



Water Use Efficiency Requirements

for all development (except single-family lots), including but not limited to: multi-family, subdivisions, projects with designated open spaces, public, commercial, institutional and industrial development

The Water Use Efficiency Requirements must be completed in order to comply with the District Policy.

The requirements must be completed and approved by the Soquel Creek Water District before water service may be provided as specified in the District's Conditional Will Serve letter. The required elements of this packet are listed below.

Please make sure the following items are completed and attached prior to submittal.

1. Project Data Sheet.....Page 1
2. Interior Water Use Efficiency Checklist.....Page 2
 Certified by Contractor
3. Landscape Plan ChecklistPage 3
 Copy of Planting Plan attached
 Copy of Irrigation Plan attached
 Copy of Grading Plan attached
4. Exterior Water Use Efficiency Checklist.....Page 4
 Certified by Landscape Architect
5. 5-year Plan for Estimated Total Water Use.....Page 5
6. Annual Exterior Water Allowance WorksheetPage 6
7. Monthly Irrigation Worksheet and Schedule Page 7

Please complete the following project information:

1) Project Name: _____

2) Project Address: _____

3) Assessor's Parcel Number: _____

4) No. of Single Family Residential Units: _____ No. of Multi-family Residential Units: _____

5) Total No. of: Toilets: _____ Showers: _____

Lavatory Sinks: _____ Kitchen Sinks: _____

Clothes Washers: _____ Dishwashers: _____

5) Total Square Footage of Contractor Installed Landscaped Area: _____

6) Maximum Landscape Water Allowance: (CCF) (from worksheet): _____

7) Applicant Name: _____

Address: _____ Phone: _____

_____ FAX: _____

8) General Contractor: _____

Address: _____ Phone: _____

_____ FAX: _____

9) Landscape Architect: _____

Address: _____ Phone: _____

_____ FAX: _____

License Number and Expiration Date: _____

10) Irrigation Designer: _____

Address: _____ Phone: _____

_____ FAX: _____

License Number and Expiration Date: _____

11) Landscape Contractor: _____

Address: _____ Phone: _____

_____ FAX: _____

License Number and Expiration Date: _____

This checklist is to be completed by the General Contractor. Any unchecked boxes require the Contractor to submit a brief written explanation of why the requirement cannot be met and/or why a special variance should be granted.

The District will consider and may allow the substitution of well-designed conservation alternatives or innovations which may produce an equal or greater benefit. However, all written explanations, variances, substitutions, alternatives or innovations must be reviewed and approved by the District before water service is granted.

Interior Fixture Checklist

1. All installed toilets are high-efficiency and use on average 1.28 gallons per flush or less.
2. All installed urinals are low-volume, urinals that use 1.0 gallons per flush or less.
3. All kitchen sinks are equipped with low-volume fixtures using a maximum of 2.2 gallons per minute at 80 pounds per square inch.
4. All installed lavatory and bath faucets are low-volume fixtures using a maximum of 2.2 gallons per minute at 80 pounds per square inch.
5. All installed showers are equipped with a low-volume showerhead.
Showerhead has a maximum flowrate of 2.5 gallons per minute at 80 pounds per square inch.
6. All newly purchased clothes washing machines are EPA Energy Star certified and high-efficiency with a water factor* of 8.5 or less.
7. All common laundry facilities are equipped with high-efficiency commercial clothes washing machines, which are EPA Energy Star certified with a water factor* of 8.5 or less.

*Water factor- is the number of gallons of water used per cubic foot of wash load per cycle. Thus, the lower the water factor the more water efficient the clothes washing machine.

Interior Water Use Efficiency Certification Statement (Completed by Contractor)

I hereby certify that the interior water use fixtures used in this project conform to the Soquel Creek Water District's Water Use Efficiency Requirements for New Development as required in the District's Conditional Will Serve Letter for water service. *(Please print)*.

Contractor: _____

Address: _____ Phone: _____

_____ FAX: _____

State License Stamp with Signature

Please attach copies of the project's Planting, Irrigation and Grading Plans. All plans must be drawn at the same scale.

Landscape plans submitted to the District must be certified by a landscape architect confirming that they are in compliance with the District's Water Use Efficiency Requirements for New Development. This checklist is to be completed by a certified landscape architect.

1. **Planting Plan(s):** The planting plan shows the following information:
 - a. New and existing trees, shrubs, ground covers, and turf areas within the developed landscape area;
 - b. Plant botanical name(s), common name(s), container size(s), spacing and quantities;
 - c. Property lines, streets, and street names;
 - d. Driveway(s), sidewalk(s), and other hardscape features;
 - e. Pool(s), fountain(s), fence(s), and retaining walls;
 - f. Existing and proposed footprints of all buildings;
 - g. Square footages for the various landscape hydrozones.

