2014
STORMWATER
(SW)
STANDARD
PLANS

Adopted by the Salinas City Council per Resolution No. 20529 on April 8, 2014.
TO ALL USERS OF THE 2014 STORMWATER STANDARD PLANS:

These Stormwater Standard Plans were prepared by the Salinas Permit Center (CEDD), Engineering Services Section, based on the Low Impact Development Initiative (LIDI) Standard Details, City of Portland Oregon Stormwater Management Manual Typical Details and City of Salinas Permit Center Engineering Section produced details. They are to be used in conjunction with the latest edition of the City of Salinas Stormwater Development Standards (SWDS) and the latest edition of the City of Salinas Standard Specifications, Design Standards and Standard Plans. Designers shall consult with the project (record) geotechnical and civil engineer for review and use of these Standard Plans, clearances to structures, need for/extent of liners, subdrains, storm drain connections and similar appurtenances. Regardless of site infiltration rate, all projects will be required to filter storm water on site using biofiltration methods (Post-Construction Best Management Practices or PCBMPs) with infiltration through underlying soils being the preferred method. Every effort shall be made, to the MaximumExtent Practicable (MEP), to infiltrate stormwater on site unless alternative means are approved in accordance with the City’s NPDES Permit requirements.

Immediately following this page we have included a 7 page publication prepared by USEPA titled “A Conceptual Guide to Effective Green Streets Design Solutions Green Streets”. This document can be found online at the following web link: http://water.epa.gov/aboutow/eparecovery/upload/2009_09_10_ eparecovery_EPA_ARRA_Green_Streets_FINAL.pdf. Go to this web link to see the pictures and diagrams at a more legible scale. This publication is included herewith to provide general information and guidance on Green Streets and how to implement them. The SWSPs which follow the Green Streets guidance contain detailed information for the construction of different components that comprise Green Streets, as well as for the different components of Post-Construction Best Management Practices (PCBMPs) to facilitate compliance with the City’s Phase I Stormwater Permit and SWDS for site developments.

While the Green Streets Guidance contains much useful information, it does not address deviation from the street pavement cross slope requirements of City Standard Plan No. 3, especially when a road is constructed with a center median, to facilitate placement and use of PCBMPs. City SP No. 3 (2008 edition) shows a typical street cross-section with a crown located at the centerline. In order to facilitate the use of PCBMPs to the MEP as required by the Permit, the following deviations from a standard centerline crowned street will be allowed for the reasons stated:

1. The crown may be offset from street centerline to maximize use of PCBMPs and to minimize grading in development areas where the natural slope may be relatively
steep. Only two impervious traffic lanes may slope in one direction unless approved by the City Engineer. If the number of impervious traffic lanes exceed 2, the remainder of the traffic lanes above 2 shall be sloped in the opposite direction. Any combination of pervious pavement traffic lanes, bike lanes, parking or other pervious pavement areas may also be sloped in the same direction in addition to the two impervious traffic lanes. This is to limit the depth of water on the traffic lanes during intense storms.

2. In areas where the street is aligned parallel to the existing contours, and a substantial cut and/or fill would be required due to the existing slope gradient, the crown may be eliminated and the cross-slope may run from face of curb to face of curb. Only two impervious traffic lanes may slope in one direction unless approved by the City Engineer. If the number of impervious traffic lanes exceed 2 the remainder of the traffic lanes above 2 shall be sloped in the opposite direction. Any combination of pervious pavement traffic lanes, bike lanes, parking or other pervious pavement areas may also be sloped in the same direction in addition to the two impervious traffic lanes. This is to limit the depth of water on the traffic lanes during intense storms.

3. For streets with center medians, the lanes on either side of the median may be sloped toward the median. This is to allow the dual use of landscaping within the median island for landscaping and for stormwater management. Only two impervious traffic lanes may slope in one direction unless approved by the City Engineer. If the number of impervious traffic lanes exceed 2 the remainder of the traffic lanes above 2 shall be sloped in the opposite direction. Any combination of pervious pavement traffic lanes, bike lanes, parking or other pervious pavement areas may also be sloped in the same direction in addition to the two impervious traffic lanes. This is to limit the depth of water on the traffic lanes during intense storms.

4. For 1, 2 and 3 above, and for traditionally crowned streets, care should be taken to conform with the Caltrans Highway Design Manual (HDM), latest edition, as to allowable minimum traffic lane radii for the anticipated speed, especially when the superelevation is negative 0.02 as in traditionally crowned streets on the outside of a horizontal curve. Refer to figure 202.2 of the HDM http://www.dot.ca.gov/hq/oppd/hdm/HDM-9-28-11.pdf for allowable horizontal curve radii for different superelevation rates. The ultimate cross-section at build-out shall be the basis of determining the direction of the cross slope of combined pervious and impervious traffic lanes, bike lanes. The above restrictions shall not be applied to aisles within parking lots since the inherent speed is much lower.
Green Streets designs provide better environmental performance while creating attractive, safer environments.

Green Streets
Residential Streets
Commercial Streets
Arterial Streets
Alleys

Streets comprise a significant percentage of publicly owned land in most communities, and thus offer a unique opportunity to manage for environmental outcomes. A Green Street uses a natural systems approach to reduce stormwater flow, improve water quality, reduce urban heating, enhance pedestrian safety, reduce carbon footprints, and beautify neighborhoods.

Through various combinations of plants and soils, these objectives—and several others—can be met on different types of streets in many settings. Green Street features include vegetated curb extensions, sidewalk planters, landscaped medians, vegetated swales, permeable paving, and street trees. This guide provides an overview of different strategies that can be employed in transportation rights-of-way at the local or neighborhood scale.
Residential Streets

Residential streets offer the greatest potential for building Green Streets in new neighborhoods or retrofitting existing streets because the streets are typically slower, less trafficked, and likely to already have some landscape elements.

These days, it is fairly common for homes to have rain gardens incorporated into their landscaping to collect and store stormwater runoff from rooftops, driveways, and patios. "Rain garden" is the general term used to describe stormwater strategies that use plants and soils to filter, absorb, and slow rainwater on the landscape surface.

Similar types of rain gardens can take various forms within the street right-of-way itself—the edges of the street can be built to allow stormwater to flow into a landscape area, or space within the paved area of the street can be converted to landscape, increasing permeability. Additionally, permeable paving that is durable, load-bearing, and built with an underlying reservoir can temporarily store water prior to infiltration.

In new construction situations, Green Streets can be designed to handle significant volumes of water. In retrofit situations, they can typically handle all of the rain from small storms, while excess water from large storms can overflow into existing storm sewer systems.

Rain gardens are beautiful landscape features that naturally filter runoff and require less maintenance than turf grass.
### PERMEABLE PAVING

Permeable paving (pavers, or porous asphalt and pervious concrete) in the parking lane converts impervious surfaces to allow stormwater to absorb into the ground, which reduces the amount of runoff without any loss of parking on the street.

The aesthetics of permeable paving can also give the illusion of a narrower street and therefore help calm traffic.

### VEGETATED SWALES

Swales are long, shallow vegetated depressions, with a slight longitudinal slope. As water flows through the swale, it is slowed by the interaction with plants and soil, allowing sediments and pollutants to settle out. Water soaks into the soil and is taken up by plants, and may infiltrate further into the ground if the soil is well-drained.
Commercial streets in most urban areas need to accommodate a wide range of users and uses including pedestrians, drivers, bikers, transit riders, on-street parking, outdoor seating, lighting, trees, etc. Because of all these demands, finding space to collect and manage stormwater can at first appear challenging. There are, however, several design options that towns and cities can consider when integrating stormwater management into even their most active streets.

The key is thinking creatively in finding space that can accommodate multiple purposes in one space, such as a street tree pit designed to collect runoff, or the curb extensions (also known as "pedestrian bulb outs") at the corners designed to reducing crossing distances for pedestrians that can also contain a rain garden. These design options are more easily accommodated in new streets where the location of underground utilities is considered from the start. More strategic design is necessary for streets with existing utilities. The pay-off of these efforts, though, is a more attractive, walkable street that considerably reduces polluted runoff.

A community's identity is often most evident on its commercial streets. Green Street techniques not only achieve environmental goals but can greatly improve the look and feel of a community.

STORMWATER PLANTERS

Planters are long, narrow landscaped areas with vertical walls and flat bottoms, typically open to the underlying soil. They allow for more storage volume than a swale in less space.

Water flows into the planter, absorbs into the plants and topsoil, fills to a predetermined level, and then, if necessary, overflows into a storm sewer system. If desired, planters can accommodate street trees.
STORMWATER CURB EXTENSIONS

Stormwater curb extensions on commercial streets are similar to those on residential streets. They are rain gardens typically located near the corners that can also provide the pedestrian with a more comfortable crossing.

Curb extensions can also be located mid-block by converting one or more parking spaces.

PERMEABLE PAVING

Permeable paving on commercial streets can be incorporated into sidewalks and parking lanes.

Recent advances in permeable paving technologies now make many appropriate for higher speeds or where large, heavy vehicles are expected to be parked—areas such as loading zones and bus stops.
Arterial streets in towns and cities are often characterized by wide expanses of pavement, little greenery, and little to address pedestrian needs. Should an arterial street already have landscape areas adjacent to the roadway or within grassy medians, then retrofitting these areas to accommodate rainwater will significantly reduce runoff and help protect water quality.

Where adjacent landscape space does not exist, a process of “road dieting” can be undertaken. This involves determining just how much paved surface is necessary to safely manage travel, and how much can be converted to green space. In addition to managing runoff, this is also an opportunity to retrofit the functionality of arterial streets, making them more “multi-modal” by incorporating sidewalks, on-street bike lanes, or landscape-separated bike greenways.

Again, as with residential and commercial streets, though it is easier to plan and design all of these uses into a roadway from the beginning, most arterials present opportunities to incorporate Green Street features, and can be highly successful.
Alleys

PERMEABLE PAVING

Vegetated Swales

In many towns and cities, alleys comprise a significant amount of impervious surface and are sometimes prone to flooding because they are often not connected to the sewer system. Green Street techniques like vegetated swales and permeable paving effectively reduce and treat runoff, alleviate flooding, and are far less expensive than installing connections to sewers.

Alleys are the “low-hanging fruit” of Green Street design—a good starting point for towns and cities to begin incorporating stormwater management.

PERMEABLE PAVING

Alleys are typically low-speed and low-trafficked streets and therefore suitable locations for using permeable paving. The entire surface could be permeable, or if heavier vehicles are anticipated for loading and unloading, or the alley is “reversely crowned” (slipping toward the center line), then only the middle section needs to be permeable.

VEGETATED SWALES

If the alley is crowned in such a way that water flows to the side, then stormwater can be accommodated by simply greening edges of the alley with swales and planters.

If necessary, water can flow through pipes or covered trenches to allow vehicle access to garages and driveways.

Illustrations and photographs used in this brochure are from the EPA publication: Stormwater Management Handbook—Implementing Green Infrastructure in Northern Kentucky Communities and were created by Nevaie Njagi Associates of Portland, Oregon.

This handbook, as well as other valuable resources, are available at both www.epa.gov/smartgrowth and www.epa.gov/greeninfrastructure.

EPA 833 F-09-002 | August 2009 | www.epa.gov/greeninfrastructure
# STORMWATER (SW) STANDARD PLANS

