



LANDSCAPE WATER EFFICIENCY PLAN CHECK SUBMITTAL REQUIREMENTS

The requirements to submit a landscape project to the City of Garden Grove for plan check review are listed below. Please review the checklist and contact the Planning Division at (714) 741-5312 for questions regarding zoning requirements, or the Building Services Division at (714) 741-5307 for questions regarding plan check requirements. Prior to submitting a Landscape Documentation Package to the City, the property owner/applicant is encouraged to contact the Planning Services Division to verify if the proposed landscape project complies with all applicable Landscape Water Efficiency Provisions.

PLEASE PROVIDE <u>ALL</u> OF THE FOLLOWING INFORMATION:	
<input type="checkbox"/> Completed Landscape Documentation Package Application	<input type="checkbox"/> Three (3) sets of plans (<i>see Plan Requirement section</i>) on 24" x 36"
<input type="checkbox"/> Certification of Design in accordance with Landscape Water Efficiency Provisions Appendix B - on 8.5" x 11"	<input type="checkbox"/> Certification of Completion in accordance with Landscape Water Efficiency Provisions Appendix E - on 8.5" x 11"
<input type="checkbox"/> One (1) set of plans on 8.5" x 11"	<input type="checkbox"/> Landscape and irrigation maintenance schedule - on 8.5" x 11"
<input type="checkbox"/> Irrigation audit report from a certified landscape irrigation auditor Appendix H - on 8.5" x 11"	<input type="checkbox"/> Documentation of the irrigation scheduling parameters used to set the controller(s) - on 8.5" x 11"

PLAN REQUIREMENTS

PLANS SHALL INCLUDE ALL APPLICABLE INFORMATION AS DESCRIBED BELOW

- Landscape Design Plan-** The landscape plan shall be fully dimensioned and drawn to scale, and shall include a north arrow, property lines, a street centerline and/or edge of curb, all existing and proposed structures, and hardscapes. All plant species and hydrozones shall be indicated with appropriate water use levels and mulch application depths. Also indicate any additional spaces, such as water features, recreational areas, and/or retention/infiltration technologies.
- Irrigation Design Plan-** Identify 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. Additionally note the static and operating water pressures, flow and application rates, irrigation schedule parameters necessary to program timers.
- Maximum Applied Water Allowance & Estimated Applied Water Use-** Calculate the estimated and maximum water use in gallons per square foot for the project using **Appendix C** in the Landscape Water Efficiency Provisions, with an evapotranspiration rate of 47.2.
- Grading Design Plan-** Indicate finished configurations and elevations of landscape area, including: heights of graded slopes, drainage patterns, pad elevations, finish grade, and any applicable storm water retention improvements.
- Soil Management Report and/or Specifications-** The soil management report or provisions must be conducted in accordance with certified agronomic soils laboratory specifications. Soil analysis includes: soil texture, infiltration rate, pH, total soluble salts, sodium, percent organic matter, and landscape recommendations.

LANDSCAPE PROJECT TIMELINE		RESPONSIBLE PARTY
<input type="checkbox"/>	Soil Management Report -Conducted in accordance with certified agronomic soils laboratory	Applicant
<input type="checkbox"/>	Preparation of Plans -Soil Management Report recommendations to advise the landscape design	Applicant
<input type="checkbox"/>	Landscape Documentation Package -Required documents included in Landscape Documentation Package checklist	Applicant
<input type="checkbox"/>	Plan Check	Staff
<input type="checkbox"/>	Approval and Issuance of Permits	Staff
<input type="checkbox"/>	Notification of Installation -Applicant shall notify the City at the beginning of the installation work and at intervals, as necessary, to schedule all required inspections.	Applicant
<input type="checkbox"/>	Installation	Applicant
<input type="checkbox"/>	Final Inspection and Permit Closure -Landscape Installation Certificate of Completion, documentation of the irrigation scheduling parameters used to set the controller(s), and Irrigation Audit/Irrigation Inspection Affidavit submitted prior to Final Inspection and Permit Closure	Staff
<input type="checkbox"/>	Maintenance -Landscapes maintained to ensure water use efficiency in accordance with applicable Municipal Code provisions	Applicant

