SMARTSCAPE

Model Water Efficient Landscape Ordinance Performance Compliance

CITY OF LONG BEACH

INTRODUCTION

Effective April 3, 2017, the City of Long Beach will begin implementing Executive Order B-29 issued by the State of California (DWR Title 23, Chapter 2.7). In California about half of the urban water is used for landscape irrigation. Substantial water savings can be gained by proper landscape design, installation and maintenance. California's Model Water Efficient Landscape Ordinance (MWELO), promotes efficient landscapes in new and rehabilitated landscapes.

New landscape projects with more than 500 square feet of landscaping and rehabilitated landscape projects with more than 2,500 square feet must meet water efficiency design standards requiring the issuance of a permit and applicable fees.

For more information on the City's new landscaping regulations, call (562) 570-6194 or visit www.lbds.info/lbsmartscape.

APPLICABILITY

The Model Water Efficient Ordinance shall apply to all of the following landscape projects:

1) New development project with an aggregate landscape area equal to or greater than 500 square feet requiring a building or landscape permit, plan check or design review;
2) Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review.

Any project with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this code or conform to the prescriptive measures (See Prescriptive Compliance Worksheet).

The applicability of this ordinance is illustrated in Figure 1 below.

COMPLIANCE

The City of Long Beach Development Services staff shall:

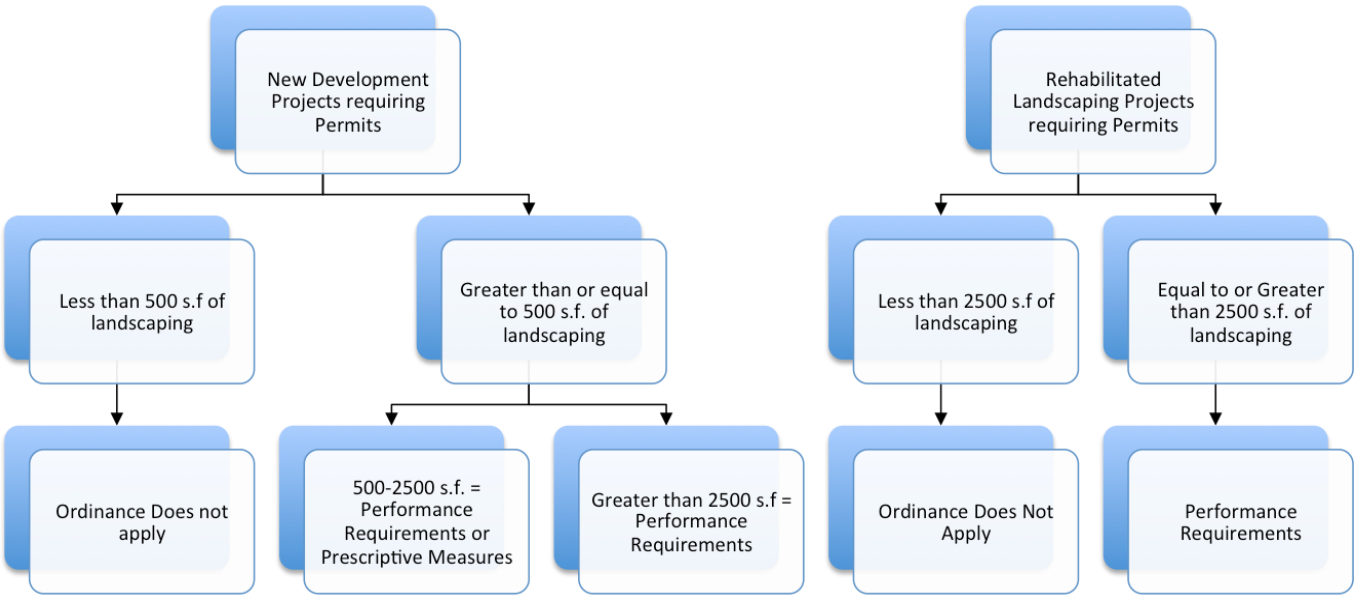
1) Provide the applicant with preliminary information on MWELO requirements;
2) Review the Landscape Documentation Package submitted by the project applicant;
3) Approve the Landscape Documentation Package submitted by the project applicant;
4) Issue a permit for the MWELO landscape project; and
5) Inspect the MWELO landscape project. MWELO landscape projects require at least two inspections. The first inspection shall occur upon commencement of work and the

second inspection, scheduled by the applicant, shall occur at the conclusion of landscape installation. Additional inspections may be necessary.

Upon approval of the Landscape Documentation Package the project applicant shall:

1) Obtain a MWELO landscape permit and record the date of the permit in the Certificate of Completion;
2) Submit a copy of the approved Landscape Documentation Package along with the record drawings, and any other information to the property owner or his/her designee.

Figure 1. APPLICABILTY FLOW CHART. Use the flow chart to determine your MWELO options.



