

MAYOR  
DONALD A. GARCIA

MAYOR PRO TEM  
PHILLIP B. TSUNODA

COUNCIL MEMBERS  
CARMEN CAVE, PH.D.  
GREG FICKE  
WILLIAM A. PHILLIPS

CITY MANAGER  
MARK A. PULONE

CITY ATTORNEY  
SCOTT C. SMITH

CITY CLERK  
SUSAN A. RAMOS

November 30, 2009

Mr. Simon Eching  
Department of Water Resources  
PO Box 942836  
Sacramento, California 94236-0001

**Re: Submission of Water Efficient Landscape Ordinance in compliance with AB 1881**

Dear Mr. Eching:

On November 4, 2009, the City of Aliso Viejo (the "City") adopted a water efficient landscape ordinance (the "Ordinance") and administrative guidelines for implementation of the Ordinance in compliance with California Government Code sections 65591 and following. The City has determined that the Ordinance and the guidelines establish water efficient landscape regulations that are at least as effective in conserving water as the Department of Water Resources updated model water efficient landscape ordinance. The Ordinance is effective December 4, 2009, and the regulations set forth therein are effective January 1, 2010.

The City hereby submits to the Department of Water Resources the following documents in compliance with California Government Code section 65595(c) and 65597:

1. Ordinance No. 2000-119, AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF ALISO VIEJO AMENDING DIVISION 5, OF TITLE 4 OF THE ORANGE COUNTY CODE, AS ADOPTED BY THE CITY OF ALISO VIEJO, BY ADDING ARTICLE 3 REGARDING THE ADOPTION OF WATER EFFICIENT LANDSCAPE REGULATIONS AND APPROVING GUIDELINES FOR IMPLEMENTATION OF THE CITY OF ALISO VIEJO WATER EFFICIENT LANDSCAPE REGULATIONS;
2. Guidelines for Implementation of the City of Aliso Viejo Water Efficient Landscape Regulations; and
3. Staff report regarding Ordinance No. 2009-119, Water Efficient Landscape Ordinance.

CITY OF ALISO VIEJO  
INCORPORATED JULY 1, 2001

12 JOURNEY • SUITE 100  
ALISO VIEJO  
CALIFORNIA 92656 • 5335  
WWW.CITYOFALISOVIEJO.COM

PHONE  
949. 425.2500  
FAX  
949. 425.3899



Please contact Mr. Moy Yahya, Environmental Programs Manager, at (949) 425-2538 for any questions regarding these documents or the City's compliance with California Government Code sections 65591 and following.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Pulone". The signature is fluid and cursive, with the first name "Mark" and last name "Pulone" clearly distinguishable.

Mark Pulone  
City Manager

attachment: City of Aliso Viejo Ordinance 2009-119  
Water Efficient Landscape with Guidelines

cc: John Whitman, Director of Public Works  
Moy Yahya, Environmental Programs Manager



**ORDINANCE NO. 2009-119**

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF ALISO VIEJO AMENDING DIVISION 5, OF TITLE 4 OF THE ORANGE COUNTY CODE, AS ADOPTED BY THE CITY OF ALISO VIEJO, BY ADDING ARTICLE 3 REGARDING THE ADOPTION OF WATER EFFICIENT LANDSCAPE REGULATIONS AND APPROVING GUIDELINES FOR IMPLEMENTATION OF THE CITY OF ALISO VIEJO WATER EFFICIENT LANDSCAPE REGULATIONS**

**WHEREAS**, pursuant to Ordinance No. 2001-001, the City of Aliso Viejo ("City") adopted, by reference, the Codified Ordinances of the County of Orange ("Code") as the City's ordinances; and

**WHEREAS**, Division 5 of Title 4 of the Code regulates water conservation:  
and

**WHEREAS**, California Constitution article X, section 2 and California Water Code section 100 provide that because of conditions prevailing in the state of California (the "State"), it is the declared policy of the State that the general welfare requires that the water resources of the State shall be put to beneficial use to the fullest extent of which they are capable, the waste or unreasonable use of water shall be prevented, and the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and the public welfare; and

**WHEREAS**, pursuant to California Water Code section 106, it is the declared policy of the State that the use of water for domestic use is the highest use of water and that the next highest use is for irrigation; and

**WHEREAS**, California Assembly Bill 1881 ("AB 1881"), enacted into law on September 28, 2008, modifies and strengthens the existing "Water Conservation in Landscaping Act" (California Government Code section 65591 *et seq.*) (the "Act"). The Act's goal is to improve state water conservation efforts by establishing a model water efficient landscape ordinance for local agencies to adopt and use for the purpose of reducing water waste associated with irrigation of outdoor landscaping; and

**WHEREAS**, AB 1881 requires the State Department of Water Resources ("Department") to update the existing model water efficient landscape ordinance which provides guidelines for cities and counties to adopt local landscape irrigation ordinances as required by the law; and

**WHEREAS**, all cities and counties are required to either adopt the updated model water efficient landscape ordinance (the "Model Ordinance") or ,by January 1, 2010, adopt their own water efficient landscape ordinance that is as effective in conserving water as the Model Ordinance; and

**WHEREAS**, although the City's existing design requirements and practices for the installation and maintenance of landscaping, including, but not limited to the City's General Plan and Conservation/Open Space Element, Plant Palette requirements, Water Quality Code, Grading and Excavation Code, Landscape Submittal Sheet requirements, requirements for submittal of tentative maps, and other provisions of the Code governing land use and development achieve or are at least as effective as the State Model Ordinance in conserving water, the City has determined to adopt its own water efficient landscape ordinance and regulations to further reduce the quantity of water used by persons within its jurisdiction for the purpose of reducing the water waste associated with irrigation of outdoor landscaping and conserving water in the interest of the people and the public welfare.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF ALISO VIEJO DOES HEREBY ORDAIN AS FOLLOWS:

**Section 1. Findings.** The City Council hereby finds and determines that the forgoing recitals are true and correct and are incorporated herein.

**Section 2. Amendments to the Code.** Division 5 of Title 4 the Orange County Code, as adopted by the City of Aliso Viejo, is hereby amended by adding Article 3, Water Efficient Landscape Regulations to read as follows:

### **Article 3 Water Efficient Landscape Regulations**

#### **Sec. 4-5-40. Definitions.**

Except where the context clearly indicates otherwise, the following words, terms, and phrases, when used in this article, shall have the meanings ascribed to them in this section:

A. *Association.* A nonprofit corporation or unincorporated association created for the purpose of managing a common interest development.

B. *Budget based tiered-rate structure.* A structure of tiered or block rates for irrigation accounts charged by the retail local water purveyor in which the block definition for each customer is derived from lot size or irrigated area, and the evapotranspiration requirements of landscaping.

C. *Certificate of Completion.* The certificate required to be completed and submitted to the city certifying that the landscape project has complied with the provisions of the water efficient landscape regulations contained in this article 3 and the Guidelines.

D. *Common interest development.* A community apartment project, condominium project, planned development, and stock cooperative per Civil Code Section 1351.

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

F. *Enforcement officer.* Any employee or agent of the city authorized to enforce the provisions of this code as designated in writing by the city.

G. *Estimated Applied Water Use.* The average annual total amount of water estimated to be necessary to keep plants in a healthy state, calculated as provided in the Guidelines. It is based on the *reference* evapotranspiration rate, the size of the landscaped area, plant water use factors, and the relative irrigation efficiency of the irrigation system.

H. *ET adjustment factor or ETAF.* The factor that is equal to the plant factor divided by the irrigation efficiency factor for a landscape project, as described in the Guidelines. The ETAF is calculated in the context of local reference evapotranspiration, using site-specific plant factors and irrigation efficiency factors that influence the amount of water that needs to be applied to the specific landscaped area.

A combined plant mix with a site-wide average plant factor of 0.5 (indicating a moderate water need) and average irrigation efficiency of 0.71 produces an ET adjustment factor of  $(0.7) = (0.5/0.71)$ , which is the standard of water use efficiency generally required by the provisions of this article 3 and the Guidelines; except that the ETAF for a special landscaped area shall not exceed 1.0.

I. *Grading and Excavation Code.* Sections 7-1-800 and following of Division 1 of Title 7 of the Codified ordinances of the County of Orange.

J. *Guidelines.* The Guidelines for Implementation of the Water Efficient Landscape Regulations, as adopted by the city, which describes the procedures, calculations, and requirements for landscape projects subject to this article 3.

K. *Hardscape.* Any durable material or feature (pervious and non-permeable) installed in or around a landscaped area, such as pavements or walls. Hardscapes does not include pools and other water features which are considered part of the landscaped area.

L. *Irrigation efficiency.* 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 this article 3 is 0.71.

M. *Landscaped area.* All the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance and Estimated Applied Water Use calculations. The landscaped area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-permeable hardscapes, and other non-irrigated areas designated for non-development, such as open spaces and existing native vegetation.

N. *Landscape professional.* A licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape pursuant to Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the California Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the California Food and Agriculture Code.

O. *Landscape project.* The total area of landscape in a project as provided in the definition of "landscaped area" meeting the requirements under section 4-5-42 (A) of this article 3.

P. *Landscape Documentation Package.* The package of documents that a project applicant is required to submit to the City pursuant to Section 2.1 of the Guidelines.

Q. *Landscape Submittal Sheet.* The documents required to be provided to the city for review and approval of landscape design projects, as described in the Guidelines.

R. *Local agency.* A city or county, including a charter city or charter county, that is authorized by the city to implement, administer, and/or enforce any of the provisions of this article 3 on behalf of the city. The local agency may be responsible for the enforcement or delegation of enforcement of this article 3, including but not limited to, design review, plan check, issuance of permits and inspection of a landscape project.

S. *Local water purveyor.* Any entity, including a public agency, city, county, or private water company that provides retail water service within the city.

T. *Maximum Applied Water Allowance or MAWA.* The upper limit of annual applied water for the established landscaped area as specified in section 2.2 of the Guidelines. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscaped area.

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

V. *New construction.* For the purposes of this article 3, a new building with a landscape or other new landscape such as a park, playground, or greenbelt without an associated building.

W. *Non-permeable.* Any surface or natural material that does not allow for the passage of water through the material and into the underlying soil.

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

Y. *Permit.* An authorizing document issued by the city for new construction or rehabilitated landscape.

Z. *Person.* Any natural person, firm, joint venture, joint stock company, partnership, public or private association, club, company, corporation, business trust, organization, public or private agency, government agency or institution, school district, college, university, any other user of water provided by the city, or the manager, lessee, agent, servant, officer or employee of any of them or any other entity which is recognized by law as the subject of rights or duties.

AA. *Plant factor or plant water use factor.* A factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this article 3, the plant factor range for low water use plants is 0 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. Plant factors cited in this article 3 are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species," as it may be amended from time to time.

BB. *Plant palette.* The list of low water use plant materials authorized to be used in all public and private improvement projects within the city.

CC. *Recycled water or reclaimed water.* Treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features, and which is not intended for human consumption.

DD. *Reference evapotranspiration or ETo.* A standard measurement of environmental parameters which affect the water use of plants. ETo is given expressed in inches per day, month, or year as represented in Appendix A of the Guidelines, 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 Allowances.

EE. *Rehabilitated landscape.* Any re-landscaping project that meets the applicability criteria of section 4-5-42 (A).

FF. *Responsible person.* A responsible person is any of the following:

1. A person who causes a code violation to occur.
2. A person who maintains or allows a code violation to continue, by his or her action or failure to act.
3. A person whose agent, employee, or independent contractor causes a code violation by its action or failure to act.
4. A person who is the owner of, and a person who is a tenant, lessee or sublessee with the current right of possession of real property where a property-related code violation occurs.
5. A person who is the on-site manager of a business who normally works daily at the site when the business is open and is responsible for the activities at such premises for code violations occurring at such site.
6. A person who is the beneficiary under a deed of trust for the property where a property-related code violation exists and that person has not corrected the violation within thirty (30) days after being notified by the director in writing of the violation and the fact that the trustor under the deed of trust is no longer living on the property and his or her whereabouts is unknown.
7. There may be more than one responsible person for a violation.

GG. *Smart automatic irrigation controller.* An automatic timing device used to remotely control valves that operate an irrigation system and which schedules irrigation events using either evapotranspiration (weather-based) or soil moisture data.

HH. *Special landscaped area.* An area of the landscape dedicated solely to edible plants such as orchards and vegetable gardens, areas irrigated with recycled water, water features using recycled water, and areas dedicated to active play such as parks, sports fields, golf courses, and areas where turf provides a playing surface.

II. *State.* The State of California.

JJ. *State Model Water Efficient Landscape Ordinance.* The model ordinance prepared and adopted by the California Department of Water Resources in accordance with California Government Code sections 65591 and following.

KK. *Turf.* A ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermuda grass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.

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

MM. *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 landscaped area. Constructed wetlands used for on-site wastewater

treatment, habitat protection or storm water best management practices that are not irrigated and used solely for water treatment or storm water retention are not water features and, therefore, are not subject to the water budget calculation.

OO. *Water Quality Ordinance.* Sections 4-13-10 and following of Division 13 of Title 4 of the Codified ordinances of the County of Orange.

PP. *Watering window.* The time of day irrigation is allowed pursuant to any applicable city, regional, state, or local water purveyor water conservation or drought response laws, rules, policies, or regulations.

**Sec. 4-5-41. Purpose.**

A. The State legislature has found and determined that:

1. the waters of the state are of limited supply and are subject to ever increasing demands;
2. the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses;
3. California Constitution article X, section 2 and California Water Code section 100 provide that because of conditions prevailing in the State, it is the declared policy of the State that the general welfare requires that the water resources of the State shall be put to beneficial use to the fullest extent of which they are capable, the waste or unreasonable use of water shall be prevented, and the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and the public welfare;
4. landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development; and
5. landscape design, installation, maintenance, and management can and should be water efficient.

B. The city hereby finds and determines that:

1. the city has an established reclaimed water infrastructure system;
2. allocation based and tiered water rate structures imposed by local water purveyors within the city allow local water purveyors to document water use in landscapes;
3. incentive based water use efficiency programs are effective means of conserving water;
4. although the City's existing design requirements and practices for the installation and maintenance of landscaping, including, but not limited to the City's general plan and conservation/open space element, plant palette requirements, Water Quality Code, Grading and Excavation Code, Landscape Submittal Sheet requirements, requirements for submittal of tentative maps, and other provisions of the Code governing land use and development

achieve are at least as effective as the State Model Ordinance in conserving water, the City has determined to adopt its own water efficient landscape ordinance and regulations to further reduce the quantity of water used by persons within its jurisdiction for the purpose of reducing the waste associated with irrigation of outdoor landscaping and conserving water in the interest of the people and the public welfare;

5. all water services within the city are metered;
6. all new irrigation controllers installed within the city after January 1, 2012 shall be smart automatic irrigation controllers;
7. landscape plan submittal and review is currently required for all new development and new construction within the city;
8. the average rainfall in Orange County is approximately 12 inches per year; and
9. local water purveyors in the city have developed economic incentives in their water rate structure designs that promote efficient water use and have adopted urban water management plans that address water supply, treatment, reclamation, water conservation, and water shortage contingency plans for water use within the city.