Project Characteristics		Landscape Water Efficiency Provisions
<input type="checkbox"/>	New landscape projects with an <i>aggregate</i> landscape area ≥ 500 sqft, requiring a building or landscape permit, plan check or design review	Required
<input type="checkbox"/>	Rehabilitated landscape projects with an <i>aggregate</i> landscape area $\geq 2,500$ sqft, requiring a building or landscape permit, plan check or design review	Required
<input type="checkbox"/>	New or rehabilitated landscape projects with an <i>aggregate</i> landscape area between 500 and 2,500 sqft, requiring a building or landscape permit, plan check or design review	Landscape Water Efficiency Provisions, OR Prescriptive Compliance (Appendix A)
<input type="checkbox"/>	New or rehabilitated projects using treated or untreated <i>graywater</i> or rainwater capture onsite, any lot or parcel within the project that is $< 2,500$ sqft of landscape area and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated <i>graywater</i> or though stored rainwater capture onsite	Prescriptive Compliance (Appendix A) only
<input type="checkbox"/>	Landscape rehabilitation projects that are limited to replacement plantings with equal or lower water needs and where the irrigation system is found to be designed, operable and programmed consistent with minimizing water waste in accordance with local water purveyor regulations	Landscape Water Efficiency Provisions Guidelines may be partially or wholly waived, at the discretion of the City or its designee
<input type="checkbox"/>	Registered local, state, or federal historical sites	Not required
<input type="checkbox"/>	Ecological restoration projects that do not require a permanent irrigation system	Not required
<input type="checkbox"/>	Mined-land reclamation projects that do not require a permanent irrigation system	Not required
<input type="checkbox"/>	Plant collections, as part of botanical gardens, and arboretums open to the public	Not required



City of Garden Grove
 Community and Economic Development Department
 11222 Acacia Parkway
 Garden Grove, CA 92840
 Planning Division (714) 741-5312 | Building Division (714) 741-5307
 www.ggcity.org

Landscape Documentation Package

PROJECT INFORMATION:

Project Name:	
Project Address:	
APN:	
Total Landscape Area:	
Water Supply Type:	
Retail Water Purveyor:	

PROJECT TYPE:

<input type="checkbox"/>	New landscape project with an aggregate landscape area \geq 500 sqft
<input type="checkbox"/>	Rehabilitated landscape project with an aggregate landscape area \geq 2,500 sqft

PROJECT DESCRIPTION:

PROJECT APPLICANT:

PROPERTY OWNER(S):

Name:	Name:
Address:	Address:
City, State, Zip:	City, State, Zip:
Phone:	Phone:
Email:	Email:

LANDSCAPE DOCUMENTATION PACKAGE CHECKLIST

<input type="checkbox"/>	Certification of Design
<input type="checkbox"/>	Water Efficient Landscape Worksheet -With Estimated Applied/Total Water Use (EAWU or ETWU), and Maximum Allowed Water Allowance (MAWA)
<input type="checkbox"/>	Soil Management Report or Specifications -Or Specification Provision requiring soil testing, and amendment recommendations and implementation to be accomplished during construction.
<input type="checkbox"/>	Landscape Design Plan
<input type="checkbox"/>	Irrigation Design Plan
<input type="checkbox"/>	Grading Design Plan -Grading plan is not required if grading is included in the landscape plan, OR the landscape project is limited to replacement planting and/or irrigation to rehabilitate existing landscape.

OFFICE USE ONLY

Date Submitted for Plan Check: _____	Action: <input type="checkbox"/> Approved <input type="checkbox"/> Denied
	Date: _____



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Landscape Documentation Package (Prescriptive Compliance)

PROJECT INFORMATION:	
Project Name:	
Project Address:	
APN:	
Total Landscape Area:	
Water Supply Type:	
Retail Water Purveyor:	

PROJECT TYPE:	
<input type="checkbox"/>	New landscape project with an aggregate landscape area between 500 and 2,500 sqft
<input type="checkbox"/>	New or rehabilitated landscape project with an aggregate landscape area < 2,500 sqft
<input type="checkbox"/>	New or rehabilitated landscape project < 2,500 sqft irrigated wholly by graywater or captured rainwater

PROJECT DESCRIPTION:

PROJECT APPLICANT	PROPERTY OWNER(S)
Name:	Name:
Address:	Address:
City, State, Zip:	City, State, Zip:
Phone:	Phone:
Email:	Email:

I agree to comply with the requirements of the prescriptive compliance option (Appendix A) to the City of Garden Grove Landscape Water Efficiency Provisions.