## Table of Contents

<table>
<thead>
<tr>
<th>Title</th>
<th>Standard Plan Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Arterial/Expressway Type II</td>
<td>SW-1A</td>
</tr>
<tr>
<td>Minor Arterial</td>
<td>SW-1B</td>
</tr>
<tr>
<td>Minor Arterial (Existing Road Alternative)</td>
<td>SW-1C</td>
</tr>
<tr>
<td>Collector/Connector Street Type III</td>
<td>SW-1D</td>
</tr>
<tr>
<td>Local Street Residential (All Types)</td>
<td>SW-1E</td>
</tr>
<tr>
<td>Plan View: Local Street Commercial (All Types)</td>
<td>SW-1E-1</td>
</tr>
<tr>
<td>(South Side) East/West Collector/Connector Type I</td>
<td>SW-1F</td>
</tr>
<tr>
<td>(Reserved for Future Use)</td>
<td>(SW-2 through SW-9)</td>
</tr>
<tr>
<td>Green Roof</td>
<td>SW-10</td>
</tr>
<tr>
<td>Pervious Pavement</td>
<td>SW-11</td>
</tr>
<tr>
<td>Biofiltration Section</td>
<td>SW-12</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Alternative Biofiltration Section</td>
<td>SW-12B</td>
</tr>
<tr>
<td>Alternative Biofiltration Section</td>
<td>SW-12C</td>
</tr>
<tr>
<td>Alternative Biofiltration Section</td>
<td>SW-12D</td>
</tr>
<tr>
<td>Stormwater Planter</td>
<td>SW-13</td>
</tr>
<tr>
<td>Facility Overflow Configurations-Small</td>
<td>SW-14</td>
</tr>
<tr>
<td>Biofiltration Basins/Stormwater Planter</td>
<td></td>
</tr>
<tr>
<td>Facility Overflow Configuration-Large</td>
<td>SW-15</td>
</tr>
<tr>
<td>Biofiltration Basin and Pervious Pavement</td>
<td></td>
</tr>
<tr>
<td>Vegetated Filter Strip</td>
<td>SW-16</td>
</tr>
<tr>
<td>Drywell (Direct Infiltration)</td>
<td>SW-17</td>
</tr>
<tr>
<td>Infiltration Trench</td>
<td>SW-18</td>
</tr>
<tr>
<td>(Reserved for Future Use)</td>
<td>(SW-19 through 22)</td>
</tr>
<tr>
<td>Detention/Retention Pond-Emergency</td>
<td>SW-23A</td>
</tr>
<tr>
<td>Overflow Spillway Weir</td>
<td></td>
</tr>
<tr>
<td>Detention/Retention Pond-Inlet/Outlet Anti-</td>
<td>SW-23B</td>
</tr>
<tr>
<td>Seepage Collar</td>
<td></td>
</tr>
<tr>
<td>Detention/Retention Pond-Large</td>
<td>SW-24</td>
</tr>
<tr>
<td>Rainwater Cistern</td>
<td>SW-25</td>
</tr>
<tr>
<td>Detention Tank/Underground Infiltration</td>
<td>SW-26</td>
</tr>
<tr>
<td>Chamber</td>
<td></td>
</tr>
<tr>
<td>Oil-Water Separators</td>
<td>SW-27</td>
</tr>
<tr>
<td>Covered Trash Enclosure</td>
<td>SW-28</td>
</tr>
<tr>
<td>Site Spill Control</td>
<td>SW-29</td>
</tr>
<tr>
<td>Roadway and Culvert-Stream Crossing</td>
<td>SW-30</td>
</tr>
<tr>
<td>Vegetated Swales</td>
<td>SW-31</td>
</tr>
<tr>
<td>Street Tree Detail-Within Water Quality</td>
<td>SW-32</td>
</tr>
<tr>
<td>Feature</td>
<td></td>
</tr>
<tr>
<td>Landscape Planting Templates-Vegetated</td>
<td>SW-33</td>
</tr>
<tr>
<td>Swales</td>
<td></td>
</tr>
<tr>
<td>Backflow, Meter &amp; Hydrant Locations</td>
<td>SW-34</td>
</tr>
<tr>
<td>Vegetated Swales</td>
<td></td>
</tr>
<tr>
<td>Plan View Without Parking-In Street</td>
<td>SW-35</td>
</tr>
<tr>
<td>Stormwater Planters</td>
<td></td>
</tr>
<tr>
<td>Plan View With Parking-In Street Stormwater</td>
<td>SW-36</td>
</tr>
<tr>
<td>Planters</td>
<td></td>
</tr>
<tr>
<td>Section Views-In Street Stormwater Planters</td>
<td>SW-37</td>
</tr>
<tr>
<td>Bioretention Edge Configurations</td>
<td>SW-38</td>
</tr>
<tr>
<td>Street Tree Detail- In Street Stormwater</td>
<td>SW-39</td>
</tr>
<tr>
<td>Planters</td>
<td></td>
</tr>
<tr>
<td>Landscape Planting Templates- In Street</td>
<td>SW-40</td>
</tr>
<tr>
<td>Stormwater Planters</td>
<td></td>
</tr>
<tr>
<td>Backflow, Meter and Hydrant Locations- In</td>
<td>SW-41</td>
</tr>
<tr>
<td>Street Stormwater Planters</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>Plan View- Curb Extensions with Stormwater In-Street Planters</td>
<td>SW-42</td>
</tr>
<tr>
<td>Plan View- Curb Extensions with Stormwater In-Street Planters</td>
<td>SW-43</td>
</tr>
<tr>
<td>Section Views- Curb Extensions with Stormwater Planters</td>
<td>SW-44</td>
</tr>
<tr>
<td>Landscape Planting Templates-Curb Extensions with Stormwater Planters</td>
<td>SW-45</td>
</tr>
<tr>
<td>Backflow, Meter &amp; Hydrant Locations- Curb Extensions with Stormwater Planters</td>
<td>SW-46</td>
</tr>
<tr>
<td>Metal Inlet-Curb Inlets</td>
<td>SW-47</td>
</tr>
<tr>
<td>Inlet and Outlet for Curb Extensions-Curb Inlets</td>
<td>SW-48</td>
</tr>
<tr>
<td>Modified Metal Inlet Assembly-Curb Inlets</td>
<td>SW-49</td>
</tr>
<tr>
<td>Curb Inlet Screens</td>
<td>SW-50</td>
</tr>
<tr>
<td><em>(Reserved for Future Use)</em></td>
<td><em>(SW-51 through SW-99)</em></td>
</tr>
<tr>
<td>Parking Lot Bioretention Facility (Flat/Planter, No Aisle Parking, Sidewalk, Without Underdrain)</td>
<td>SW-100</td>
</tr>
<tr>
<td>Parking Lot Bioretention Facility (Flat/Planter, Adjacent Aisle Parking, Sidewalk, Without Underdrain)</td>
<td>SW-101</td>
</tr>
<tr>
<td>Parking Lot Bioretention Facility (Sloped Sided, No Head In Parking, Sidewalk, Without Underdrain)</td>
<td>SW-102</td>
</tr>
<tr>
<td>Parking Lot Bioretention Facility (Sloped Sided, With Head In Parking, Sidewalk, Without Underdrain)</td>
<td>SW-103</td>
</tr>
<tr>
<td>Parking Lot Bioretention Facility (Flat/Planter, Without Underdrain)</td>
<td>SW-104</td>
</tr>
<tr>
<td>Parking Lot Bioretention Facility (Sloped Sided, Without Underdrain)</td>
<td>SW-105</td>
</tr>
<tr>
<td><em>(Reserved for Future Use)</em></td>
<td><em>(SW-106 through SW-109)</em></td>
</tr>
<tr>
<td>Curb and Gutter w/Car Overhang</td>
<td>SW-110</td>
</tr>
<tr>
<td>Curb and Gutter with Vehicle Access Strip</td>
<td>SW-110A</td>
</tr>
<tr>
<td>Deep Curb @ Stormwater Facility</td>
<td>SW-111</td>
</tr>
<tr>
<td>Thickened Edge Sidewalk @ Stormwater Planter</td>
<td>SW-112</td>
</tr>
<tr>
<td>Flush Curb @ Sidewalk @ Stormwater Facility</td>
<td>SW-113</td>
</tr>
<tr>
<td>Parking Lot Edge Options @ Stormwater Facilities</td>
<td>SW-114</td>
</tr>
<tr>
<td><em>(Reserved for Future Use)</em></td>
<td><em>(SW-115 through SW-119)</em></td>
</tr>
<tr>
<td>Description</td>
<td>Code</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Curb Cut Inlet for Planters</td>
<td>SW-120</td>
</tr>
<tr>
<td>Curb Cut Inlet for Side Slopes (Rain Garden or Swale)</td>
<td>SW-121</td>
</tr>
<tr>
<td>Curb Cut Inlet with Gravel Energy Dissipation</td>
<td>SW-122</td>
</tr>
<tr>
<td>Inlet with Grate @ Sidewalk</td>
<td>SW-123</td>
</tr>
<tr>
<td>(Reserved for Future Use)</td>
<td>(SW-124 through SW-129)</td>
</tr>
<tr>
<td>Gravel Check Dam</td>
<td>SW-130</td>
</tr>
<tr>
<td>Concrete Check Dam</td>
<td>SW-131</td>
</tr>
<tr>
<td>(Reserved for Future Use)</td>
<td>(SW-132 through SW-139)</td>
</tr>
<tr>
<td>Overflow Structure w/ Beehive Grate</td>
<td>SW-140</td>
</tr>
<tr>
<td>Overflow Structure Collar for Retrofit Purposes</td>
<td>SW-141</td>
</tr>
<tr>
<td>(Reserved for Future Use)</td>
<td>(SW-142 through SW-149)</td>
</tr>
<tr>
<td>Liner Fastening @ Structure</td>
<td>SW-150</td>
</tr>
</tbody>
</table>
DESIGNER INFORMATION

1. ADAPT EXAMPLE TO YOUR ENGINEERED DESIGN.
2. PROVIDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY.
   PROVIDE STATIONS AND/OR DIMENSIONS AND ELEVATIONS AT EACH
   INLET, OUTLET, CHECK DAM, PLANTER CORNER, AND SIDEWALK
   NOTCH.
3. LONGITUDINAL SLOPE OF PLANTER MATCHES STREET.
4. SIDEWALK ELEVATIONS MUST BE SFI ABOVE CHECK DAM AND
   INLET/OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO
   STREET BEFORE SIDEWALK.
5. A MINIMUM 4 FOOT WIDE INTERIOR PLANTER IS REQUIRED FOR
   STREET TREES. MAXIMIZE PLANTER WIDTH.
6. EXISTING UTILITY LINES MUST BE SLEEVED OR RELOCATED.
   PROPOSED UTILITY LINES TO BE LOCATED OUT OF FACILITY.
7. AREA AND DEPTH OF FACILITY ARE BASED ON ENGINEERING
   CALCULATIONS AND RIGHT-OF-WAY CONSTRAINTS.
8. OPTIONAL: PERVERSIOUS SURFACING PER SW-11.

RELATED DETAILS AND RESOURCES

9. REFER TO DETAIL SW-100 OR SW-200 FOR STORMWATER
   PLANTER. FOR MINIMUM AREA SEE SALINAS SWDS SECTION
   6.0. CHECK DAM DETAILS SW-130 AND SW-131.
10. PLANTER WALL DETAIL SW-110 OR SW-111.
11. INLET DETAILS SW-120, SW-121, AND SW-122.
12. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND
    FIRE HYDRANTS DETAIL SW-41.
13. STORMWATER PLANTER PLANTING LIST DETAIL SW-160 &
    SW-161.
14. STORMWATER FACILITY CONSTRUCTION AND BSM
    REQUIREMENTS SEE CITY OF SALINAS SWDS APPENDIX D.
1. Adapt Example to Your Engineered Design.
2. Provide beginning and ending stations for each facility.
3. Provide stations and/or dimensions and elevations at each inlet, outlet check dam, planter corner, and sidewalk notch.
4. Longitudinal slope of planter matches street.
5. Sidewalk elevations must be set above check dam and inlet/outlet elevations to allow overflow to drain to street before sidewalk.
6. Existing utility lines must be sleeved or relocated.
7. Proposed utility lines to be located out of facility.
8. Area and depth of facility are based on engineering calculations and right-of-way constraints. See city of Salinas SWDS.
10. Bioretention swale per SW-103 & SW-103 may be used if required to meet permit requirements.

Related Details and Resources:
12. Inlet details SW-120, SW-121, and SW-122.
13. Special requirements for water lines, meters, and fire hydrants detail SW-41.
15. Stormwater facility construction and design requirements see City of Salinas SWDS Appendix C.
**MINOR ARTERIAL (EXISTING ROAD ALTERNATIVE)**

**DESIGNER INFORMATION**

1. Adapt example to your engineered design.
2. Provide beginning and ending stations for each facility. Provide stations and/or dimensions and elevations at each inlet, outlet check dam, planter corner, and sidewalk notch.
3. Longitudinal slope of planter matches street.
4. Sidewalk elevations must be set above check dam and inlet/outlet elevations to allow overflow to drain to street before sidewalk.
5. A minimum 4 foot wide interior planter is required for street trees. Maximize planter width.
6. Existing utility lines must be sleeved or relocated. Proposed utility lines to be located out of facility.
7. Area and depth of facility are based on engineering calculations and right-of-way constraints.
8. Optional: Pervious surfacing per SW-11.

**RELATED DETAILS AND RESOURCES**

9. Refer to detail SW-100 or SW-200 for stormwater planter. For minimum area see Salinas SWOS Section 4.0. Check dam details SW-130 and SW-131.
10. Planter wall detail SW-110 or SW-111.
11. Inlet details SW-120, SW-121, and SW-122.
12. Special requirements for water lines, meters, and fire hydrants detail SW-41.
13. Stormwater planter planting list detail SW-160 & SW-161.
14. Stormwater facility construction and BSM requirements see City of Salinas SWOS Appendix D.
DESIGNER INFORMATION

1. ADAPT EXAMPLE TO YOUR ENGINEERED DESIGN.
2. PROVIDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY.
   PROVIDE STATIONS AND/OR DIMENSIONS AND ELEVATIONS AT EACH
   INLET, OUTLET CHECK DAM, PLANTER CORNER, AND SIDEWALK
   NOTCH.
3. LONGITUDINAL SLOPE OF PLANTER MATCHES STREET.
4. SIDEWALK ELEVATIONS MUST BE SET ABOVE CHECK DAM AND
   INLET/OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO
   STREET BEFORE SIDEWALK.
5. A MINIMUM 4 FOOT WIDE INTERIOR PLANTER IS REQUIRED FOR
   STREET TREES. MAXIMIZE PLANTER WIDTH.
6. EXISTING UTILITY LINES MUST BE SLEEVED OR RELOCATED.
   PROPOSED UTILITY LINES TO BE LOCATED OUT OF FACILITY.
7. AREA AND DEPTH OF FACILITY ARE BASED ON ENGINEERING
   CALCULATIONS AND RIGHT-OF-WAY CONSTRAINTS.
8. OPTIONAL: PERVERIOUS SURFACING PER SW-11.

RELATED DETAILS AND RESOURCES

9. REFER TO DETAIL SW-100 OR SW-200 FOR STORMWATER
   PLANTER. FOR MINIMUM AREA SEE SALINAS SWDS SECTION
4.0. CHECK DAM DETAILS SW-130 AND SW-131.
10. PLANTER WALL DETAIL SW-110 OR SW-111.
11. INLET DETAILS SW-120, SW-121, AND SW-122.
12. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND
   FIRE HYDRANTS DETAIL SW-41.
13. STORMWATER PLANTER PLANTING LIST DETAIL SW-160 &
   SW-161.
14. STORMWATER FACILITY CONSTRUCTION AND BSM
   REQUIREMENTS SEE CITY OF SALINAS SWDS APPENDIX D.

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: COLLECTOR / CONNECTOR STREET TYPE III
CITY OF SALINAS

STANDARD PLAN

1D
LOCAL STREET RESIDENTIAL (ALL TYPES)

*VARIES*

SIDEWALK
SEE NOTE #8

CURB AND CURB
INLET PER SW-120,
SW-121 & SW-122

BIORETENTION SWALE
PER SW-102 & 103
SEE NOTE #9

STREET TYPE | ROW | TRAVEL WAY | PARKING
-------------|-----|------------|--------
LOCAL RESIDENTIAL I | 56' | 9' | 7' |
LOCAL RESIDENTIAL II | 60' | 9' | 8' |
LOCAL RESIDENTIAL III | 62' | 10' | 8' |

DESIGNER INFORMATION
1. ADAPT EXAMPLE TO YOUR ENGINEERED DESIGN.
2. PROVIDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY.
3. PROVIDE STATIONS AND/OR DIMENSIONS AND ELEVATIONS AT EACH INLET, OUTLET, CHECK DAM, PLANTER CORNER, AND SIDEWALK NOTCH.
4. LONGITUDINAL SLOPE OF PLANTER MATCHES STREET.
5. SIDEWALK ELEVATIONS MUST BE ABOVE CHECK DAM AND INLET/OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET BEFORE SIDEWALK.
6. A MINIMUM 4 FOOT WIDE INTERIOR PLANTER IS REQUIRED FOR STREET TREES. MAXIMIZE PLANTER WIDTH. SEE SW-32.
7. EXISTING UTILITY LINES MUST BE SLEEVED OR RELOCATED. PROPOSED UTILITY LINES TO BE LOCATED OUT OF FACILITY.
8. AREA AND DEPTH OF FACILITY ARE BASED ON ENGINEERING CALCULATIONS AND RIGHT-OF-WAY CONSTRAINTS. SEE CITY OF SALINAS SNDS.
10. REFERENCE TO SNDS-13 FOR STORMWATER PLANTER. FOR MINIMUM AREA SEE SNDS SECTION 4.0. CHECK DAM DETAILS SW-120 AND SW-131.
11. PLANTER WALL DETAIL SW-38.
12. INLET DETAILS SW-120, SW-121, AND SW-122.
13. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND FIRE HYDRANTS DETAIL SW-41.
14. PLANTER PLANTING TEMPLATES SW-40.
15. STORMWATER FACILITY CONSTRUCTION AND ISM REQUIREMENTS SEE CITY OF SALINAS SNDS APPENDIX C.
**Designer Information**

1. Adapt plan view example to your engineered design.
2. Provide beginning and ending stations for each facility. Provide stations and/or dimensions and elevations at each inlet, outlet, check dam, planter corner, and sidewalk notch.
3. Longitudinal slope of planter matches street.
4. Sidewalk elevations must be set above check dam and inlet/outlet elevations to allow overflow to drain to street before sidewalk.
6. Existing utility lines must be sleeved or relocated. Proposed utility lines to be located out of facility. Area and depth of facility are based on engineering calculations and right-of-way constraints. See City of Salinas SWDS.
7. Optional: Permeable surfacing per SW-11.