2. **Irrigation Plan(s):** The irrigation plan shows the following information:
 - a. Irrigation system point of connection;
 - b. Water service pressure at point of irrigation system connection;
 - c. Water meter size;
 - d. Backflow prevention device(s);
 - e. Major components of the irrigation system;
 - f. Total precipitation rate shown in inches per hour for each valve circuit using overhead irrigation;
 - g. Total flow rate (GPM) and operating pressure (PSI) for each irrigation circuit;
 - h. Pressure regulation valve(s) are shown;
 - i. Automatic controller with repeat start timers and multiple program potential are shown on plan;
 - j. Automatic rain shut-off unit(s) are shown on plan for each controller;
 - k. Check valves are shown on plan; and
 - l. Irrigation legend shows the following information:
 1. Symbols for all irrigation equipment;
 2. General description of equipment;
 3. Manufacturer's name and model number;
 4. Operating pressure;
 5. Manufacturer's rated gallons per minute per nozzle;
 6. Minimum and maximum spray radius;
 7. Manufacturer's rated precipitation rate per nozzle.

3. **Grading Plan(s):** The grading plan shows the following information:
 - a. Finish grade;
 - b. Spot elevations as necessary;
 - c. Existing and new contours within the developed landscape area.

This checklist is to be completed by a certified landscape architect. Please check all the boxes and fill in the appropriate blanks below. Unchecked boxes and blanks require the landscape architect to submit a brief written explanation of why the requirement cannot be met and/or why a special variance should be granted.

The District will consider and may allow the substitution of well-designed conservation alternatives or innovations which may equally reduce water consumption. However, all written explanations, variances, substitutions, alternatives or innovations must be reviewed and approved by the District before water service is granted.

Planting Requirements Checklist

1. The combined area of turf and swimming pools does not exceed 25 percent of the total developed landscape area. The District may approve larger areas if the lawn provides functional open space.
2. High-water use plants and water features are not more than 10 percent of the total developed landscape area. All other plantings are composed of low-water-use plant material.
3. Plants are well-suited to microclimate and soil conditions at site, require minimal water once established, are relatively free from pests and diseases, and are generally easy to maintain.
4. Turf must be of low-water-use-variety (e.g., hard fescue type)
5. Plants with similar water needs are grouped together.
6. Turf is not placed in areas less than 8 feet wide or on slopes of more than 15 percent.
7. Automatic controller has multiple program and repeat cycle capabilities, automatic rain shut-off device, and a flexible calendar program.
8. Only low-water-use plants are on slopes exceeding 33 percent.
9. On slopes over 33 percent, the irrigation system consists of drip emitters, bubblers or sprinklers with a maximum precipitation rate of 0.85 inches per hour and adjusted sprinkler cycle times to eliminate runoff.
10. Separate irrigation circuit(s) are provided for the following:
 - a. Turf;
 - b. High-water-use plants;
 - c. Low-water-use plants;
 - d. Plants on drip;
 - e. Exposure variations;
 - f. Slope variations;
 - g. Soils with different infiltration rates;
 - h. Different precipitation rates.
11. Drip emitters or a bubbler is installed at each tree. Bubblers are a maximum 1.5 gallons per minute and placed on separate valves.
12. Sprinklers have matched precipitation rate within each valve.
13. Drip irrigation is installed underground, except for temporary installations.
14. All exposed soil surfaces of non-turf areas within the developed landscape are mulched with a minimum 3-inch layer of organic material.
15. Overhead irrigation satisfies the following criteria:
 - a. Sprinkler heads have consistent application rates within each control valve circuit and have

been selected for proper area coverage, application rate, operating pressure, adjustment capability, and ease of maintenance;

- b. Spray heads are adjusted so spray radius or special pattern is 25 percent of the manufacturer's rating;
- c. Spray heads are located so overspray will not accumulate and flow off adjacent pavements, walkways, structures, and other non-landscaped areas during an irrigation cycle;
- d. Median strips and parking islands less than eight feet wide have no overhead irrigation;
- e. Planted areas which are acutely angled or irregularly shaped and which are adjacent to hardscape surfaces are not irrigated by an overhead system unless they are at least 120 percent of the spray diameter of the irrigation heads being used.

- 16. Maximum Landscape Water Allowance has been calculated.
- 17. Monthly irrigation schedule has been calculated.
- 18. Copy of monthly irrigation schedule is posted on project site near irrigation controller.
- 19. Decorative water features use recirculating water.
- 20. Landscape irrigation is scheduled between 6:00 pm and 10:00 am to reduce evaporative loss.
- 21. A 5-year plan for estimated total water use has been prepared and is attached.

MODEL HOMES

- 22. At least one model home that is landscaped in each project consisting of eight or more homes shall demonstrate via signs and information the principles of water efficient landscapes.
- 23. Signs shall be used to identify the model as an example of a water efficient landscape and featuring elements such as hydrozones, irrigation equipment and other demonstrations which contribute to the overall efficient theme.
- 24. Information shall be provided about designing, installing, and maintaining water efficient landscapes.

