

## Chapter 15.28

### LANDSCAPING REQUIREMENTS

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**15.28.010 Purpose.** The purpose of this Chapter is to promote the values and benefits of landscaping while recognizing it is in the public interest to conserve water. This Chapter implements this purpose by establishing regulations for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and in rehabilitated landscape areas. The regulations established herein have been prepared in accordance with the Water Conservation in Landscaping Act codified in the Section 65591 et seq. of the California Government Code. (Ord. 3293 § 1 (part), 2015)

**15.28.020 Applicability.**

A. This Chapter shall apply to the following:

1. All new and rehabilitated landscaping for public agency projects, cemeteries, and commercial, industrial and multiple-family residential development projects that are subject to a planned unit development permit, site development permit, site review permit, conditional use permit, building permit, or grading permit on land zoned C, M, BP, M-U, R-3, or R-2; and
2. Developer-installed landscaping in single-family residential development projects that are subject to a subdivision map or planned unit development permit.

B. This Chapter shall not apply to:

1. Homeowner provided landscaping for primary and secondary single-family dwellings;
2. Historical sites listed on the local, state or national registers;
3. Ecological restoration projects that do not require a permanent irrigation system;
4. Mined-land reclamation projects that do not require a permanent irrigation system;
5. Existing botanical gardens or arboretums which are open to the public;
6. Agricultural uses; or
7. Any project as determined by the Community Resources Agency Director that has special circumstances where the application of the provisions of this Chapter would not further the objective of water conservation.

C. Recognizing the special landscape needs of cemeteries, new and rehabilitated cemeteries are subject only to sections 15.28.050, 15.28.130 and 15.28.215. (Ord. 3293 § 1 (part), 2015)

**15.28.030 Landscape requirements.** The minimum area required to be landscaped for commercial, industrial and multiple-family residential development projects that are subject to a planned unit development permit, site development permit, site review permit, conditional use permit, building permit, or grading permit on land zoned C, M, BP, M-U, R-3, or R-2 is ten percent (10%). Existing trees and other vegetation are encouraged to be retained and shall count toward meeting these requirements. All areas zoned Open Space (O) or Open Space-1 (O-1) on the project site shall count toward meeting these landscape requirements. (Ord. 3293 § 1 (part), 2015)

**15.28.040 Water efficient landscape standards.** Except as provided in Section 15.28.050, landscaping for all projects subject to this Chapter shall comply with the following:

A. Drought tolerant vegetation species only shall be planted for ornamental purposes. Such plants shall be listed in the Landscape Guidelines maintained by the Community Resources Agency and shall be rated as having a low or very low water need. The use of

invasive or noxious plant species shall be prohibited.

B. Native or existing vegetation shall be retained on the project site to the maximum extent feasible.

C. Proposed landscaping shall reflect the horticultural attributes of plants, such as mature plant size and invasive surface roots, to minimize damage to property or infrastructure, such as buildings, sidewalks, and power lines. The landscaping should be designed so that mature vegetation is no closer than 10' to power lines.

D. Proposed plant placement shall incorporate solar orientation to maximize summer shade and winter solar gain, such as planting appropriate deciduous shade trees in parking lots.

E. The landscape design plan shall address fire safety and prevention. Avoid fire-prone plant materials and highly flammable mulches.

F. Turf areas shall be prohibited except for functional recreational areas.

G. All landscaped areas shall be mulched with materials which promote water retention and reduce water loss from evaporation in accordance with the standards in Section 15.28.090.

H. Irrigation systems shall be limited to low volume systems. Where available and allowed by State and County regulations, recycled water shall be used as a source for irrigation systems.

I. Recirculating water systems shall be used for decorative water features. Water features that do not use recirculated water shall be prohibited, except those that are used to retain or detain storm water.