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LANDSCAPE DOCUMENTATION PACKAGE REQUIREMENTS

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

1. PROJECT INFORMATION

- ❑ Date
- ❑ Project Applicant
- ❑ Project Address (if available, parcel and/or lot number)
- ❑ 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 Landscape Documentation Package.
- ❑ Project Contacts to include contact information for the project applicant and property owner

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

3. SOIL MANAGEMENT REPORT (DWR Title 24, Chapter 2.7, 492.5)

- ❑ The soil analysis shall include
  - soil texture
  - infiltration rate determined by laboratory test or soil 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 24, 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 greater 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 a 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 details, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of storm water.
- ❑ 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 24, 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 that suspend or alter irrigation operations during unfavorable weather conditions shall be required on all irrigation systems.
  - Manual shut off valves shall be required, as close as possible to the point of connection, to minimize water loss in case of emergency or routine repair.
  - Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system.
  - Flow sensors are required for all non-residential landscapes and residential landscapes of 5,000 square feet or larger.
  - Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for 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 water flows onto non-targeted areas.
  - 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 forth in ANSII, ASABE/ICC 802-2014.
  - It is highly recommended that the project applicant inquire with the local water purveyor about peak water operating demands or watering restrictions.

- 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.
- Head to head coverage is recommended
- Swing joints are required on all risers subject to damage that are adjacent to hardscape 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 that ten (10) feet in width 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 of similar 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 is used for calculations.
- Individual hydrozones that mix high and low water use plants are not permitted.
- On the landscape design plan and the 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.
❑ Location, type and size of all components of the irrigation system
❑ Static water pressure at point of connection to the public water supply
❑ Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (gallons per minute) for each station.
❑ Recycled water irrigation systems.
❑ 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”.
❑ 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 engineers 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.
- 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 the 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.

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MWELO Water Efficient Landscape Worksheet

Reference Evapotranspiration (ETo) = 39.7 (annual ETo for Signal Hill/Long Beach per State Reference Table)

Hydrozone # /Planting Description[a]	Plant Factor (PF)	Irrigation Method[b]	Irrigation Efficiency (IE)[c]	ETAF (PF/IE)	Landscape Area (sq, ft,)	ETAF x Area	Estimated Total Water Use (ETWU)[e]
Regular Landscape Areas							
				Totals	(A)	(B)	
Special Landscape Areas							
				1			
				1			
				1			
				Totals	(C)	(D)	
						ETWU Total	
						Maximum Applied Water Allowance (MAWA)[e]	

[a] ***Hydrozone #/Planting Description***
E.g
1.) front lawn
2.) low water use plantings
3.) medium water use planting

[b] ***Irrigation Method***
overhead spray or drip

[c] ***Irrigation Efficiency***
0.75 for spray head
0.81 for drip

[d] ***ETWU*** **(Annual Gallons Required) =**
Eto x 0.62 x ETAF x Area
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

[e] ***MAWA (Annual Gallons Allowed) = (****Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]*
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	(B)
Total Area	(A)
Average ETAF	**B ÷ A**

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

All Landscape Areas

Total ETAF x Area	(B+D)
Total Area	(A+C)
Sitewide ETAF	**(B+D) ÷ (A+C)**

Certificate of MWELO Completion

CERTIFICATE OF MWELO COMPLETION

This certificate is filled out by the project applicant upon completion of the landscape project.

PART 1. PROJECT INFORMATION SHEET

Date		
Project Name		
Name of Project Applicant	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

Project Address and Location:

Street Address		Parcel, tract or lot number, if available.
City		Latitude/Longitude (optional)
State	Zip Code	

Property Owner or his/her designee:

Name	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

Property Owner

"I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of MWELO Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule."

_____

Property Owner Signature Date

Please answer the questions below:

1. Date the Landscape Documentation Package was submitted to the local agency _____
2. Date the Landscape Documentation Package was approved by the local agency _____

PART 2. CERTIFICATION OF INSTALLATION ACCORDING TO THE LANDSCAPE DOCUMENTATION PACKAGE

"I/we certify that based upon periodic site observations, the work has been completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package."

<table>
<tr><td>Signature*</td><td colspan="2">Date</td></tr>
<tr><td rowspan="2">Name (print)</td><td colspan="2">Telephone No.</td></tr>
<tr><td colspan="2">Fax No.</td></tr>
<tr><td>Title</td><td colspan="2">Email Address</td></tr>
<tr><td colspan="3">License No. or Certification No.</td></tr>
<tr><td>Company</td><td colspan="2">Street Address</td></tr>
<tr><td>City</td><td>State</td><td>Zip Code</td></tr>
</table>

*****Signer of the landscape design plan, signer of the irrigation plan, or a licensed landscape contractor.

The requirements of Part 3 – 6 below shall apply only to MWELO landscape projects approved using the Performance Compliance option. MWELO landscape projects approved using the Prescriptive Compliance option are not required to file these documents with Development Services.

PART 3. IRRIGATION SCHEDULING

Attach parameters for setting the irrigation schedule on controller.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach schedule of Landscape and Irrigation Maintenance.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report.

PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package.

Attach documentation verifying implementation of recommendations from soil analysis report.