



# **Water Efficient Landscape Ordinance Guidelines**

**City Of San Jua Capistrano  
Municipal Code Section 8  
Ordinance #1054**

**Revised 2019**

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## 1.0 Purpose and Applicability

### 1.1 Purpose

- (a) The primary purpose of these Guidelines is to provide procedural and design guidance for project applicants proposing landscape installation or rehabilitation projects that are subject to the requirements of the Water Efficient Landscape Ordinance. This document is also intended for use and reference by City staff in reviewing and approving designs and verifying compliance with the Water Efficient Landscape Ordinance. The general purpose of the Water Efficient Landscape Ordinance is to promote the design, installation, and maintenance of landscaping in a manner that conserves regional water resources by ensuring that landscaping projects are not unduly water-needy and that irrigation systems are appropriately implemented to minimize water waste.
- (b) Other regulations affecting landscape design and maintenance practices are potentially applicable and should be consulted for additional requirements. These regulations include but may not be limited to:
  - (1) State of California Assembly Bill 1881;
  - (2) National Pollutant Discharge Elimination Permit for the Municipal Separate Storm Sewer System;
  - (3) Orange County Fire Authority Regulations for Fuel Modification in the Landscape;
  - (4) Water Conservation and Drought Response Regulations of the Local Water Purveyor;
  - (5) Regulations of the Local Water Purveyor governing use of Recycled Water;
  - (6) SJC Municipal Section 8-20.01 Landscape Standards (Water Efficient Landscape);
  - (7) Conditions of approval for a specific project.

**1.2 Applicability.** In addition to the requirements outlined in Municipal Code Section 8-20.01, the following shall be applicable.

- (a) **Submittal Requirements for New Landscape Installations or Landscape Rehabilitation Projects**
  - (1) Discretionary approval is typically required for landscape projects that are subject to site plan reviews, or where a variance from a local building code is requested, or other procedural processes

apply such that standard or special conditions of approval may be required by the City. Discretionary projects with conditions of approval may be approved administratively by city staff, or acted on formally by the Planning Commission, City Council, or other jurisdictional authority. A typical standard condition of approval reads:

*“Landscaping for the project shall be designed to comply with the City’s Water Efficient Landscape Ordinance and with the Guidelines for Implementation of the Water Efficient Landscape Ordinance.”*

Landscape or water features that typically require a ministerial permit (i.e., a building, plumbing, electrical, or other similar permit), thereby triggering compliance with the Water Efficient Landscape Ordinance requirements independently of the need for discretionary approval include, but are not limited to, swimming pools, fountains or ponds, retaining walls, and overhead trellises.

## **2.1 Water Efficient Landscape Calculations and Alternatives**

- (b) Water budget based rates may be set with allocations lower than MAWA. Contact the City’s Water Customer Service for the current rate structure.
- (c) The project applicant shall provide the calculated Maximum Applied Water Allowance (MAWA) and Estimated Applied Water Use (EAWU) for the landscaped area as part of the Landscape Documentation Package submittal to the City. The MAWA and EAWU shall be calculated based on completing the Water Efficient Landscape Worksheets (in accordance with the sample worksheets in **Appendix B**).
- (d) The EAWU allowable for the landscaped area shall not exceed the MAWA. The MAWA shall be calculated using an evapotranspiration adjustment factor (ETAF) of 0.7 except for the portion of the MAWA applicable to any special landscaped areas within the landscape project, which shall be calculated using an ETAF of 1.0. Where the design of the landscaped area can otherwise be shown to be equivalently water-efficient, the project applicant may submit alternative or abbreviated information supporting the demonstration that the annual EAWU is less than the MAWA, at the discretion of and for the review and approval of the local agency.
- (e) Water budget calculations shall adhere to the following requirements:
  - (1) The MAWA shall be calculated using the Water Efficient Landscape Worksheets and equation presented in **Appendix B** on page B-1.

The example calculation on page B-1 is a hypothetical example to demonstrate proper use of the equation.