**Related Details and Resources**

9. Refer to SWDS-13 for stormwater planter. For minimum area see SWDS section 4.0. Check dam details SW-130 and SW-131.
11. Inlet details SW-120, SW-121, and SW-122.
12. Special requirements for water lines, meters, and fire hydrants detail SW-41.
14. Stormwater facility construction and BSM requirements see City of Salinas SWDS Appendix C.

---

**Public Works Department**

**Title:** PLAN VIEW: LOCAL STREET COMMERCIAL (ALL TYPES)

**City of Salinas**

**Standard Plan**

**1E-1**

---

**Designed By:**

**Staff**

**CADD By:**

**Staff**

**Project Manager:**

WALTER GRANT, P.E.

ROBERT C. RUSSELL, CITY ENGINEER

R.C.E. 42671,Expires 3-31-2014

Copyright © 2013, City of Salinas, California
DESIGNER INFORMATION
1. ADAPT EXAMPLE TO YOUR ENGINEERED DESIGN.
2. PROVIDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY.
   PROVIDE STATIONS AND/OR DIMENSIONS AND ELEVATIONS AT EACH
   INLET, OUTLET CHECK DAM, PLANTER CORNER, AND SIDEWALK
   NOTCH.
3. LONGITUDINAL SLOPE OF PLANTER MATCHES STREET.
4. SIDEWALK ELEVATIONS MUST BE SET ABOVE CHECK DAM AND
   INLET/OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO
   STREET BEFORE SIDEWALK.
5. A MINIMUM 4 FOOT WIDE INTERIOR PLANTER IS REQUIRED FOR
   STREET TREES. MAXIMIZE PLANTER WIDTH.
6. EXISTING UTILITY LINES MUST BE SLEEVED OR RELOCATED.
   PROPOSED UTILITY LINES TO BE LOCATED OUT OF FACILITY.
7. AREA AND DEPTH OF FACILITY ARE BASED ON ENGINEERING
   CALCULATIONS AND RIGHT-OF-WAY CONSTRAINTS.
8. OPTIONAL: PERVIOUS SURFACING PER SW-11.

RELATED DETAILS AND RESOURCES
9. REFER TO DETAIL SW-100 OR SW-200 FOR STORMWATER
   PLANTER. FOR MINIMUM AREA SEE SALINAS SWDS SECTION
   4.0. CHECK DAM DETAILS SW-130 AND SW-131.
10. PLANTER WALL DETAIL SW-110 OR SW-111.
11. INLET DETAILS SW-120, SW-121, AND SW-122.
12. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND
    FIRE HYDRANTS DETAIL SW-41.
13. STORMWATER PLANTER PLANTING LIST DETAIL SW-160 &
    SW-161.
14. STORMWATER FACILITY CONSTRUCTION AND BSM
    REQUIREMENTS SEE CITY OF SALINAS SWDS APPENDIX D.

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: (SOUTH SIDE) EAST/WEST COLLECTOR/CONNECTOR TYPE I
CITY OF SALINAS

STANDARD PLAN

1F

DESIGNED BY: XXXX
DATE: 4/28/15

CADD BY: XXXX

PROJECT MANAGER: XXXX

PROJECT NUMBER: 42871
EXP. 3-31-2014

ROBERT C. RUSSELL, CITY ENGINEER

E. D. CRAMPTON, P.E.
GREEN ROOF WITH DRAINAGE LAYER

1. REFER TO SWDS SECTION 3.8 FOR ADDITIONAL REQUIREMENTS.

2. DESIGNS SHOWN ARE ILLUSTRATIVE ONLY. ANY GREEN ROOF INSTALLATION SHALL BE DESIGNED BY LICENSED LANDSCAPE & BUILDING ARCHITECTS & STRUCTURAL ENGINEERS REGISTERED IN THE STATE OF CALIFORNIA.

3. GREEN ROOF SYSTEMS SHALL BE INSTALLED ACCORDING TO MANUFACTURERS RECOMMENDATIONS.

GREEN ROOF WITH DRAINAGE CHANNELS

ENGINEERING & TRANSPORTATION DIVISION
PUBLIC WORKS DEPARTMENT
CITY OF SALINAS

STANDARD PLAN No.
SW 10
EXHIBIT 2-8
PERVIOUS PAVEMENT
REQUIREMENTS FOR TOP LIFT
DEPTH, ENGINEERING, AND
COMPACTATION.

NOTE:
1. PROVIDE SUBGRADE WHERE SUBGRADE DESIGN
INfiltration RATE IS LESS THAN 0.3"/HR.
2. DESIGNS PROVIDED SHALL BE SIGNED & STAMPED BY
A GEOTECHNICAL &/OR CIVIL ENGINEER REGISTERED IN
THE STATE OF CALIFORNIA.
3. REFER TO SWMS SECTION 3.5 FOR ADDITIONAL
REQUIREMENTS.
4. GEOTEXTILE USE AND SELECTION SHALL BE
DETERMINED BY A GEOTECHNICAL ENGINEER.
5. UNDER DRAIN AND ORIFICE CONFIGURATION SHALL BE
BASED ON SWMS SECTION 4.0.
6. ADA COMPLIANCE REQUIREMENT # 302.3 MAY APPLY

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: PERVIOUS PAVEMENT

DESIGNED BY: [Signature]

DATE 4/3/14

CITY OF SALINAS

STANDARD PLAN No. SW 11
1. TYPICAL BIOFILTRATION SECTION APPLIES TO BIOFILTRATION BASINS AND STORMWATER PLANTERS THAT INCLUDE UNDERDRAINS, AND BIORETENTION BASINS THAT DO NOT INCLUDE UNDERDRAINS.

2. BSM THICKNESS SHALL BE 24 INCHES EXCEPT THAT A REDUCED THICKNESS OF 18 INCHES IS ALLOWED WHERE THE BSM IS USED TO FOR PRETREATMENT FOR INFILTRATION AND THE SYSTEM IS DESIGNED TO INFILTRATE 95% OF RAINFALL. SEE SWDS APPENDIX D FOR BSM SPECIFICATIONS.

3. A 3" THICK LAYER OF CALTRANS CLASS 2 PERMEABLE MATERIAL SHALL BE USED BELOW THE BSM UNLESS AN ALTERNATIVE FILTER SYSTEM IS RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY ENGINEER.

4. TYPICAL MINIMUM THICKNESS OF DRAIN ROCK (INCLUDING CLASS 2 PERMEABLE MATERIAL) IS 12 INCHES. ALTERNATIVE CONFIGURATIONS THAT PROVIDE THE REQUIRED STORAGE VOLUME MAY BE USED.

5. EXCEPT WHERE INFILTRATION HAS BEEN ESTABLISHED AS BEING INFEASIBLE, BIOFILTRATION FACILITIES SHALL BE DESIGNED TO MEET INFILTRATION BMP DESIGN REQUIREMENTS IN SWDS SECTION 3.4.

6. BIOFILTRATION BMPs SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF SWDS SECTION 3.6.

7. WATERPROOF LINER (30 MIL PVC OR EQUIVALENT) SHALL BE USED ONLY WHERE INFILTRATION HAS BEEN ESTABLISHED AS BEING INFEASIBLE. GEOTEXTILE, IF REQUIRED, SHALL BE PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.

8. PROTECT AREAS DESIGNATED FOR INFILTRATION TO MINIMIZE COMPACTION TO THE EXTENT FEASIBLE. SCARIFY AREAS OF INCIDENTAL COMPACTION OF SUBGRADE TO PROMOTE INFILTRATION BEFORE BACKFILLING.

9. FOR A LIST OF ACCEPTABLE PLANTS, SEE SWDS APPENDIX D. PLANTING BELOW OVERFLOW ELEVATION SHALL BE CONSIDERED LOW ZONE AND PLANTING BETWEEN THE OVERFLOW ELEVATION AND THE DESIGN MAXIMUM WATER SURFACE ELEVATION SHALL BE CONSIDERED MID ZONE. NUMBER OF PLANTINGS PER 100 SF SHALL BE:

   a. LOW ZONE: 115 HERBACEOUS PLANTS OF 100 HERBACEOUS PLANTS AND 4 SMALL SHRUBS.
   b. MID ZONE: 1 TREE AND 3 LARGE SHRUBS/SMALL TREES AND 4 SMALL SHRUBS AND 140 GROUND COVER PLANTS.

10. USE APPROPRIATE SPLASH BLOCKS AND/OR ROCK TO DISSIPATE ENERGY AT INFLOW LOCATIONS.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: BIO FILTRATION SECTION

CITY OF SALINAS

STANDARD PLAN No.

SW 12

DESIGNED BY: STAFF

CADD BY: STAFF

PROJECT MANAGER: WALTER GRANT, P.E.

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42671, EXPIRES 3-31-2016
NOTE:
1. ALTERNATE BIORETENTION CONFIGURATION APPLIES TO BIORETENTION BASINS WITH AREA CONSTRAINED CONFIGURATIONS.

2. BSM THICKNESS SHALL BE 24 INCHES EXCEPT THAT A REDUCED THICKNESS OF 18 INCHES IS ALLOWED WHERE THE BSM IS USED TO FOR PRETREATMENT FOR INFILTRATION AND THE SYSTEM IS DESIGNED TO INFILTRATE 95% OF RAINFALL. SEE SWDS APPENDIX D FOR BSM SPECIFICATIONS.

3. A 3" THICK LAYER OF CALTRANS CLASS 2 PERMEABLE MATERIAL SHALL BE USED BELOW THE BSM UNLESS AN ALTERNATIVE FILTER SYSTEM IS RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY ENGINEER.

4. TYPICAL MINIMUM THICKNESS OF DRAIN ROCK (INCLUDING CLASS 2 PERMEABLE MATERIAL) IS 12 INCHES. ALTERNATIVE CONFIGURATIONS THAT PROVIDE THE REQUIRED STORAGE VOLUME MAY BE USED.

5. EXCEPT WHERE INFILTRATION HAS BEEN ESTABLISHED AS BEING INFEASIBLE, BIOFILTRATION FACILITIES SHALL BE DESIGNED TO MEET INFILTRATION BMP DESIGN REQUIREMENTS IN SWDS SECTION 3.4.

6. BIOFILTRATION BMPS SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF SWDS SECTION 3.8.

7. WATERPROOF LINER (30 MIL PVC OR EQUIVALENT) SHALL BE USED ONLY WHERE INFILTRATION HAS BEEN ESTABLISHED AS BEING INFEASIBLE. GEOTEXTILE, IF REQUIRED, SHALL BE PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. (SEE SW 150)

8. PROTECT AREAS DESIGNATED FOR INFILTRATION TO MINIMIZE COMPACTION TO THE EXTENT FEASIBLE. SCARIFY AREAS OF INCIDENTAL COMPACTION OF SUBGRADE TO PROMOTE INFILTRATION BEFORE BACKFILLING.

9. FOR A LIST OF ACCEPTABLE PLANTS, SEE SWDS APPENDIX D. PLANTING BELOW OVERFLOW ELEVATION SHALL BE CONSIDERED LOW ZONE AND PLANTING BETWEEN OVERFLOW ELEVATION AND THE DESIGN MAXIMUM WATER SURFACE ELEVATION SHALL BE CONSIDERED MID ZONE. NUMBER OF PLANTINGS PER 100 SF SHALL BE:

10. USE APPROPRIATE SPLASH BLOCKS AND/OR ROCK TO DISSIPATE ENERGY AT INFLOW LOCATIONS.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: ALTERNATIVE BIOFILTRATION SECTION

STANDARD PLAN No.

SW 12B
city of Salinas
NOTE:

1. ALTERNATE BIORETENTION CONFIGURATION APPLIES TO BIORETENTION BASINS WITH AREA CONSTRAINED CONFIGURATIONS.

2. BSM THICKNESS SHALL BE 24 INCHES EXCEPT THAT A REDUCED THICKNESS OF 18 INCHES IS ALLOWED WHERE THE BSM IS USED TO FOR PRETREATMENT FOR INFILTRATION AND THE SYSTEM IS DESIGNED TO INFILTRATE 95% OF RAINFALL. SEE SWDS APPENDIX D FOR BSM SPECIFICATIONS.

3. A 3" THICK LAYER OF CALTRANS CLASS 2 PERMEABLE MATERIAL SHALL BE USED BELOW THE BSM UNLESS AN ALTERNATIVE FILTER SYSTEM IS RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY ENGINEER.

4. TYPICAL MINIMUM THICKNESS OF DRAIN ROCK (INCLUDING CLASS 2 PERMEABLE MATERIAL) IS 12 INCHES. THE MINIMUM SURFACE AREA OF BOTTOM OF THE DRAIN ROCK LAYER SHALL BE 10% OF THE EFFECTIVE IMPERVIOUS AREA OR USE SIZING FACTOR IN SWDS TABLE 3. ALTERNATIVE CONFIGURATIONS THAT PROVIDE THE REQUIRED STORAGE VOLUME MAY BE USED.

5. EXCEPT WHERE INFILTRATION HAS BEEN ESTABLISHED AS BEING INFEASIBLE, BIOFILTRATION FACILITIES SHALL BE DESIGNED TO MEET INFILTRATION BMP DESIGN REQUIREMENTS IN SWDS SECTION 3.4.

6. BIOFILTRATION BMPS SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF SWDS SECTION 3.6.

7. WATERPROOF LINER (30 ML PVC OR EQUIVALENT) SHALL BE USED ONLY WHERE INFILTRATION HAS BEEN ESTABLISHED AS BEING INFEASIBLE. GEOTEXTILE, IF REQUIRED, SHALL BE PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. (SEE SW 150)

8. PROTECT AREAS DESIGNATED FOR INFILTRATION TO MINIMIZE COMPACTION TO THE EXTENT FEASIBLE. SCARIFY AREAS OF INFILTRATION BASIN TO PROMOTE INFILTRATION BEFORE BACKFILLING.

9. FOR A LIST OF ACCEPTABLE PLANTS, SEE SWDS APPENDIX D. PLANTING BELOW OVERFLOW ELEVATION SHALL BE CONSIDERED LOW ZONE AND PLANTING BETWEEN OVERFLOW ELEVATION AND THE DESIGN MAXIMUM WATER SURFACE ELEVATION SHALL BE CONSIDERED MID ZONE. NUMBER OF PLANTINGS PER 100 SF SHALL BE:
   a. LOW ZONE: 115 HERBACEOUS PLANTS OF 100 HERBACEOUS PLANTS AND 4 SMALL SHRUBS.
   b. MID ZONE: 1 TREE AND 3 LARGE SHRUBS/SMALL TREES AND 4 SMALL SHRUBS AND 140 GROUND COVER PLANTS.