C. Consistent with these findings, the purpose of the city's water efficient landscape regulations contained in this article 3 are to establish an alternative water efficient landscape ordinance that is at least as effective as the State Model Water Efficient Landscape Ordinance in the context of conditions in the city, in order to:

1. promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;
2. promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;
3. establish a structure for planning, designing, installing, and maintaining and managing water efficient landscapes in new construction, new development, and rehabilitated projects;
4. establish provisions for water management practices and water waste prevention for existing landscapes;
5. use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount; and
6. encourage the use of economic incentives that promote the efficient use of water, such as the use a budget based tiered-rate structure by local water purveyors.

#### **Sec. 4-5-42. Applicability.**

- A. Beginning January 1, 2010, this article 3 shall apply to the following:

1. all new planting, irrigation, and landscape-related improvements which are (i) installed by any public agency, private developer, association, commercial or industrial developer, or business developer for new construction and new development; (ii) have a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 2,500 square feet; and (iii) are otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape or water feature;

2. all rehabilitated landscape projects which are installed by any public agency, private developer, association, commercial or industrial developer, or business developer where (i) the modified landscaped area is greater than 2,500 square feet and represents at least 50% of the total landscaped area; (ii) the modifications are planned to occur within one year; and (iii) the rehabilitated landscape project is otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape project or water feature. The requirements of the Guidelines may be partially or wholly waived, at the discretion of the city or its designee, for rehabilitated landscape projects that are limited to replacement plantings with equal or lower water needs, where the irrigation system is found to be designed, operable and programmed consistent with minimizing water waste in accordance with local water purveyor regulations;

3. all new planting, irrigation, and other landscape-related improvements which are (i) installed by individual homeowners for homeowner-constructed or developed new single-family or multi-family residential parcels; (ii) have a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 5,000 square feet; and (iii) are otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape project or water feature;

4. all rehabilitated landscape projects which are (i) installed by individual homeowners for existing single-family or multi-family residential parcels; (ii) have a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 5,000 square feet; and (iii) are otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape project or water feature;  
and

B. Section 4-5-44 (B) of the Landscape Water Use Standards of this article 3 shall apply to:

1. all existing landscaped areas, whether installed prior to or after January 1, 2010; and

2. all landscaped areas installed after January 1, 2010, to which section 4-5-42 (A) is applicable.

C. This article 3 does not apply to:

1. registered local, state, or federal historical sites;
2. ecological restoration projects that do not require a permanent irrigation system;
3. mined-land reclamation projects that do not require a permanent irrigation system;
4. plant collections, as part of botanical gardens and arboretums open to the public; or
5. cemeteries.

**Sec. 4-5-43. Implementation procedures.**

A. Prior to installation, a Landscape Submittal Sheet and Landscape Documentation Package shall be submitted to the city for review and approval of all landscape projects subject to the provisions of this article 3. Any Landscape Submittal Sheet and Landscape Documentation Package submitted to the city shall comply with the provisions of the Guidelines.

B. The Landscape Documentation Package shall include a certification by a landscape professional appropriately licensed in the State, stating that the landscape design and water use calculations have been prepared by or under the supervision of the licensed professional and are certified to be in compliance with the provisions of this article 3 and the Guidelines.

1. Landscape and irrigation plans shall be submitted to the city for review and approval with appropriate water use calculations.

2. Verification of compliance of the landscape installation with the approved plans shall be obtained through a Certificate of Completion in conjunction with a Certificate of Use and Occupancy or Permit Final process, as provided in the Guidelines.

**Sec. 4-5-44. Landscape water use standards.**

A. For new landscape or rehabilitated landscape projects subject to section 4-5-42 (A) of this article 3, the Estimated Applied Water Use allowed for the landscaped area shall not exceed the MAWA calculated using an ET adjustment factor of 0.7, except for special landscaped areas where the MAWA is calculated using an ET adjustment factor of 1.0; or the design of the landscaped area shall otherwise be shown to be equivalently water-efficient in a manner acceptable to the city; as provided in the Guidelines.

B. Irrigation of all landscaped areas shall be conducted in a manner conforming to the rules, regulations, and requirements, including any established watering windows, and subject to the penalties and incentives for water conservation and water waste prevention, as determined and implemented by the city, the applicable local water purveyor, the State, regional agency, state, or as mutually agreed to by local water purveyor and the city.

**Sec. 4-5-45. Enforcement and administration.**

A. The City Manager is authorized to administer and enforce the provisions of this article 3. Any city authorized personnel or enforcement officers may exercise any enforcement powers as set forth in the Code.

B. The city may delegate to, or enter into a contract with, a local agency or other person to implement and administer any of the provisions of this article 3 on behalf of the city.

**Sec. 4-5-45. Guidelines for Implementation of the Water Efficient Landscape Regulations.**

The City shall adopt Guidelines for the implementation of this article 3. Such Guidelines may be amended from time to time by resolution of the City Council.

**Sec. 4-5-46. Civil actions.**

A. In addition to any other remedies provided in the Code, any violation of this article 3 may be enforced by civil action brought by the city.

B. In any such action, the city may seek, and the court may grant, as appropriate, any or all of the following remedies:

1. a temporary and/or permanent injunction;
2. assessment of the violator for the costs of any investigation which led to the establishment of the violation and for the reasonable costs of preparing and bringing legal action under this article 3;
3. any other costs incurred in enforcing the provisions of this article 3; and
4. any other action the city deems appropriate to protect the general welfare and the city's water supplies, and to reduce water consumption in accordance with this article 3 and the declared policies and laws of the State.

C. Assessments under this subsection shall be paid to the city to be used exclusively for costs associated with implementing or enforcing the water efficient landscape regulatory provisions of this article 3.

**Sec. 4-5-47. Recovery of costs.**

A. The City Manager or his or her designee shall serve an invoice for costs upon the person or responsible person who is subject to a notice of violation, a cease and desist order, or an administrative compliance order. An invoice for costs shall be immediately due and payable to the city. If any person or responsible person fails to either pay the invoice for costs or appeal successfully the invoice for costs in accordance with this article 3, then the city may institute collection proceedings. The invoice for costs may include reasonable attorneys' fees.

B. The city shall impose any other penalties or regulatory fees, as fixed from time to time by resolution of the City Council, for a violation or enforcement of this article 3.

C. In addition to the costs which may be recovered pursuant to the Code, and in order to recover the costs of the water efficient landscape regulatory program set forth in this article 3, the City Council may, from time to time, fix and impose by resolution fees and charges. The fees and charges may include, but are not limited to, fees and charges for:

1. any visits of an enforcement officer, or other city staff or authorized representative of the city for time incurred for inspections of property;
2. any monitoring, inspection, and surveillance procedures pertaining to enforcement of this article 3;
3. enforcing compliance with any term or provision of this article 3;
4. any other necessary and appropriate fees and charges to recover the cost of providing the city's water efficient landscape regulatory program.

**Sec. 4-5-48. Conflicting provisions.**

If provisions of this article 3 are in conflict with each other, other provisions of the Code, the city's general plan, any city adopted specific plan or master plan, any resolution or ordinance of the city, or any State law or regulation, the more restrictive provisions shall apply.

**Section 3. Guidelines for Implementation of the City of Aliso Viejo Water Efficient Landscape Regulations.** The City Council hereby adopts the Guidelines for Implementation of the City of Aliso Viejo Water Efficient Landscape Regulations (the "Guidelines"), attached hereto as Exhibit A and by this reference incorporated herein. Any future amendments to the Guidelines are hereby authorized to be approved by a resolution approved by the City Council.

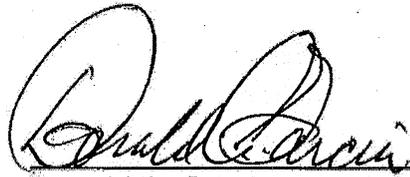
**Section 4. Exemption from California Environmental Quality Act.** The City Council hereby determines that this Ordinance is exempt from review under the California Environmental Quality Act ("CEQA") (California Public Resources Code Section 21000 *et seq.*), because pursuant to State CEQA Regulation 15307 (14 Cal. Code Regs., § 15307), this Ordinance is covered by the CEQA Categorical Exemption for actions taken to assure the maintenance, restoration, enhancement, or protection of a natural resource where the regulatory process involves procedures for protection of the environment. The adoption of this Ordinance will result in the enhancement and protection of water resources in the City, and will not result in cumulative adverse environmental impacts. It is therefore exempt from the provisions of CEQA. The City Council hereby directs the City Manager or designee to prepare and file a Notice of Exemption as soon as possible following adoption of this Ordinance.

**Section 5. Severability.** If any provision, section, subsection, sentence, clause or phrase or sections of this Ordinance, or the application of same to any person or set of circumstances, is for any reason held to be unconstitutional, void or invalid, the invalidity of the remaining portions of sections of this Ordinance shall not be affected, it being the intent of the City Council in adopting this Ordinance that no portions, provisions, or regulations contained herein shall become inoperative, or fail by reason of the unconstitutionality of any other provision hereof, and all provisions of this Ordinance are declared to be severable for that purpose.

**Section 6. Effective Date.** This Ordinance shall become effective thirty (30) days after its adoption in accordance with the provisions of California law.

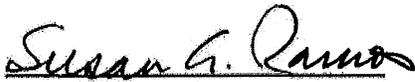
**Section 7. Publication.** The City Clerk shall certify to the passage of this Ordinance and cause the same or a summary thereof to be published within fifteen (15) days after adoption in a newspaper of general circulation, printed and published in Aliso Viejo, California.

**PASSED, APPROVED, AND ADOPTED,** this 4<sup>th</sup> day of November 2009.



Donald A. Garcia  
Mayor

ATTEST:



Susan A. Ramos  
City Clerk

APPROVED AS TO FORM:



Scott C. Smith  
City Attorney

STATE OF CALIFORNIA        )  
COUNTY OF ORANGE        ) ss.  
CITY OF ALISO VIEJO        )

I, SUSAN A. RAMOS, City Clerk of the City of Aliso Viejo, California, DO HEREBY CERTIFY that foregoing Ordinance No. 2009-119 was duly passed and adopted at a regular meeting of the City Council held on the 4<sup>th</sup> day of November 2009 by the following vote, to wit:

AYES:	COUNCIL MEMBERS:	GARCIA, TSUNODA, CAVE, FICKE AND PHILLIPS
NOES:	COUNCIL MEMBERS:	NONE
ABSENT:	COUNCIL MEMBERS:	NONE

  
\_\_\_\_\_  
SUSAN A. RAMOS  
CITY CLERK

(SEAL)

I hereby certify that the foregoing is the original of Ordinance No. 2009-119 duly passed and adopted by the Aliso Viejo City Council at their regular meeting held October 21, 2009 and that Summaries of the Ordinance were published on October 29 and November 12, 2009, in the Aliso Viejo News.

  
\_\_\_\_\_  
SUSAN A. RAMOS  
CITY CLERK

(SEAL)

# **EXHIBIT A**

**GUIDELINES  
FOR IMPLEMENTATION OF THE  
CITY OF ALISO VIEJO  
WATER EFFICIENT LANDSCAPE  
REGULATIONS**

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## 1. Purpose and Applicability

### 1.1 Purpose

The primary purpose of these Guidelines is to provide procedural and design guidance for *project applicants* proposing landscape installation or rehabilitation projects that are subject to the requirements of the *Water Efficient Landscape Regulations*. This document is also intended for use and reference by *city* staff and/or consultants in reviewing and approving designs and verifying compliance with the *Water Efficient Landscape Regulations*. The general purpose of the *Water Efficient Landscape Regulations* are to promote the design, installation, and maintenance of landscaping in a manner that conserves regional water resources, by ensuring that landscape projects are not unduly water-needy and that irrigation systems are appropriately implemented to minimize water waste.

(a) Other regulations affecting landscape design and maintenance practices are potentially applicable and should be consulted for additional requirements. These regulations include but may not be limited to: *city* specific plans, master plans, general plan and conservation/open space element, or similar land use and planning documents;

(b) *Grading and Excavation Code*;

(c) *plant palette*;

(d) *Water Quality Code*;

(e) California Government Code sections 65591 *et seq.*;

(f) National Pollutant Discharge Elimination Permit for the Municipal Separate Storm Sewer System;

(g) Orange County Fire Authority Regulations for Fuel Modification in the Landscape; water conservation and drought response regulations of the *city* and *local water purveyor*; regulations of the *local water purveyor* governing use of *recycled water*; *city* zoning code; *city* building code; and any conditions of approval for a specific project.

### 1.2 Applicability

(a) These *Guidelines* apply to all of the following *landscape projects*:

1. all new planting, irrigation, and landscape-related improvements which are (i) installed by any public agency, private developer, association, commercial or industrial developer, or business developer for new construction and new development; (ii) have a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 2,500 square feet; and

(iii) are otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape or water feature;

2. all rehabilitated landscape projects which are installed by any public agency, private developer, association, commercial or industrial developer, or business developer where (i) the modified landscaped area is greater than 2,500 square feet and represents at least 50% of the total landscaped area; (ii) the modifications are planned to occur within one year; and (iii) the rehabilitated landscape project is otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape project or water feature. The requirements of the Guidelines may be partially or wholly waived, at the discretion of the city or its designee, for rehabilitated landscape projects that are limited to replacement plantings with equal or lower water needs, where the irrigation system is found to be designed, operable and programmed consistent with minimizing water waste in accordance with local water purveyor regulations;

3. all new planting, irrigation, and other landscape-related improvements which are (i) installed by individual homeowners for homeowner-constructed or developed new single-family or multi-family residential parcels; (ii) have a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 5,000 square feet; and (iii) are otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape project or water feature; and

4. all rehabilitated landscape projects which are (i) installed by individual homeowners for existing single-family or multi-family residential parcels; (ii) have a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 5,000 square feet; and (iii) are otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape project or water feature.