J. All planted landscape areas shall have friable soil to maximize water retention and infiltration.

K. A landscape plan demonstrating compliance with the landscape requirements provided herein shall be submitted in conjunction with an application for a project subject to the provisions of this Chapter. The landscape plan shall identify the existing vegetation to be retained, existing trees with 5" diameter at 4.5 feet above average ground level or larger to be removed, the location of proposed vegetation, the sizes and species of proposed plants, fences, planters and other landscape features, erosion control measures, the layout of the irrigation system, and any other information required by

the Community Resources Agency Director to determine compliance with the provisions of this Chapter.

L. Landscaping provided in accordance with Section 15.28.040 or that meet the lot or parcel's landscape irrigation requirement entirely with treated or untreated graywater or through

stored rainwater captured on site shall be exempt from the provisions of Sections 15.28.050, 15.28.060, 15.28.070, 15.28.080, 15.28.105, 15.28.110, 15.28.120, 15.28.130, 15.28.140, 15.28.165, 15.28.180, and 15.28.215 of this Code. (Ord. 3293 § 1 (part), 2015)

**15.28.050 Alternative water efficient landscape standards.** As an alternative to the standards provided in Section 15.28.040, any plants may be planted to comply with the landscape requirements in Section 15.28.030 or irrigation systems that are not low volume may be used, provided the Estimated Total Water Use does not exceed the Maximum Applied Water Allowance, subject to the following:

A. A project's Maximum Applied Water Allowance (MAWA) shall be calculated using the following formula:

$$\text{MAWA (gallons per year)} = (\text{ETo})(0.62)[(\text{ETAF} \times \text{LA}) + ((1-\text{ETAF}) \times \text{SLA})]$$

ETo = Area Evapotranspiration Factor (47.6 in Tuolumne County)

0.62 = Conversion Factor

ETAF = Evapotranspiration Adjustment Factor (0.45 for nonresidential areas, 0.55 for residential areas)

LA = Landscaped Area in square feet

SLA = Special Landscape Area in square feet

B. The Estimated Total Water Use (ETWU) is the annual total amount of water in gallons estimated to be needed to keep the plants in the landscaped area healthy. ETWU is the sum of the Estimated Water Use (EWU) for all hydrozones in the landscape area and shall be calculated using the Water Efficient Landscape Worksheet described in Section 15.28.070. The sum of the EWU for all hydrozones calculated using the equation below shall not exceed the MAWA.

$$\text{EWU} = \text{ETo} \times 0.62 \times \text{ETAF} \times \text{HA}$$

ETo = Area Evapotranspiration Factor (47.6 in Tuolumne County)

0.62 = Conversion Factor

PF = Plant Factor from WUCOLS

HA = Hydrozone Area (high, medium, low and very low water use areas) in square feet

ETAF = Evapotranspiration Adjustment Factor (0.45 for nonresidential areas, 0.55 for residential areas)

C. A landscape plan shall be submitted in conjunction with an application for a discretionary entitlement for a project subject to the provisions of this Chapter. The landscape plan shall identify the existing vegetation to be retained, existing trees with 5" diameter at 4.5 feet above average ground level or larger to be removed, the location of proposed vegetation, the sizes and species of proposed plants, fences, planters and other landscape features, and erosion control measures. The landscape plan does not have to provide the detailed information required in Section 15.28.080 for a landscape design plan.

A condition of approval of the discretionary entitlement for a project subject to the provisions of this Chapter shall require the submittal and approval of a water efficient landscape documentation package, including a landscape design plan, in accordance with Section 15.28.080 prior to issuance of a grading or building permit for the project.

D. A water efficient landscape documentation package demonstrating compliance with the landscape requirements provided herein shall be submitted and approved prior to issuance of a grading or building permit for a project subject to the provisions of this Chapter. (Ord. 3293 § 1 (part), 2015)

**15.28.060 Landscape documentation package.**

A landscape documentation package prepared by a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape pursuant to the California Business and Professions Code, containing the following information shall be submitted to the Community Resources Agency for review and approval prior to issuance of a grading or building permit for a project subject to the provisions of this Chapter:

- A. Total landscape area in square feet;
- B. Identification of water supply type and local retail water purveyor;
- C. Water efficient landscape worksheet;
- D. Landscape design plan;
- E. Irrigation design plan;
- F. Grading plan;
- G. Soil management report; and
- H. Signature of the applicant and date with the statement, "I agree to comply with the requirements of Chapter 15.28 of the Tuolumne County Ordinance Code and submit a complete landscape documentation package".

