MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Turf Replacement Program: Sustainability Features

What is a Sustainability Feature?

The Turf Replacement Program requires the inclusion of a rainwater capture system, called the "sustainability feature," integrated into the landscape project. The sustainability feature serves to reduce rainwater runoff onto sidewalks, streets, or other impervious surfaces and to capture rainwater for reuse. The following are eligible methods to meet this participation requirement (every project needs at least 1 sustainability feature):

1. Eligible Tree

Trees reduce stormwater runoff by capturing and storing rainfall in their canopy. Tree roots and leaf litter also create soil conditions that promote the infiltration of rainwater into the soil. Only newly installed trees on the **Eligible Sustainability Feature Trees List** will qualify as a sustainability feature. If choosing this option, the minimum number of trees required is 1 tree per 10,000 sq ft of project area. Trees must be at least 15 gallons in size.

2. Rain Garden

A rain garden is **a planted depression filled with a loose, permeable soil mix** that allows rainwater runoff from impervious urban areas like roofs, driveways, and walkways to be absorbed. Plants are distributed throughout the rain garden. Rainwater collects in the ponding area and eventually seeps into the surrounding landscape. The rain garden should have enough of a side slope to create a visible depression in the landscape.

3. Vegetated Swale

A vegetated swale is **a shallow ditch with gently sloping sides** that is visibly lower than the surrounding landscape. Native perennial grasses or other plants can be planted along the bottom and sides of the swale to slow runoff, filter sediments, and remove excess nutrients. A swale relies on gravity to move water and is designed to direct the water where you want it to go, such as flower or vegetable gardens.

4. Dry Riverbed (Rock-lined swale)

A dry riverbed is an area designed to slow heavy flows of water from rainfall. It is made up of **a shallow swale and lined with stone** substantial enough to withstand a serious downpour. Large rocks are used to slow the speed of storm water and prevent erosion. Plants can be installed along the sides of the dry riverbed. The dry riverbed should have enough of a side slope that the difference between level ground and the lowest point in the dry riverbed is visible.

5. Rock Garden

A rock garden is **a planted, shallow depression filled with 1–3 inch diameter gravel and/or other rocks**. This shallow depression should have enough of a side slope that the difference between level ground and the lowest point in the rock garden is visible to the eye. Rainwater is stored in the space between the stones and eventually percolates into the soil. Plants are distributed throughout the rock garden and there is no ponding area.

6. Berm

Berms are **mounds of earth with sloping sides that are located between areas of approximately the same elevation.** Berms are designed to direct or redirect water to a permeable and retentive area and prevent water from flowing off the property. Berms should be visibly higher in elevation than the surrounding landscape. Berms can be filled with either soil or rocks and are topped off with a soil layer and organic mulch. Plants installed on the berm help reduce erosion.

7. Rain Barrel/Cistern

A rain barrel or cistern is **a storage tank that captures runoff water from a rooftop**. Cisterns are a larger version of rain barrels. Rain barrels/cisterns must be connected to properly installed rain gutters and downspouts for adequate water collection and meet all local and regional requirements. For the rain barrel/cistern to quality as a sustainability feature, the property must have existing gutters throughout all sloped or pitched roof areas. Existing rain barrels/cisterns satisfy requirement if they have been properly installed and can deliver water to the project area. The minimum size for a rain barrel is 50 gallons. Homemade or DIY rain barrels/cisterns do not qualify.

How large does my sustainability feature need to be?

Rain barrels must be 50 gallons or larger. Trees must be at least 15 gallons, and there must be 1 tree per 10,000 sq ft of project area. For the other landscape-type sustainability features, they must be proportional to the total project area to capture a significant amount of rainwater that falls during an average rain event. The feature must retain or redirect rainwater to reduce runoff onto sidewalks, streets, or other impervious surfaces.

Use the **Sustainability Feature Size Calculator** to estimate the appropriate size of your feature. The calculator can be found at: https://mwdoc.dropletportal.com/rebate/turf/sustainability

Eligible Sustainability Feature Trees
(Link: https://www.ocwatersmartgardens.com/listplants.php?index=1)

Common Name	Botanical Name	Common Name	Botanical Name
African Fern Pine	Afrocarpus falcatus	Island Oak	Quercus tomentella
African Sumac	Searsia lancea	Italian Stone Pine	Pinus pinea
Aleppo Pine	Pinus Halepensis	Kurrajong	Brachychiton populneus
Arizona Cypress	Hesperocyparis arizonica	Marina Strawberry Tree	Arbutus marina
Australian Willow	Geijera parviflora	Mondell Pine	Pinus eldarica
Blue Pyramid Arizona Cypress	Hesperocyparis arizonica var. glabra 'Blue Pyramid'	Monterey Pine	Pinus radiata
Brisbane Box	Tristania conferta	Mulga Acacia	Acacia aneura
California Laurel	Umbellulara californica	Paperbark Or Cajeput Tree	Melaleuca quinquenervia
Canary Island Pine	Pinus canariensis	Peppermint Tree	Agonis flexuosa
Canyon Live Oak	Quercus chrysolepsis	Saratoga Laurel	Laurus 'saratoga'
Catalina Cherry	Prunus ilicifolia ssp. Lyonii	Soapbark Tree	Quillaja saponaria
Coast Live Oak	Quercus agrifolia	Southern Live Oak	Quercus virginiana
Cork Oak	Quercus suber	Strawberry Madrone	Arbutus unedo
Deodar Cedar	Cedrus deodara	Sweet Bay Laurel	Laurus nobilis
Engelmann Oak	Quercus engelmannii	Sweetshade	Hymenosporum flavum
Flaxleaf Paperbark	Melaleuca linariifolia	Tecate Cypress	Hesperocyparis forbesii
Fruitless Olive Tree	Olea europaea 'Swan Hill', 'Wilsonii', and 'Majestic Beauty'	Toyon	Heteromeles arbutifolia
Ghost Gum	Corymbia aparrerinja	Weeping Bottlebrush	Callistemon viminalis
Gold Medallion Tree	Cassia leptophylla	Willow Bottlebrush	Callistemon salignus
Holly Oak	Quercus ilex		