(b) Unless otherwise determined by the *city*, the *Water Efficient Landscape Regulations* and these *Guidelines* do not apply to: registered local, state or federal historical sites; ecological restoration projects that do not require a permanent irrigation system; mined-land reclamation projects that do not require a permanent irrigation system; plant collections, as part of botanical gardens and arboretums open to the public, or cemeteries.

## **2. Submittal Requirements for New Landscape Installations or Landscape Rehabilitation Projects**

(a) Discretionary approval is typically required for *landscape projects* that are subject to site plan reviews, or where a variance from a *city* building code is requested, or other procedural processes apply such that standard or special conditions of approval may be required by the city. Discretionary projects with conditions of approval may be approved administratively by city staff, or acted on formally by the Planning Commission, City Council, or other jurisdictional authority. A typical standard condition

of approval reads: "Landscaping for the project shall be designed to comply with the City's *Water Efficient Landscape Regulations* and with the *Guidelines for Implementation of the Water Efficient Landscape Regulations*."

(b) Landscape or *water features* that typically require a ministerial permit (i.e., a building, plumbing, electrical, or other similar permit), thereby triggering compliance with the *Water Efficient Landscape Regulations* requirements independently of the need for discretionary approval, include, but are not limited to, swimming pools, fountains or ponds, retaining walls, and overhead trellises.

## **2.1 Elements of the Landscape Documentation Package and Landscape Submittal Sheet**

A *Landscape Documentation Package* and *Landscape Submittal Sheet* are required to be submitted by the *project applicant* for review and approval prior to the issuance of ministerial permits by the City for *landscape projects* or *water features*, and prior to start of construction. Unless otherwise directed by the *city*, the *Landscape Documentation Package* shall include the following elements, either on plan sheets or supplemental pages as directed by the *city*:

(a) project information, including, but not limited to, the following: date; project name (if applicable); project address, parcel and/or lot number(s);

(b) total *landscaped area* (square feet) and rehabilitated *landscaped area* (if applicable); project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed, commercial, industrial, business, single-family, multi-family); water supply type (e.g., potable, recycled, or well) and identify the *local water purveyor* if the *project applicant* is not served by a private well;

(c) the *Checklist of Landscape Documentation Package* similar in form to the checklist included in **Appendix H** hereof; project contacts, including contact information for the *project applicant* and *property owner*;

(d) a *Certification of Landscape Design* in accordance with **Appendix F** of these *Guidelines* that includes a *landscape professional's* professional stamp, as applicable, signature, contact information (including email and telephone number), license number, and date, certifying the statement that, "The design of this project complies with the requirements of the City's *Water Efficient Landscape Regulations*" and shall bear the signature of the *landscape professional* as required by law; a *Landscape Submittal Sheet* in accordance with **Appendix E** of these *Guidelines*;

(e) *Maximum Applied Water Allowance (MAWA)* and *Estimated Applied Water Use (EAWU)* calculations, expressed as annual totals, including, but not limited to, the following: a *Water Efficient Landscape Worksheet* (optional at discretion of the City) for the *landscape project*; *hydrozone* information table (optional at the discretion of the City) for the *landscape project*; and water budget calculations (optional at the discretion of the City) for the *landscape project*;

(f) a soil management report or specifications, or specification provision requiring soil testing and amendment recommendations and implementation to be accomplished during construction of the *landscape project*;

(g) a landscape design plan for the *landscape project*, including identification of the plant material to be installed;

(h) an irrigation design plan for the *landscape project*;

(i) a grading design plan, unless grading information is included in the landscape design plan for the *landscape project*, or unless the *landscape project* is limited to replacement planting and/or irrigation to rehabilitate an existing *landscaped area*. The grading design plan shall conform to the provisions of the *Grading and Excavation Code* and any applicable provisions of the *Water Quality Code*; and

(j) and any other information the city or the *project applicant* deems relevant for determining whether the *landscape project* complies with the *Water Efficient Landscape Regulations* and these *Guidelines*.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

## 2.2 Water Efficient Landscape Calculations and Alternatives

(a) The *project applicant* shall provide the calculated *Maximum Applied Water Allowance (MAWA)* and *Estimated Applied Water Use (EAWU)* for the *landscaped area* as part of the *Landscape Documentation Package* submitted to the city. At the election of the *project applicant*, the *MAWA* and *EAWU* shall be calculated based on either:

(1) completing the *Water Efficient Landscape Worksheets* in accordance with the sample worksheets in **Appendix C** hereof; or

(2) completing the *Water Efficient Landscape Worksheets* required pursuant to the provisions of section 492.3 of the *Model Ordinance* attached hereto as **Appendix I** hereof.

(b) If the *project applicant* elects to complete the *Water Efficient Landscape Worksheets* in accordance with the sample worksheets in **Appendix C** hereof, the following provisions shall apply:

(1) The *EAWU* allowable for the *landscaped area* shall not exceed the *MAWA*. The *MAWA* shall be calculated using an *evapotranspiration adjustment factor (ETAF)* of 0.7, except for the portion of the *MAWA* applicable to any *special landscaped areas* within the *landscape project*, which shall be calculated using an *ETAF* of 1.0. Where the design of the *landscaped area* can otherwise be shown to be equivalently water-efficient, the *project applicant* may submit alternative or abbreviated

information supporting the demonstration that the annual *EAWU* is less than the *MAWA*, at the discretion of and for the review and approval of the *city*.

(2) Water budget calculations shall adhere to the following requirements:

(A) The *MAWA* shall be calculated using the *Water Efficient Landscape Worksheets* and equation presented in **Appendix C** on page C-4. The example calculation on page B-1 thereof is a hypothetical example to demonstrate proper use of the equation.

(B) The *Estimated Applied Water Use* shall be calculated using the *Water Efficient Landscape Worksheets* and equation presented in **Appendix C** on page C-5. The example calculation on page C-2 thereof is a hypothetical example.

(C) For the calculation of the *MAWA* and *EAWU*, a *project applicant* shall use the *ETo* values from the Reference Evapotranspiration (*ETo*) Table in **Appendix B**.

(D) For calculation of the *EAWU*, the *plant water use factor* shall be determined as appropriate to the project location from the *Water Use Classification of Landscape Species (WUCOLS)* species evaluation list. The *plant factor* is 0.1 for very low water use plants, 0.2 to 0.3 for low water use plants, 0.4 to 0.6 for moderate water use plants, and 0.7 to 1.0 for high water use plants.

(E) For calculating the *EAWU*, the plant water use factor shall be determined for each valve *hydrozone* based on the highest-water-use plant species within the zone. The *plant factor* for each *hydrozone* may be required to be further refined as a "landscape coefficient" according to protocols defined in detail in the *WUCOLS* document, to reflect planting density and microclimate effects on water need, at the option of the *project applicant* or the *city*.

(F) For calculation of the *EAWU*, the area of a *water feature* shall be defined as a high water use *hydrozone* with a *plant factor* of 1.0.

(G) For calculation of the *EAWU*, a temporarily irrigated *hydrozone* area, such as an area of highly drought-tolerant native plants that are not intended to be irrigated after they are fully established, shall be defined as a very low water use *hydrozone* with a *plant factor* of 0.1.

(H) For calculation of the *MAWA*, the *ETAF* for *special landscaped areas* shall be set at 1.0. For calculation of the *EAWU*, the *ETAF* for *special landscaped areas* shall be calculated as the *special landscaped area (SLA) plant factor* divided by the *SLA irrigation efficiency factor*.

(I) *Irrigation efficiency* shall be calculated using the worksheet and equation presented in **Appendix C** on page C-5.

(3) The MAWA shall adhere to the following requirements:

(A) The MAWA shall be calculated using the equation presented in **Appendix C** on page C-4. The example calculation in **Appendix C** on page C-1 is hypothetical to demonstrate proper use of the equation and does not represent an existing and/or planned *landscape project*. The *reference evapotranspiration (ET<sub>o</sub>)* values used in this calculation are from the Reference Evapotranspiration (ET<sub>o</sub>) Table in **Appendix B**, and are for planning purposes only.

(B) For actual irrigation scheduling, automatic irrigation controllers are required and shall use current *ET<sub>o</sub>* data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

### 2.3 Soil Management Report

(a) In order to reduce *runoff* and encourage healthy plant growth, a soil management report shall be completed by the *project applicant*, or his/her designee, as follows:

(1) Submit soil samples to a certified agronomic soils laboratory for analysis and recommendations.

(2) Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.

(b) The soil analysis may include, but is not limited to:

(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.

(c) The *project applicant*, or his/her designee, shall comply with one of the following:

(1) if significant mass grading is not planned, the soil analysis report shall be submitted to the *city* as part of the *Landscape Documentation Package*; or

(2) if significant mass grading is planned, the soil analysis report shall be submitted to the *city* as part of the *Certificate of Completion*.

(d) The soil analysis report shall be made available, in a timely manner, to the *landscape professionals* preparing the landscape design plans and irrigation design plans to make any necessary adjustments to such design plans.

(e) The *project applicant*, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the *city* with the *Certificate of Completion*.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

## 2.4 Landscape Design Plan

(a) For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the *Landscape Documentation Package*.

(b) Plant material may be selected for the *landscaped area*, provided the *EAWU* in the *landscaped area* does not exceed the *MAWA*. To encourage the efficient use of water, the following is highly recommended:

(1) protect and preserve non-invasive *water-conserving plant species* and *water-conserving turf*;

(2) select *water-conserving plant species* and *water-conserving turf*;

(3) select plants based on disease and pest resistance; and

(4) select trees based on applicable *city* tree requirements or tree shading guidelines and the *plant palette*.

(c) 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 2.5(f) of these *Guidelines*.

(d) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended for the landscape design plan: 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; recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or

infrastructure (e.g., buildings, sidewalks, and power lines); and consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

(e) *Turf* is discouraged on slopes greater than 25% where the toe of the slope is adjacent to a *non-permeable hardscape* and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).

(f) A landscape design plan for projects in fire-prone areas and fuel modification zones shall comply with requirements of the local Fire Authority, where applicable. When conflicts between water conservation and fire safety design elements exist, the fire safety requirements shall have priority.

(g) The use of *invasive plant species* and/or *noxious plant species* is strongly discouraged.

(h) The architectural guidelines of a *common interest development* shall not prohibit or otherwise include conditions that have the effect of prohibiting the use of *water efficient plant species* as a group.

(i) *Water features* shall comply with the following:

(1) Recirculating water systems shall be used for any *water feature*.

(2) Where available and consistent with public health guidelines, *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) *Mulch* and other soil amendments shall be required in the following circumstances and be applied in compliance with following:

(1) A minimum two inch (2") layer of *mulch* shall be applied on all exposed soil surfaces of planting areas; it shall not be applied in *turf* areas, creeping or rooting groundcovers, or direct seeding applications where *mulch* is contraindicated.

(2) Stabilizing mulching products shall be used on slopes.

(3) The mulching portion of the seed/*mulch* slurry in hydro-seeded applications shall meet the mulching requirement.

(4) Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 2.3 of these *Guidelines*).

(k) The landscape design plan, at a minimum, shall: delineate and label each *hydrozone* by number, letter, or other method; identify each *hydrozone* as low, moderate, high water or mixed water use. Temporarily irrigated areas of the *landscaped area* shall be included in the low water use *hydrozone* for the water budget calculation; 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-permable*); identify location and installation details of any applicable storm water best management practices that encourage on-site retention and infiltration of storm water. Storm water best management practices are encouraged in the landscape design plan. Examples include, but are not limited to:

(1) infiltration beds, swales, and basins that allow water to collect and soak into the ground;

(2) constructed wetlands and retention ponds that retain water, handle excess flow and filter pollutants; and

(3) *pervious* or porous surfaces (e.g., permeable pavers or blocks, *pervious* or porous concrete, etc.) that minimize *runoff*; identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.); contain the following statement: "I have complied with the criteria of the *Water Efficient Landscape Regulations* and applied them for the efficient use of water in the landscape design plan;" and bear the signature of a California licensed *landscape professional*.

[Note: Authority Cited: Section 65595, Reference: Section 65596, Government Code and Section 1351, Civil Code.]

## **2.5 Irrigation Design Plan**

(a) For the efficient use of water, an irrigation system shall meet all of the requirements listed in this section and the manufacturer's recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance.

(b) An irrigation design plan meeting the following design criteria shall be submitted as part of the *Landscape Documentation Package*:

(1) Dedicated landscape water meters are highly recommended on *landscaped areas* smaller than 5,000 square feet to facilitate water management.

(2) Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data shall be required for irrigation scheduling in all irrigation systems.

(3) The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

(4) 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.

(5) *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.

(6) *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.

(7) 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.

(8) *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 City code (i.e., public health) for additional backflow prevention requirements.

(9) High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.

(10) 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.

(11) Relevant information from the soil management plan, such as soil type and *infiltration rate*, shall be utilized when designing irrigation systems.

(12) The design of the irrigation system shall conform to the *hydrozones* of the landscape design plan.

(13) Average *irrigation efficiency* for the project shall be determined in accordance with the *EAWU* calculation sheet in **Appendix C** on page C-5. Unless otherwise indicated by the irrigation equipment manufacturer's specifications or demonstrated by the *project applicant*, the *irrigation efficiency* of the *sprinkler heads* used within each *hydrozone* shall be assumed to be: pop-up stream rotator heads = 75%; stream rotor heads = 75%; microspray = 75%; bubbler = 80%; drip emitter = 85%; and subsurface irrigation = 90% .

(14) In mulched planting areas, the use of *low volume irrigation* is required to maximize water infiltration into the root zone.

(15) *Sprinkler heads* and other emission devices shall have matched *precipitation rates*, unless otherwise directed by the manufacturer's recommendations.

(16) *Swing joints* or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.

(17) *Check valves* or *anti-drain valves* shall be installed for all irrigation systems.

(18) Narrow, or irregularly shaped areas, including turf, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or *low volume irrigation* system.

(19) Overhead irrigation shall not be permitted within 24 inches of any *non-permeable* surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be *mulch*, gravel, or other porous material. These restrictions may be modified if:

(A) the *landscaped area* is adjacent to permeable surfacing and no *runoff* occurs; or

(B) the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or

(C) the irrigation designer for the *landscape project* specifies an alternative design or technology, as part of the *Landscape Documentation Package* and clearly demonstrates strict adherence to irrigation system design criteria in Section 2.5 (b)(3) hereof. Prevention of overspray and runoff must be confirmed during an *irrigation audit* performed by the *city*.