(Ord. 3293 § 1 (part), 2015)

**15.28.070 Water efficient landscape worksheet.**

The following information shall be provided in a water efficient landscape worksheet as prescribed by the Community Resources Agency:

- A. A hydrozone information table for the landscape project; and
- B. A water budget calculation for the landscape project which adheres to the following requirements:

- 1. The plant factor used shall be from WUCOLS or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources. The plant factor ranges from 0 to 0.1 for very low water use

plants, from 0.1 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants;

- 2. All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone; and
- 3. All Special Landscape Areas shall be identified and their water use shall be calculated and shown in the water efficient landscape worksheet.
- 4. The ETAF for new and existing Special Landscape Areas shall not exceed 1.0.

(Ord. 3293 § 1 (part), 2015)

**15.28.080 Landscape design plan.** A landscape design plan prepared by a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape pursuant to the California Business and Professions Code, and meeting the following design criteria shall be submitted as part of the landscape documentation package.

- A. Plants that are not listed in the Landscape Guidelines maintained by the Community Resources Agency as having a very low or low water need may be used in the landscape plan provided the ETWU does not exceed the MAWA. The use of invasive or noxious plant species shall be prohibited.
- B. Native or existing vegetation shall be retained on the project site to the maximum extent possible.
- C. Turf areas shall be prohibited except when used in conjunction with functional recreational areas. Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape.
- D. Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in Section 15.28.110(B)(4).

E. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. Methods to achieve water efficiency shall include one or more of the following:

1. Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
2. Recognize the horticultural attributes of plants, such as mature plant size and invasive surface roots, to minimize damage to property or infrastructure, such as buildings, sidewalks, and power lines and allow for adequate soil volume for healthy root growth. The landscaping should be designed so that mature vegetation is no closer than 10' to power lines; and
3. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain, such as planting appropriate deciduous shade trees in parking lots.

F. The landscape design plan shall address fire safety and prevention. Avoid fire-prone plant materials and highly flammable mulches.

G. All landscaped areas shall be mulched with materials which promote water retention and reduce water loss from evaporation in accordance with the standards in Section 15.28.090.

H. High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians.

I. Water features shall comply with the following:

1. Recirculating water systems shall be used for decorative water features. Water features that do not use recirculated water shall be prohibited, except those that are used to retain or detain storm water.
2. Where available and allowed by State and County regulations, recycled water shall be used as a source for decorative water features.
3. The surface area of a water feature shall be included in the high water

use hydrozone area of the water budget calculation.

4. Pool and spa covers are highly recommended.

J. The landscape design plan shall:

1. Delineate and label each hydrozone by number, letter, or other method;
2. Identify each hydrozone as very low, low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
3. Identify recreational areas;
4. Identify areas permanently and solely dedicated to edible plants;
5. Identify areas irrigated with recycled water;
6. Identify the type of mulch and application depth;
7. Identify soil amendments, type, and quantity;
8. Identify type and surface area of water features;
9. Identify hardscapes, both pervious and non-pervious;
10. Identify the location, installation details and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Project applicants shall refer to the Tuolumne County Water Quality Plan for information on applicable stormwater technical requirements. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
  - a. Infiltration beds, swales, and basins that allow water to collect and soak into the ground;
  - b. Constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
  - c. Pervious or porous surfaces that minimize runoff, including but not limited to permeable pavers or blocks, and pervious or porous concrete.

