Planning & Building Department

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Water Efficient Landscaping Requirements

Healdsburg Land Use Code Section 20.16.105 - Ordinance No. 1091

A. Purpose

The following regulations shall promote the efficient use of water for landscaped areas. Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use. These water efficient landscape standards protect local water supplies through the implementation of a whole systems approach to design, construction, installation and maintenance of the landscape resulting in water conserving climate-appropriate landscapes, improved water quality and the minimization of natural resource inputs.

B. Definitions

The following terms as used in this section shall have the following meanings.

Backflow prevention device. An approved device installed to City standards which will prevent backflow or back-siphonage into the City's potable water system.

Booster pump. A pump used where the normal water system pressure is low and needs to be increased.

Check valve. 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.

Compost. The decayed remains of organic matter that has rotted into a natural fertilizer.

Ecological restoration project. A project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

Effective precipitation. The portion of total precipitation which becomes available for plant growth and that is used by the plants.

Emitter. A drip irrigation fittings emission device that delivers water slowly from the system to the soil.

Estimated total water use. The total irrigation water projected to be used for a project's irrigated landscape area in gallons per day. The estimated total water use shall not exceed the project's maximum applied water allowance.

Evapotranspiration (ET) adjustment factor. A factor of 0.7, 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.

Evapotranspiration rate. The quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specific specified time.

Flow rate. The rate at which water flows through pipes, and valves and emission devices, measured in (gallons per minute, gallons per hour, or cubic feet per second).

Hardscapes. Any durable material (pervious and non-pervious).

Head to head coverage. Full coverage from one sprinkler head to the next.

High-flow sensor. A device for sensing the rate of fluid flow.

High water use plants. Turf, annuals, container plantings, and other plants recognized as high water use by the California Department of Water Resources 2000 publication Water Use Classification of Landscape Species (WUCOLS), as it currently exists or may be amended in the future.

Hydrozone. A portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule.

Hydrozone table. A table that identifies each hyrdrozone, the plant types in the hydrozone, the plant factor from the California Department of Water Resources 2000 publication Water Use Classification of Landscape Species (WUCOLS) and the area in square feet that is included in the hydrozone.

Invasive plant species. Species of plants not historically found in California and/or that spread outside cultivated areas and can damage environmental or economic resources as determined by the California Invasive Plant Council.

Irrigation efficiency (IE). 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 minimum average irrigation efficiency for purposes of the water efficient landscape requirements is 0.71.

Irrigation meter. A separate meter that measures the amount of water used for items such as lawns, washing exterior surfaces, washing vehicles, filling pools, etc.

Isolation valves. Irrigation valves used to isolate a portion of the piping system.

Landscape area. The entire parcel less the building footprint, driveways, and non-irrigated portions of parking lots, hardscapes such as decks and patios, and other non-porous areas. Water features are included in the calculation of the landscaped area. Areas dedicated to edible plants, such as orchards or vegetable gardens are not included. 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 designated for non-development (e.g., open spaces and existing native vegetation).

Low water use plants. "Mediterranean Region" and native trees, shrubs and groundcovers, juniper, most native oaks, and other plants recognized as low-water-use by the California Department of Water Resources 2000 publication Water Use Classification of Landscape Species (WUCOLS), as it currently exists or may be amended in the future.

Maximum applied water allowance (MAWA). The upper limit of the annual applied water allowed for a project's established landscaping, based upon the city's reference

evapotranspiration, the evapotranspiration (ET) adjustment factor and the size of the landscape area.

Microclimate. The climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density or proximity to reflective surfaces.

Mined land reclamation projects. Any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

Moderate water use plants. Ornamental trees, shrubs, ground covers, and perennials and other plants recognized as moderate water use by the Water Use Classification of Landscape Species document, as it currently exists or may be amended in the future.

Mulch. Any organic material such as leaves, bark, straw, compost or other inorganic mineral materials such as rocks, gravel, and 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.

Operating pressure. The pressure when water is flowing through the irrigation system.