(20) Slopes greater than 25% shall not be irrigated with an irrigation system with a *precipitation rate* exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer of the *landscape project* specifies an alternative design or technology, as part of the *Landscape Documentation Package*,

and clearly demonstrates no *runoff* or erosion will occur. Prevention of *runoff* and erosion must be confirmed during the *irrigation audit*.

(21) All new irrigation controllers installed within the *city* after January 1, 2012, shall be *smart automatic irrigation controllers*.

(c) In preparing an irrigation design plan, it is highly recommended that:

(1) the *project applicant* 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;

(2) the design plan includes *sprinkler head to sprinkler head* coverage. However, sprinkler spacing shall be designed to achieve the highest possible *distribution uniformity* using the manufacturer's recommendations.

(d) For each *hydrozone*, the irrigation design plan shall comply with the following requirements:

(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*.

(e) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and *turf*.

(f) Individual *hydrozones* that mix plants of moderate and low water use or moderate and high water use, may be allowed if:

(1) the *plant factor* calculation is based on the proportions of the respective plant water uses and their respective *plant factors*; or

(2) the *plant factor* of the higher water using plant is used for the calculations.

(g) Individual *hydrozones* that mix high and low water use plants shall not be permitted.

(h) On the landscape design plan and irrigation design plan, *hydrozone* areas shall be designated by number, letter or other designation. On the irrigation design plan, the areas irrigated by each *valve* shall be designated and assign a number to each *valve*.

(i) The irrigation design plan, at a minimum, shall contain:

- (1) the location and size of separate water meters for landscape;
- (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) *static water pressure* at the point of connection to the public water supply;
- (4) *flow rate* (gallons per minute), application rate (inches per hour) and design *operating pressure* (pressure per square inch) for each *station*;
- (5) irrigation schedule parameters necessary to program *smart automatic irrigation controllers* specified in the landscape design;
- (6) the following statement: "I have complied with the criteria of the *Water Efficient Landscape Regulations* and applied them accordingly for the efficient use of water in the irrigation design plan;" and
- (7) the signature of a licensed *landscape professional*.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

## 2.6 Grading Design Plan

(a) For the efficient use of water, grading of a *landscape project* site shall be designed to minimize soil erosion, *runoff* and water waste. Finished grading configuration of the *landscaped area*, including pads, slopes, drainage, post-construction erosion control and storm water control Best Management Practices as applicable, shall be shown on the landscape plan unless this information is fully included in separate grading plans for the project; or unless the project is limited to replacement planting and/or irrigation to rehabilitate an existing *landscaped area*. In addition to the provisions contained herein, the grading design plan shall comply with the provisions of the *Grading and Excavation Code* and any applicable provisions of the *Water Quality Code*.

(b) The *project applicant* shall submit a landscape grading plan that indicates finished configurations and elevations of the *landscaped area* including, but limited to: height of graded slopes; drainage patterns; pad elevations; finish grade; and storm water retention improvements, if applicable.

(c) To prevent excessive erosion and *runoff*, it is highly recommended that the *project applicant*: 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 *landscaped areas*.

(d) 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 the *landscape professional* for the *landscape project*.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

## 2.7 Certificate of Completion

(a) Landscape project installation shall not proceed until (i) the *project applicant* has deposited with the *city* all applicable permit fees in accordance with the *city's* Public Works Deposit Fee Schedule; and (ii) the *Landscape Documentation Package* has been approved by the *city* and any ministerial permits required are issued.

(b) The *project applicant* shall notify the *city* at the beginning of the installation work and at intervals as necessary for the duration of the *landscape project* work, to schedule all required inspections.

(c) A *Certificate of Completion* for the *landscape project* shall be obtained through a Certificate of Use and Occupancy or a *Permit Final* issued by the *city*. The requirements for the final inspection and *permit* closure shall include the following:

(1) The *project applicant* shall submit to the *City* a *Certificate of Completion* in the form included as **Appendix G** of these *Guidelines*, which shall include: (i) certification by a *landscape professional* that the *landscape project* has been installed per the approved *Landscape Documentation Package*; and (ii) the following statement: "The landscaping has been installed in substantial conformance to the design plans, and complies with the provisions of the *Water Efficient Landscape Regulations* for the efficient use of water in the landscape."

(2) The *project applicant* shall provide documentation of the irrigation scheduling parameters used to set the irrigation controller(s).

(3) An *irrigation audit* report from a *Certified Landscape Irrigation Auditor*, documentation of enrollment in a *city*, state, regional or *local water purveyor* sponsored water conservation and/or drought response program, and/or documentation that the *MAWA* and *EAWU* information for the *landscape project* has been submitted to the *local water purveyor*, may be required at the option of the *city*.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

## 2.8 Post-Installation Irrigation Scheduling

(a) 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. Irrigation schedules shall meet the following criteria:

(1) Irrigation schedules shall be regulated by automatic irrigation controllers.

(2) Irrigation schedules and overhead irrigation shall be scheduled and/or adjusted in compliance with any applicable *city*, state, regional, or local water conservation or drought response laws, rules, policies, and regulations. Operation of the irrigation system outside the normal *watering window* is allowed for auditing and system maintenance.

[Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.]

## **2.9 Post-Installation Landscape and Irrigation Maintenance**

Landscapes shall be maintained to ensure water use efficiency in accordance with the *Code* and any applicable *city*, state, regional, or *local water purveyor* water conservation or drought response laws, rules, policies, or regulations.

### **3. Provisions for Existing Landscapes**

(a) Irrigation of all *landscaped areas* shall be conducted in a manner conforming to the rules, regulations, and requirements, and shall be subject to the penalties and incentives for water conservation and water waste prevention, as determined and implemented by the *local water purveyor* and/or the *city*.

(b) The *city* may administer programs such as irrigation water use analyses, irrigation surveys and/or *irrigation audits*, tiered water rate structures, water budgeting by parcel or other approaches to achieve landscape water use efficiency community-wide to a level equivalent to or less than would be achieved by applying a *MAWA* calculated with an *ETAF* of 0.8 to all *landscaped areas* in the *city* over one acre in size. The *city* may, pursuant to a contract or other agreement, elect to have a *local water purveyor*, contractor, or other local agency administer such programs.

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

### **4. Conflicting Provisions.**

If provisions of these *Guidelines* are in conflict with each other, other provisions of the *Code*, the *city's* general plan, any *city* adopted specific plan or master plan, any resolution or ordinance of the *city*, or any State law or regulation, any applicable *city*, state, regional, or *local water purveyor* water conservation or drought response laws, rules, policies, or regulations, the more restrictive provisions shall apply.

## **APPENDIX A – DEFINITIONS**

## DEFINITIONS

Unless the context otherwise requires, the italicized terms used in these *Guidelines* shall have the meanings set forth below:

"*Association*" means a nonprofit corporation or unincorporated association created for the purpose of managing a *common interest development*.

"*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.

"*Certificate of Completion*" means the certificate included in **Appendix G** hereof and required to be completed and submitted to the *city* pursuant to Section 2.7(a)(1) of hereof, and certifying that the *landscape project* has been installed in substantial conformance with the approved *Landscape Documentation Package* and complies with the provisions of the *Water Efficient Landscape Regulations* and these *Guidelines*.

"*Certification of Landscape Design*" means the certification included as **Appendix F** of these *Guidelines* that must be included in the *Landscape Documentation Package* pursuant to Section 2.1 of these *Guidelines*.

"*Certified Landscape Irrigation Auditor*" means a *person* designated by the *city* to conduct an *irrigation audit*.

"*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.

"*Checklist of Landscape Documentation Package*" means the checklist or index of all documents in the *Landscape Documentation Package* similar in form to the checklist included in **Appendix H** hereof.

"*City*" means the City of Aliso Viejo, or its authorized designee.

"*Code*" means the Codified ordinances of the County of Orange as adopted by reference by the *city* pursuant to *city* Ordinance Number 2001-001.

"*Common interest development*" means a community apartment project, condominium project, planned development, and stock cooperative per Civil Code Section 1351.

"*Conversion factor*" means the number that converts acre-inches per acre per year to gallons per square foot per year.

"*Distribution uniformity*" or "*DU*" is a measure of how uniformly an irrigation head applies water to a specific target area and theoretically ranges from zero to 100 percent.

“*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.

“*Emitter*” means a *drip irrigation* emission device that delivers water slowly from the system to the soil.

“*Estimated Applied Water Use*” or “*EAWU*” means the annual total amount of water estimated to keep plants in a healthy state. It is based on factors such as reference *evapotranspiration rate*, the size of the *landscaped area*, *plant water use factors*, and the *irrigation efficiency* within each hydrozone.

“*Evapotranspiration adjustment factor*” or “*ETAF*” means a factor that, when applied to *reference evapotranspiration*, adjusts for *plant factors* and *irrigation efficiency*.

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

“*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.

“*Grading and Excavation Code*” means Sections 7-1-800 and following of Division 1 of Title 7 of the Codified ordinances of the County of Orange.

“*Hardscapes*” means any durable material or feature (*pervious* and *non-permeable*) installed in or around a *landscaped area*, such as pavements or walls. Pools and other water features are considered part of the *landscaped area* and not considered *hardscapes* for purposes of these Guidelines.

“*Hydrozone*” means a portion of the *landscaped area* having plants with similar water needs and typically irrigated by one *valve/controller* station. A *hydrozone* may be irrigated or non-irrigated.

“*Infiltration rate*” means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).

“*Invasive plants species*” or “*noxious plant species*” means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. *Invasive plant species* may be regulated by county agricultural agencies as *noxious species*.

“*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.

“*Irrigation efficiency*” or “*IE*” means the measurement of the amount of water beneficially used divided by the amount of water applied to a *landscaped area*. *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. Greater *irrigation efficiency* can be expected from well designed and maintained systems. The following irrigation efficiency may be obtained for the listed irrigation heads with an IME of 90%:

- a. Pop-up stream rotator heads = 75%
- b. Stream rotor heads = 75%
- c. Microspray = 75%
- d. Bubbler = 80%
- e. Drip emitter = 85%
- f. Subsurface irrigation = 90%

“*Irrigation Management Efficiency*” or “*IME*” means the measurement used to calculate the *irrigation efficiency* of the irrigation system for a landscaped project. A 90% *IME* can be achieved by using evapotranspiration controllers, soil moisture sensors, and other methods that will adjust irrigation run times to meet plant water needs.

“*Landscape coefficient*” ( $K_L$ ) is the product of a *plant factor* multiplied by a density factor and a *microclimate* factor. The *landscape coefficient* is derived to estimate water loss from irrigated *landscaped areas* and *special landscaped areas*.

“*Landscape Documentation Package*” means the package of documents that a *project applicant* is required to submit to the *city* pursuant to Section 2.1 of these *Guidelines*.

“*Landscape project*” means the total area of landscape in a project as provided in the definition of “*landscaped area*” meeting the requirements under section 4-5-42 of article 3 of the Codified ordinances of the County of Orange.

“*Landscape professional*” means a licensed *landscape architect*, licensed landscape contractor, or any other *person* authorized to design a landscape pursuant to Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the California Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the California Food and Agriculture Code.

“*Landscape Submittal Sheet*” means the form that a *project applicant* is required to submit to the *city* pursuant to Section 2.1 of these *Guidelines* and included as **Appendix E** of these *Guidelines*.

“*Landscaped area*” means all the planting areas, *turf* areas, and *water features* in a landscape design plan subject to the *Maximum Applied Water Allowance* and *Estimated*

*Applied Water Use* calculations. The *landscaped area* does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other *pervious* or *non-permeable hardscapes*, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

“*Lateral line*” means the water delivery pipeline that supplies water to the *emitters* or sprinklers from the *valve*.

“*Local water purveyor*” means any entity, including a public agency, city, county, or private water company that provides retail water service within the *city*.

“*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.

“*Main line*” means the pressurized pipeline that delivers water from the water source to the *valve* or outlet.

“*Maximum Applied Water Allowance*” or “*MAWA*” means, the upper limit of annual applied water for the established *landscaped area* as specified in Section 2.2 of these *Guidelines*. It is based upon the area’s *reference evapotranspiration*, the *ETAF*, and the size of the *landscaped area*. The *Estimated Applied Water Use* shall not exceed the *Maximum Applied Water Allowance*.

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

“*Model Ordinance*” means the Model Water Efficient Landscape Ordinance which was adopted by the California Department of Water Resources in accordance with California Government Code section 65591 *et seq.*, and included as **Appendix I** of these *Guidelines*.

“*Mulch*” means any organic material such as leaves, bark, straw, compost or 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.

“*Non-permeable*” means any surface or natural material that does not allow for the passage of water through the material and into the underlying soil.

“*Operating pressure*” means the pressure at which the parts of an irrigation a system of sprinklers are designed by the manufacturer

“*Overspray*” means the irrigation water which is delivered beyond the target irrigation area.

“*Person*” means any natural person, firm, joint venture, joint stock company, partnership,

public or private association, club, company, corporation, business trust, organization, public or private agency, government agency or institution, school district, college, university, any other user of water provided by the *city* or the *local water purveyor*, or the manager, lessee, agent, servant, officer or employee of any of them or any other entity which is recognized by law as the subject of rights or duties.

“*Pervious*” means any surface or material that allows the passage of water through the material and into the underlying soil.

“*Plant factor*” or “*plant water use factor*” is a factor, when multiplied by *ETo*, estimates the amount of water needed by plants. For purposes of this *Water Efficient Landscape Regulations*, the *plant factor* range for low water use plants is 0 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. *Plant factors* cited in these *Guidelines* are derived from the Department of Water Resources 2000 publication “Water Use Classification of Landscape Species.”

“*Plant palette*” means the list of low water use plant materials authorized to be used in all public and private improvement projects within the *city* and included as **Appendix D** of these *Guidelines*.

“*Precipitation rate*” means the rate of application of water measured in inches per hour.

“*Project applicant*” means the *person* submitting a *Landscape Documentation Package* pursuant to Section 2.1 of these *Guidelines*, to request a permit, plan check or design review from the *city* for the installation of landscape.

“*Property owner*” or “*owner*” means the record owner of real property as shown on the most recently issued equalized assessment roll.

“*Reference evapotranspiration*” or “*ETo*” means a standard measurement of environmental parameters which affect the water use of plants. *ETo* is given expressed in inches per day, month, or year as represented in **Appendix B** of these *Guidelines*, 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 Allowances*.

“*Recycled water*” means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and *water features*, and which is not intended for human consumption.

“*Runoff*” means water which is not absorbed by the soil or landscape to which it is applied and flows from the *landscaped area*. For example, *runoff* may result from water that is applied at too great a rate (application rate exceeds *infiltration rate*) or when there is a slope.