11. Identify any applicable rain harvesting or catchment technologies, such as rain gardens and bio-swales, and their 24-hour retention or infiltration capacity;
12. Identify any applicable graywater discharge piping, system components and area(s) of distribution;
13. Contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan."; and

Bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape pursuant to the California Business and Professions Code. (Ord. 3293 § 1 (part), 2015)

**15.28.090 Mulch and soil amendments.** To promote water retention and reduce water loss from evaporation, mulch and soil amendments shall be provided in landscape areas.

- A. Prior to planting any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need meet this requirement.
- B. Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected.
- C. For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top six inches of soil are exempt from adding compost and tilling.
- D. A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to 5% of the landscape area may be left without mulch. Designated insect habitat shall be included in the landscape design plan as such.
- E. Stabilizing mulching products shall be used on slopes that meet current engineering standards.
- F. The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.

G. Organic mulch materials made from recycled or post-consumer products shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. (Ord. 3293 § 1 (part), 2015)

**15.28.100 Grading plan.** For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the landscape documentation package. A grading plan prepared in accordance with Chapter 12.20 of this Code satisfies this requirement. (Ord. 3293 § 1 (part), 2015)

**15.28.105. Soil Management Report.** In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant as follows:

- A. Soil samples shall be submitted to a laboratory for analysis and recommendations. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended landscape plants. In projects with multiple landscape installations, a soil sampling rate of one in seven lots, or approximately 15%, will satisfy this requirement. Projects that propose more than one acre of landscaping shall sample at a rate equivalent to one in seven lots. The soil analysis shall include:

1. soil texture;
2. infiltration rate determined by laboratory test or soil texture infiltration rate table;
3. pH;
4. total soluble salts;
5. sodium;
6. percent organic matter; and
7. recommendations.

B. The soil management report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make necessary adjustments to the design plans.

C. The soil management report shall be submitted to the Community Resources Agency along with the landscape documentation package, except that for projects that require grading more than seventy-five percent (75%) of the site, the soil management report may be submitted as part of the Certificate of Completion.

D. Documentation verifying implementation of the recommendations contained in the soil management report shall be submitted to the Community Resources Agency with the Certificate of Completion. (Ord. 3293 § 1 (part), 2015)

**15.28.110 Irrigation design plan.** For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturer's recommendations. This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan prepared by a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system pursuant to the California Business and Professions Code, and meeting the following design criteria shall be submitted as part of the landscape documentation package.

A. The irrigation system shall be designed to include:

1. Landscape water meters shall be installed for all non-residential irrigated landscapes of 1,000 square feet but not more than 5,000 square feet and residential irrigated landscapes of 5,000 square feet or greater. Non-residential irrigated landscapes greater than 5,000 square feet shall comply with Water Code Section 535. A water meter may be either a customer service meter dedicated to landscape use provided by the local water purveyor or a privately owned meter or submeter;
2. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems;
3. If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required to ensure that the dynamic pressure at

each emission device is within the manufacturer's recommended pressure range for optimal performance;

- a. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system;
  - b. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation;
4. Sensors, either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems. Irrigation should be avoided during windy or freezing weather or during rain;
  5. Manual shut-off valves shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency or routine repair;
  6. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system;
  7. Flow sensors that detect and report high flow conditions created by system damage or malfunction are required for all nonresidential landscapes and residential landscapes of 5,000 square feet or larger;
  8. Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped

- with low pressure shut down features;
9. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures;
  10. Relevant information from the soil management report, such as soil type and infiltration rate, shall be considered when designing irrigation systems;
  11. The design of the irrigation system shall conform to the hydrozones of the landscape design plan;
  12. The irrigation system shall be designed and installed to comply with the Maximum Applied Water Allowance specified in Section 15.28.050(A);
  13. All irrigation emission devices shall meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard." All sprinkler heads installed in the landscape shall document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
  14. The irrigation system shall be designed to accommodate any peak water operating demands on the water supply system or water restrictions that may impact the effectiveness of the irrigation system;
  15. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone;
  16. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations;
  17. Sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations;
  18. Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turfgrass;
  19. Check valves are required on all sprinkler heads where low point drainage could occur;
  20. Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray;
  21. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces shall be limited to low volume systems;
  22. Slopes greater than 25% shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology and clearly demonstrates no runoff or erosion will occur.
- B. The irrigation design plan shall address hydrozones as follows:
1. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use;
  2. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone;
  3. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for a tree;
  4. Individual hydrozones that mix plants of moderate and very low or low water use, or moderate and high water use, may be allowed if:

- a. The plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
    - b. The plant factor of the higher water using plant is used for calculations.
  - 5. Individual hydrozones that mix high and very low or low water use plants shall not be permitted;
  - 6. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table.
- C. The irrigation design plan shall contain:
  - 1. The location and size of separate water meters for the landscape areas;
  - 2. The location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
  - 3. The static water pressure at the point of connection to the public water supply;
  - 4. The flow rate, application rate, and design operating pressure for each station;
  - 5. The following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan." signed by a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system pursuant to the California Business and Professions Code.

(Ord. 3293 § 1 (part), 2015)

**15.28.120 Irrigation efficiency.** Irrigation systems shall be designed, maintained, and managed to meet or exceed a landscape irrigation efficiency of 0.75 for overhead spray devices and 0.81 for drip system devices. (Ord. 3293 § 1 (part), 2015)

**15.28.130 Irrigation scheduling.** 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 and to ensure that the total annual applied water does not exceed the Maximum Applied Water Allowance (MAWA). Irrigation schedules shall meet the following criteria:

A. Irrigation scheduling shall be regulated by automatic irrigation controllers using current reference evapotranspiration data or soil moisture sensor data.

B. Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply. Operation of the irrigation system outside the normal watering window is allowed for monitoring and system maintenance.

C. Parameters used to set the automatic controllers shall be developed and submitted for each of the following:

- 1. The plant establishment period;
- 2. The established landscape; and
- 3. Temporarily irrigated areas.

(Ord. 3293 § 1 (part), 2015)

**15.28.140 Landscape and irrigation maintenance schedule.** Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion and shall address:

A. Routine inspection; auditing, adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; topdressing with compost; replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing an obstruction to emission devices. Operation of the irrigation system outside the normal watering window is allowed for monitoring and system maintenance.

B. Repair of all irrigation equipment shall be done with the originally installed components or their equivalents or with components with greater efficiency.

C. Implementation of sustainable or environmentally-friendly practices for overall landscape maintenance is encouraged for all landscape maintenance activities. (Ord. 3293 § 1 (part), 2015)

**15.28.150 Recycled water.** Where available and allowed by State and County regulations, recycled water shall be used as a source for irrigation systems and decorative water features. Recycled water irrigation systems and water features shall be designed and operated in accordance with all applicable local and State laws. Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for new and existing Special Landscape Areas shall not exceed 1.0. (Ord. 3293 § 1 (part), 2015)

**15.28.155 Graywater systems.** Graywater systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation. All graywater systems shall conform to the California Plumbing Code and Chapter 15.04 of this Code. (Ord. 3293 § 1 (part), 2015)

**15.28.160 Stormwater management.** Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Incorporating stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration is encouraged. Rain gardens, cisterns, and other landscapes features and practices that increase rainwater capture and create opportunities for infiltration and/or rainwater retention are recommended. (Ord. 3293 § 1 (part), 2015)

**15.28.165 Model homes.** Model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this Chapter. Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as hydrozones, irrigation equipment, and others that contribute to the overall water efficient theme. Signage shall include information about design of the site water use; specify who designed and installed the water efficient landscape; and demonstrate low water use approaches to landscaping such as use of native plants, graywater systems, and rainwater catchment systems. Information shall also be provided about designing, installing, managing

and maintaining water efficient landscapes. (Ord. 3293 § 1 (part), 2015)

**15.28.170 Prevention of water loss.** Runoff from any landscape area subject to this Chapter, due to drainage, overspray, or other similar conditions, shall be prohibited from flowing onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures. (Ord. 3293 § 1 (part), 2015)