10. USE APPROPRIATE SPLASH BLOCKS AND/OR ROCK TO DISSIPATE ENERGY AT INFLOW LOCATIONS.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: ALTERNATIVE BIOFILTRATION SECTION

CITY OF SALINAS

STANDARD PLAN No. SW 12C
ALTERNATIVE BIOFILTRATION SECTION

NOTE:

1. ALTERNATE BIORETENTION CONFIGURATION APPLIES TO BIORETENTION BASINS WITH AREA CONSTRAINED CONFIGURATIONS. THIS CONFIGURATION CAN ALSO BE USED AS AN ALTERNATIVE STORMWATER PLANTER CONFIGURATION.

2. SUPPORT WALLS CAN BE CONSTRUCTED WITH CONCRETE. WEEP HOLES SHOULD BE INCLUDED AT THE BOTTOM OF THE STRUCTURE TO ALLOW WATER TO INFILTRATE.

3. BSM THICKNESS SHALL BE 24 INCHES EXCEPT THAT A REDUCED THICKNESS OF 18 INCHES IS ALLOWED WHERE THE BSM IS USED FOR PRETREATMENT FOR INFILTRATION AND THE SYSTEM IS DESIGNED TO INFILTRATE 95% OF RAINFALL. SEE SWDS APPENDIX D FOR BSM SPECIFICATIONS.

4. A 3" THICK LAYER OF CALTRANS CLASS 2 PERMEABLE MATERIAL SHALL BE USED BELOW THE BSM UNLESS AN ALTERNATIVE FILTER SYSTEM IS RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY ENGINEER.

5. TYPICAL MINIMUM THICKNESS OF DRAIN ROCK (INCLUDING CLASS 2 PERMEABLE MATERIAL) IS 12 INCHES. THE DRAIN ROCK SECTION CAN BE SEPARATED INTO TWO SECTIONS WITH 6 INCHES BENEATH THE CONCRETE HOUSING AND 6 INCHES WITHIN THE CONCRETE SUPPORTS. ALTERNATIVE CONFIGURATIONS THAT PROVIDE THE REQUIRED STORAGE VOLUME MAY BE USED.

6. EXCEPT WHERE INFILTRATION HAS BEEN ESTABLISHED AS BEING INFEASIBLE, BIOFILTRATION FACILITIES SHALL BE DESIGNED TO MEET INFILTRATION BMP DESIGN REQUIREMENTS IN SWDS SECTION 3.4.

7. BIOFILTRATION BMPS SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF SWDS SECTION 3.6.

8. WATERPROOF LINER (30 MIL PVC OR EQUIVALENT) SHALL BE USED ONLY WHERE INFILTRATION HAS BEEN ESTABLISHED AS BEING INFEASIBLE. GEOFABRIC, IF REQUIRED, SHALL BE PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. (SEE SW 150)

9. PROTECT AREAS DESIGNATED FOR INFILTRATION TO MINIMIZE COMPACTION TO THE EXTENT FEASIBLE. SCARIFY AREAS OF INCIDENTAL COMPACTION OF SUBGRADE TO PROMOTE INFILTRATION BEFORE BACKFILLING.

10. FOR A LIST OF ACCEPTABLE PLANTS, SEE SWDS APPENDIX D. PLANTING BELOW OVERFLOW ELEVATION SHALL BE CONSIDERED LOW ZONE AND PLANTING BETWEEN OVERFLOW ELEVATION AND THE DESIGN MAXIMUM WATER SURFACE ELEVATION SHALL BE CONSIDERED MID ZONE. NUMBER OF PLANTINGS PER 100 SF SHALL BE:

   a. LOW ZONE: 115 HERBACEOUS PLANTS OF 100 HERBACEOUS PLANTS AND 4 SMALL SHRUBS.

   b. MID ZONE: 1 TREE AND 3 LARGE SHRUBS/SMALL TREES AND 4 SMALL SHRUBS AND 140 GROUND COVER PLANTS.

11. USE APPROPRIATE SPLASH BLOCKS AND/OR ROCK TO DISSIPATE ENERGY AT INFLOW LOCATIONS.
1. DIMENSIONS:
   a. WIDTH OF PLANTER: 18' MINIMUM.
   b. MINIMUM AREA: SEE SWDS SECTION 4.0

2. OVERFLOW:
   a. OVERFLOW REQUIRED.
   b. INLET ELEVATION MUST ALLOW FOR 2'-OF-FREEBOARD, MINIMUM.
   c. GREATER FREEBOARD MAY BE NEEDED FOR TRIBUTARY AREA
      GREATER THAN 5000 SQ. FT.

3. PLANTER WALLS:
   a. MATERIAL SHALL BE STONE, BRICK, CONCRETE, WOOD, OR OTHER
      DURABLE MATERIAL (NO CHEMICALLY TREATED WOOD).
   b. CONCRETE, BRICK, OR STONE WALLS SHALL BE INCLUDED ON
      FOUNDATION PLANS.
   c. SEPARATE PRE-CAST UNITS MAY BE SUBSTITUTED FOR Poured
      IN PLACE.

4. WATERPROOF LINER: SHALL BE 30 MIL PVC OR EQUIVALENT.

5. USE APPROPRIATE SPLASH BLOCKS AND/OR ROCK TO DISSIPATE ENERGY
   AT INFLOW LOCATIONS

6. REFER TO SWDS SECTION 3.6 FOR ADDITIONAL DETAILS.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: STORM WATER PLANTER

CITY OF SALINAS

STANDARD PLAN No.

SW 13
SMALL BIOFILTRATION BASINS/STORMWATER PLANTERS

NOTE:

1. UNDERDRAINS REQUIRE ORIFICE FLOW CONTROL. REFER TO SWDS SECTION 4.0 FOR ORIFICE SIZING PROCEDURES. (ALSO SEE THRESHOLD DETERMINATION AND BMP SIZING SPREADSHEET AVAILABLE FROM THE CITY.)

2. DO NOT ROUTE OVERFLOWS THROUGH ORIFICES TO PREVENT CLOGGING.

3. REFER TO SWDS SECTION 4.0 FOR REQUIRED STORAGE VOLUMES BELOW ORIFICE AND OVERFLOW.

4. PLACE BOTTOM OF INLET OR MANHOLE WITH ORIFICE AT LEAST 4 INCHES BELOW THE BOTTOM OF THE ORIFICE TO MINIMIZE CLOGGING AND TO FACILITATE MAINTENANCE.

5. PIPING SHALL BE MINIMUM ABS OR PVC SCH. 40 3" PIPE FOR DRAINAGE AREAS UP TO 1,500 SQ FT, 4" PIPE FOR DRAINAGE AREAS UP TO 5,000 SQ FT. CALCULATIONS FOR LARGER AREAS SHALL BE PROVIDED TO DEMONSTRATE ADEQUACY OF PIPE SIZES.

6. OVERFLOW PIPING SHALL BE SET AT A MINIMUM 1% SLOPE UPSTREAM FROM THE MANHOLE OR INLET.

7. UNDERDRAINS AND UNDERDRAIN CONNECTOR PIPES MAY BE PLACED LEVEL, BUT DO REQUIRED CLEANOUTS SO THAT EACH SEGMENT CAN BE MAINTAINED.

8. PERFORATED PIPE TO BE PLACED HOLES DOWN SURROUNDED BY A MINIMUM OF 4 INCHES OF DRAIN ROCK.

- DRAWING NOT TO SCALE. -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: FACILITY OVERFLOW CONFIGURATIONS SMALL BIOFILTRATION BASINS / STORMWATER PLANTER

DESIGNED BY:

CADD BY:

PROJECT MANAGER:

WALTER GRANT, P.E.

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2014

DATE

STANDARD PLAN No.

CITY OF SALINAS

SW
14

REVISED 05/08/2014

CONCEIVED © 2013 City of Salinas, California

J:\v9167 - NPDES - SWDS\Drawings\Plans\Stormwater Standard Plans 10-18.dwo
NOTE:
1. ALTERNATIVE CONFIGURATIONS MAY BE PROPOSED SUBJECT TO REVIEW & APPROVAL OF THE CITY ENGINEER.
2. FLOW CONTROL RESTRICTION MAY BE REQUIRED TO LIMIT OVERFLOW LENGTH (SEE SW'S SECTION 4.0 FOR FLOW CONTROL REQUIREMENTS)
1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AS WELL AS FOOT TRAFFIC FOR PROPOSED INFILTRATION AREAS PRIOR TO AND DURING CONSTRUCTION.

2. DIMENSIONS:
   a. FLOW LINE LENGTH: 8' MINIMUM.
   b. SLOPES: 4% MAX. (2% - 4% PREFERRED)

3. SETBACKS (FROM BEGINNING OF FACILITY):
   a. REFER TO SWDS SECTION 3.4 TABLE 1
   b. AS REQUIRED BY PROJECT GEO TECHNICAL ENGINEER IF GREATER.

4. OVERFLOW: COLLECTION FROM FILTER STRIP SHALL BE SPECIFIED ON PLANS TO APPROVED DISCHARGE POINT.

5. GROWING MEDIUM: UNLESS EXISTING VEGETATED AREAS ARE USED FOR THE FILTER STRIP, GROWING MEDIUM SHALL BE USED WITHIN THE TOP 18". SEE SWDS APPENDIX D FOR BSM.

6. VEGETATION: THE ENTIRE FILTER STRIP MUST HAVE 100% COVERAGE BY NATIVE GRASSES, NATIVE WILDFLOWER BLENDS, NATIVE GROUND COVERS, OR ANY COMBINATION THEREOF.

7. LEVEL SPREADERS: A GRADE BOARD OR SAND/GRAVEL TRENCH MAY BE REQUIRED TO DISPERSE THE RUNOFF EVENLY ACROSS THE FILTER STRIP TO PREVENT A POINT OF DISCHARGE. THE TOP OF THE LEVEL SPREADER MUST BE HORIZONTAL AND AT AN APPROPRIATE HEIGHT TO PROVIDE SHEETFLOW DIRECTLY TO THE SOIL."
SECTION VIEW

NOTE:

1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING, AND AFTER CONSTRUCTION.

2. SITING CRITERIA: GRAVELY SAND, GRAVELY LOAMY SAND, OR OTHER EQUALLY POROUS MATERIAL MUST OCCUR IN A CONTINUOUS 6' DEEP STRATUM WITHIN 12' OF THE GROUND SURFACE WITH INFILTRATION RATE BETWEEN 0.3' TO 3'/HR.

3. SIZING: PROJECT ENGINEER TO PROVIDE SIZING REQUIREMENTS.

4. DRYWELL SHALL NOT BE INSTALLED WHERE BASE OF FACILITY HAS LESS THAN 10' OF SEPARATION TO WATER TABLE.

5. TOP OF DRYWELL MUST BE 2' BELOW MIN. LOWEST FINISHED FLOOR.

6. SETBACKS (FROM CENTER OF FACILITY):
   a. REFER TO SWDS SECTION 3.4 TABLE 1.
   b. AS REQUIRED BY GEO/TECHNICAL/ENGINEER

7. PIPING SHALL BE ABS SCH40, CAST IRON, OR PVC SCH40. 3" PIPE MUST BE USED FOR UP TO 1500SF OF IMPERVIOUS AREA, OTHERWISE 4" MINIMUM. PIPING MUST HAVE 1% GRADE AND MUST FOLLOW CURRENT UNIFORM PLUMBING CODE.

8. PROVIDE ADEQUATE TREATMENT OF STORM WATER UPSTREAM OF WELLS. SYSTEM ACCEPTABILITY DETERMINED ON A CASE BY CASE BASIS. SEE DETAIL A. SW-18 FOR SLT TRAP.

- DRAWING NOT TO SCALE -

ENGINEERING & TRANSPORTATION DIVISION

TITLE: DRYWELL (DIRECT INFILTRATION)

STANDARD PLAN No. SW 17

CITY OF SALINAS
NOTE:

1. REFER TO SWDS SECTION 3.4 TABLE 1 FOR SETBACKS OR PER PROJECT GEO-TECHNICAL ENGINEER, WHICHEVER IS GREATER.

2. ADEQUATE PRE-TREATMENT REQUIRED. PRE-TREATMENT SYSTEM SHALL BE INCLUDED UPSTREAM OF INFILTRATION TRENCH. SYSTEM ACCEPTABILITY DETERMINED ON A CASE BY CASE BASIS.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: INFILTRATION TRENCH

CITY OF SALINAS

STANDARD PLAN No. SW 18

DESIGNED BY:

DATE: 4/8/14

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42071, EXPIRES 3-31-2016
RIP RAP WITH THICKNESS/PLACEMENT PER CALTRANS MANUAL "CALIFORNIA BANK SHORE ROCK SLOPE PROTECTION DESIGN" LATEST ADDITION, DESIGNED FOR ANTICIPATED FLOW VELOCITY

1' MIN. FREEBOARD

WATER SURFACE @ 100 - YEAR SPILLWAY OVERFLOW

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: DETENTION/RETENTION POND - EMERGENCY OVERFLOW SPILLWAY WEIR

CITY OF SALINAS

STANDARD PLAN No. SW 23A

DESIGNED BY:
CADD BY:
PROJECT MANAGER:

STAFF
STAFF
WALTER GRANT, P.E.

DATE 4/18/14

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2016
NOTE: REFER TO SW15 FOR BASIN OUTLET CONFIGURATION.

CALTRANS CLASS 2 CONCRETE

TRENCH WIDTH PLUS 12" PAST EACH SIDE

TRENCH WALL EITHER END OF COLLAR

UNDISTURBED GROUND

NATIVE SOIL

NOTE: PROJECT GEOTECHNICAL ENGINEER TO VERIFY ADEQUACY OF EXTENT OF COLLAR & INCREASE THE EXTENT IF THE SITE CONDITIONS REQUIRE IT.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: DETENTION/RETENTION POND - INLET/OUTLET ANTI-SEEPAGE COLLAR

DESIGNED BY: STAFT
CADD BY: STAFT
PROJECT MANAGER: WALTER GRANT, P.E.

DATE 4/10/14

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2016

CITY OF SALINAS
STANDARD PLAN No.
SW 23B
PROVIDE LANDSCAPE PLAN SHOWING DRAIN LINES OF SHRUBS & TREES (COVERAGE) AT MATURITY ALONG WITH NORMAL LANDSCAPE PLAN.

SLOPE VARIES (2H:1V OR FLATTER)

TOP OF BANK VARIES IN ALIGNMENT

S.D. INLET OR PROVIDE SURFACE INLET SPILLWAY & ROCK RIP RAP PROTECTION SIMILAR TO SW-23A

TO MAIN FLOOD CHANNEL

FACILITY OVERFLOW PER SW-15

NOTE: FENCE SHALL BE BLACK 5' OPEN METAL PICKET WROUGHT IRON STYLE WITH MAINTENANCE ACCESS GATES

EMERGENCY OVERFLOW SPILLWAY WEIR PER SW-23A

TO MAIN FLOOD CHANNEL

FACILITY OVERFLOW PER SW-15

NOTE: FENCE SHALL BE BLACK 5' OPEN METAL PICKET WROUGHT IRON STYLE WITH MAINTENANCE ACCESS GATES

PLAN VIEW

PROVIDE A MIX OF GRASSES, SHRUBS & TREES PER SWDS APPENDIX C.