Exterior Water Use Efficiency (To be Completed by Landscape Architect)

I hereby certify that the planting, irrigation, and grading plans are accurate and conform to the Soquel Creek Water District's Water Use Efficiency Requirements for New Development as required in the District's Conditional Will Serve Letter for water service. *(Please print)*.

Landscape Architect: _____

Address: _____ Phone: _____

_____ FAX: _____

State License Stamp with Signature

1) Project Name: _____

2) Project Address: _____

3) Assessor's Parcel Number: _____

Landscape Water Allowance Formula

- Step 1:** Enter the total square footage of Irrigated Landscape Area in project. Water features are included in the calculation of the landscaped area.
- Step 2:** Enter the annual Reference Evapotranspiration Rate (ETo) for the landscaped area.
- Step 3:** ETo Water Savings Adjustment Factor: An 80 percent adjustment to the ETo is applied for water savings.
- Step 4:** Calculate the Landscape Water Allowance for the project by multiplying the total square footage shown in Box A by the Annual ETo in Box B and by .00083 (conversion factor from inches of water to 100-cubic feet per year).

1. Total Irrigated Landscaped Area (square feet) (Box A)		<input style="width: 90%;" type="text"/>
2. Annual ETo for Landscaped Area (inches per year) (Box B)		<input style="width: 90%;" type="text"/>
3. ETo Adjustment Factor (unitless)	× 0.8	
4. Conversion Factor (to gallons per square feet - assumes 1 inch depth)	× .62	
<hr/>		
5. Maximum Landscape Water Allowance (gallons per year)		<input style="width: 90%;" type="text"/>
6. Divide by 748 to convert into billing units.	÷ 748	
<hr/>		
7. Total billing units per year		<input style="width: 90%;" type="text"/>

Example

1. Total Irrigated Landscaped Area (square feet)		10,000
2. Annual ETo for Landscaped Area (inches per year)		× 46.17
3. ETo Adjustment Factor (unitless)	× 0.8	
4. Conversion Factor (to gallons per square feet)	× .62	
<hr/>		
5. Maximum Landscape Water Allowance (gallons per year)		229,003
6. Divide by 748 to convert into billing units.	÷ 748	
<hr/>		
7. Total billing units per year		306

Use the attached Monthly Irrigation Schedule to prepare an irrigation schedule, which covers the initial 120-day plant establishment period and following one-year period. The irrigation schedule shall be prepared by a Landscape Architect or Landscape Designer.

The schedule should rely on monthly Reference Evapotranspiration Rate (ET_o) data for the Santa Cruz County area less 20 percent for conservation savings. Water-conserving plants typically need 50 percent or less of the ET_o under normal weather conditions. The amount of water applied for each valve should also be adjusted for irrigation efficiency, local rainfall, specific site conditions (e.g., exposure, slope, etc.) depths of root zones, and soil conditions (e.g., water holding capacity and infiltration rate). Ultimately, the amount and frequency of irrigation will need to be monitored regularly to adjust for plant growth, climatic changes, and site conditions.

Valves with overhead spray or stream sprinklers, should be set to operate between 6 p.m. and 10 a.m. to reduce water loss from wind and evaporation. Early morning irrigation is recommended for turf and ground cover. On slopes and soils with slow infiltration rates, valves should be programmed for multiple repeat cycles to reduce runoff.

Maximum Monthly Water Usage

Replace the “**Annual ET_o for Landscaped Area (inches per year)**” in the formula on page 6 with the estimated monthly ET_o rates listed below to calculate **monthly** Maximum Water Usage.

Estimated Monthly ET _o for Santa Cruz County Area												Annual
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ET _o
1.83	2.20	3.66	4.84	5.25	5.67	5.61	5.25	4.25	3.42	2.36	1.83	46.17

Monthly Irrigation Schedule Instructions

- A. Valve or Station Number:** Shall correspond to irrigation plan.
- B. Plant Type:** Indicate either:
 - T** - Trees only
 - WC** - Water-conserving trees, shrubs, and/or groundcover.
 - ND** - Non-drought tolerant trees, shrubs, and/or groundcover.
 - GC** - groundcover only.
 - L** - Lawn or Turf
- C. Irrigation Type:** Indicate either:
 - SP** - Spray Sprinkler
 - ST** - Stream Sprinkler
 - B** - Bubblers
 - E** - Drip Emitters
- D. Flow Rate:** Indicate total gallons per minute or hour flowing through valve during normal operation.
- E. Precipitation Rate:** For valves, indicate the average Precipitation Rate in inches per hour.
- F. Month:** Begin irrigation schedule with the month the landscaping is completed.
- G. Run Time:** Indicate total minutes per day valve will be operating.
- H. Number of Days/Week:** Indicate the number of days per week valve will be scheduled to operate within each month.