**15.28.180 Certification of completion.** Prior to issuance of an Occupancy Permit or final inspection for a project subject to this Chapter, as-built landscape and irrigation design plans and a Certificate of Completion shall be prepared, signed and submitted by the landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design a landscape pursuant to the California Business and Professions Code to the Community Resources Agency. The Certificate of Completion shall state that the landscaping and irrigation system have been installed in accordance with the approved plans, the as-built plans are in accordance with the approved plans, and that the total annual applied water shall be less than or equal to the MAWA. An irrigation audit report shall be submitted with the Certificate of Completion that includes, but is not limited to, inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule that includes configuring irrigation controllers with application rates, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming. The Community Resources Agency shall forward a copy of the Certificate of Completion and the as-built plans to any local water purveyor providing service to the project site. (Ord. 3293 § 1 (part), 2015)

**15.28.190 Maintenance.** All landscaping shall be maintained in a healthy and attractive condition. Any dead or dying plants shall be replaced with materials of a similar type and size. (Ord. 3293 § 1 (part), 2015)

**15.28.200 Drought.** Planting of new landscaping materials shall be discouraged during time of drought, as declared by the Board of Supervisors. Deferral of the

completion deadline for landscape requirements due to the drought may be granted by the Community Resources Agency Director upon written request of the applicant. The applicant shall execute a security agreement with the Community Resources Agency Director and provide a financial security to guarantee the installation of the landscaping. The security may be in the form of a letter of credit, certificate of deposit or other security as approved by the Community Resources Agency Director. The amount of the security shall be based upon an estimate submitted by a licensed landscape contractor. (Ord. 3293 § 1 (part), 2015)

**15.28.210 Planning division assistance.** Property owners are encouraged to obtain a free site review by the planning division prior to removing existing vegetation. (Ord. 3293 § 1 (part), 2015)

**15.28.215 Irrigation system performance.** At least once every five years following installation of a landscape utilizing the alternative water efficient landscape standards in Section 15.28.050, the property owner shall submit an irrigation water use analysis to the Community Resources Agency to determine compliance with the MAWA. If the irrigation water use analysis determines that irrigation water use exceeds the MAWA, the property owner shall submit an irrigation survey to the Community Resources Agency. The property owner shall implement all recommendations of the irrigation survey necessary to reduce irrigation water use to less than the MAWA. In projects exceeding ten acres or projects including multiple landscape installations, such as subdivisions, the irrigation water use analysis need only analyze one in seven lots or 15% of the landscape. The irrigation water use analysis and irrigation survey shall be conducted by a certified landscape irrigation auditor and shall not be conducted by the person who designed the landscape or installed the landscape. (Ord. 3293 § 1 (part), 2015)

**15.28.220 Violation; enforcement.** A violation of this Chapter shall be enforced as provided for in Chapter 1.10 of the Tuolumne County Ordinance Code. (Ord. 3293 § 1 (part), 2015)

**15.28.230 Enforcement responsibility.** The provisions of this Chapter shall be enforced by the Community Resources Agency. (Ord. 3293 § 1 (part), 2015)

**15.28.240 Definitions.** As used in this Chapter, the following terms have the following meanings:

- A. "Applied water" means the portion of water supplied by the irrigation system to the landscape.
- B. "Automatic irrigation controller" means a timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers are able to self-adjust and schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.
- C. "Backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
- D. "Check valve" or "anti-drain valve" means a valve located under a sprinkler head or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
- E. "Compost" means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.
- F. "Conversion factor (0.62)" means the number that converts acre-inches per acre per year to gallons per square foot per year.
- G. "Drip irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- H. "Ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- I. "Emitter" means a drip irrigation emission device that delivers water slowly from the system to the soil.
- J. "Established landscape" means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
- K. "Estimated Total Water Use" (ETWU) means the total water used for the landscape.