Overhead irrigation. Those systems that deliver water through the air (e.g., pop-ups, impulse sprinklers, spray heads, rotors, micro-sprays).

Overspray. The irrigation water which is delivered beyond the landscaped target area, wetting pavements, walks, structures, or other non-landscaped areas.

Pervious. Any surface or material that allows the passage of water through the material and into the underlying soil.

Plant factor. A factor that, when multiplied by the reference evapotranspiration (ETo), estimates the amount of water used by needed plants. Plant factors are derived from the *Water Use Classification of Landscape Species* (WUCOLS) publication.

Point of connection. The point at which an irrigation system taps into the main water supply line.

Point source irrigation. 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.

Precipitation rate. The rate of application of water measured in inches per hour.

Pressure regulator. A valve that automatically reduces the pressure in a pipe.

Rain sensor. A system component which automatically shuts off and suspends the irrigation system when it rains.

Recycled water. Tertiary-treated water that results from the treatment of wastewater, is suitable for direct beneficial use, and conforms to the definition of disinfected tertiary recycled water in accordance with state law.

Reference evapotranspiration (ETo). A standard measurement of environmental parameters which affect the water use of plants and is an estimate of the evapotranspiration of a large field of four- (4) to seven- (7) inch tall, cool-season grass that is well watered.

Runoff. Water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area.

Soils laboratory report. The analysis of a soil sample to determine nutrient content, composition and other characteristics, including contaminants.

Sprinkler head. A device that delivers to the landscape water through a spray nozzle.

*Static water pressur*e. The pipeline or municipal water supply pressure when water is not flowing.

Station. An area served by one valve or by a set of valves that operate simultaneously.

Submeter. A separate meter that is located on the private side of the water system and is plumbed to measure all water that flows only through the irrigation system. This meter is to be used by the property owner to monitor irrigation water use and will not be read by the City.

Swing joint. 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.

Valve. A device used to control the flow of water in the irrigation system.

Valve manifold. A one-piece manifold for use in a sprinkler valve assembly that includes an intake pipe having a water inlet and a plurality of ports adapted for fluid connection to inlets.

Water feature. 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 (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area.

Water Use Classification of Landscape Species (WUCOLS). A document published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000, as may be amended.

Weather-based or sensor-based irrigation control technology. An irrigation system that uses local weather and landscape conditions to tailor irrigation schedules to actual conditions on the site or historical weather data.

C. Applicability

These requirements apply to the following projects:

1. New residential, commercial, office, industrial, public or quasi-public construction that requires design review and/or a building or grading permit.
2. Additions or remodels to existing residential, commercial, office, industrial, public or quasi-public development that require design review and/or a building or grading permit and that have associated new or replaced landscaped areas equal to or exceeding two thousand five hundred (2,500) square feet of contractor-installed landscaping.
3. Additions or remodels to existing residential, commercial, office, industrial, public or quasi-public development that require design review and/or a building or grading permit and that have associated new or replaced landscaped areas equal to or exceeding five thousand (5,000) square feet of property owner-installed landscaping.

4. Where the regulations contained in this section conflict with or are otherwise less restrictive than provided in the State's Model Water Efficient Landscape Ordinance, as contained in the California Code of Regulations, Title 23, the State's Model Ordinance shall apply.

D. Exemptions

These requirements shall not apply to the following projects:

1. Registered local, state or federal historical landscape area.
2. Ecological restoration or mined-land reclamation projects that do not require a permanent irrigation system.
3. Plant collections as part of botanical gardens and arboretums open to the public.
4. New secondary dwelling units
5. Accessory structures

E. Required plans

For projects subject to this section, the following plans shall be submitted.

