RAIN GARDEN

RG-1  Design and Installation Checklist
RG-2  Typical Detail
RG-3  Plant Palette for the Ventura River Watershed
The following are typical best practices for rain garden design. Adapt design to fit your site!

1. Feasibility
   - Identify/measure stormwater runoff sources such as:
     a. Rooftop downspouts
     b. Hard/paved surfaces
     c. Uphill landscapes

   - Identify a landscape area on your site for the rain garden that is:
     a. A gentle down slope from one or more runoff source
     b. A minimum of 10’ away from buildings and property lines

   - Understand your site’s soils:
     b. The best soils for rain gardens are well draining (not clayey).

   - Perform a percolation test:
     a. Follow steps at: [https://greywateraction.org/how-do-percolation-test/](https://greywateraction.org/how-do-percolation-test/)
     b. Ideal percolation rate is greater than 0.5 inches/hour.

2. Design
   - Calculate potential runoff volume:
     a. How many square feet is your rooftop or other source catchment area?
     b. Use 0.14 ft. / 24-hour storm for Ventura County
     c. \[ \text{[Runoff source sq. ft.]} \times [0.14 \text{ ft./storm}] \times [7.48 \text{ gal./cubic ft.}] = \text{Design Runoff Volume (gal.)} \]

   - Determine the size and shape of your rain garden to match Design Runoff Volume: Minimum depth of 6” and maximum of 18”.

   - Plan bioswales to convey stormwater to the rain garden.

   - Determine path for overflow of rain garden in large storms: An overflow drain pipe, a perforated underdrain, or a reinforced low point to an existing drainage path.

3. Planting
   - Use climate appropriate plants that don’t need irrigation after establishment. Species that grow natively in dry creeks are well-suited to rain gardens.

   - Place plants that prefer more moisture at the bottom of the rain garden basin: Plant species with a lower water demand but that can tolerate occasional saturation along edges of rain garden slopes. Group plants according to their size/space and sun/shade requirements.

   - Minimize soil compaction from walking: Consider pathway locations you will use to weed and maintain the garden.

   - Use mostly evergreen plant materials: Make sure that the majority of your plants are active all year rather than deciduous/dormant.

   - Arrange to cover at least 80% of the rain garden in the first year of growth: This will help stabilize soil during storm flows.

4. Build It!
   - Call 811: Always call first to identify underground utilities before you dig. Avoid existing tanks, pipes, and other utilities during construction.

   - Dig bioswales: Start from downspout or other water source to rain garden, maintaining a minimum 2% slope away from all buildings.

   - Dig rain garden basin: Designed depth (6-18” at lowest point), accounting for a minimum of 3” of mulch on top of soil as finished grade.

   - Dig a deeper basin: In areas with space constraints, lower infiltration rates, or where additional volume is needed, deepen basin depth and backfill with gravel.

   - Grade at a maximum of 3:1 slope (3 foot horizontal to 1 foot vertical angle) to reduce erosion unless side slopes are retained with rock. See Detail on next page for more information.

   - Layer the rain garden with 4-6 inches of coarse, woody mulch: This prevents standing water and mosquitoes, as well as encourages healthy soil and reduce weeds. River rock or gravel may also be used to cover the base of the rain garden but has less soil and plant benefit.

   - Include a compacted, raised berm: This “wall” must be constructed around the low side of the rain garden to prevent uncontrolled overflow on a sloped site. See photos for example.
These drawings illustrate best practices for on-site rainwater harvesting systems. Adapt the designs shown to your specific site as needed.

**PLANT LEGEND (VARIES PER REGION)**

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<th>BOTANICAL NAME</th>
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<td>CEAD2</td>
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<td>Dark Star Wild Lilac</td>
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<td>ACH FYC</td>
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<td>Achillea × 'Crimson Giant'</td>
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**Detailed Notes:**

- The drawings are diagrammatic in nature and are created to represent the concepts necessary throughout construction.
- Infiltration test results are greater than 0.5-inches/hour.
- Groundwater table greater than 5-feet below ground surface.
- Raised berm shall be firm, undisturbed, non-yielding native soil or disturbed site soils.
- Rain garden should be located down slope (down gradient) of building(s).
- Plant material must be perennial and adapted to the conditions encountered in its location in the rain garden.
- Plant material must be of a sufficient density to achieve a minimum of 80% canopy cover after the 3-year establishment.
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- C. The drawings are diagrammatic in nature and are created to represent the concepts
- D. Groundwater table greater than 5-feet below ground surface.
- E. Downspout is located (for tie-in) near vicinity of the proposed rain garden location.
- F. Infiltration test results are greater than 0.5-inches/hour.
- G. Rain garden should be located down slope (down gradient) of building(s).
- H. Planting plan template
- I. All plant locations and quantities are approximate and should be adapted to site conditions and specifications.
Rain Garden Plant Palette for the Ventura River Watershed

Place Medium Water Use Plants at Low Point in Rain Garden, Medium Water Use on Lower Slopes, and Low Water Use on Edges of Rain Garden (Water Use: ⭕️ = High, ⬤ = Medium, ⬤️ = Low; 🌿 = Native, 🍁 = Edible)

**Trees**

- Aesculus californica
  - California Buckeye
- Platanus racemosa
  - Sycamore
- Quercus agrifolia
  - Coast Live Oak
- Quercus lobata
  - Valley Oak
- Juglans californica
  - California Black Walnut
- Salix laevigata
  - Red Willow
- Prunus ilicifolia
  - Hollyleaf Cherry

**Small Trees/Large Shrubs**

- Carpeheteria californica
  - Bush Anemoni
- Cercis occidentalis
  - Western Redbud
- Dendromecon rigida
  - Bush Poppy
- Frangula/Rhamnus californica
  - Coffeeberry
- Heteromeles arbutifolia
  - Toyon
- Romneya coulteri
  - Matilja Poppy
- Sambucus nigra
  - Black Edlerberry

**Shrubs**

- Ceanothus sp.
  - California Lilac
- Mimulus longiflorus
  - Sticky Monkeyflower
- Ribes aureum
  - Golden Currant
- Rosa californica
  - California Wild Rose
- Rubus ursinus
  - California Blackberry
- Salvia apiana
  - White Sage
- Trichostemia lanatum
  - Wooly Blue Curls

**Perennials, Wildflowers**

- Achillea millefolium
  - Yarrow
- Anemopsis californica
  - Yerba Mansa
- Eriogonum umbellatum
  - Sulphur Buckwheat
- Eschscholzia californica
  - California Poppy
- Heuchera maxima
  - Coral Bells
- Iris douglasiana
  - Douglas Iris
- Monardella villosa
  - Coyote Mint

**Grasses, Sedges, Rushes**

- Calamagrostis foliosa
  - Mendocino Reed Grass
- Carex praegracilis
  - California Field Sedge
- Festuca glauca
  - Blue Fescue
- Leymus condensatus
  - Canyon Prince Wild Rye
- Juncus patens
  - California Gray Rush
- Juncus textilis
  - Basket Rush
- Sisyrinchium bellum
  - Blue Eyed Grass