	278.00	200.00	71.94	-	-	-	-
Site Design Measure - Design Storm	<a href="#">Strip, Amended 18"</a>	105.00	10	9.52	-	-	-	-
Design Storm	<a href="#">Bioretention Cell - 18" Soil - 12" Gravel Storage</a>	33.83	10	29.56	-	-	-	-
<b>Total LID BMP Area</b>			220	111.02	-	-	-	-
<b>Total Impervious Area</b>			1000	0.00	-	-	-	-
<b>Totals</b>			1220.00	111.02	-	-	-	-

[← BACK](#)

---

**Instructions +**

---

**Background +**

---

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

---

**Special Notes Regarding the Tables +**