- (2) The EAWU shall be calculated using the Water Efficient Landscape Worksheets and equation presented in Appendix B on page B-2. The example calculation on page B-2 is a hypothetical example.
- (3) For the calculation of the MAWA and EAWU, a project applicant shall use the ETo values from the closest location listed the Reference Evapotranspiration Table in **Appendix C**. For geographic areas not covered in **Appendix C**, data from other cities located nearby in the same reference evapotranspiration zone may be used, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources.
- (4) For calculation of the EAWU, the plant water use factor shall be determined as appropriate to the project location from the Water Use Efficiency of Landscape Species (WUCOLS) Species Evaluation List. The plant factor is 0.1 for very low water use plants, 0.2 to 0.3 for low water use plants, 0.4 to 0.6 for moderate water use plants, and 0.7 to 1.0 for high water use plants.
- (5) For calculating the EAWU, the plant water use factor shall be determined for each valve hydrozone based on the highest-water-use plant species within the zone. The plant factor for each hydrozone may be required to be further refined as a "landscape coefficient," according to protocols defined in detail in the WUCOLS document, to reflect planting density and microclimate effects on water need at the option of the project applicant or the City.
- (6) For calculation of the EAWU, the area of a water feature shall be defined as a high water use hydrozone with a plant factor of 1.0.
- (7) For calculation of the EAWU, a temporarily irrigated hydrozone area, such as an area of highly drought-tolerant native plants that are not intended to be irrigated after they are fully established, shall be defined as a very low water use hydrozone with a plant factor of 0.1.
- (8) For calculation of the MAWA, the ETAF for special landscaped areas shall be set at 1.0. For calculation of the EAWU, the ETAF for special landscaped areas shall be calculated as the special landscaped area (SLA) plant factor divided by the SLA irrigation efficiency factor.
- (9) Irrigation efficiency shall be calculated using the worksheet and equation presented in **Appendix B** on page B-2.

- (a) The Maximum Applied Water Allowance shall adhere to the following requirements:
  - (1) The Maximum Applied Water Allowance shall be calculated using the equation presented in **Appendix B**. The example calculation in **Appendix B** is hypothetical to demonstrate proper use of the equation and does not represent an existing and/or planned landscape project. The reference evapotranspiration (ET<sub>o</sub>) values used in this calculation are from the Reference Evapotranspiration Table in **Appendix C** and are for planning purposes only. For actual irrigation scheduling, automatic irrigation controllers are required and shall use current ET<sub>o</sub> data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

## 2.2 Certification of Completion

- (a) Landscape project installation shall not proceed until the Landscape Documentation Package has been approved by the City and any ministerial permits required are issued.
- (b) The project applicant shall notify the City at the beginning of the installation work and at intervals, as necessary, for the duration of the landscape project work to schedule all required inspections.
- (c) Certification of Completion of the landscape project shall be obtained through a Certificate of Use and Occupancy or a Permit Final. The requirements for the Final Inspection and Permit Closure include submittal of:
  - (1) A Landscape Installation Certificate of Completion in the form included as **Appendix D** of these Guidelines, which shall include:
    - (i) certification by a landscape professional that the landscape project has been installed per the approved Landscape Documentation Package; and
    - (ii) the following statement: "The landscaping has been installed in substantial conformance to the design plans, and complies with the provisions of the Water Efficient Landscape Ordinance for the efficient use of water in the landscape."
  - (2) Documentation of the irrigation scheduling parameters used to set the controller(s);
  - (3) An irrigation audit report from a certified landscape irrigation auditor, documentation of enrollment in regional or local water purveyor's water conservation programs, and/or documentation that the MAWA and EAWU information for the landscape project has

been submitted to the local water purveyor, may be required at the option of the City. The City maintains a list of certified irrigation auditors that are qualified and approved to prepare the irrigation audit report.

### **2.3 Post-Installation Irrigation Scheduling**

- (a) For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:
  - (1) Irrigation scheduling shall be regulated by weather or sensor based automatic irrigation controllers.
  - (2) Overhead irrigation shall be scheduled in accordance with the local water purveyor's Water Conservation Ordinance. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

### **2.4 Post-Installation Landscape and Irrigation Maintenance**

- (a) Landscapes shall be maintained to ensure water use efficiency in accordance with Municipal Code Section 8-20.05 Landscape Standards (Water Efficient Landscape)

### **3.0 Provisions for Existing Landscapes**

- (a) Irrigation of all landscaped areas shall be conducted in a manner conforming to the rules and requirements and shall be subject to penalties and incentives for water conservation and water waste prevention, as determined and implemented by the local water purveyor and as may be mutually agreed by the City.
- (b) The City and/or the regional or local water purveyor may administer programs such as irrigation water use analyses, irrigation surveys and/or irrigation audits, tiered water rate structures, water budgeting by parcel, or other approaches to achieve landscape water use efficiency community-wide to a level equivalent to or less than would be achieved by applying a MAWA calculated with an ETAF of 0.8 to all landscaped areas in the City over one acre in size.
- (c) The architectural guidelines of a common interest development, including apartments, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group, nor require turf if landscapes are rehabilitated.