“*Smart automatic irrigation controller*” means an automatic timing device used to remotely control *valves* that operate an irrigation system and which schedules irrigation events using either evapotranspiration (weather-based) or soil moisture data.

“*Special landscaped area*” or “*SLA*” means an area of the landscape dedicated solely to edible plants such as orchards and vegetable gardens, areas irrigated with *recycled water*, *water features* using *recycled water*, and areas dedicated to active play such as parks, sports fields, golf courses, and areas where *turf* provides a playing surface.

“*Sprinkler head*” means a device which delivers water through a nozzle.

“*Static water pressure*” means the pipeline or municipal water supply pressure when water is not flowing.

“*Station*” means an area served by one *valve* or by a set of *valves* that operate simultaneously.

“*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.

“*Turf*” means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.

“*Valve*” means a device used to control the flow of water in an irrigation system.

“*Water-conserving plant species*” means a plant species identified as having a low *plant factor*, and includes, but is not limited to, plant species from the *plant palette*.

“*Water Efficient Landscape Regulations*” means those regulations established pursuant to Ordinance No. \_\_\_\_\_, adopted by the City Council on \_\_\_\_\_, 2009, and codified in article 3 of the Codified ordinances of the County of Orange.

“*Water Efficient Landscape Worksheets*” means the worksheets required and selected to be completed by the *project applicant* pursuant to Section 2.2 of these *Guidelines* and which are included in **Appendix C** hereof, or the worksheets provided in Appendix B of the *Model Ordinance* and selected to be completed by the *project applicant* in order to comply with the *Water Efficient Landscape Regulations* and these *Guidelines* in accordance with section 2.2(a)(2) hereof.

“*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 (where water is artificially supplied). The surface area of *water features* is included in the high water use *hydrozone* of the *landscaped area*. Constructed wetlands used for on-site wastewater treatment, habitat protection or storm water best management practices that are not irrigated and used solely for water

treatment or storm water retention are not *water features* and, therefore, are not subject to the water budget calculation.

“*Water Quality Code*” means Sections 4-13-10 and following of Division 13 of Title 4 of the Codified ordinances of the County of Orange.

“*Water Use Classification of Landscape Species*” or “*WUCOLS*” means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000, and available at [www.owue.water.ca.gov/docs/wucols00.pdf](http://www.owue.water.ca.gov/docs/wucols00.pdf).

“*Watering window*” means the time of day irrigation is allowed pursuant to any applicable *city*, regional, state, or *local water purveyor* water conservation or drought response laws, rules, policies, or regulations.

**APPENDIX B - REFERENCE  
EVAPOTRANSPIRATION (ETO) TABLE**

## REFERENCE EVAPOTRANSPIRATION (ETO) TABLE

<b>Appendix B - Reference Evapotranspiration (ETo) Table*</b>													
City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
* The values in this table were derived from: (1) California Irrigation Management Information System (CIMIS); (2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999;													
(3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of													
Agriculture and Natural Resources (1987), Publication Leaflet 21426													

**APPENDIX C – WATER EFFICIENT  
LANDSCAPE WORKSHEET**

## EXAMPLE WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the *project applicant* for each Point of Connection. Please complete all sections of the worksheet.

### Point of Connection # 1

#### Maximum Applied Water Allowance (MAWA)

$$\text{Total MAWA} = (\text{ETo} \times 0.7 \times \text{LA in Sq. Ft.} \times 0.62) + (\text{ETo} \times 1.0 \times \text{SLA in Sq. Ft.} \times 0.62) = \text{Gallons per year for LA+SLA}$$

where:

- MAWA = *Maximum Applied Water Allowance* (gallons per year)
- ETo = *Reference Evapotranspiration Appendix B* (inches per year)
- 0.7 = *Evapotranspiration Adjustment Factor (ETAF)*
- 1.0 = ETAF for *Special Landscaped Area*
- LA = *Landscaped Area* (square feet)
- 0.62 = *Conversion factor* (to gallons per square foot)
- SLA = *Special Landscaped Area* (square feet)

**Example Calculation:** a hypothetical landscape project in Santa Ana, CA with an irrigated landscaped area of 40,000 square feet with 10,000 square feet of *Special Landscaped Area*. To calculate MAWA, the annual *reference evapotranspiration* value for Santa Ana is 48.2 inches as listed in the Reference Evapotranspiration (ETo) Table in **Appendix B**.

	ETo	ETAF	LA or SLA (ft <sup>2</sup> )	Conversion	MAWA (Gallons Per Year)
MAWA for LA =	48.2	x 0.7	x 40,000	x 0.62	= 836,752
MAWA for SLA =	48.2	x 1.0	x 10,000	x 0.62	= 298,840
<b>Total MAWA =</b>			50,000		<b>1,135,592 Gallons per year for LA+SLA</b>

#### Estimated Applied Water Use

$$\text{EAWU} = \text{ETo} \times \text{KL} \times \text{LA} \times 0.62 \div \text{IE} = \text{Gallons per year}$$

where:

$EAWU$  = Estimated Applied Water Use (gallons per year)

$ETo$  = Reference Evapotranspiration **Appendix B** (inches per year)

$K_L$  = Landscape Coefficient

$LA$  = Landscaped Area (square feet)

0.62 = Conversion factor (to gallons per square foot)

$IE$  = Irrigation Efficiency =  $IME \times DU$  (See definitions of **Appendix A**

for example  $IE$  percentages)

$IME$  = Irrigation Management Efficiency (90%)

$DU$  = Distribution Uniformity of irrigation head

Example Calculation:

$$K_L = K_s \times K_d \times K_{mc}$$

$K_s$  = species factor (range = 0.1-0.9) (see *WUCOLS* list for values)

$K_d$  = density factor (range = 0.5-1.3) (see *WUCOLS* for density value ranges)

$K_{mc}$  = microclimate factor (range = 0.5-1.4) (see *WUCOLS*)

*WUCOLS* – [www.owue.water.ca.gov/docs/wucols00.pdf](http://www.owue.water.ca.gov/docs/wucols00.pdf)

	ETo	KL	LA	Conversion	IE	EAWU (Gallons per year)
Special Landscaped Area	48.2	x 1.00	x 10,000	x 0.62	÷ 0.75	= 398,453
Cool Season Turf	48.2	x 1.00	x 0	x 0.62	÷ 0.71	= 0
Warm Season Turf	48.2	x 0.65	x 0	x 0.62	÷ 0.71	= 0
High Water Using Shrub	48.2	x 0.70	x 0	x 0.62	÷ 0.71	= 0
Medium Water Using Shrub	48.2	x 0.50	x 15,000	x 0.62	÷ 0.65	= 344,815
Low Water Using Shrub	48.2	x 0.30	x 25,000	x 0.62	÷ 0.75	= 298,840
Very Low Water Using Shrub	48.2	x 0.20	x 0	x 0.62	÷ 0.71	= 0
Other	48.2	x 0.50	x 0	x 0.62	÷ 0.71	= 0
Other	48.2	x 0.50	x 0	x 0.62	÷ 0.71	= 0
<b>Total EAWU =</b>			<b>50,000</b>			<b>1,042,109 Gallons per year</b>

Compare  $EAWU$  with  $MAWA$ .

The  $EAWU$  (1,042,109 gallons per year) is less than  $MAWA$  (1,135,592 gallons per year). For this example, the water budget complies with the  $MAWA$ .

List sprinkler heads, microspray and drip emitters here along with average precipitation rate and Distribution Uniformity of Irrigation Head.

<u>Sprinkler Head Types</u>	<u>Average Precipitation Rate</u>	<u>Distribution Uniformity of Irrigation Head</u>
Drip		
Microspray		
Bubbler		
Low precipitation rotating nozzles		
Stream rotors		

## WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the *project applicant* for each Point of Connection. Please complete all sections of the worksheet.

**Point of Connection #** \_\_\_\_\_

**Maximum Applied Water Allowance (MAWA)**

Total MAWA = (ETo x 0.7 x LA in Sq. Ft. x 0.62) + (ETo x 1.0 x SLA in Sq. Ft. x 0.62) = Gallons per year for LA+SLA

where:

- MAWA = Maximum Applied Water Allowance (gallons per year)
- ETo = Reference Evapotranspiration **Appendix B** (inches per year)
- 0.7 = Evapotranspiration Adjustment Factor (ETAF)
- 1.0 = ETAF for Special Landscaped Area
- LA = Landscaped Area (square feet)
- 0.62 = Conversion factor (to gallons per square foot)
- SLA = Special Landscaped Area (square feet)

**MAWA Calculation:**

	ETo	ETAF	LA or SLA (ft <sup>2</sup> )	Conversion	MAWA (Gallons Per Year)
MAWA for LA =	x	0.7	x	x 0.62	=
MAWA for SLA =	x	1.0	x	x 0.62	=
Total MAWA =					

**Estimated Applied Water Use**

$$EAWU = ETo \times K_L \times LA \times 0.62 \div IE = \text{Gallons per year}$$

where:

$EAWU$  = Estimated Applied Water Use (gallons per year)

$ETo$  = Reference Evapotranspiration **Appendix B** (inches per year)

$K_L$  = Landscape Coefficient

$LA$  = Landscaped Area (square feet)

$0.62$  = Conversion factor (to gallons per square foot)

$IE$  = Irrigation Efficiency =  $IME \times DU$

$IME$  = Irrigation Management Efficiency (90%)

$DU$  = Distribution Uniformity of irrigation head

**EAWU Calculation:**

$$K_L = K_s \times K_d \times K_{mc}$$

$K_s$  = species factor (range = 0.1-0.9) (see WUCOLS list for values)

$K_d$  = density factor (range = 0.5-1.3) (see WUCOLS for density value ranges)

$K_{mc}$  = microclimate factor (range = 0.5-1.4) (see WUCOLS)

WUCOLS – [www.owue.water.ca.gov/docs/wucols00.pdf](http://www.owue.water.ca.gov/docs/wucols00.pdf)

	ETo	KL	LA	Conversion	IE	EAWU (Gallons Per Year)
Special Landscaped Area	x		x	0.62	÷	=
Cool Season Turf	x		x	0.62	÷	=
Warm Season Turf	x		x	0.62	÷	=
High Water Using Shrub	x		x	0.62	÷	=
Medium Water Using Shrub	x		x	0.62	÷	=
Low Water Using Shrub	x		x	0.62	÷	=
Very Low Water Using Shrubs	x		x	0.62	÷	=
	x		x	0.62	÷	=
	x		x	0.62	÷	=
	x		x	0.62	÷	=
	x		x	0.62	÷	=
	x		x	0.62	÷	=
	x		x	0.62	÷	=
	x		x	0.62	÷	=
	x		x	0.62	÷	=
	x		x	0.62	÷	=
Other	x		x	0.62	÷	=
Total EAWU =						

List sprinkler heads, microspray and drip emitters here along with average precipitation rate and Distribution Uniformity of Irrigation Head.

<i><b>Sprinkler Head Types</b></i>	<i><b>Average Precipitation Rate</b></i>	<i><b>Distribution Uniformity of Irrigation Head</b></i>
Drip		
Microspray		
Bubbler		
Low precipitation rotating nozzles		
Stream rotors		

## **APPENDIX D – PLANT PALETTE**

## PLANT PALETTE

The following list of plant materials comprise the *city's plant palette* of *water-conserving plant species* and is to be used for all public and private improvement projects within the *city*. The City Engineer and the Planning Director have the discretion to discuss, review, and approve alternate plant materials on a project by project basis and accept other plant materials which are considered low water drought tolerant.

### Trees

<i>Botanical Name</i>	<i>Common Name</i>
Agonis flexuosa	Australian Myrtle
Albizia julibrissin	Silk Tree
Arbutus 'Marina'	N.C.N.
Brachychiton discolor	Queensland Lacebark
Brachychiton populneus	Bottle Tree
Cassia leptophylla	Gold Medallion Tree
Cercis occidentalis	Western Redbud
Chitalpa tashkentensis	Chitalpa
Cinnamomum camphora	Camphor Tree
Geijera parvifolia	Australian Willow
Koelreuteria bipinnata	Chinese Flame Tree
Koelreuteria paniculata	Goldenrain Tree
Laurus nobilis	Sweet Bay
Leptospermum laevigatum	Australian Tea Tree
Liquidambar styraciflua	Sweet Gum
Metrosideros excelsus	New Zealand Christmas Tree
Olea europae 'Wilsonii'	Fruitless Olive
Parkinsonia aculeate	Mexican Palo Verde
Pinus eldarica	Afghan Pine
Pinus halepensis	Aleppo Pine
Pinus pinea	Italian Stone Pine
Pinus spp	Pine
Platanus acerifolia	London Plane Tree
Prosopis chilensis	Mesquite
Prosopis chilensis 'Thornless'	Chilean Mesquite
Prosopis velutina	Arizona Mesquite
Rhus lancea	African Sumac
Quercus agrifolia	Coast Live Oak
Quercus engelmannii	Engelmann Oak
Quercus ilex	Holly Oak
Quercus virginiana	Southern Live Oak
Rhus lancea	African Sumac
Schinus molle	California Pepper
Schinus terebinthifolius	Brazilian Pepper

## Shrubs

### *Botanical Name*

Aeonium arboreum 'Atropurpureum'  
Acacia redolens  
Agave attenuata 'Nerva'  
Aloe barbadensis  
Aloe striata  
Anigozanthos 'Red'  
Anigozanthos 'Bush Ranger'  
Arbutus unedo 'Compacta'  
Baccharis pilularis 'Pigeon Point'  
Bambusa multiplex 'Alphonse Karr'  
Ceanothus 'Heart's Desire'  
Ceanothus spp.  
Cistus spp.  
Cotoneaster parneyi  
Diets bicolor  
Diets vegeta  
Dudleya caespitosa  
Echium fastuosum  
Elaeagnus pungens  
Encelia californica  
Feijoa sellowiana  
Festuca mairei  
Festuca ovina 'Glaucia'  
Hesperaloe parviflora  
Heteromeles arbutifolia  
Lantana montevidensis  
Lavandula angustifolia 'Mustead'  
Leptospermum S. 'Ruby Glow'  
Leptospermum scoparium  
Leucophyllum F. Green cloud  
Leucophyllum F. White cloud  
Mimulus hybrids  
Muhlenbergia rigens  
Myrsine Africana  
Myrtus communis 'Compacta'  
Nandina domestica 'compacta'  
Nandina domestica  
Opuntia littoralis  
Pennisetum setaceum 'Rubrum Dwarf'  
Penstemon heterophyllus  
Phormium tenax 'Jack Sprat'