ROUND TOP & TOE OF SLOPE

SLOPE VARIES (2H:1V OR FLATTER)

NOTE: REFER TO SWDS SECTION 3.3 FOR OTHER REQUIREMENTS.

NOTE: LARGE PONDS/BASINS CAN ONLY BE USED AS AN ALTERNATE MEANS IF NO OTHER PARCEL BASED PCBMP IS POSSIBLE IF APPROVED BY THE CITY ENGINEER.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: DETENTION/RETENTION POND LARGE

CITY OF SALINAS

STANDARD PLAN No. SW 24

DESIGNED BY: 

CADD BY: 

PROJECT MANAGER: WALTER GRANT, P.E.

DATE 4/30/04

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42071, EXPIRES 3-31-2016
NOTE:

1. REFER TO SWDS SECTION 3.4 TABLE 1 FOR SETBACKS OR PER PROJECT GEOTECHNICAL ENGINEER, WHICHEVER IS GREATER. TANKS LOCATED WITHIN 10 FEET OF THE STRUCTURE NEED TO BE RESTRAINED TO PREVENT DAMAGE IN THE EVENT OF AN EARTHQUAKE.

2. TANKS SHALL BE DESIGNED TO DRAIN IN 48 TO 72 HOURS OVER A LANDSCAPED AREA EQUAL TO AT LEAST 25% OF IMPERVIOUS TRIBUTARY AREA.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: RAINWATER CISTERN

CITY OF SALINAS

STANDARD PLAN No. SW 25

ROBERT C. RUSSELL, CITY ENGINEER
K.C.B. 42871, EXPIRES 3-31-2016
NOTE:
1. REFER TO SWOS SECTION 3.4 TABLE 1 FOR SETBACKS OR PER PROJECT GEOTECHNICAL ENGINEER, WHICHEVER IS GREATER.
2. PRE-TREATMENT OF INFLOW IS REQUIRED IF INFILTRATION IS FEASIBLE. IF INFILTRATION IS INFEASIBLE, FLOW CAN BE TREATED WHEN FLOW IS RELEASED FROM DETENTION TANK.
3. IF INFILTRATION IS INFEASIBLE AND THE PROJECT IS SUBJECT TO REQUIREMENT 5, TREAT RUNOFF STORED IN DETENTION TANKS AND RELEASE AT THE DESIRED RATE (SEE SWOS SECTION 2).
4. DEAD STORAGE REQUIRED IF SYSTEM IS CONFIGURED TO LET UNTREATED FLOWS ENTER THE FACILITY, IF THE FLOWS ARE TREATED BEFORE ENTERING THE SYSTEM, DEAD STORAGE IS NOT REQUIRED.
5. CONTROL CONFIGURATION ON SW-15 CAN BE INSTALLED IN A MANHOLE RATHER THAN WITH A GRATE INLET.

* PROVIDE WEEP HOLES TO SUBGRADE AT BOTTOM OF STRUCTURE UNLESS PROHIBITED BY PROJECT GEOTECHNICAL ENGINEER.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: DETENTION TANK/UNDERGROUND INFILTRATION CHAMBER

DESIGNED BY:
DATE 4/9/14

DRAWN BY:

PROJECT MANAGER:

STAFF

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42371, EXPIRES 3-31-2014

WALTER GRANT, P.E.

CITY OF SALINAS

STANDARD PLAN No.

SW 26
NOTE: OIL-WATER SEPARATORS SHALL BE INSTALLED FOR ANY SITE WHERE AUTOMOTIVE/MACHINE REPAIRS OCCUR OR A HIGH INSTANCE OF VEHICLE/EQUIPMENT STORAGE COULD CAUSE SURFACE RUNOFF TO BE CONTAMINATED SUCH AS VEHICLE STORAGE YARDS, AUTO SALES AND/OR REPAIR OR SIMILAR USES.

COALESCING PLATE (CP) SEPARATOR

NOTE: OIL-WATER SEPARATORS TO BE INSTALLED DOWNSTREAM OF SITE WHERE SITE STORM DRAIN LATERAL ENTERS CITY STORM DRAIN SYSTEM & SHALL BE SIZED FOR UPSTREAM TRIBUTARY AREAS. SEE MANUFACTURER'S RECOMMENDATIONS FOR SIZING.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE:
OIL-WATER SEPARATORS

CITY OF SALINAS
STANDARD PLAN No.
SW27

DESIGNED BY:
CADD BY:
PROJECT MANAGER:
WALTER GRANT, P.E.

DATE 4/8/14

ROBERT C. RUSSELL, CITY ENGINEER
P.C.E. 42871, EXPIRES 3-31-2016
NOTE: ROOFING MATERIALS AND ENCLOSURE DIMENSIONS ARE SHOWN FOR REFERENCE ONLY. PROVIDE PROJECT SPECIFIC DETAILS FOR ALL ELEMENTS.

NOTE: REFER TO CITY STANDARD PLANS NO. 57A & 57B FOR ADDITIONAL TRASH ENCLOSURE REQUIREMENTS & ALTERNATIVES TO A ROOFED ENCLOSURE (PROVIDE PLANTER & DRAIN TO IT). CONTACT REPUBLIC SERVICES AND OBTAIN APPROVAL LETTER AND PROVIDE TO CITY PRIOR TO CITY APPROVAL OF PERMIT (RELATES TO ENCLOSURE DIMENSIONS, LOCATION AND TRUCK ACCESS). COMPLY WITH APPLICABLE CODES.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: COVERED TRASH ENCLOSURE

CITY OF SALINAS

STANDARD PLAN No. SW 28

DESIGNED BY:
CADD BY:
PROJECT MANAGER:

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42071, EXPIRES 3-31-2016

WALTER GRANT, P.E.
USE Safety Precautions
- Wear protective gear
- Keep vehicles and people out of spill
- Contain materials with the spill kit
  1) Seal off drains
  2) Berm to contain the spill
  3) Clean up with absorbent materials

1. Turn off valve located at
   (your location, i.e. NE corner of parking lot)

2. CALL: Site Supervisor @
   XXX XXX-XXXX

---

1. ANY SITES TRIBUTARY TO & UPSTREAM OF A CENTRAL STORM WATER RETENTION/DETECTION BASIN ARE REQUIRED TO HAVE VALVED OUTLETS TO THE OFF-SITE STORM DRAIN SYSTEM TO ISOLATE SPILLS AND KEEP THE DOWNSTREAM SYSTEM AND BASIN FREE OF CONTAMINATION.

2. ANY SITES WHERE ALL DETENTION AND RETENTION IS PROVIDED ON SITE AND ALL AREAS SUBJECT TO SPILLS DRAIN THROUGH FILTERING BMPS AND/OR OIL/WATER SEPARATORS ARE NOT REQUIRED TO PROVIDE ISOLATION VALVES.

3. ALL SITES WITH PUBLIC PARKING WILL BE REQUIRED TO POST SIGNS SIMILAR TO THOSE SHOWN HEREON NEAR DRAIN INLETS.

---

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: SITE SPILL CONTROL

DESIGNED BY:
CADD BY:
PROJECT MANAGER:

WALTER GRANT, P.E.

DATE 4/18/14

SAME PLAN No. SW 29

CITY OF SALINAS
NOTE: WHERE EXISTING CROSSINGS ARE WIDENED SIMILAR MATERIALS MAY BE USED IF EXISTING STRUCTURE HAS ADEQUATE REMAINING SERVICE LIFE. PROVIDE GRAFFITI RESISTANT COATING FOR ALL EXPOSED SURFACES.

TYPICAL OPEN-BOTTOM OR NATURAL-BED CULVERT

ALLOW ADDITIONAL SPACE FOR UTILITY CROSSINGS IF REQUIRED

HEAD WALLS EACH SIDE TEXTURED OR PATTERNED

MAXIMUM WATER SURFACE ELEVATION DURING 100-YEAR PEAK FLOW +2' FREEBOARD MIN.

CHANNEL SLOPE 2:1 AT STEEPEST TYP.

FOOTING (TYP.)

ARCH CULVERT SHALL BE RCC OR METAL PLATE ARCH WITH CATHODIC PROTECTION & ENVIRONMENTALLY NEUTRAL COATING.

TYPICAL OPEN-BOTTOM ARCH CULVERT

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: ROADWAY AND CULVERT-STREAM CROSSING

CITY OF SALINAS

STANDARD PLAN No. SW 30

DESIGNED BY: [Signature]
CADD BY: [Signature]
PROJECT MANAGER: [Signature]

DATE 4/19
ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2010

Create & Restore By: Salinas Califano
TRAPEZOIDAL GRASS-LINED SWALE SECTION

NOT TO SCALE

LONGITUDINAL SLOPE 0.5% - 2.5% SEE NOTE 5

EXTEND ALONG BANK TO 2-YR FLOW DEPTH PLUS A MINIMUM OF 0.5 FEET GRADE CONTROL CHECKS

100 FT MINIMUM VEGETATED SWALE LENGTH

GRASS-LINED SWALE PROFILE

NOT TO SCALE

NOTE:
1. REFER TO SWDS SECTION 3.4 TABLE 1 FOR SETBACKS OR PER PROJECT GEOTECHNICAL ENGINEER, WHICHERVER IS GREATER.
2. MAXIMUM SWALE TRIBUTARY AREA IS 10 ACRES.
3. SWALE MUST NOT HOLD STANDING WATER FOR MORE THAN 72 HOURS TO PREVENT VECTOR PROBLEMS.
4. A MINIMUM 4 INCH DIAMETER PERFORATED PVC UNDERDRAIN PIPE SHALL BE PROVIDED WHERE UNDERLYING SOILS HAVE INFILTRATION RATES LESS THAN 0.5 IN/HR. IF LONGITUDINAL SLOPES LESS THAN 1% INSTALL UNDERDRAIN SYSTEM TO PREVENT STANDING WATER.
5. LONGITUDINAL SLOPES BETWEEN 2.5% AND 5% MAY BE ALLOWED IF CHECK DAMS ARE INSTALLED TO REDUCE RUNOFF VELOCITY TO 2.5 FEET.
6. DESIGN WITH FLOW HEIGHT ONE INCH BELOW DESIGN GRASS HEIGHT FOR WQ.
7. DO NOT APPLY IN AREAS WITH ADJACENT SLOPES OF 5% OR GREATER OR IN AREAS WITH HIGHLY ERRODIBLE SOILS.

- DRAWING NOT TO SCALE -

ENGINEERING & TRANSPORTATION DIVISION

PUBLIC WORKS DEPARTMENT

CITY OF SALINAS

STANDARD PLAN No.

VEGETATED SWALES

SW

31
DESIGNER INFORMATION

1. DISTANCE BETWEEN TREES VARIES: 20FT-30FT ON CENTER.
2. STORMWATER FACILITY CONSTRUCTION AND TOPSOIL REQUIREMENTS, SEE CITY OF SALINAS SWDS APPENDIX D.
3. USE OF TREE SPECIES MUST BE APPROVED BY URBAN FORESTRY CONTACT VICTOR BAEZ 831-756-7956.
4. INCLUDE TREE WELL AND STREET TREE VIEWS ON PLANS.
5. DIMENSION TOPSOIL AND ROCK LAYERS ON NON-TREE SIDE TO CORRESPOND TO SW12 OR SW31.

CONSTRUCTION NOTES

1. CONTACT URBAN FORESTRY VICTOR BAEZ FOR TREE INSTALLATION ASSISTANCE AND PERMITTING AT (831) 756-7956.
2. REMOVE WIRE AND BURLAP FROM ROOT BALL PRIOR TO BACKFILLING.
3. SET TOP OF ROOT BALL 1'-2' ABOVE TOPSOIL SURFACE.
4. DEEPEN SOIL SECTION MINIMUM; 4FT WIDE, 8FT LONG, 4FT DEEP.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: STREET TREE DETAIL - WITHIN WATER QUALITY FEATURE

CITY OF SALINAS

STANDARD PLAN No.

SW 32

DEIGNED BY:

CADD BY:

PROJECT MANAGER:

WALTER GRANT, P.E.

DATE 4/3/14

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2016
INSTRUCTIONS

1. PROVIDE TEMPLATES AND ALTER THEM TO VARY THE DESIGN APPEARANCE.
2. PLANT LISTS AND QUANTITY REQUIREMENTS ARE FOUND IN SALINAS SWDS APPENDIX C.
3. PLANTING TABLE REQUIRED: STATE PLANT SPECIES, SPACING, AND QUANTITIES PER ZONE A AND ZONE B AND PER SWALE. INCLUDE THE SQUARE FOOTAGE OF ZONE A AND B. ALTERNATIVE TO SWDS APPENDIX C MAY BE USED PROVIDED THEY ARE SUITABLE FOR THE ZONE IN WHICH THEY ARE PLACED.

- DRAWING NOT TO SCALE -
INSTRUCTIONS

1. REFER TO CITY STANDARD PLANS NO. 34 & 35. CENTER OF HYDRANTS MUST HAVE MIN. 5 FT. CLEARANCE TO THE OUTSIDE EDGE OF STORMWATER FACILITY.

2. STANDARD METER LOCATION IS OPTION A. OPTION B OR C CAN BE USED ONLY IF THE METER BOX IS FULLY WITHIN THE RIGHT-OF-WAY. OPTION C CAN ONLY BE USED FOR AN EXISTING SERVICE AND WHEN OTHER OPTIONS ARE INFEASIBLE.

3. REFER TO CALIFORNIA WATER SERVICE CO. OR ALCO STD. DEPENDING ON FRANCHISE AREA.

4. IF WATER MAIN IS UNDER OR BEHIND PROPOSED CURB, THE WATER MAIN MUST BE RELOCATED UNLESS OTHERWISE APPROVED BY THE CITY OF SALINAS. DEPTH OF WATER MAIN DEPTH IS REQUIRED PRIOR TO CITY APPROVAL.