1. Landscape design plan A landscape design plan shall be submitted that includes the following:
    a. Soil amendments, mulching and soil conditioning
        i. A minimum of eight (8) inches of non-mechanically compacted soil shall be available for water absorption and root growth in planted areas.
        ii. Compost or natural fertilizer incorporated into the soil to a minimum depth of eight (8) inches at a minimum rate of six (6) cubic yards per one thousand (1000) square feet or per specific amendment recommendations from a soils laboratory report, except within the driplines of trees that are to be preserved.
        iii. A minimum three (3) inches 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.
    b. Plants
        i. Selected plants shall not cause the project's estimated total water use to exceed the project's maximum applied water allowance.
        ii. Plants with similar water use needs shall be grouped together in distinct hydrozones and where irrigation is required the distinct hydrozones shall be irrigated with separate valves.
        iii. Low and moderate water use plants can be mixed, but the entire hydrozone will be classified as moderate water use for maximum applied water allowance calculations.
        iv. High water use plants shall not be mixed with low or moderate water use plants.
        v. All non-turf plants shall be selected, spaced and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.

vi. Turf shall not be planted on slopes exceeding fifteen (15) percent, planting areas eight (8) feet wide or less and in street medians, traffic islands, planter strips or bulb-outs of any size.

vii. Invasive plants as listed by the California Invasive Plant Council are prohibited.

c. Water features

i. Recirculating water systems shall be used for water features

ii. Recycled water shall be used when available onsite

2. Irrigation design plan An irrigation design plan shall be submitted that is designed and installed to meet irrigation efficiency criteria as described in the maximum applied water allowance and in accordance with the following:

a. Dedicated irrigation meter or submeter must be installed and specified.

b. Irrigation systems with meters one and one-half (1½) inches or greater require a high-flow sensor that can detect high flow conditions and have the capabilities to shut off the system.

c. Isolation valves shall be installed at the point of connection and before each valve or valve manifold.

d. Weather-based or other sensor based self-adjusting irrigation controllers shall be required.

e. Rain sensors shall be installed for each irrigation controller.

f. Pressure regulation and/or booster pumps shall be installed so that all components of the irrigation system operate at the manufacturer's recommended optimal pressure.

g. The irrigation system shall be designed to prevent runoff or overspray onto non-targeted areas.

h. Point source irrigation is required where plant height at maturity will affect the uniformity of an overhead system.

i. A minimum twenty-four (24) inch setback of overhead irrigation is required where turf is directly adjacent to a continuous hardscape that flows into the curb and gutter.

j. Slopes steeper than fifteen percent (15%) shall be irrigated with point source or other low-volume irrigation technology.

k. A single valve shall not irrigate hydrozones that mix high water use plants with moderate or low water use plants.

l. Trees shall be placed on separate valves except when planted in turf areas.

m. Sprinkler heads, rotors and other emission devices on a valve shall have matched precipitation rates.

n. Head-to-head coverage is required unless otherwise directed by the manufacturer's specifications.

o. Swing joints or other riser protection components are required on all risers.

p. Check valves shall be installed to prevent low-head drainage.

F. Review process

The following documentation shall be presented to the Planning and Building Director or his/her designee for a landscape design plan and irrigation design plan associated with a project for which design review and/or a grading or building permit is required. Landscape planting design and conceptual irrigation design plans shall be designed by and include the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design a landscape plan and irrigation system.

1. Project requiring design review The following documentation shall be presented for projects requiring design review:
    a. Calculation of the project's maximum applied water allowance.
    b. A landscape planting design plan that accurately and clearly identifies and depicts:
        i. new and existing trees, shrubs, groundcovers, turf, and any other planting areas, including any existing landscaping that is to be retained.
        ii. plants by botanical name and common name.
        iii. plant sizes and quantities.
        iv. property lines, new and existing building footprints, streets, driveways, sidewalks and other hardscape features.
        v. pools, fountains and similar water features.
    c. A conceptual irrigation design plan or statement that describes irrigation methods and design actions that will be employed to meet the irrigation specifications of this section.
2. Project requiring a grading or building permit The following documentation shall be presented for projects requiring a grading or building permit:
    a. Calculation of the project's Maximum Applied Water Allowance.
    b. A landscape planting design plan that accurately and clearly identifies and depicts:
        i. new and existing trees, shrubs, groundcovers, turf, and any other planting areas, including any existing landscaping that is to be retained.
        ii. plants by botanical name and common name.
        iii. plant sizes and quantities.
        iv. property lines, new and existing building footprints, streets, driveways, sidewalks and other hardscape features.
        v. pools, fountains and similar water features.
    c. An irrigation design plan drawn at the same scale as the planting plan that:
        i. accurately and clearly identifies and depicts the irrigation system point of connection.
        ii. accurately and clearly identifies and depicts irrigation system components, e.g. controller, pipe, remote-control valves, sprinklers and other application devices, rain shut-off device, check valves, pressure regulating devices, backflow prevention devices.