Applicant Signature: _____ Date: _____

OFFICE USE ONLY	
Date Submitted for Plan Check: _____	Action: <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date: _____

Appendix B: Certification of Landscape Design

CERTIFICATION OF LANDSCAPE DESIGN

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services.

(2) The landscape design and water use calculations for the property located at _____
_____ (provide street address or parcel number(s)) were prepared by me or under my supervision.

(3) The landscape design and water use calculations for the identified property comply with the requirements of the City of Garden Grove Landscape Water Efficiency Provisions (See Garden Grove Municipal Code Sections 9.08.040.040, 9.12.040, 9.16.040, and 9.18.120) and the City of Garden Grove Guidelines for Implementation of the City of City of Garden Grove Landscape Water Efficiency Provisions.

(4) The information I have provided in this Certificate of Landscape Design is true and correct and is hereby submitted in compliance with the City of Garden Grove Guidelines for Implementation of the City of City of Garden Grove Landscape Water Efficiency Provisions.

Print Name

Date

Signature

License Number

Address

Telephone

E-mail Address

Landscape Design Professional's Stamp
(If applicable)

Water Efficient Landscape Worksheet Cheat Sheet

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and is a required in the Landscape Documentation Package.

Reference Evapotranspiration (ET₀): 47.2 (Garden Grove)

Hydrozone # /Planting Description ^a	Plant Factor (PF)	Irrigation Method ^b	Irrigation Efficiency (IE) ^c	ETAF (PF/IE)	Landscape Area (sqft,)	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 Allowed Water Allowance (MAWA)^e	

^aHydrozone #/Planting Description
e.g.
1.) Front lawn
2.) Low water use plantings
3.) Medium water use planting

^bIrrigation Method
e.g.
-Spray Nozzle
-Bubblers
-Drip

^cIrrigation Efficiency
e.g.
=0.71
=0.77
=0.81

^dETWU (Annual Gallons Required)
= $ET_0 \times 0.62 \times ETAF \times Area$
-where 0.62 is a conversion factor that converts inches per year to gallons per square foot per year.

^eMAWA (Annual Gallons Allowed) = $(ET_0) (0.62) [(ETAF \times LA) + ((1-ETAF) \times SLA)]$
-where 0.62 is a conversion factor that converts inches 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)
Site wide ETAF	(B+D) ÷ (A+C)

WORKSHEET INFORMATION & EQUATIONS

^a Local monthly evapotranspiration rates are listed in Appendix D.

^b The following table can be used for common plant factors:

Plant Factor	PF
Very low water use plant	0.1
Low water use plant	0.2
Medium water use plant	0.5
High water use plant	0.8
Lawn	0.8
Pool, spa, or other water feature	1.0

^c *Irrigation efficiency* is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average *irrigation efficiency* for purposes of these *Guidelines* is 0.71. The following *irrigation efficiency* may be obtained for the listed irrigation heads with an *Irrigation Management Efficiency* of 90%:

Irrigation Method	IE
Spray nozzles	71%
High efficiency spray nozzles	73%
Multi stream/Multi trajectory rotary (MSMT) nozzles	76%
Stream rotor nozzle	73%
Microspray	76%
Bubblers	77%
Drip emitter	81%
Subsurface drip	81%

^d Estimated Total Water Use (ETWU) is the annual gallons required

$$\text{ETWU} = (\text{ETo}) \times (0.62) \times (\text{ETAF} \times \text{Area})$$

where, ETo = annual evapotranspiration rate in inches per year

0.62 = factor used to convert inches per year to gallons per square foot

ETAF = plant factor ÷ irrigation efficiency

^e Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for nonresidential areas.