**CERTIFICATION OF LANDSCAPE DESIGN**

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services.

(2) The landscape design and water use calculations for the property located at \_\_\_\_\_  
\_\_\_\_\_ (provide street address or parcel number(s)) were prepared by me or under my supervision.

(3) The landscape design and water use calculations for the identified property comply with the requirements of the City of \_\_\_\_\_ Water Efficient Landscape Ordinance (Municipal Code Sections \_\_\_\_\_) and the City of \_\_\_\_\_ Guidelines for Implementation of the City of \_\_\_\_\_ Water Efficient Landscape Ordinance.

(4) The information I have provided in this Certificate of Landscape Design is true and correct and is hereby submitted in compliance with the City of \_\_\_\_\_ Guidelines for Implementation of the City of \_\_\_\_\_ Water Efficient Landscape Ordinance.

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
License Number

\_\_\_\_\_  
Address

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
E-mail Address

Landscape Design Professional's Stamp  
(If applicable)

**EXAMPLE WATER EFFICIENT LANDSCAPE WORKSHEET**

This worksheet is filled out by the *project applicant* for each Point of Connection. Please complete all sections of the worksheet.

**Point of Connection # 1**

**Maximum Applied Water Allowance (MAWA)**

Total MAWA = (ET<sub>o</sub> x 0.7 x LA in Sq. Ft. x 0.62) + (ET<sub>o</sub> x 1.0 x SLA in Sq. Ft. x 0.62) = Gallons per year for LA+SLA

where:  
 MAWA = Maximum Applied Water Allowance (gallons per year)  
 ET<sub>o</sub> = Reference Evapotranspiration **Appendix C** (inches per year)  
 0.7 = Evapotranspiration Adjustment Factor (ETAF)  
 1.0 = ETAF for Special Landscaped Area  
 LA = Landscaped Area (square feet)  
 0.62 = Conversion factor (to gallons per square foot)  
 SLA = Special Landscaped Area (square feet)

Example Calculation: a hypothetical landscape project in Santa Ana, CA with an irrigated landscaped area of 40,000 square feet with 10,000 square feet of *Special Landscaped Area*. To calculate MAWA, the annual *reference evapotranspiration* value for Santa Ana is 48.2 inches as listed in the Reference Evapotranspiration Table in **Appendix C**.

	ET <sub>o</sub>		ETAF		LA or SLA (ft <sup>2</sup> )		Conversion		MAWA (Gallons Per Year)
MAWA for LA =	48.2	x	0.7	x	40,000	x	0.62	=	836,752
MAWA for SLA =	48.2	x	1.0	x	10,000	x	0.62	=	298,840
Total MAWA =					50,000				1,135,592 Gallons per year for LA+SLA