### *Common Name*

N.C.N.  
Acacia  
Agave  
N.C.N.  
Coral Aloe  
Kangaroo Paw  
Bush Ranger Kangaroo Paw  
Dwarf Strawberry Tree  
Dwarf Coyote Brush  
Bamboo  
Heart's Desire Ceanothus  
Ceanothus  
Rockrose  
Red Clusterberry  
Fortnight Lily  
Fortnight Lily  
Dudleya  
Pride of Madeira  
Silverberry  
California Encelia  
Pineapple Guava  
Atlas Fescue  
Blue Fescue  
Red Yucca  
Toyon  
Lantana  
English Lavender  
Australian Tea Tree  
New Zealand Tea Tree  
Texas Ranger  
Texas Ranger  
Monkey Flower  
Deergrass  
African Boxwood  
Myrtle  
Compact Heavenly Bamboo  
Heavenly Bamboo  
Prickly Pear  
Dwarf Purple Fountain Grass  
Foothill Penstemon  
Flax

Photinia fraseri  
 Prunus ilicifolia  
 Pyracantha spp.  
 Rhamnis californica  
 Rhamphiolepis indica  
 Rhus integrifolia  
 Romneya coulteri  
 Rosa floribunda 'Iceberg'  
 Rosa 'Flower Carpet'  
 Rosmarinus officinalis  
 Salvia leucantha  
 Salvia sonomensis 'Dara's Choice'  
 Salvia spp.  
 Santolina virens  
 Senecio mandraliscae  
 Verbena tamari  
 Viburnum 'Spring Bouquet'  
 Xylosma congestum

Photinia  
 Hollyleaf Cherry  
 Firethorn  
 Coffeeberry  
 Indian Hawthorne  
 Lemonade Berry  
 Matilija Poppy  
 Iceberg Rose  
 Flower Carpet Rose  
 Rosemary  
 Mexican Blue Sage  
 Creeping Sage  
 Sage  
 Santolina  
 German Ivy  
 Verbena  
 Viburnum  
 Shiny xylosum

### Vines

#### *Botanical Name*

#### *Common Name*

Bougainvillea 'Barbara Karst'  
 Macfadyena unguis-cati

Bougainvillea  
 Yellow Trumpet Vine

### Ground Cover

#### *Botanical Name*

#### *Common Name*

Acacia redolens 'Low Boy'  
 Baccharis pilularis  
 Ceanothus griseus horizontalis  
 Cerastium tomentosum  
 Cotoneaster parneyi  
 Cotoneaster dammeri 'Lowfast'  
 Gazania x Hybrid  
 Lantana Camara  
 Lantana montevidensis  
 Mahonia repens  
 Mahonia aquifolium  
 Myoporum parvifolium  
 Rosmarinus officinalis 'Prostratus'  
 Senecio mandraliscae  
 Verbena lilacina

Prostrate Acacia  
 Coyote Bush  
 Carmel Creeper  
 Snow in summer  
 Red Clusterberry  
 Lowfast Clusterberry  
 Trailing Gazania  
 Lantana  
 Creeping Lantana  
 Creeping Mahonia  
 Oregon Grape  
 Creeping Myoporum  
 Creeping Rosemary  
 Blue Chalk Sticks  
 Cedros Island Verbena

**APPENDIX E – LANDSCAPE SUBMITTAL  
SHEET**

## LANDSCAPE SUBMITTAL SHEET

PROJECT NAME: \_\_\_\_\_  
TRACT/PARCEL/LOT: \_\_\_\_\_  
SUBMITTED BY: \_\_\_\_\_  
COMPANY: \_\_\_\_\_  
TELEPHONE: \_\_\_\_\_  
CONTACT: \_\_\_\_\_  
RETURNED TO: \_\_\_\_\_

PERMIT NO: \_\_\_\_\_  
PROJECT ADDRESS: \_\_\_\_\_  
DATE RECEIVED: \_\_\_\_\_  
RECEIVED BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DATE RETURNED: \_\_\_\_\_

### THE FOLLOWING ITEMS ARE REQUIRED FOR COMPLETE SUBMITTAL:

#### FIRST CHECK

- 5 Sets of plans 24" x 36
- 1 Copy of Planning 'Conditions of Approval'
- 1 Copy of approval from other agencies (if applicable)
- Plan check fee of \$ \_\_\_\_\_. See fee schedule
- Other \_\_\_\_\_
- Other \_\_\_\_\_
- Other \_\_\_\_\_

#### DUE AT PERMIT ISSUANCE

- 1 set of signed mylars (by landscape architect and city engineer)
- 1 set of full size plans
- 2 sets of half-size plans
- Inspection Deposit \$ \_\_\_\_\_ (see fee schedule)
- Surety (100% of estimate)
- CD of Piffle (see attached specifications)
- Other \_\_\_\_\_

#### ALL PLAN REVISION SUBMITTALS

- 3 sets of revised blue lines
- Previous check print
- Additional plan check deposit (if required) \$ \_\_\_\_\_
- Other \_\_\_\_\_
- Other \_\_\_\_\_

#### DUE AT PROJECT CLOSE OUT

- Redline as-builts
- CD of signed redline as-builts
- Other \_\_\_\_\_

#### FINAL SUBMITTAL FOR CITY APPROVAL

- Original mylars (all sheets must be 24" x 36" maximum, stamped & signed by landscape architect)
- Previous Check Print

**APPENDIX F – 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 landscape project located at \_\_\_\_\_  
\_\_\_\_\_ (provide street address or parcel, tract, or lot number(s)) were prepared by me or under my supervision. (Attach additional sheets as necessary.)
- (3) The landscape design and water use calculations for the identified property comply with the requirements of the City of Aliso Viejo Water Efficient Landscape Regulations and the Guidelines for Implementation of the City of Aliso Viejo Water Efficient Landscape Regulations.
- (4) The information I have provided in this Certificate of Landscape Design Professional is true and correct and is hereby submitted in compliance with the Guidelines for Implementation of the City of Aliso Viejo Water Efficient Landscape Regulations.

Print Name	Title	Date
Signature	License Number	
Company	Address	
Telephone	Fax	E-mail Address

For city Use only.

_____ Date received
_____ Name
_____ Signature

Landscape Design Professional's Stamp  
(If applicable)

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**APPENDIX G – CERTIFICATE OF  
COMPLETION**

## 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.
- (2) The landscape project for the landscape project located at \_\_\_\_\_  
 \_\_\_\_\_  
 (provide street address or parcel, tract, or lot number(s)) was installed by me or under my supervision. (Attached additional sheets as necessary.)
- (3) The landscaping for the identified landscape project has been installed in substantial conformance with the approved Landscape Documentation Package, and complies with the requirements of the City of Aliso Viejo Water Efficient Landscape Regulations (Article 3 of the codified ordinances of the County of Orange) and the Guidelines for Implementation of the City of Aliso Viejo Water Efficient Landscape Regulations for the efficient use of water in the landscape.
- (4) The information I have provided in this Certificate of Completion is true and correct and is hereby submitted in compliance with the Guidelines for Implementation of the City of Aliso Viejo Water Efficient Landscape Regulations.

Print Name	Title	Date
Signature	License Number	
Company	Address	
Telephone	Fax	E-mail Address

For City use only.

Landscape Design Professional's Stamp  
(If Appropriate)

Project Approved  
 Project Not Approved

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Name
Title

---

Signature
Date

Reasons for denial included in attached sheet(s).

**APPENDIX H – CHECKLIST OF LANDSCAPE  
DOCUMENTATION PACKAGE**

## CHECKLIST OF LANDSCAPE DOCUMENTATION PACKAGE

### 1. Project Information

Date	Project Name
Project Applicant	Title
Company	Telephone/Fax
Company Street Address	City/State/Zip Code
Project Street Address	Project Parcel, Tract or Lot Number(s), if available.
Project Type	Total Landscaped Area (Square Feet)
Water Supply Type	Additional Project Information (may attach additional sheets)

### 2. Property Owner Information

Name(s)	Street Address
City/State/Zip code	Telephone/Fax
Title (if applicable)	Company (if applicable)
Company Address (if applicable)	City/State/Zip

### 3. Elements of Landscape Documentation Package Submitted:

- Certification of Landscape Design
- Landscape Submittal Sheet
- Maximum Applied Water Allowance (MAWA) Calculation
- Estimated Applied Water Use (EAWU) Calculation
- Water Efficient Landscape Worksheet
- Hydrozone Information Table
- Water Budget Calculations
- Soil Management Report
- Irrigation Design Plan
- Grading Design Plan (if applicable)
- Additional Landscape Project Information (see attached sheets)

**APPENDIX I – MODEL WATER EFFICIENT  
LANDSCAPE ORDINANCE**

# MODEL WATER EFFICIENT LANDSCAPE ORDINANCE

California Code of Regulations  
Title 23. Waters

Division 2. Department of Water Resources  
Chapter 2.7. Model Water Efficient Landscape Ordinance

## **§ 490. Purpose.**

(a) The State Legislature has found: that the waters of the state are of limited supply and are subject to ever increasing demands; that the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses; that it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource; that landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development; and that landscape design, installation, maintenance and management can and should be water efficient; and that 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.

(b) Consistent with these legislative findings, the purpose of this model ordinance is to: promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible; establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects; establish provisions for water management practices and water waste prevention for existing landscapes; use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount; promote the benefits of consistent landscape ordinances with neighboring local and regional agencies; encourage local agencies and water purveyors to use economic incentives that promote the efficient use of water, such as implementing a tiered-rate structure; and encourage local agencies to designate the necessary authority that implements and enforces the provisions of the Model Water Efficient Landscape Ordinance or its local landscape ordinance.

Note: Authority cited: Section 65593, Government Code. Reference: Sections 65591, 65593, 65596, Government Code.

## **§ 490.1 Applicability**

(a) After January 1, 2010, this ordinance shall apply to all of the following landscape projects: new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review; new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review; new construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check or design review; existing landscapes limited to Sections 493, 493.1 and 493.2; and cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 492.4, 492.11 and 492.12; and existing cemeteries are limited to Sections 493, 493.1 and 493.2.

(b) This ordinance does not apply to: registered local, state or federal historical sites; ecological restoration projects that do not require a permanent irrigation system; mined-land reclamation projects that do not require a permanent irrigation system; or plant collections, as part of botanical gardens and

arboretums open to the public.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### § 491. Definitions.

The terms used in this ordinance have the meaning set forth below:

- (a) “applied water” means the portion of water supplied by the irrigation system to the landscape.
- (b) “automatic irrigation controller” means an automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers 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) “Certificate of Completion” means the document required under Section 492.9.
- (e) “certified irrigation designer” means a person certified to design irrigation systems by an accredited academic institution a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation designer certification program and Irrigation Association’s Certified Irrigation Designer program.
- (f) “certified landscape irrigation auditor” means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation auditor certification program and Irrigation Association’s Certified Landscape Irrigation Auditor program.
- (g) “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.
- (h) “common interest developments” means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
- (i) “conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year “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.
- (j) “ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- (l) “effective precipitation” or “usable rainfall” (Eppt) means the portion of total precipitation which becomes available for plant growth.
- (m) “emitter” means a drip irrigation emission device that delivers water slowly from the system to the soil.
- (n) “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.
- (o) “establishment period of the plants” means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.
- (p) “Estimated Total Water Use” (ETWU) means the total water used for the landscape as described in Section 492.4.
- (q) “ET adjustment factor” (ETAF) means 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.

A combined plant mix with a site-wide average of 0.5 is the basis of the plant factor portion of this calculation. For purposes of the ETAF, the average irrigation efficiency is 0.71. Therefore, the ET Adjustment Factor is  $(0.7)=(0.5/0.71)$ . ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing non-rehabilitated landscapes is 0.8.

- (r) "evapotranspiration rate" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
- (s) "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.
- (t) "hardscapes" means any durable material (pervious and non-pervious).
- (u) "homeowner-provided landscaping" means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.
- (v) "hydrozone" means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.
- (w) "infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
- (x) "invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. "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.
- (y) "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.
- (z) "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 minimum average irrigation efficiency for purposes of this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.
- (aa) "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.
- (bb) "irrigation water use analysis" means an analysis of water use data based on meter readings and billing data.
- (cc) "landscape architect" means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
- (dd) "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 designated for non-development (e.g., open spaces and existing native vegetation).
- (ee) "landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
- (ff) "Landscape Documentation Package" means the documents required under Section 492.3.
- (gg) "landscape project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 490.1.
- (hh) "lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- (ii) "local agency" means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. The local agency is also responsible for the enforcement of this ordinance, including but not limited to, approval of a permit and plan check or design review of a

project.

(jj) “local water purveyor” means any entity, including a public agency, city, county, or private water company that provides retail water service.

(kk) “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.

(ll) “main line” means the pressurized pipeline that delivers water from the water source to the valve or outlet.

(mm) “Maximum Applied Water Allowance” (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 492.4. It is based upon the area’s reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.

(nn) “microclimate” means 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.

(oo) “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.

(pp) “mulch” means any organic material such as leaves, bark, straw, compost, or 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.

(qq) “new construction” means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

(rr) “operating pressure” means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

(ss) “overhead sprinkler irrigation systems” means systems that deliver water through the air (e.g., spray heads and rotors).

(tt) “overspray” means the irrigation water which is delivered beyond the target area.

(uu) “permit” means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

(vv) “pervious” means any surface or material that allows the passage of water through the material and into the underlying soil.

(ww) “plant factor” or “plant water use factor” is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for low water use plants is 0 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. Plant factors cited in this ordinance are derived from the Department of Water Resources 2000 publication “Water Use Classification of Landscape Species”.

(xx) “precipitation rate” means the rate of application of water measured in inches per hour.

(yy) “project applicant” means the individual or entity submitting a Landscape Documentation Package required under Section 492.3, to request a permit, plan check, or design review from the local agency. A project applicant may be the property owner or his or her designee.

(zz) “rain sensor” or “rain sensing shutoff device” means a component which automatically suspends an irrigation event when it rains.

(aaa) “record drawing” or “as-builts” means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

(bbb) "recreational area" means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.

(ccc) "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. This water is not intended for human consumption.

(ddd) "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 as represented in Section 495.1, 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.

(eee) "rehabilitated landscape" means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of Section 490.1, and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.

(fff) "runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.

(ggg) "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.

(hhh) "soil texture" means the classification of soil based on its percentage of sand, silt, and clay.

(iii) "Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

(jjj) "sprinkler head" means a device which delivers water through a nozzle.