L. "ET adjustment factor" (ETAF) means a factor that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. The ETAF for residential areas is 0.55, and for non-residential areas is 0.45. The ETAF for new and existing Special Landscape Areas shall not exceed 1.0. The ETAF for existing non-rehabilitated landscapes is 0.8.

M. "Evapotranspiration rate" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

N. "Flow rate" means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.

O. "Flow sensor" means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to the flow rate. Flow sensors must be connected to an automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. This combination flow sensor/controller may also function as a landscape water meter or submeter.

P. "Friable" means a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.

Q. "Graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

R. "Hardscapes" means any durable material (pervious and non-pervious).

S. "Hydrozone" means a portion of the landscaped area having plants with similar water needs and rooting depth. A hydrozone may be irrigated or non-irrigated.

T. "Infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time, such as inches per hour.

U. "Invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources.

V. "Irrigation audit" means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to, inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule. The audit must be conducted in a manner consistent with the Irrigation Association's Landscape Irrigation Auditor Certification program or other Environmental Protection Agency "Watersense" labeled auditing program.

W. "Irrigation efficiency" (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The irrigation efficiency for purposes of this Chapter is 0.75 for overhead spray devices and 0.81 for drip systems.

X. "Irrigation survey" means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to, inspection, system test, and written recommendations to improve performance of the irrigation system.

Y. "Irrigation water use analysis" means a review of water use data based on meter readings and billing data.

Z. "Landscape area" means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas, such as open spaces and existing native vegetation.

AA. "Landscape water meter" means an inline device installed at the irrigation supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.

BB. "Lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

CC. "Local water purveyor" means any entity, including a public agency or private water company that provides retail water service.

DD. "Low volume irrigation" means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

EE. "Master shut-off valve" means an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed, water will not be supplied to the irrigation system.

FF. "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area.

GG. "Mined-land reclamation projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

HH. "Mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, or decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

II. "Non-residential landscape" means landscapes in commercial, institutional, industrial and public settings that may have areas designated for recreation and public assembly. It also includes portions of common areas of common interest developments with designated recreation areas.

JJ. "Noxious weeds" means any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional District noxious weed control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.

KK. "Operating pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

LL. "Overhead sprinkler irrigation systems" means systems that deliver water through the air, such as spray heads and rotors.

MM. "Overspray" means the irrigation water which is delivered beyond the target area.

NN. "Pervious" means any surface or material that allows the passage of water through the material and into the underlying soil.

OO. "Plant factor" or "plant water use factor" is a factor that, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this Chapter, the plant factor range for very low water use plants is 0 to 0.1, the plant factor range for low water use plants is 0.1 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0.

PP. "Precipitation rate" means the rate of application of water measured in inches per hour.

QQ. "Rain sensor" or "rain sensing shutoff device" means a component which automatically suspends an irrigation event when it rains.

RR. "Recreational area" means areas, excluding private single-family residential areas, designated for active play, recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters or golf course tees, fairways, roughs, surrounds and greens.

SS. "Recycled water", "reclaimed water", or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features.

TT. "Reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated.

UU. "Residential landscape" means landscapes surrounding single or multifamily homes.

VV. "Runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area.

WW. "Soil moisture sensing device" or "soil moisture sensor" means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

XX. "Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water.

YY. "Sprinkler head" means a device which delivers water through a nozzle.

ZZ. "Static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.

AAA. "Station" means an area served by one valve or by a set of valves that operate simultaneously.

BBB. "Swing joint" means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.

CCC. "Submeter" means a metering device to measure water applied to the landscape that is installed after the primary utility water meter.

DDD. "Turf" means a ground cover surface of mowed grass.

EEE. "Water feature" means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools. The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.

FFF. "Watering window" means the time of day irrigation is allowed.

GGG. "WUCOLS" means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension and the Department of Water Resources 2014 as it may be amended. (Ord. 3293 § 1 (part), 2015; Ord. 3103, § 1 2010)