5. CROSS-SECTION VIEWS ARE REQUIRED ON CONSTRUCTION PLANS.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: BACKFLOW, METER & HYDRANT LOCATIONS - VEGETATED SWALES

CITY OF SALINAS

STANDARD PLAN No. SW 34

DESIGNED BY:

CADD BY:

PROJECT MANAGER:

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42671, EXPIRES 3-31-2016

WALTER GRANT, P.E.
DESIGNER INFORMATION

1. ADJUST PLAN VIEW EXAMPLE TO YOUR
   ENGINEERED DESIGN.
2. PROVIDE BEGINNINGS AND ENDING STATIONS
   FOR EACH FACILITY. PROVIDE STATIONS
   AND/OR DIMENSIONS AND ELEVATIONS AT
   EACH INLET, OUTLET, CHECK DAM, PLANTER
   CORNERS, AND SIDEWALK NOTCHES.
3. LONGITUDINAL SLOPE OF PLANTER MATCHES
   ROAD.
4. SIDEWALK ELEVATIONS MUST BE SET ABOVE
   CHECK DAM AND INLET/OUTLET ELEVATIONS
   TO ALLOW OVERFLOW TO DRAIN TO STREET
   BEFORE SIDEWALK.
5. MINIMUM INTERIOR PLANTER WIDTH IS 3
   FEET. MINIMUM 4 FEET INTErior
   PLANTER WIDTH REQUIRED FOR STREET
   USE. PLANTER MAXIMUM PLANTER
   WIDTH, SEE SW-32.
6. EXISTING UTILITY LINES MUST BE SLEEVED
   OR RELOCATED. PROPOSED UTILITY LINES
   TO BE LOCATED OUT OF FACILITY.
7. AREA AM DEPTH OF FACILITY ARE BASED
   UPON ENGINEERING CALCULATIONS AND
   CITY OF SALINAS SWMS.

RELATED DETAILS AND RESOURCES

8. REFER TO SW-12 FOR STORMWATER
   PLANTER. FOR MINIMUM AREA SEE SW-12
   AND SW-130
9. PLANTER WALL DETAIL SW-38.
10. INLET DETAIL SW-120 AND SW-122.
11. SPECIAL REQUIREMENTS FOR WATER LINES,
    METERS, AND FIRE HYDRANTS DETAIL
    SW-41.
12. PLANTER PLANTING TEMPLATES SW-40.
13. STORMWATER FACILITY CONSTRUCTION AND
    ENS. REQUIREMENTS, SEE CITY OF SALINAS
    SWMS APPENDIX C.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE:

PLAN VIEW WITHOUT PARKING - IN STREET
STORMWATER PLANTERS

CITY OF SALINAS

STANDARD PLAN No.

SW 35
DESIGNER INFORMATION

1. Special design considerations or structural review may be required for smaller section wall spaces. Steel reinforcement or additional concrete core dams may be needed for stability.
2. Maintain 2:6 batter for walls and 4" minimum to top of curb.
3. If liner is used with L-shaped wall, wall height must be increased. Three inches of concrete required on all sides of attachment (see SW-120).

CONSTRUCTION NOTE

Finish all exposed concrete surface.

FOR ALTERNATIVE EDGE CONFIGURATIONS SEE SW-120

PLANNING & DESIGN DIVISION

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: BIORETENTION EDGE CONFIGURATIONS

CITY OF SALINAS

STANDARD PLAN No. SW 38

DESIGNED BY: CADD BY: PROJECT MANAGER: ROBERT C. RUSSELL, CITY ENGINEER R.C.E. 42671, EXPIRES 3-31-2016

DATE STAFF STAFF WALTER GRANT, P.E.
DEVELOPMENT REQUIREMENTS

1. DISTANCE BETWEEN TREES VARIES: 20'-30' ON CENTER.
2. STORMWATER FACILITY DESIGN REQUIREMENTS. SEE CITY OF SALINAS SWDS APPENDIX C.
3. USE OF TREE SPECIES MUST BE APPROVED BY URBAN FORESTRY CONTACT VICTOR BAEZ 831-758-7088.
4. PROVIDE TREE WELL AND STREET TREE VIEWS ON PLANS.
5. DIMENSION TOSOIL AND ROCK LAYERS ON NON-TREE SIDE TO CORRESPOND TO SWALE SECTION.
6. INCLUDE LINER AND CALL-OUT IF USED, SEE SWALE SECTION SW-37.

CONSTRUCTION NOTE

1. CONTACT URBAN FORESTRY VICTOR BAEZ FOR TREE INSTALLATION ASSISTANCE AND PERMITTING AT (831) 758-7088.
2. REMOVE WIRE AND BURLAP FROM ROOT BALL PRIOR TO BACKFILLING.
3. SET TOP OF ROOT BALL 1'-2' ABOVE TOPSOIL SURFACE.
4. DEEPEN SOIL SECTION MINIMUM: 4FT WIDE, 6FT DEEP.

EXisted SUBGRADE

STREET TREE IN SWALE

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: STREET TREE DETAILS - IN STREET STORMWATER PLANTERS

DESIGNED BY: STAFF
CADD BY: STAFF
PROJECT MANAGER: WALTER GRANT, P.E.

CITY OF SALINAS

STANDARD PLAN No.

SW 39
INSTRUCTIONS

1. PROVIDE TEMPLATES FOR SUBMITTAL GUIDANCE.

- DRAWING NOT TO SCALE -

PUBLICATION WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: LANDSCAPE PLANTING TEMPLATES IN STREET STORMWATER PLANTERS

CITY OF SALINAS

STANDARD PLAN No. SW 40

DESIGNED BY:

DATE 4/3/14

CADD BY:

ROBERT C. RUSSELL, CITY ENGINEER
R.O.E. 42871, EXPIRES 3-31-2014

PROJECT MANAGER:

WALTER GRANT, P.E.
DESIGNER INFORMATION

1. REF: TO CITY STD. PLANS NO. 33 & 34 FOR DETAIL TO THE OUTSIDE EDGE OF STORMWATER FACILITY.

2. STANDARD METER LOCATION IS OPTION A. OPTION B OR C CAN BE USED ONLY IF METER BOX IS FULLY WITHIN THE RIGHT-OF-WAY. OPTION D CAN ONLY BE USED WITHIN PARKING EGRESS ZONE THAT IS A MINIMUM OF 40" WIDE. OPTION E CAN ONLY BE USED FOR AN EXISTING SERVICE AND WHEN OTHER OPTIONS ARE INFeASIBLE OR WHERE ENTIRE RIGHT-OF-WAY IS PAVED.

3. REF: TO CALIFORNIA WATER SERVCE & ALCO STANDARDS.

4. IF WATER MAIN IS UNDER OR BEHIND PROPOSED CURB, THE WATER MAIN MUST BE RELOCATED UNLESS OTHERWISE APPROVED BY THE CITY OF SALINAS. VERIFICATION OF WATER MAIN DEPTH IS REQUIRED PRIOR TO CITY APPROVAL.

5. CROSS-SECTION VIEWS ARE NOT REQUIRED ON CONSTRUCTION PLANS.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: BACKFLOW, METER AND HYDRANT LOCATIONS IN STREET STORMWATER PLANTERS

CITY OF SALINAS

STANDARD PLAN No.

SW 41

DESIGNED BY:                      DATE: 4/28/19

CADD BY:   PROJECT MANAGER:

WALTER GRANT, P.E.
DESIGNER INFORMATION

1. ADAPT PLAN VIEW EXAMPLE TO YOUR ENGINEERED DESIGN.
2. PROVIDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY. PROVIDE STATIONS AND/OR DIMENSIONS AND ELEVATIONS AT EACH INTERSECTION, CHECK DAM, PLANTER CORNERS, AND SIDEWALK NOTCHES.
3. LONGITUDINAL SLOPE OF PLANTER MATCHES ROAD.
4. SIDEWALK ELEVATIONS MUST BE SET ABOVE CHECK DAM AND INLET/OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET BEFORE SIDEWALK.
5. EXISTING UTILITY LINES MUST BE SLEEVED OR RELOCATED. PROPOSED UTILITY LINES TO BE LOCATED OUT OF FACILITY.
6. AREA AND DEPTH OF FACILITY ARE BASED ON ENGINEERING CALCULATIONS AND RIGHT-OF-WAY CONSTRAINTS. SEE CITY OF SALINAS SWDS.
7. PROVIDE ADDITIONAL INLETS IN FACILITIES OVER 25 FT IN LENGTH, OR PER SPECIFIC NEEDS.

RELATED DETAILS AND RESOURCES

8. CHECK DAM DETAILS SW-130 AND SW-131.
9. PLANTER WALL DETAIL SW-38.
10. INLET DETAILS SW-120 THRU SW-123 AND SW-47 THRU SW-49.
11. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND FIRE HYDRANTS DETAIL SW-46.
12. PLANTER PLANTING TEMPLATES SW-45.
13. STORMWATER FACILITY CONSTRUCTION AND TOPSOIL REQUIREMENTS, SEE CITY OF SALINAS SWDS.
14. INSTALL OVERFLOW PER SW-140. CONNECT TO STORM DRAIN SYSTEM IF AVAILABLE, OR IF AT LOW POINT PROVIDE INLET EACH END & INSTALL OVERFLOW AT LOW POINT PER SW-140.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: PLAN VIEW CURB EXTENSIONS WITH IN-STREET STORMWATER PLANTERS

DESIGNED BY: [Signature]
CADD BY: [Signature]
PROJECT MANAGER: [Signature]

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2016

CITY OF SALINAS

STANDARD PLAN No.
SW 42
DESIGNER INFORMATION

1. ADAPT PLAN VIEW EXAMPLE TO YOUR ENGINEERED DESIGN.
2. PROVIDE BEGINNING AND ENDING STATIONS FOR EACH FACILITY, PROVIDE STATIONS AND/OR DIMENSIONS AND ELEVATIONS AT EACH INLET/OUTLET, CHECK DAM, PLANTER CORNERS, AND SIDEWALK NOTCHES.
3. LONGITUDINAL SLOPE OF PLANTER MATCHES ROAD.
4. SIDEWALK ELEVATIONS MUST BE SET ABOVE CHECK DAM AND INLET/OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET BEFORE SIDEWALK.
5. EXISTING UTILITY LINES MUST BE SLEEVED OR RELOCATED. PROPOSED UTILITY LINES TO BE LOCATED OUT OF FACILITY.
6. AREA AND DEPTH OF FACILITY ARE BASED ON ENGINEERING CALCULATIONS AND RIGHT-OF-WAY CONSTRAINTS. SEE CITY OF SALINAS SWDS.
7. PROVIDE ADDITIONAL INLETS IN FACILITIES OVER 25 FT IN LENGTH, OR PER SPECIFIC NEEDS.

RELATED DETAILS AND RESOURCES

8. CHECK DAM DETAILS SW-130 AND SW-131.
9. PLANTER WALL DETAIL SW-38.
10. INLET DETAILS SW-120 AND SW-47 THRU SW-49.
11. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND FIRE HYDRANTS DETAIL SW-46.
12. CURB EXTENSION PLANTING TEMPLATES SW-45.
13. STORMWATER FACILITY CONSTRUCTION AND TOPSOIL REQUIREMENTS, SEE CITY OF SALINAS SWDS.
14. INSTALL OVERFLOW PER SW-140 CONNECT TO STORM DRAIN SYSTEM IF AVAILABLE, OR IF AT LOW POINT PROVIDE INLET TO EACH END & INSTALL OVERFLOW AT LOW POINT PER SW-140.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE:  PLAN VIEW-CURB EXTENSIONS WITH IN-STREET STORMWATER PLANTER

DESIGNED BY:

CADD BY:

PROJECT MANAGER:

CITY OF SALINAS

STANDARD PLAN No.

SW 43

ROBERT O. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2016

J:\HW\157 - NPDES - SWDS\Drawings\Plans\Stormwater Standard Plans 31-A-49.2.pdf
INSTRUCTIONS

1. PROVIDE TEMPLATES AND ALTER THEM TO VARY THE
   DESIGN APPEARANCE.
2. PLANT LISTS AND QUANTITY REQUIREMENTS ARE
   FOUND IN SALINAS SWPS APPENDIX C.
3. PLANTING TABLE REQUIRED. STATE PLANT SPECIES,
   SHAPE, AND QUANTITIES PER ZONE AND PER SWALE.
   INCLUDE THE SQUARE FOOTAGE OF EACH ZONE.

IMPORTANT: ISOLATE UTILITY TRENCH
SAND, BACKFILL FROM PLANTER TO
PREVENT UTILITY BOXES FROM FLOODING.

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: LANDSCAPE PLANTING TEMPLATES-CURB
EXTENSIONS WITH STORMWATER PLANTERS

CITY OF SALINAS

STANDARD PLAN No.

SW 45
INSTRUCTIONS

1. REFER TO CITY STANDARD PLANS NO. 34 & 35 FOR ADDITIONAL REQUIREMENTS. CENTER OF HYDRANTS MUST BE AT LEAST 6 FT. CLEARANCE TO THE OUTSIDE EDGE OF STORMWATER FACILITY.

2. STANDARD METER LOCATION IS OPTION A. OPTION B OR C CAN BE USED ONLY IF THE METER BOX IS FULLY WITHIN THE RIGHT-OF-WAY. OPTION D CAN ONLY BE USED FOR AN EXISTING SERVICE AND WHEN OTHER OPTIONS ARE INFEASIBLE & THE ENTIRE R/W & S/W IS PAVED.

3. REFER TO CALIFORNIA WATER SERVICE CO. OR ALCO STDS.

4. IF WATER MAIN IS UNDER OR BEHIND PROPOSED CURB, THE WATER MAIN MUST BE RELOCATED, UNLESS OTHERWISE APPROVED BY THE CITY OF SALINAS. VERIFICATION OF WATER MAIN DEPTH IS REQUIRED PRIOR TO CITY APPROVAL.

5. CROSSECTION VIEWS ARE NOT REQUIRED ON CONSTRUCTION PLANS.

- DRAWING NOT TO SCALE -

ENGINEERING & TRANSPORTATION DIVISION

PUBLIC WORKS DEPARTMENT

TITLE: BACKFLOW, METER & HYDRANT LOCATIONS - CURB EXTENSIONS WITH STORMWATER PLANTERS

CITY OF SALINAS

STANDARD PLAN No.

SW 46
DESIGNER INFORMATION

1. Metal Inlets required on high traffic streets.
2. Curb and gutter, use City Standard Plan No. 1.
3. Metal Inlet Assembly used with SW-120, SW-121, and SW-30.
4. When using with SW-120, modify curb for metal inlet assembly.
5. Design vertical wheel load is 8.5 kips (1/2 of tandem axles' weight specified in FHWA-HOP-08-105).
6. Metal inlet width can be modified to 2 ft. If site conditions require a 2 ft interior inlet width.

RELATED DETAILS AND RESOURCES

1. Headed Concrete Anchors shall meet the requirements of ASTM A-108.
2. HSS 6 x 2 x 1/8 Channel shall meet the requirements of ASTM A-800 Grade B.
3. End Plates shall meet the requirements of ASTM A-36.
4. Entire Assembly shall be Hot-Dip Galvanized in accordance with ASTM A-123.
5. Single Bevel Groove Weld.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: METAL INLET-CURB INLETS

STANDARD PLAN No. SW 47
**DESIGNER INFORMATION**

1. ADDITIONAL INLETS CAN BE ADDED IF NECESSARY (PREFERABLY IMMEDIATELY DOWNSTREAM OF EACH CHECK DAM TO MINIMIZE POTENTIAL BACK FLOW).
2. SAWCUT BEYOND FACILITY AND TRANSITION EXISTING CURB TO NEW CURB AND GUTTER AT 1" PER FOOT AS NECESSARY.
3. INLET MAY BE MODIFIED TO MAXIMIZE FLOW ENTRY TO STORMWATER FACILITY.