iii. includes a Hydrozone Table.

d. Where slopes exceed ten (10) percent, a grading plan drawn at the same scale as the planting design plan that accurately and clearly identifies:

i. existing and finished grades

ii. drainage patterns

iii. pad elevations

iv. spot elevations

v. storm water retention improvements.

vi. The grading plan shall include the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of a licensed professional.

G. Approval process

A landscape planting design plan and irrigation design plan prepared in compliance with the submittal requirements provided in this section shall be determined to be complete and shall be approved provided the plans do not exceed the project's maximum applied water allowance and are in compliance with the General Plan, Land Use Code and Design Review Manual. The Planning and Building Director's or his/her designee's authority to approve these plans is limited to those projects that are not otherwise subject to review by the Planning Commission or City Council.

H. Certification of completion

Upon installation and completion of the landscaping and irrigation system, and prior to issuance of a building or grading permit final, the property owner or his/her designee shall submit a certificate of completion that certifies that they have been installed in accordance with the project's approved landscape and irrigation design plans and the recommendations of the project's soil management report, if any, have been implemented. The Certificate of Completion shall be signed by a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized by the Planning and Building Director or his/her designee to design and inspect a landscape plan and irrigation system.

The certificate of completion shall be accompanied by an irrigation audit that contains the following:

1. Operating pressure of the irrigation system.
2. Distribution uniformity of overhead irrigation.
3. Precipitation rate of overhead irrigation.
4. Report of any overspray or broken irrigation equipment.
5. Irrigation schedule including:

a. Plant establishment irrigation schedule.

b. Regular irrigation schedule by month based on plant type, root depth, soil type, slope factor and shade factor, and that specifies irrigation interval (days per week), irrigation runtimes, number of start times per irrigation day, gallons per minute for

each valve, precipitation rate, distribution uniformity and monthly estimated water use calculations.

6. An irrigation maintenance schedule timeline shall be attached to the certificate of completion that includes:

    a. Routine inspections

    b. Adjustment and repairs to the irrigation system, aerating and dethatching turf areas, replenishing mulch, fertilizing, pruning and weeding.

I. Permit extensions

An extension of the building or grading permit to complete the landscape planting design plan and irrigation design plan and/or temporary occupancy may be approved by the Building Official upon written request subject to City receipt of cash security for the complete cost of the improvements, including administrative fees. This security will be returned to the applicant, except for any administrative fees, upon completion of the work.

J. Modifications to requirements

1. The Planning and Building Director or his/her designee will consider and may allow the substitution of design alternatives and innovation which may equally reduce water consumption for any of these requirements.

2. The Planning and Building Director or his/her designee will accept documentation methods, water allowance determination, and landscape and irrigation design requirements of the State of California Model Water Efficient Landscape Ordinance in lieu of the submittal requirements provided in this section where it can be demonstrated that the State procedure will more effectively address the design requirements of the project.

K. Fees

A fee may be established by City Council resolution to offset the cost of implementing the water efficient landscape regulations.

L. Appeals

The applicant or any affected person may appeal the final decision of the Planning and Building Director or his/her designee by filing an appeal in writing to the Planning Commission within ten (10) City working days of the date of the decision. A decision by the Planning Commission may be appealed by filing an appeal in writing to the City Council within ten (10) City working days of the decision.