^f Maximum Allowed Water Allowance (MAWA) is the annual gallons allowed

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

where, ETo = annual evapotranspiration rate in inches per year

0.62 = factor used to convert inches per year to gallons per square foot

ETAF = plant factor ÷ irrigation efficiency

LA = total (site wide) landscape area in square feet

SLA = total special landscape area

Appendix E: Certificate of Completion

LANDSCAPE INSTALLATION CERTIFICATE OF COMPLETION

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services for: _____
_____ (project name, mailing address and telephone).

(2) The landscape project for the property located at _____
_____ (provide street address or parcel number(s)) was installed by me or under my supervision.

(3) The landscaping for the identified property has been installed in substantial conformance with the approved Landscape Documentation Package and complies with the requirements of the City of Garden Grove Landscape Water Efficiency Provisions (Municipal Code Sections 9.08.040.040, 9.12.040, 9.16.040, and 9.18.120) and the City of Garden Grove Guidelines for Implementation of the City of Garden Grove Landscape Water Efficiency Provisions for the efficient use of water in the landscape.

(4) The following elements are attached hereto:

- a. Irrigation scheduling parameters used to set the controller;
- b. Landscape and irrigation maintenance schedule;
- c. Irrigation audit report; and
- d. Soil analysis report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of the soil report recommendations.

(5) The site installation complies with the following:

- a. The required irrigation system has been installed according to approved plans and specifications and if applicable, any prior approved irrigation system alternatives.
 Yes No
- b. Sprinklers comply with ASABE/ICC 802-2014 Landscape Irrigation Sprinkler & Emitter Standard.
 Yes No

(6) The information I have provided in this Landscape Installation Certificate of Completion is true and correct and is hereby submitted in compliance with the City of Garden Grove Guidelines for Implementation of the City of Garden Grove Landscape Water Efficiency Provisions.

Print Name

Date

Signature

License Number

Address

Telephone

E-mail Address

Landscape Design Professional's Stamp
(If Appropriate)

Appendix H: Inspection Affidavit

This is a voluntary compliance tool template developed by the Irrigation Association.

IRRIGATION INSPECTION AFFIDAVIT (To be submitted in conformance with Code Section 309.C)

Irrigation Plan File No: _____ Name of Project: _____
 Irrigation Plan Designer: _____ Inspector: _____
 Date(s) of Inspection: _____

This project was inspected within the limits of customary access for compliance with the approved irrigation plan on file in City Planning. At least two (2) inspections were conducted. The findings are as follows:

	(Check One)	<u>Yes</u>	<u>No</u>
A. Inspection during construction to check main line in open trench:			
1. Location of main line conforms to as-built plan	_____	_____	_____
2. Size of main line conforms to plan	_____	_____	_____
3. Depth of main line conforms to plan	_____	_____	_____
4. Main line condition is undamaged	_____	_____	_____
5. Main line pressure tested with water and meter to check for visible leaks	_____	_____	_____
6. Specific observations attached if needed	_____	_____	_____
B. Inspection after completion of system installation prior to seeding or sodding:			
1. Settling along trenches is absent	_____	_____	_____
2. System components (i.e., controller, backflow preventer, rain sensor, etc.) installed as specified	_____	_____	_____
3. Rotary heads pressure tested	_____	_____	_____
4. System activated for observation of compliance	_____	_____	_____
5. Landscape components are not blocking application	_____	_____	_____
6. Each station complies with design / as-built plan	_____	_____	_____
7. Matched precipitation rates provided by zone	_____	_____	_____
8. As-built plan provided to owner	_____	_____	_____
9. Specific observations attached as needed	_____	_____	_____

I hereby certify that I am qualified to submit this irrigation inspection affidavit based on the qualification indicated below: (check one)

Certified Irrigation Designer certified by The Irrigation Association, indicate year of certification _____
 State: _____ Licensed No. _____
 State Agency Phone No. (_____) _____

 Name
 (PRINT) _____
 Signature
 Date