**DRAWING NOT TO SCALE**

**PUBLIC WORKS DEPARTMENT**

**ENGINEERING & TRANSPORTATION DIVISION**

**TITLE:** INLET & OUTLET FOR CURB EXTENSIONS - CURB INLETS

**STANDARD PLAN No.** SW 48

**DESIGNED BY:**

**STAFF**

**CADD BY:**

**STAFF**

**PROJECT MANAGER:**

WALTER GRANT, P.E.

**ROBERT C. RUSSELL, CITY ENGINEER**

R.C.E. 42871, EXPIRES 3-31-2016

**DATE: 4/30/14**

**CITY OF SALINAS**
DESIGNER INFORMATION
1. SPLASH PAD ARE REQUIRED AT ALL INLETS.
2. REFER TO CITY STD. PLAN NO. 1 MATCH GUTTER PAN
   OF ADJACENT CURB AND GUTTER.
3. DESIGN VERTICAL WHEEL LOAD IS 8.5KIPS (1/2 OF
   TANDEM AXLE WEIGHT SPECIFIED IN
   FHWA-HOP-06-008).

RELATED DETAILS AND RESOURCES
1. HEADED CONCRETE ANCHORS SHALL MEET THE
   REQUIREMENTS OF ASTM A-108.
2. HSS 6 X 2 X 1/4 CHANNEL SHALL MEET THE
   REQUIREMENTS OF ASTM A-36.
3. END PLATES SHALL MEET THE REQUIREMENTS OF ASTM
   A-123.
4. ENSEMBLE ASSEMBLY SHALL BE HOT-DIP GALVANIZED
   IN ACCORDANCE WITH ASTM A-123.
5. SINGLE BEVEL GROOVE WELD.

PLAN VIEW

TOP VIEW

ELEVATION

END PLATE DETAIL

- DRAWING NOT TO SCALE -

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE: MODIFIED METAL INLET ASSEMBLY-CURB INLETS

STANDARD PLAN No. SW 49

DESIGNED BY: [Signature]
DATE 4/18/19

CADD BY: [Signature]

PROJECT MANAGER: WALTER GRANT, P.E.
NOTES

1. AUTOMATIC RETRACTABLE CURB INLET SCREENS SHOWN ARE MANUFACTURED BY UNITED STORMWATER INC. PROVIDE UNITED STORMWATER INC. OR EQUIVALENT AUTOMATIC RETRACTABLE INLET SCREENS (I.E. AMERICAN STORMWATER) FOR ALL CURB INLETS. PROVIDE CATALOG CUTS FOR ALL AUTOMATIC RETRACTABLE CURB INLET EQUIVALENTS TO CITY INSPECTOR FOR CITY ENGINEER APPROVAL PRIOR TO ORDERING UNITS.

2. CURB BULB-CUTS AND SIMILAR CONFIGURATIONS WITH BIOTREATMENT PLANTERS OR OTHER POST-CONSTRUCTION BEST MANAGEMENT PRACTICES (PCBNP) SHALL BE PROVIDED WHERE TECHNICALLY FEASIBLE IN ALL DEVELOPMENTS IN LIEU OF SCREENING DEVICES. AUTOMATIC RETRACTABLE CURB INLET SCREENS ARE REQUIRED ON ALL CURB INLETS WHERE BIOTREATMENT PLANTERS/BASINS ARE NOT TECHNICALLY FEASIBLE. INLINE SCREENING DEVICES (CATCH BASIN BASKETS, LINEAR RADIAL SCREENS, BARRACKS AND HORIZONTAL SCREENS) MAY BE CONSIDERED BY THE CITY ENGINEER FOR APPROVAL IN LIEU OF AUTOMATIC RETRACTABLE CURB INLET SCREENS DEPENDING UPON THE STORM DRAIN SYSTEM CONFIGURATION AND ONLY IF A SOURCE OF FUNDING FOR MAINTENANCE IS READILY AVAILABLE FOR THE LIFE OF THE INSTALLATION (I.E. MAINTENANCE DISTRICT).

3. ALL NEW/EXISTING CATCH BASINS/DRAIN INLETS MUST DRAIN TO/THROUGH A TRASH SCREENING DEVICE PRIOR TO DISCHARGE INTO THE CITY STORM DRAIN SYSTEM OR DISCHARGE FROM CITY OUTFALL.

4. FIXED/MANUAL INLET SCREENS ARE NOT ALLOWED UNLESS PART OF A RETROFIT PROJECT BY CITY MAINTENANCE CREWS/CIP PROJECT TO MEET NPDES PERMIT REQUIREMENTS FOR TRASH REDUCTION.
DESIGNER NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIOTRETENTION TECHNICAL SPECIFICATIONS DOCUMENT SW-163.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS. SW-140.


4. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURBS, WALL, AND SIDEWALK DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY THE CITY ENGINEER.

5. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM SW-131.

6. PROVIDE MONITORING WELL IN EACH FACILITY, PER BIOTRETENTION TECHNICAL SPECIFICATIONS.

7. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLAPPING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE.

8. BIOTRETENTION SOIL MEDIA (BSM) SPECIFICATION PER SWDS APPENDIX D.

9. PLANTING DESIGN AND IRRIGATION PER BIOTRETENTION TECHNICAL SPECIFICATIONS.

10. MULCH PER BIOTRETENTION TECHNICAL SPECIFICATIONS.

11. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS — AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIOTRETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIOTRETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIOTRETENTION AREA LIMITS.

6. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER, MAINTAIN 1:1 SLOPE & INCREASE BOTTOM WIDTH WIDER THAN 24".

7. ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTECHNICAL ENGINEER (E.G. VERTICAL SHORING, REINFORCED TRENCH SIDEWALL) THAT DON'T REQUIRE SIDEWALL SUPPORT FROM THE LIGHTLY COMPACTED BSM.

7. 18" THICKNESS IS ALLOWED WHERE BSM IS USED FOR PRETREATMENT FOR INFILTRATION & THE SYSTEM IS DESIGNED TO INFILTRATE 95% OF RAINFALL. 24" THICKNESS REQUIRED IN ALL OTHER CASES.
**DESIGNER NOTES**

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BORETENTION TECHNICAL SPECIFICATIONS DOCUMENT.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, S.P. SW 140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GE, SE) SEE S.P. SW 120.

4. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB, WALL, AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY THE CITY ENGINEER.

5. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM S.P. SW 131.

6. PROVIDE MONITORING WELL IN EACH FACILITY, PER BORETENTION TECHNICAL SPECIFICATIONS.

7. USE CALTRANS CLASS 2 PERMEABLE. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE.

8. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER SWDS APPENDIX D.

9. PLANTING DESIGN AND IRRIGATION PER BIORETENTION TECHNICAL SPECIFICATIONS.

10. MULCH (OPTIONAL) PER BIORETENTION TECHNICAL SPECIFICATIONS.

11. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

**CONSTRUCTION NOTES**

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

6. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER MAINTAIN 1:1 SLOPE & INCREASE BOTTOM WIDTH WIDER THAN 24". ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTECHNICAL ENGINEER (I.E. VERTICAL SHORING, REINFORCED TRENCH SIDEWALL) THAT DON'T REQUIRE SIDEWALL SUPPORT FROM THE LIGHTLY COMPACTED BSM.

7. 18" THICKNESS IS ALLOWED WHERE BSM IS USED FOR PRETREATMENT FOR INFILTRATION & THE SYSTEM IS DESIGNED TO INFILTRATE 95% OF RAINFALL. 24" THICKNESS REQUIRED ALL OTHER CASES.

---

**PUBLIC WORKS DEPARTMENT**

**ENGINEERING & TRANSPORTATION DIVISION**

**TITLE:** PARKING LOT BIORETENTION FACILITY (FLAT/PLANTER, ADJACENT AISLE PARKING, SIDEWALK, WITHOUT UNDERDRAIN*)

*INfiltration Rate 0.25 HR. OR GREATER*

**CITY OF SALINAS**

**STANDARD PLAN No.**

**SW 101**

---

**DESIGNED BY:**

**CADD BY:**

**PROJECT MANAGER:**

WALTER GRANT, P.E.

**DATE:** 9/11/2014

**ROBERT C. RUSSELL, CITY ENGINEER**

R.C.E. 42971, EXPIRES 3-31-2014

Copyright © 2013, City of Salinas, California
DESIGNER NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION TECHNICAL SPECIFICATIONS DOCUMENT.

2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, SW 140.


4. MAX. LONGITUDINAL SLOPE 6% WITH CHECK DAMS. SEE SW 130, 131.

5. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY THE CITY ENGINEER.

6. PROVIDE MONITORING WELL IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.

7. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRATED AGGREGATE.

8. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER SWDS APPENDIX D.

9. PLANTING DESIGN AND IRRIGATION PER BIORETENTION TECHNICAL SPECIFICATIONS.

10. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.

11. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS – AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 8" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

6. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH AS PLANTER GETS WIDER MAINTAIN 1:1 SLOPE & INCREASE BOTTOM WIDTH WIDER THAN 24". ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTECHNICAL ENGINEER (I.E. VERTICAL SHINING, REINFORCED TRENCH SIDEWALL) THAT DON'T REQUIRE SIDEWALK SUPPORT FROM THE LIGHTLY COMPACTED BSM.

7. 18" THICKNESS IS ALLOWED WHERE BSM IS USED FOR PRETREATMENT FOR INFILTRATION & THE SYSTEM IS DESIGNED TO INFILTRATE 95% OF RAINFALL. 24" THICKNESS REQUIRED ALL OTHER CASES.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: PARKING LOT BIORETENTION FACILITY (SLOPE SIDED, NO HEAD IN PARKING, SIDEWALK, WITHOUT UNDERDRAIN*)

*INfiltration RATE=6.0"/HR. OR GREATER

DESIGNED BY:

STAFF

CAFD BY:

STAFF

PROJECT MANAGER:

WALTER GRANT, P.E.

DATE 9/1/14

ROBERT C. RUSSELL, CITY ENGINEER

R.C.E. 42971, EXPIRES 3-31-2014

STANDARD PLAN No.

SW

102

Copyright © 2013, City of Salinas, California

J:\pl\1257 - NPDES - BMS\Drawings\Plants\Stormwater Standard Plans 100-150.dwg
DESIGNER NOTES
1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION TECHNICAL SPECIFICATIONS DOCUMENT.
2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, SW 140.
3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, GE, GIE, SE). SEE SW 121.
4. MAX. LONGITUDINAL SLOPE 6% WITH CHECK DAMS. SEE SW 130, 131.
5. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY THE CITY ENGINEER.
6. PROVIDE MONITORING WELL IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
7. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRATED AGGREGATE.
8. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER SWDS APPENDIX D.
9. PLANTING DESIGN AND IRRIGATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
10. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
11. LOCATE ENERGY DISSIPATION CORBELLE ONLY AS SPECIFIED IN INLET DETAILS — AVOID DECORATIVE USE.

CONSTRUCTION NOTES
1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.
4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
6. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER, MAINTAIN 1:1 SLOPE & INCREASE BOTTOM WIDTH WIDER THAN 24".
7. ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GOTECHNICAL ENGINEER (i.e. VERTICAL SHORING, REINFORCED TRENCH SIDEWALLS) THAT DON'T REQUIRE SIDEWALL SUPPORT FROM THE LIGHTLY COMPACTED BSM.
8. 10" THICKNESS IS ALLOWED WHERE BSM IS USED FOR PRETREATMENT FOR INFILTRATION & THE SYSTEM IS DESIGNED TO INFILTRATE 95% OF RAINFOLL. 24" THICKNESS REQUIRED ALL OTHER CASES.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: PARKING LOT BIORETENTION FACILITY (SLOPED SIDED, WITH HEAD IN PARKING, SIDEWALK, WITHOUT UNDERDRAIN*)

CITY OF SALINAS

STANDARD PLAN No.

SW 103
DESIGNER NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORRETENTION TECHNICAL SPECIFICATIONS DOCUMENT.
2. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, SW 140.
3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GI, GE, SE), SEE SW 120.
4. EDGE CONDITION WILL VARY FOR PARKING LOT PROJECTS, SEE PARKING LOT EDGE OPTIONS S.P. SW 114. CURB AND FLUSH EDGE DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY THE CITY ENGINEER.
5. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM SW 131.
6. PROVIDE MONITORING WELL IN EACH FACILITY, PER BIORRETENTION TECHNICAL SPECIFICATIONS.
7. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE.
8. BIORRETENTION SOIL MEDIA (BSM) SPECIFICATION PER SWDS APPENDIX D.
9. PLANTING DESIGN AND IRRIGATION PER BIORRETENTION TECHNICAL SPECIFICATIONS.
10. MUCH PER BIORRETENTION TECHNICAL SPECIFICATIONS.
11. LOCATE ENERGY DISSIPATION CORBEL ONLY AS SPECIFIED IN INLET DETAILS - AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORRETENTION AREA AGGREGATE AND BSM.
2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
3. COMPACT EACH 8" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.
4. DO NOT WORK WITHIN BIORRETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
5. KEEP HEAVY MACHINERY OUTSIDE BIORRETENTION AREA LIMITS.
6. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER MAINTAIN 1:1 SLOPE & INCREASE BOTTOM WIDTH WIDER THAN 24". ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTECHNICAL ENGINEER (I.E. VERTICAL SHORING, FRENCHED TRENCH SIDEWALL) THAT DON'T REQUIRE SIDEWALL SUPPORT FROM THE LIGHTLY COMPACTED BSM.
7. 18" THICKNESS IS ALLOWED WHERE BSM IS USED FOR PRETREATMENT FOR INFILTRATION & THE SYSTEM IS DESIGNED TO INFILTRATE 85% OF RAINFALL. 24" THICKNESS REQUIRED ALL OTHER CASES.
DESIGNER NOTES

1. ADDITIONAL DESIGN GUIDANCE PROVIDED IN BIORETENTION TECHNICAL SPECIFICATIONS DOCUMENT.

2. OVERFLOW STRUCUTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, SW 140.

3. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, O/E, G/E, SE).

4. MAX. LONGITUDINAL SLOPE 6% WITH CHECK DAMS. SEE SW 130, 131.

5. EDGE CONDITION WILL VARY FOR PARKING LOT PROJECTS. SEE PARKING LOT EDGE OPTIONS SW 144. CURB AND FLUSH EDGES MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY THE CITY ENGINEER.

6. PROVIDE MONITORING WELL IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.

7. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLAYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRATED AGGREGATE.

8. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER SWDS APPENDIX D.

9. PLANTING DESIGN AND IRRIGATION PER BIORETENTION TECHNICAL SPECIFICATIONS.

10. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.

11. LOCATE ENERGY DISSIPATION COBBLE ONLY AS SPECIFIED IN INLET DETAILS — AVOID DECORATIVE USE.

CONSTRUCTION NOTES

1. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.

2. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.

3. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY MOLDING. IF MOLDING, ALLOW TO DRY OVERNIGHT BEFORE PLANTING.

4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR DRY WET CONDITIONS.

5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

6. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER, MAINTAIN 1:1 SLOPE & INCREASE BOTTOM WIDTH MUKE THAN 24". ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTECHNICAL ENGINEER (i.e. VERTICAL SHORING, REINFORCED TRENCH SIDEWALL) THAT DON'T REQUIRE SIDEWALL SUPPORT FROM THE LIGHTLY COMPACTED BSM.

7. 18" THICKNESS IS ALLOWED WHERE BSM IS USED FOR PRETREATMENT FOR INFILTRATION & THE SYSTEM IS DESIGNED TO INFILTRATE 95% OF RAINFALL. 24" THICKNESS REQUIRED ALL OTHER CASES.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE:

PARKING LOT BIORETENTION FACILITY (SLOPED SIDED, WITHOUT UNDERDRAIN*)

INFLIATION RATE 0.50"/HR. OR GREATER

STANDARD PLAN No.

SW

105

CITY OF SALINAS

DESIGNED BY:

CADD BY:

PROJECT MANAGER:

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2014

STAFF

STAFF

WALTER GRANT, P.E.
**DESIGN NOTES**

1. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE CITY OF SALINAS STD. PLAN NO. 1.

2. PROVIDE OPENINGS IN CURB (12” WIDE) TO ALLOW FOR SURFACE DRAINAGE TO BIORETENTION AREAS IF DEDICATED INLET NOT USED. SPACING TO BE DETERMINED BY PROJECT ENGINEER BASED ON DESIGN STORM TO MINIMIZE PONDING AGAINST CURB FOR MEDIAN ISLAND APPLICATION.

**CONSTRUCTION NOTES**

1. FINISH ALL EXPOSED CONCRETE SURFACES.

2. LAY BACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24” BOTTOM WIDTH. AS PLANTER GETS WIDER MAINTAIN 1:1 SLOPE & INCREASE BOTTOM WIDTH WIDER THAN 24”. ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTEchnICAL ENGINEER (i.e. VERTICAL SHORING, REINFORCED TRENCH SIDEWALL) THAT DON’T REQUIRE SIDEWALL SUPPORT FROM THE LIGHTLY COMPACTED BSM.

---

**PUBLIC WORKS DEPARTMENT**

**ENGINEERING & TRANSPORTATION DIVISION**

**TITLE:** CURB AND GUTTER W/ CAR OVERHANG & AT MEDIAN ISLAND

**DESIGNED BY:**

**CADD BY:**

**PROJECT MANAGER:**

**DATE:** 10/19/2014

**STANDARD PLAN No.:** SW 110

**CITY OF SALINAS**

Copyright © 2015, City of Salinas, California
DESIGN NOTES

1. Concrete and expansion joints shall meet the requirements of the City of Salinas Std. Plan No. 1.

2. Provide openings in curb (12" wide) to allow for surface drainage to bioretention areas if dedicated inlet not used. Spacing to be determined by project engineer based on design storm to minimize ponding against curb for median island application.

CONSTRUCTION NOTES

1. Finish all exposed concrete surfaces.

2. Lay back slope as flat as possible until top width produces 1:1 slope & 24" bottom width. As planter gets wider maintain 1:1 slope & increase bottom width wider than 24". Alternative trench wall configurations may be proposed by the project geotechnical engineer (i.e., vertical shoring, reinforced trench sidewall) that don’t require sidewall support from the lightly compacted BSM.
DESIGN NOTES

1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER SWALE EDGE SPANS. STEEL reinforcement or additional concrete check dams may be needed for stability.

2. WHEN SIDEWALK DRAINS TO PLANTER, PROVIDE 4" - 6" WIDE NOTCH OPENINGS, 1" BELOW SIDEWALK, SLOPED TO FACILITY, PER BIOTRENTION PLANTER DETAILS. SPACE OPENINGS TO CONVEY FLOWS. PROVIDE MINIMUM 2" COVER BETWEEN DRAINAGE NOTCH OPENING AND DOWELS.


CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES, PER CITY STD. PLAN NO. 1

2. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER, MAINTAIN 1:1 SLOPE & INCREASE BOTTOM WIDTH WIDER THAN 24". ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOENGINEER (i.e. VERTICAL SHORING, REINFORCED TRENCH SIDEWALL) THAT DON'T REQUIRE SIDEWALL SUPPORT FROM THE LIGHTLY COMPACTED BSM.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: DEEP CURB @ STORMWATER FACILITY

STANDARD PLAN No. SW 111

CITY OF SALINAS
DESIGN NOTES

1. Special design consideration or structural review may be required for longer facility edge spans. Steel reinforcement or additional concrete check dams may be needed for stability.

2. Finished elevation reveal – where sidewalk conveys sheet flow to facility, a 1" - 2" reveal should be maintained between sidewalk and facility finished grade to avoid mulch or plant buildup from blocking flows.

3. Concrete and expansion joints shall meet the requirements of City of Salinas Std. Plan No. 2.

CONSTRUCTION NOTES

1. Finish all exposed concrete surfaces per City Std. Plan No. 2.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: THICKENED EDGE SIDEWALK @ STORMWATER PLANTER

DESIGNED BY: 

CADD BY: 

PROJECT MANAGER: WALTER GRANT, P.E.

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2016

STANDARD PLAN No. SW 112
**DESIGN NOTES**

1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER FACILITY EDGE SPANS. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.

2. EDGE CONDITION WILL VARY FOR PROJECTS. CURB DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY THE CITY ENGINEER.

3. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE CITY OF SALINAS.

4. FINISHED ELEVATION REVEAL AT SIDEWALK — WHERE SIDEWALK CONVEYS SHEET FLOW TO FACILITY, A 1”-2” REVEAL SHOULD BE MAINTAINED BETWEEN SIDEWALK AND FACILITY FINISHED GRADE TO AVOID MULCH OR PLANT BUILDUP FROM BLOCKING FLOWS AND REDUCE DROP AT PEDESTRIAN INTERFACE.

---

**CONSTRUCTION NOTES**

1. FINISH ALL EXPOSED CONCRETE SURFACES.

---

**PUBLIC WORKS DEPARTMENT**

**ENGINEERING & TRANSPORTATION DIVISION**

**TITLE:**

**FLUSH CURB AT SIDEWALK @ STORMWATER FACILITY**

**STANDARD PLAN No.**

**SW 113**

**DESIGNED BY:**

STAFF

**DATE:** 4/18/14

**CADD BY:**

STAFF

**PROJECT MANAGER:**

WALTER GRANT, P.E.

ROBERT G. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2016

**CITY OF SALINAS**
DESIGN NOTES

1. VEHICLE OVERHANG CAN BE USED TO REDUCE IMPERVIOUS PAVEMENT AREA.

2. WHERE VEHICLE OVERHANG IS UTILIZED SELECT LOW GROWING PLANTS THAT WILL TOLERATE SHADING.
**BIORETENTION DESIGN NOTES**

1. FOR USE WITH STORMWATER FACILITIES WITH FLAT BOTTOMS.
2. PROVIDE SPOT ELEVATIONS ON PLANS (FE, OE, IE). SEE SW 100.
3. CURB AND WALL DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL OF THE CITY ENGINEER.
4. CURB HEIGHT MAY BE REDUCED TO 4-INCHES WHERE ADJACENT TO A SIDEWALK OR AT HEAD IN PARKING TO ALLOW FOR VEHICLE OVERHANG. SEE SW 110 & 111.

**CONSTRUCTION NOTES**

1. AFTER CONSTRUCTION PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.
CURB AND GUTTER, SW 110

DEPRESS GUTTER 2" AT OPENING, GUTTER INLET ELEVATION (GIE)

PLAN VIEW

STREET

12

4'-6"

1'-6"

Curb Return

1'-6"

Curb Return

Curb

CURB

R=6'

DEPRESS GUTTER 2" AT OPENING, GUTTER INLET ELEVATION (GIE)

PERSPECTIVE VIEW

6'

3'

8'

STORMWATER FACILITY

FINISHED ELEVATION (FE)

PLACE 6" DEEP 3"-6" ROUNDED, WASHED, COBBLE AT CONCRETE INLET, SEE DESIGN NOTES

SECTION A-A

CONSTRUCTION NOTES

1. AFTER CONSTRUCTION PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.

BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SIDE SLOPES.
2. PROVIDE SPOT ELEVATIONS ON PLANS (FE, OE, GIE, IE). SEE SW 100.
3. CURB AND WALL DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS.
4. WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.
5. CURB HEIGHT MAY BE REDUCED TO 4-INCHES WHERE ADJACENT TO A SIDEWALK. SEE SW 110 & 111.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE:

CURB CUT INLET FOR SIDE SLOPES
(RAIN GARDEN OR SWALE)

CITY OF SALINAS

STANDARD PLAN No.

SW 121

DESIGNED BY: STAFF
CADD BY: STAFF
PROJECT MANAGER: WALTER GRANT, P.E.

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2016

DATE 4/16/14
BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES OR FLAT BOTTOMS.


3. DROP FROM INLET TO AGGREGATE PAD WILL BE GREATER FOR PLANTERS.

4. CURB AND WALL DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL OF THE CITY ENGINEER.

5. WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.

CONSTRUCTION NOTES

1. AFTER CONSTRUCTION PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: CURB CUT INLET WITH GRAVEL ENERGY DISSIPATION

DESIGNED BY: STAFF
CADD BY: STAFF
PROJECT MANAGER: WALTER GRANT, P.E.

DATE 4/9/14

STANDARD PLAN No. SW 122

CITY OF SALINAS
BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES OR FLAT BOTTOMS.

2. PROVIDE SPOT ELEVATIONS ON PLANS (FE, OE, GIE, IPE). SEE SW 100, 101.

3. REFER TO MUNICIPAL STANDARD DRAWINGS AND MATCH GUTTER PAN OF ADJACENT CURB AND GUTTER.

4. IF SLOPED SIDES, WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.

5. BASE MATERIAL FOR CURB, GUTTER, AND SIDEWALK PER MUNICIPAL STANDARDS.

CONSTRUCTION NOTES

1. AFTER CONSTRUCTION PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.
BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES.
2. BEST SUITTED FOR FACILITIES WITH ≤ 2% LONGITUDINAL SLOPE.
3. PROVIDE ELEVATIONS AND STATIONING AND/OR DIMENSIONING FOR CHECK DAMS.
4. SPACE CHECK DAMS TO MAXIMIZE PONDING ACROSS ENTIRE CELL.
5. ENSURE THAT CHECK DAM ELEVATIONS DO NOT CAUSE STORMWATER TO OVERFLOW TO SIDEWALK.

CONSTRUCTION NOTES

1. DO NOT WORK DURING RAIN OR UNDER WET CONDITIONS.
2. KEEP ALL HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

PUBLIC WORKS DEPARTMENT

ENGINEERING & TRANSPORTATION DIVISION

TITLE: GRAVEL CHECK DAM

CITY OF SALINAS

STANDARD PLAN No. SW 130

DESIGNED BY: STAFF

DATE 4/8/14

ROBERT C. RUSSELL, CITY ENGINEER
R.C.E. 42871, EXPIRES 3-31-2016

CADD BY: STAFF

PROJECT MANAGER: WALTER GRANT, P.E.
BIORETENTION DESIGN NOTES
1. FOR USE WITH BIORETENTION PLANTERS OR SLOPED SIDED SWALES/RAIN GARDENS.
2. FOR CHECK DAMS LONGER THAN 12' SPECIFY REBAR OVERLAP LENGTH.
3. SPACE CHECK DAMS TO MAXIMIZE PONDOING ACROSS CELLS.
4. PROVIDE ELEVATIONS AND STATIONING AND/OR DIMENSIONING FOR CHECK DAMS.
5. ENSURE THAT CHECK DAM ELEVATIONS DO NOT CAUSE STORMWATER TO OVERFLOW TO SIDEWALK.
6. SHOW PLANTER WALL EMBEDDED IN EXISTING SUBGRADE OR DRAINROCK.

CONSTRUCTION NOTES
1. EMBED #3 REBAR 3" INTO CURB AND PLANTER WALL.
2. DO NOT WORK DURING RAIN OR UNDER WET CONDITIONS.
3. KEEP ALL HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
BIORETENTION DESIGN NOTES

1. PROVIDE GRATE OVERFLOW ELEVATION ON PLANS.

2. TO INCORPORATE FLEXIBILITY INTO DESIGN OVERFLOW ELEVATION OR CORRECT ELEVATION OF AN EXISTING STRUCTURE, INSTALL OVERFLOW COLLAR, PER SW 141.

3. IN PRIVATE SITES NOT IN CITY R/W THE PROJECT CIVIL ENGINEER MAY PROPOSE ALTERNATIVES FOR GRATE INSTALLATIONS USING ALTERNATIVE MANUFACTURER'S PRODUCT/CONFIGURATION.

CONSTRUCTION NOTES

1. DO NOT ADJUST OVERFLOW GRATE ELEVATION, CONSTRUCT AS SHOWN ON PLANS.

PUBLIC WORKS DEPARTMENT
ENGINEERING & TRANSPORTATION DIVISION

TITLE:
OVERFLOW STRUCTURE W/ BEEHIVE GRATE

CITY OF SALINAS

STANDARD PLAN No.
SW 140
**BIORETENTION DESIGN NOTES**

1. MAY BE USED IN CONJUNCTION WITH OVERFLOW STRUCTURES TO ALLOW FOR FIELD ADJUSTMENT OF OVERFLOW ELEVATION, OR AS RETROFIT TO CORRECT EXISTING STRUCTURE THAT DOES NOT ALLOW PONDING TO OCCUR.

2. PROVIDE COLLAR OVERFLOW ELEVATION (COE) ON PLANS.

3. PCC PIPE RISER EXTENSIONS MAY BE UTILIZED IN LIEU OF OVERFLOW STRUCTURE COLLAR.

**CONSTRUCTION NOTES**

1. CENTER COLLAR ON OVERFLOW GRATE.

---

**PUBLIC WORKS DEPARTMENT**

**ENGINEERING & TRANSPORTATION DIVISION**

**TITLE:**

OVERFLOW STRUCTURE COLLAR FOR RETROFIT PURPOSES

**STANDARD PLAN No.**

**SW 141**

**CITY OF SALINAS**
TRIM LINER TO TOP EDGE OF FLAT BAR. SILICONE SEAL TOP EDGE OF FLAT BAR. TOP OF LINER TO BE 3" BELOW SOIL LEVEL OR WHERE SHOWN ON DETAIL, WHICHEVER IS HIGHER.

STORMWATER FACILITY

2" x 1/4" HIT ANCHOR 12" O.C.

1/8" MIN ALUMINUM FLAT BAR, 2" WIDTH

HDPE OR PVC 30 MIL MIN. LINER

DEPTH OF LINER PER CIVIL/GEOTECHNICAL ENGINEER