**Estimated Applied Water Use**

$EAWU = ETo \times K_L \times LA \times 0.62 \div IE = \text{Gallons per year}$					$WUCOLS = \text{Water Use Classifications of Landscape Sepcies}$						
<p>where:</p> <p><i>EAWU</i> = Estimated Applied Water Use (gallons per year)  <i>ETo</i> = Reference Evapotranspiration <b>Appendix C</b> (inches per year)  <i>K<sub>L</sub></i> = Landscape Coefficient  <i>LA</i> = Landscaped Area (square feet)  0.62 = Conversion factor (to gallons per square foot)  <i>IE</i> = Irrigation Efficiency = <i>IME</i> x <i>DU</i> (See definition in Appendix E for example <i>IE</i> percentages)  <i>IME</i> = Irrigation Management Efficiency (90%)  <i>DU</i> = Distribution Uniformity of irrigation head</p>					$K_L = K_s \times K_d \times K_{mc}$ <i>K<sub>s</sub></i> = species factor (range = 0.1-0.9) (see <i>WUCOLS</i> list for values) <i>K<sub>d</sub></i> = density factor (range = 0.5-1.3) (see <i>WUCOLS</i> for density value ranges) <i>K<sub>mc</sub></i> = microclimate factor (range = 0.5-1.4) (see <i>WUCOLS</i> )  <i>WUCOLS</i> – <a href="https://water.ca.gov/LegacyFiles/wateruseefficiency/docs/wucols00.pdf">https://water.ca.gov/LegacyFiles/wateruseefficiency/docs/wucols00.pdf</a>						
Example Calculation:											
	<i>ETo</i>		<i>K<sub>L</sub></i>		<i>LA</i>		Conversion		<i>IE</i>		<i>EAWU (Gallons per year)</i>
Special Landscaped Area	48.2	x	1.00	x	10,000	x	0.62	÷	0.75	=	398,453
Cool Season Turf	48.2	x	1.00	x	0	x	0.62	÷	0.71	=	0
Warm Season Turf	48.2	x	0.65	x	0	x	0.62	÷	0.71	=	0
High Water Using Shrub	48.2	x	0.70	x	0	x	0.62	÷	0.71	=	0
Medium Water Using Shrub	48.2	x	0.50	x	15,000	x	0.62	÷	0.65	=	344,815
Low Water Using Shrub	48.2	x	0.30	x	25,000	x	0.62	÷	0.75	=	298,840
Very Low Water Using Shrub	48.2	x	0.20	x	0	x	0.62	÷	0.71	=	0
Other	48.2	x	0.50	x	0	x	0.62	÷	0.71	=	0
Other	48.2	x	0.50	x	0	x	0.62	÷	0.71	=	0
Total <i>EAWU</i> =					50,000					1,042,109 Gallons per year	

Compare *EAWU* with *MAWA*.

The *EAWU* (1,042,109 gallons per year) is less than *MAWA* (1,135,592 gallons per year). For this example, the water budget complies with the *MAWA*.

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List *sprinkler heads*, *microspray*, and *drip emitters* here along with average *precipitation rate* and *Distribution Uniformity of Irrigation Head*.

<b><u>Sprinkler Head Types</u></b>	<b><u>Average Precipitation Rate</u></b>	<b><u>Distribution Uniformity of Irrigation Head</u></b>
Drip		
Microspray		
Bubbler		
Low precipitation rotating nozzles		
Stream rotors		

## WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the *project applicant* for each Point of Connection. Please complete all sections of the worksheet.

<b>Point of Connection #</b> ___									
<b><i>Maximum Applied Water Allowance (MAWA)</i></b>									
Total MAWA = (ETo x 0.7 x LA in Sq. Ft. x 0.62) + (ETo x 1.0 x SLA in Sq. Ft. x 0.62) = Gallons per year for LA+SLA									
where:									
MAWA = <i>Maximum Applied Water Allowance</i> (gallons per year)									
ETo = <i>Reference Evapotranspiration</i> <b>Appendix C</b> (inches per year)									
0.7 = <i>Evapotranspiration Adjustment Factor</i> (ETAF)									
1.0 = ETAF for <i>Special Landscaped Area</i>									
LA = <i>Landscaped Area</i> (square feet)									
0.62 = <i>Conversion factor</i> (to gallons per square foot)									
SLA = <i>Special Landscaped Area</i> (square feet)									
<b>MAWA Calculation:</b>									
	ETo		ETAF		LA or SLA (ft <sup>2</sup> )		Conversion		MAWA (Gallons Per Year)
MAWA for LA =		x	0.7	x		x	0.62	=	
MAWA for SLA =		x	1.0	x		x	0.62	=	
Total MAWA =									



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List *sprinkler heads*, *microspray*, and *drip emitters* here along with average *precipitation rate* and *Distribution Uniformity of Irrigation Head*.

<b><u>Sprinkler Head Types</u></b>	<b><u>Average Precipitation Rate</u></b>	<b><u>Distribution Uniformity of Irrigation Head</u></b>
Drip		
Microspray		
Bubbler		
Low precipitation rotating nozzles		
Stream rotors		

Reference Evapotranspiration (ETo) Table

<b>Appendix C - Reference Evapotranspiration (ETo) Table*</b>													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
<b>Orange</b>													
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
* The values in this table were derived from:1) California Irrigation Management Information System (CIMIS) 2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999, 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426													

**LANDSCAPE INSTALLATION CERTIFICATE OF COMPLETION**

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services.

(2) The landscape project for the property located at \_\_\_\_\_  
\_\_\_\_\_ (provide street address or parcel number(s)) was installed by me or under my supervision.

