# CARSONSCAPE
# Model Water Efficient Landscape Ordinance (MWELO)
# Performance Compliance Checklist

**LANDSCAPE DOCUMENTATION PACKAGE REQUIREMENTS**

The Landscape Documentation Package (DWR Title 23, Chapter 2.7, 492.3) shall include the following:

1. **PROJECT DESCRIPTION**
   - ☐ Date
   - ☐ Project applicant
   - ☐ Project Address (if available, parcel and/or lot number(s))
   - ☐ Total Landscape Areas (square feet)
   - ☐ Project Type (e.g. new, rehabilitated, public, private, cemetery, homeowner-installed)
   - ☐ Water Supply Type (e.g., potable, recycled, well and identify local retail water purveyor if the applicant is not served by a public well)
   - ☐ Check list of all documents in the Landscape Documentation Package
   - ☐ Project Contacts to include contact information for the project applicant and property owner

2. **MWELO WATER EFFICIENT LANDSCAPTE WORKSHEET** (DWR Title 23, Chapter 2.7, 492.4, Appendix A)

3. **SOIL MANAGEMENT REPORT** (DWR Title 23, Chapter 2.7, 492.5)
   - ☐ The soil analysis shall include:
     - Soil texture
     - Infiltration rate determined by laboratory test or soil test\texture infiltration rate table
     - pH
     - total soluble salts
     - sodium
     - percent organic matter
     - recommendations
   - ☐ In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement.

4. **LANDSCAPE DESIGN PLAN** (DWR Title 23, Chapter 2.7, 492.6)

   The landscape Design Plan shall meet the following design criteria:
   - ☐ Plant Material
     - Any plant may be selected for the landscape providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance.
     - Each hydrozone shall have plant materials with similar water use.
     - Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.
     - Turf is not allowed on slopes grater than 25% (4:1) where the toe of the slope is adjacent to impermeable hardscape.
     - High water use plants, characterized by a plant factor of 0.7 to 1.0 are prohibited in street medians.
     - A landscape design plan for projects in fire-prone areas shall address fire safety and prevention.
     - The use of invasive plant species is strongly discouraged.

- The architectural guidelines of a common interest development shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

☐ Water Features
- Recirculating water systems shall be used for water features
- Where available, recycled water shall be used as a source of water.
- Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation
- Pool and spa covers are highly recommended.

☐ Soil Preparation, mulch and amendments
- Prior to planting of any materials, compacted soils shall be transformed to friable condition.
- Soil amendments shall be incorporated according to recommendation of the soils report.
- Amend soil at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area to a depth of six inches into the soil.
- A minimum of three inch (3") layer of mulch shall be applied on all exposed soils surfaces of planting areas, except in turf areas, creeping or rooting ground covers or direct seeding applications.
- To provide habitat for beneficial insects, and other wildlife, up to 5% of the landscape area may be left without mulch.
- Stabilizing mulching products shall be used on slopes that meet current engineering standards.
- Organic mulch shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer products are not locally available.

The Landscape Design Plan, at a minimum, shall:

☐ Delineate and label each hydrozone by letter, number or other method;
☐ Identify each hydrozone as low, moderate, high water, or mixed water use;
☐ Identify recreational areas;
☐ Identify areas permanently and solely dedicated to edible plants;
☐ Identify areas irrigated with recycled water;
☐ Identify type of mulch and application depth;
☐ Identify soil amendments, type, and quantity;
☐ Identify type and surface area of water features;
☐ Identify hardscapes (pervious and non-pervious)
☐ Identify location, installation detail, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater;
☐ Identify any applicable rain harvesting or catchment technologies;
☐ Identify any applicable gray water discharge piping, system components and area(s) of distribution;
☐ 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."
Bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape.

**5. IRRIGATION DESIGN PLAN** (DWR Title 23, Chapter 2.7, 492.7)
Irrigation Design Plan shall meet the following design criteria:

☐ System
- 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 (the level at which Water Code 535 applies)

- 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.
- 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.
- Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.
- Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) 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 (such as a main line break) or routine repair.
- Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable local agency code (i.e., public health) for additional backflow prevention requirements.
- Flow sensors that detect high flow conditions created by system damage or malfunction are required for all on non-residential landscapes and residential landscapes of 5000 sq. ft. or larger.
- 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.
- 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.
- Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
- The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria regarding the Maximum Applied Water Allowance.
- All irrigation emission devices must 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.
- It is highly recommended that the project applicant or local agency inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
- In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
- Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.

- 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 turf grass.
- Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- 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.
- Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface.
- Slopes greater than 25% shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour.

☐ Hydrozone

- Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
- Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
- Where feasible, trees shall be placed on separate valves.
- Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
  - Plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
  - The plant factor of the higher water using plant is used for calculations.
- Individual hydrozones that mix high and low water use plants shall not be permitted.
- On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation

The irrigation design plan, at a minimum, shall contain:

☐ Location and size of separate water meters for landscape;
☐ 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;
☐ Static water pressure at the point of connection to the public water supply;
☐ Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
☐ Recycled water irrigation systems as specified in Section 492.14;
☐ 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”; and
☐ The signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system.

6. **GRADING DESIGN PLAN** (DWR Title 24, Chapter 2.7, 492.8)

☐ The project applicant shall submit a landscape grading plan (a grading plan prepared by a civil engineer for other local agency permits satisfies this requirement) that indicates finished configurations and elevations of the landscape area including:

- Height of graded slopes;
- Drainage patterns;
- Pad elevations;
- Finish grade; and
- Stormwater retention improvements, if applicable.

☐ To prevent excessive erosion and runoff, it is highly recommended that project applicants:

- Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;
- Avoid disruption of natural drainage patterns and undisturbed soil; and
- Avoid soil compaction in landscape areas.

☐ The grading design plan shall contain 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 as authorized by law.