(kkk) "static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.

(lll) "station" means an area served by one valve or by a set of valves that operate simultaneously. (mmm) "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.

(nnn) "turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.

(ooo) "valve" means a device used to control the flow of water in the irrigation system.

(ppp) "water conserving plant species" means a plant species identified as having a low plant factor.

(qqq) "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 (where water is artificially supplied). 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.

(rrr) "watering window" means the time of day irrigation is allowed.

(sss) "WUCOLS" means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000.

Note: Authority Cited: Section 65595, Government Code. Reference: Sections 65592, 65596, Government Code.

**§ 492. Provisions for New Construction or Rehabilitated Landscapes.**

(a) A local agency may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 492.1 Compliance with Landscape Documentation Package.**

(a) Prior to construction, the local agency shall: provide the project applicant with the ordinance and procedures for permits, plan checks, or design reviews; review the Landscape Documentation Package submitted by the project applicant; approve or deny the Landscape Documentation Package; issue a permit or approve the plan check or design review for the project applicant; and upon approval of the Landscape Documentation Package, submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.

(b) Prior to construction, the project applicant shall:

(1) submit a Landscape Documentation Package to the local agency.

(c) Upon approval of the Landscape Documentation Package by the local agency, the project applicant shall: receive a permit or approval of the plan check or design review and record the date of the permit in the Certificate of Completion; 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; and submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 492.2 Penalties.**

(a) A local agency may establish and administer penalties to the project applicant for non-compliance with the ordinance to the extent permitted by law.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 492.3 Elements of the Landscape Documentation Package.**

(a) The Landscape Documentation Package shall include the following six (6) elements:

(1) project information; date project applicant project address (if available, parcel and/or lot number(s)) total landscape area (square feet) project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed) water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well checklist of all documents in Landscape Documentation Package project contacts to include contact information for the project applicant and property owner applicant signature and date with statement, "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package".

(2) Water Efficient Landscape Worksheet; hydrozone information table water budget calculations Maximum Applied Water Allowance (MAWA)

1. Estimated Total Water Use (ETWU)

(3) soil management report;

(4) landscape design plan;

(5) irrigation design plan; and

(6) grading design plan.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 492.4 Water Efficient Landscape Worksheet.**

(a) A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections (see sample worksheet in Appendix B): a hydrozone information table (see Appendix B, Section A) for the landscape project; and a water budget calculation (see Appendix B, Section B) for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the Reference Evapotranspiration Table in Appendix A. For geographic areas not covered in Appendix A, use data from other cities located nearby in the same reference evapotranspiration zone, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.

(b) Water budget calculations shall adhere to the following requirements:

(1) The plant factor used shall be from WUCOLS. The plant factor ranges from 0 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.

(3) All Special Landscape Areas shall be identified and their water use calculated as described below.

(4) ETAF for Special Landscape Areas shall not exceed 1.0.

(c) Maximum Applied Water Allowance The Maximum Applied Water Allowance shall be calculated using the equation:

$$MAWA = (ET_o) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$$

The example calculations below are hypothetical to demonstrate proper use of the equations and do not represent an existing and/or planned landscape project. The ETo values used in these calculations are from the Reference Evapotranspiration Table in Appendix A, for planning purposes only. For actual irrigation scheduling, automatic irrigation controllers are required and shall use current reference evapotranspiration data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

(1) Example MAWA calculation: a hypothetical landscape project in Fresno, CA with an irrigated landscape area of 50,000 square feet without any Special Landscape Area (SLA= 0, no edible plants,

recreational areas, or use of recycled water). To calculate MAWA, the annual reference evapotranspiration value for Fresno is 51.1 inches as listed in the Reference Evapotranspiration Table in Appendix A.

$$\text{MAWA} = (\text{ETo}) (0.62) [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evapotranspiration (inches per year)

0.62 = Conversion Factor (to gallons)

0.7 = ET Adjustment Factor (ETAF)

LA = Landscape Area including SLA (square feet)

0.3 = Additional Water Allowance for SLA SLA = Special Landscape Area (square feet)

MAWA = (51.1 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 0)] = 1,108,870 gallons per year To convert from gallons per year to hundred-cubic-feet per year: = 1,108,870/748 = 1,482 hundred-cubic-feet per year

(100 cubic feet = 748 gallons)

(2) In this next hypothetical example, the landscape project in Fresno, CA has the same ETo value of 51.1 inches and a total landscape area of 50,000 square feet. Within the 50,000 square foot project, there is now a 2,000 square foot area planted with edible plants. This 2,000 square foot area is considered to be a Special Landscape Area.

$$\text{MAWA} = (\text{ETo}) (0.62) [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

$$\text{MAWA} = (51.1 \text{ inches}) (0.62) [(0.7 \times 50,000 \text{ square feet}) + (0.3 \times 2,000 \text{ square feet})]$$

$$= 31.68 \times [35,000 + 600] \text{ gallons per year} = 31.68 \times 35,600 \text{ gallons per year} = 1,127,808 \text{ gallons per year}$$

or 1,508 hundred-cubic-feet per year

(d) Estimated Total Water Use.

The Estimated Total Water Use shall be calculated using the equation below. The sum of the Estimated Total Water Use calculated for all hydrozones shall not exceed MAWA.

$$\text{ETWU} = (\text{ETo})(0.62) \left( \frac{\text{PF} \times \text{HA}}{\text{IE}} + \text{SLA} \right)$$

Where:

ETWU = Estimated Total Water Use per year (gallons)

ETo = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS (see Section 491)

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

SLA = Special Landscape Area (square feet) 0.62 = Conversion Factor IE = Irrigation Efficiency (minimum 0.71)

(1) Example ETWU calculation: landscape area is 50,000 square feet; plant water use type, plant factor, and hydrozone area are shown in the table below. The ETo value is 51.1 inches per year. There are no Special Landscape Areas (recreational area, area permanently and solely dedicated to edible plants, and area irrigated with recycled water) in this example.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)*	Hydrozone Area (HA) (square feet)	PF x HA (square feet)
1	High	0.8	7,000	5,600
2	High	0.7	10,000	7,000
3	Medium	0.5	16,000	8,000
4	Low	0.3	7,000	2,100
5	Low	0.2	10,000	2,000
			Sum	24,700

\*Plant Factor from WUCOLS

$$ETWU = (51.1)(0.62) \left( \frac{24,700}{0.71} + 0 \right)$$

= 1,102,116 gallons per year Compare ETWU with MAWA: For this example MAWA = (51.1) (0.62) [(0.7 x 50,000) + (0.3 x 0)] = 1,108,870 gallons per year. The ETWU (1,102,116 gallons per year) is less than MAWA (1,108,870 gallons per year). In this example, the water budget complies with the MAWA.

(2) Example ETWU calculation: total landscape area is 50,000 square feet, 2,000 square feet of which is planted with edible plants. The edible plant area is considered a Special Landscape Area (SLA). The reference evapotranspiration value is 51.1 inches per year. The plant type, plant factor, and hydrozone area are shown in the table below.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)*	Hydrozone Area (HA) (square feet)	PF x HA (square feet)
1	High	0.8	7,000	5,600
2	High	0.7	9,000	6,300
3	Medium	0.5	15,000	7,500
4	Low	0.3	7,000	2,100
5	Low	0.2	10,000	2,000
			Sum	23,500
6	SLA	1.0	2,000	2,000

\*Plant Factor from WUCOLS

$$ETWU = (51.1)(0.62) \left( \frac{23,500}{0.71} + 2,000 \right)$$

$$= (31.68) (33,099 + 2,000)$$

$$= 1,111,936 \text{ gallons per year}$$

Compare ETWU with MAWA. For this example:

$$\text{MAWA} = (51.1) (0.62) [(0.7 \times 50,000) + (0.3 \times 2,000)] = 31.68 \times [35,000 + 600]$$

= 31.68 x 35,600 = 1,127,808 gallons per year The ETWU (1,111,936 gallons per year) is less than MAWA (1,127,808 gallons per year). For this example, the water budget complies with the MAWA.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 492.5 Soil Management Report.**

(a) In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:

(1) Submit soil samples to a laboratory for analysis and recommendations.

(A) Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.

(B) The soil analysis may include: soil texture; infiltration rate determined by laboratory test or soil texture infiltration rate table; pH; total soluble salts; sodium; percent organic matter; and recommendations.

(2) The project applicant, or his/her designee, shall comply with one of the following:

(A) If significant mass grading is not planned, the soil analysis report shall be submitted to the local agency as part of the Landscape Documentation Package; or If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.

(3) The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans.

(4) The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 492.6 Landscape Design Plan.**

(a) For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

(1) Plant Material

(A) 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. To encourage the efficient use of water, the following is highly recommended: protection and preservation of native species and natural vegetation; selection of water-conserving plant and turf species; selection of plants based on disease and pest resistance; selection of trees based on applicable local tree ordinances or tree shading guidelines; and selection of plants from local and regional landscape program plant lists.

(B) 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 492.7(a)(2)(D).

(C) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended: 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; recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; and consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

(D) Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).

(E) A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 429 1(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.

(F) The use of invasive and/or noxious plant species is strongly discouraged.

(G) The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

(2) Water Features Recirculating water systems shall be used for water features.

(A) Where available, recycled water shall be used as a source for decorative water features.

(B) Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.

(C) Pool and spa covers are highly recommended.

(3) Mulch and Amendments A minimum two inch (2") 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.

(A) Stabilizing mulching products shall be used on slopes.

(B) The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.

(C) Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 492.5).

(b) The landscape design plan, at a minimum, shall: delineate and label each hydrozone by number, letter, or other method; identify each hydrozone as 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; 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);

(10) identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to: infiltration beds, swales, and basins that allow water to collect and soak into the ground; constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.

(11) identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);

(12) 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

(13) bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code and Section 1351, Civil Code.

#### **§ 492.7 Irrigation Design Plan.**

(a) For the efficient use of water, an irrigation system shall meet all the requirements listed in this

section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

(1) System

(A) Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.

(B) Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data shall be required for irrigation scheduling in all irrigation systems.

(C) The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

1. 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.

2. 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.

(D) 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.

(E) 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.

(F) 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.

(G) High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.

(H) 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.

(I) Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

(J) The design of the irrigation system shall conform to the hydrozones of the landscape design plan.

(K) The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 492.4 regarding the Maximum Applied Water Allowance.

(L) 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.

(M) In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.

(N) Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.

(O) Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.

(P) Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.

(Q) Check valves or anti-drain valves are required for all irrigation systems.

(R) Narrow or irregularly shaped areas, including turf, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.

(S) Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if: the landscape area is adjacent to permeable surfacing and no runoff occurs; or the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or the irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 492.7 (a)(1)(H). Prevention of overspray and runoff must be confirmed during the irrigation audit.

(T) Slopes greater than 25% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

(2) Hydrozone Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.

(A) Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.

(B) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf.

(C) 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.

(E) Individual hydrozones that mix high and low water use plants shall not be permitted.

(F) On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. 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 (see Appendix B Section A). This table can also assist with the irrigation audit and programming the controller.

(b) 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. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 492.8 Grading Design Plan.**

(a) 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 comprehensive grading plan prepared by a civil engineer for other local agency permits satisfies this requirement.

(1) The project applicant shall submit a landscape grading plan 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.

(2) 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.

(3) 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.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

### **§ 492.9 Certificate of Completion.**

(a) The Certificate of Completion (see Appendix C for a sample certificate) shall include the following six (6) elements:

(1) project information sheet that contains: date; project name; project applicant name, telephone, and mailing address; project address and location; and property owner name, telephone, and mailing address;

(2) certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;

(A) where there have been significant changes made in the field during construction, these "as-built" or record drawings shall be included with the certification;

(3) irrigation scheduling parameters used to set the controller (see Section 492.10);

(4) landscape and irrigation maintenance schedule (see Section 492.11);

(5) irrigation audit report (see Section 492.12); and

(6) soil analysis report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of soil report recommendations (see Section 492.5).

(b) The project applicant shall: submit the signed Certificate of Completion to the local agency for review; ensure that copies of the approved Certificate of Completion are submitted to the local water purveyor and property owner or his or her designee.

(c) The local agency shall: receive the signed Certificate of Completion from the project applicant; approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the local agency shall provide information to the project applicant regarding reapplication, appeal, or other assistance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

### **§ 492.10 Irrigation Scheduling.**

(a) 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. Irrigation schedules shall meet the following criteria:

(1) Irrigation scheduling shall be regulated by automatic irrigation controllers.

(2) 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 auditing and system maintenance.

(3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the

Estimated Total Water Use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.

(4) Parameters used to set the automatic controller shall be developed and submitted for each of the following:

(A) the plant establishment period; the established landscape; and temporarily irrigated areas.

(5) Each irrigation schedule shall consider for each station all of the following that apply: irrigation interval (days between irrigation); irrigation run times (hours or minutes per irrigation event to avoid runoff); number of cycle starts required for each irrigation event to avoid runoff; amount of applied water scheduled to be applied on a monthly basis; application rate setting; root depth setting; plant type setting; soil type; slope factor setting; shade factor setting; and irrigation uniformity or efficiency setting.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 492.11 Landscape and Irrigation Maintenance Schedule.**

(a) Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.

(b) A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing and obstruction to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

(c) Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.

(d) A project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

#### **§ 492.12 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.**

(a) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

(b) For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in Section 490.1: the project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, 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; the local agency shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 492.13 Irrigation Efficiency.**

(a) For the purpose of determining Maximum Applied Water Allowance, average irrigation efficiency is assumed to be 0.71. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average landscape irrigation efficiency of 0.71.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 492.14 Recycled Water.**

(a) The installation of recycled water irrigation systems shall allow for the current and future use of recycled water, unless a written exemption has been granted as described in Section 492.14(b).

(b) Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the local water purveyor stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.

(c) All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.

(d) Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for Special Landscape Areas shall not exceed 1.0.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 492.15 Stormwater Management.**

(a) Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration are encouraged.

(b) Project applicants shall refer to the local agency or Regional Water Quality Control Board for information on any applicable stormwater ordinances and stormwater management plans.

(c) Rain gardens, cisterns, and other landscapes features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 492.16 Public Education.**

(a) Publications. Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.

(1) A local agency shall provide information to owners of new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes.

(b) Model Homes. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this ordinance.

(1) 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.

(2) Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 492.17 Environmental Review.**

(a) The local agency must comply with the California Environmental Quality Act (CEQA), as appropriate.

Note: Authority cited: Section 21082, Public Resources Code. Reference: Sections 21080, 21082, Public Resources Code.