(3) The landscaping for the identified property has been installed in substantial conformance with the approved Landscape Documentation Package and complies with the requirements of the City of \_\_\_\_\_  
\_\_\_\_\_ Water Efficient Landscape Ordinance (Municipal Code Sections \_\_\_\_\_) and the City of \_\_\_\_\_  
Guidelines for Implementation of the City of \_\_\_\_\_ Water Efficient Landscape Ordinance for the efficient use of water in the landscape.

(4) The information I have provided in this Landscape Installation Certificate of Completion is true and correct and is hereby submitted in compliance with the City of \_\_\_\_\_  
\_\_\_\_\_ Guidelines for Implementation of the City of \_\_\_\_\_  
\_\_\_\_\_ Water Efficient Landscape Ordinance.

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

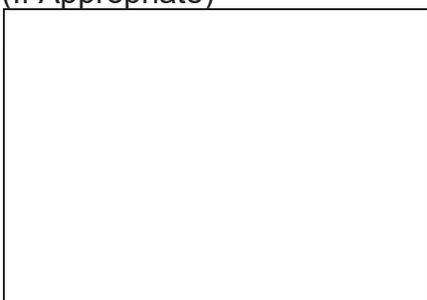
\_\_\_\_\_  
License Number

\_\_\_\_\_  
Address

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
E-mail Address

Landscape Design Professional's Stamp  
(If Appropriate)



The following plant palette is designed to provide a suggested list for developing a low water use landscape plan. The list is not all inclusive and may be subject to future updates based on new varieties of species.

## **Nifty- 50 Plants for California Friendly Landscapes**

These plants have been selected because they are attractive, often available in retail nurseries, non-invasive, and of course, drought tolerant.

### **Botanical**

#### **Trees**

Arbutus unedo  
Chitalpa tashkentensis  
Geijera parviflora  
Laurus nobilis  
Olea europaea ‘Swan Hill’  
Pinus eldarica  
Prosopis chilensis  
Quercus agrifolia  
Rhus lancea

### **Common**

Strawberry Tree  
Chitalpa  
Australian Willow  
Sweet Bay  
Swan Hill Olive  
Afghan Pine  
Chilean Mesquite  
Coast Live Oak  
African Sumac

#### **Shrubs/Perennials/Ornamental Grasses**

Agave spp.  
Arctostaphylos spp.  
Artemisia spp.  
Ceanothus spp.  
Cistus spp.  
Dudleya spp.  
Echeveria elegans  
Encelia Californica  
Galvezia speciosa  
Grevillea spp.  
Helictotrichon sempervirens  
Heteromeles arbutifolia  
Heuchera elegans  
Lavandula spp.  
Leucophyllum spp.  
Lobelia laxiflora  
Mahonia nevinii  
Myoporum parvifolium  
Myrtus communis  
Penstemon spp.  
Prunus caroliniana ‘Compacta’  
Rhus spp.  
Rosmarinus officinalis  
Salvia clevelandii  
Santolina spp.  
Sisyrinchium spp.  
Stachys byzantina  
Verbena spp.

Agave  
Manzanita  
Artemisia  
California Lilac  
Rockrose  
Live Forever  
Hens-and-Chickens  
California Encelia  
Island Bush Snapdragon  
Grevillea  
Blue Oat Grass  
Toyon  
Elegant Coral Bells  
Lavender  
Texas Ranger  
Mexican Bush Lobelia  
Nevin’s Barberry  
Myoporum  
Common Myrtle  
Penstemon  
Dwarf Carolina Laurel Cherry  
Sumac  
Rosemary  
Cleveland Sage  
Lavender Cotton  
Golden-Eyed and Blue-Eyed Grass  
Lamb’s Ear  
Verbena

**Vines**

Bougainvillea spp.  
Tecoma capensis  
Vitis californica

Bougainvillea  
Cape Honeysuckle  
California Wild Grape

**Groundcover**

Achillea spp.  
Baccharis spp.  
Cotoneaster dammeri  
Erigeron karvinskianus  
Festuca ovina glauca  
Fragaria californica  
Lampranthus spp.

Yarrow  
Coyote Brush  
Bearberry Cotoneaster  
Santa Barbara Daisy  
Blue Fescue  
Ornamental Strawberry  
Ice Plant

**Turf**

Paspalum vaginatum  
Stenotaphrum secundatum  
Zoysia 'Victoria'

Seashore Paspalum  
Saint Augustinegrass  
Victoria Zoysiagrass