**§ 493. Provisions for Existing Landscapes.**

(a) A local agency may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 493.1 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.**

(a) This section, 493.1, shall apply to all existing landscapes that were installed before January 1, 2010 and are over one acre in size.

(1) For all landscapes in 493.1(a) that have a water meter, the local agency shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance for existing landscapes. The Maximum Applied Water Allowance for existing landscapes shall be calculated as:  $MAWA = (0.8)(ET_o)(LA)(0.62)$ .

(2) For all landscapes in 493.1(a), that do not have a meter, the local agency shall administer programs that may include, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.

(b) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**§ 493.2 Water Waste Prevention.**

(a) Local agencies shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures. Penalties for violation of these prohibitions shall be established locally.

(b) Restrictions regarding overspray and runoff may be modified if: the landscape area is adjacent to permeable surfacing and no runoff occurs; or the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

Note: Authority cited: Section 65594, Government Code. Reference: Section 65596, Government Code.

**§ 494. Effective Precipitation.**

(a) A local agency may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance:

$$MAWA = (ET_o - Eppt) (0.62) [(0.7 \times LA) + (0.3 \times SLA)].$$

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

**Appendices.**

**Appendix A. Reference Evapotranspiration (ET<sub>o</sub>) Table.**

Appendix A - Reference Evapotranspiration (ET <sub>o</sub> ) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET <sub>o</sub>
<b>ALAMEDA</b>													
Fremont	1.5	1.9	3.4	4.7	5.4	6.3	6.7	6.0	4.5	3.4	1.8	1.5	47.0
Livermore	1.2	1.5	2.9	4.4	5.9	6.6	7.4	6.4	5.3	3.2	1.5	0.9	47.2
Oakland	1.5	1.5	2.8	3.9	5.1	5.3	6.0	5.5	4.8	3.1	1.4	0.9	41.8
Oakland Foothills	1.1	1.4	2.7	3.7	5.1	6.4	5.8	4.9	3.6	2.6	1.4	1.0	39.6
Pleasanton	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
Union City	1.4	1.8	3.1	4.2	5.4	5.9	6.4	5.7	4.4	3.1	1.5	1.2	44.2
<b>ALPINE</b>													
Markleeville	0.7	0.9	2.0	3.5	5.0	6.1	7.3	6.4	4.4	2.6	1.2	0.5	40.6
<b>AMADOR</b>													
Jackson	1.2	1.5	2.8	4.4	6.0	7.2	7.9	7.2	5.3	3.2	1.4	0.9	48.9
Shanandoah Valley	1.0	1.7	2.9	4.4	5.6	6.8	7.9	7.1	5.2	3.6	1.7	1.0	48.8
<b>BUTTE</b>													
Chico	1.2	1.8	2.9	4.7	6.1	7.4	8.5	7.3	5.4	3.7	1.7	1.0	51.7
Durham	1.1	1.8	3.2	5.0	6.5	7.4	7.8	6.9	5.3	3.6	1.7	1.0	51.1
Gridley	1.2	1.8	3.0	4.7	6.1	7.7	8.5	7.1	5.4	3.7	1.7	1.0	51.9
Oroville	1.2	1.7	2.8	4.7	6.1	7.6	8.5	7.3	5.3	3.7	1.7	1.0	51.5
<b>CALAVERAS</b>													
San Andreas	1.2	1.5	2.8	4.4	6.0	7.3	7.9	7.0	5.3	3.2	1.4	0.7	48.8
<b>COLUSA</b>													
Colusa	1.0	1.7	3.4	5.0	6.4	7.6	8.3	7.2	5.4	3.8	1.8	1.1	52.8
Williams	1.2	1.7	2.9	4.5	6.1	7.2	8.5	7.3	5.3	3.4	1.6	1.0	50.8
<b>CONTRA COSTA</b>													
Benicia	1.3	1.4	2.7	3.8	4.9	5.0	6.4	5.5	4.4	2.9	1.2	0.7	40.3
Brentwood	1.0	1.5	2.9	4.5	6.1	7.1	7.9	6.7	5.2	3.2	1.4	0.7	48.3
Concord	1.1	1.4	2.4	4.0	5.5	5.9	7.0	6.0	4.8	3.2	1.3	0.7	43.4
Courtland	0.9	1.5	2.9	4.4	6.1	6.9	7.9	6.7	5.3	3.2	1.4	0.7	48.0
Martinez	1.2	1.4	2.4	3.9	5.3	5.6	6.7	5.6	4.7	3.1	1.2	0.7	41.8
Moraga	1.2	1.5	3.4	4.2	5.5	6.1	6.7	5.9	4.6	3.2	1.6	1.0	44.9
Pittsburg	1.0	1.5	2.8	4.1	5.6	6.4	7.4	6.4	5.0	3.2	1.3	0.7	45.4
Walnut Creek	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
<b>DEL NORTE</b>													
Crescent City	0.5	0.9	2.0	3.0	3.7	3.5	4.3	3.7	3.0	2.0	0.9	0.5	27.7
<b>EL DORADO</b>													
Camino	0.9	1.7	2.5	3.9	5.9	7.2	7.8	6.8	5.1	3.1	1.5	0.9	47.3
<b>FRESNO</b>													
Clovis	1.0	1.5	3.2	4.8	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Coalinga	1.2	1.7	3.1	4.6	6.2	7.2	8.5	7.3	5.3	3.4	1.6	0.7	50.9
Firebaugh	1.0	1.8	3.7	5.7	7.3	8.1	8.2	7.2	5.5	3.9	2.0	1.1	55.4
FivePoints	1.3	2.0	4.0	6.1	7.7	8.5	8.7	8.0	6.2	4.5	2.4	1.2	60.4
<b>FRESNO</b>													
Fresno	0.9	1.7	3.3	4.8	6.7	7.8	8.4	7.1	5.2	3.2	1.4	0.6	51.1
Fresno State	0.9	1.6	3.2	5.2	7.0	8.0	8.7	7.6	5.4	3.6	1.7	0.9	53.7
Friant	1.2	1.5	3.1	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Kerman	0.9	1.5	3.2	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.2
Kingsburg	1.0	1.5	3.4	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.6
Mendota	1.5	2.5	4.6	6.2	7.9	8.6	8.8	7.5	5.9	4.5	2.4	1.5	61.7
Orange Cove	1.2	1.9	3.5	4.7	7.4	8.5	8.9	7.9	5.9	3.7	1.8	1.2	56.7
Panoche	1.1	2.0	4.0	5.6	7.8	8.5	8.3	7.3	5.6	3.9	1.8	1.2	57.2
Parlier	1.0	1.9	3.6	5.2	6.8	7.6	8.1	7.0	5.1	3.4	1.7	0.9	52.0
Reedley	1.1	1.5	3.2	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Westlands	0.9	1.7	3.8	6.3	8.0	8.6	8.6	7.8	5.9	4.3	2.1	1.1	58.8

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>GLENN</b>													
Orland	1.1	1.8	3.4	5.0	6.4	7.5	7.9	6.7	5.3	3.9	1.8	1.4	52.1
Willows	1.2	1.7	2.9	4.7	6.1	7.2	8.5	7.3	5.3	3.6	1.7	1.0	51.3
<b>HUMBOLDT</b>													
Eureka	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Ferndale	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Garberville	0.6	1.2	2.2	3.1	4.5	5.0	5.5	4.9	3.8	2.4	1.0	0.7	34.9
Hoopa	0.5	1.1	2.1	3.0	4.4	5.4	6.1	5.1	3.8	2.4	0.9	0.7	35.6
<b>IMPERIAL</b>													
Brawley	2.8	3.8	5.9	8.0	10.4	11.5	11.7	10.0	8.4	6.2	3.5	2.1	84.2
Calipatria/Mulberry	2.4	3.2	5.1	6.8	8.6	9.2	9.2	8.6	7.0	5.2	3.1	2.3	70.7
El Centro	2.7	3.5	5.6	7.9	10.1	11.1	11.6	9.5	8.3	6.1	3.3	2.0	81.7
Holtville	2.8	3.8	5.9	7.9	10.4	11.6	12.0	10.0	8.6	6.2	3.5	2.1	84.7
Meloland	2.5	3.2	5.5	7.5	8.9	9.2	9.0	8.5	6.8	5.3	3.1	2.2	71.6
Palo Verde II	2.5	3.3	5.7	6.9	8.5	8.9	8.6	7.9	6.2	4.5	2.9	2.3	68.2
Seeley	2.7	3.5	5.9	7.7	9.7	10.1	9.3	8.3	6.9	5.5	3.4	2.2	75.4
Westmoreland	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Yuma	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
<b>INYO</b>													
Bishop	1.7	2.7	4.8	6.7	8.2	10.9	7.4	9.6	7.4	4.8	2.5	1.6	68.3
Death Valley Jct	2.2	3.3	5.4	7.7	9.8	11.1	11.4	10.1	8.3	5.4	2.9	1.7	79.1
Independence	1.7	2.7	3.4	6.6	8.5	9.5	9.8	8.5	7.1	3.9	2.0	1.5	65.2
Lower Haiwee Res.	1.8	2.7	4.4	7.1	8.5	9.5	9.8	8.5	7.1	4.2	2.6	1.5	67.6
Oasis	2.7	2.8	5.9	8.0	10.4	11.7	11.6	10.0	8.4	6.2	3.4	2.1	83.1
<b>KERN</b>													
Arvin	1.2	1.8	3.5	4.7	6.6	7.4	8.1	7.3	5.3	3.4	1.7	1.0	51.9
Bakersfield	1.0	1.8	3.5	4.7	6.6	7.7	8.5	7.3	5.3	3.5	1.6	0.9	52.4
Bakersfield/Bonanza	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
Bakersfield/Greenlee	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
<b>KERN</b>													
Belridge	1.4	2.2	4.1	5.5	7.7	8.5	8.6	7.8	6.0	3.8	2.0	1.5	59.2
Blackwells Corner	1.4	2.1	3.8	5.4	7.0	7.8	8.5	7.7	5.8	3.9	1.9	1.2	56.6
Buttonwillow	1.0	1.8	3.2	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.5	0.9	52.0
China Lake	2.1	3.2	5.3	7.7	9.2	10.0	11.0	9.8	7.3	4.9	2.7	1.7	74.8
Delano	0.9	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.4	0.7	52.0
Famoso	1.3	1.9	3.5	4.8	6.7	7.6	8.0	7.3	5.5	3.5	1.7	1.3	53.1
Grapevine	1.3	1.8	3.1	4.4	5.6	6.8	7.6	6.8	5.9	3.4	1.9	1.0	49.5
Inyokern	2.0	3.1	4.9	7.3	8.5	9.7	11.0	9.4	7.1	5.1	2.6	1.7	72.4
Isabella Dam	1.2	1.4	2.8	4.4	5.8	7.3	7.9	7.0	5.0	3.2	1.7	0.9	48.4
Lamont	1.3	2.4	4.4	4.6	6.5	7.0	8.8	7.6	5.7	3.7	1.6	0.8	54.4
Lost Hills	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
McFarland/Kern	1.2	2.1	3.7	5.6	7.3	8.0	8.3	7.4	5.6	4.1	2.0	1.2	56.5
Shafter	1.0	1.7	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.5	0.9	52.1
Taft	1.3	1.8	3.1	4.3	6.2	7.3	8.5	7.3	5.4	3.4	1.7	1.0	51.2
Tehachapi	1.4	1.8	3.2	5.0	6.1	7.7	7.9	7.3	5.9	3.4	2.1	1.2	52.9
<b>KINGS</b>													
Caruthers	1.6	2.5	4.0	5.7	7.8	8.7	9.3	8.4	6.3	4.4	2.4	1.6	62.7
Corcoran	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Hanford	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.2	5.4	3.4	1.4	0.7	51.5
Kettleman	1.1	2.0	4.0	6.0	7.5	8.5	9.1	8.2	6.1	4.5	2.2	1.1	60.2
Lemoore	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.4	0.7	51.7
Stratford	0.9	1.9	3.9	6.1	7.8	8.6	8.8	7.7	5.9	4.1	2.1	1.0	58.7

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>LAKE</b>													
Lakeport	1.1	1.3	2.6	3.5	5.1	6.0	7.3	6.1	4.7	2.9	1.2	0.9	42.8
Lower Lake	1.2	1.4	2.7	4.5	5.3	6.3	7.4	6.4	5.0	3.1	1.3	0.9	45.4
<b>LASSEN</b>													
Buntingville	1.0	1.7	3.5	4.9	6.2	7.3	8.4	7.5	5.4	3.4	1.5	0.9	51.8
Ravendale	0.6	1.1	2.3	4.1	5.6	6.7	7.9	7.3	4.7	2.8	1.2	0.5	44.9
Susanville	0.7	1.0	2.2	4.1	5.6	6.5	7.8	7.0	4.6	2.8	1.2	0.5	44.0
<b>LOS ANGELES</b>													
Burbank	2.1	2.8	3.7	4.7	5.1	6.0	6.6	6.7	5.4	4.0	2.6	2.0	51.7
Claremont	2.0	2.3	3.4	4.6	5.0	6.0	7.0	7.0	5.3	4.0	2.7	2.1	51.3
El Dorado	1.7	2.2	3.6	4.8	5.1	5.7	5.9	5.9	4.4	3.2	2.2	1.7	46.3
Glendale	2.0	2.2	3.3	3.8	4.7	4.8	5.7	5.6	4.3	3.3	2.2	1.8	43.7
Glendora	2.0	2.5	3.6	4.9	5.4	6.1	7.3	6.8	5.7	4.2	2.6	2.0	53.1
Gorman	1.6	2.2	3.4	4.6	5.5	7.4	7.7	7.1	5.9	3.6	2.4	1.1	52.4
Hollywood Hills	2.1	2.2	3.8	5.4	6.0	6.5	6.7	6.4	5.2	3.7	2.8	2.1	52.8
Lancaster	2.1	3.0	4.6	5.9	8.5	9.7	11.0	9.8	7.3	4.6	2.8	1.7	71.1
Long Beach	1.8	2.1	3.3	3.9	4.5	4.3	5.3	4.7	3.7	2.8	1.8	1.5	39.7
Los Angeles	2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1
<b>LOS ANGELES</b>													
Monrovia	2.2	2.3	3.8	4.3	5.5	5.9	6.9	6.4	5.1	3.2	2.5	2.0	50.2
Palmdale	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
Pasadena	2.1	2.7	3.7	4.7	5.1	6.0	7.1	6.7	5.6	4.2	2.6	2.0	52.3
Pearblossom	1.7	2.4	3.7	4.7	7.3	7.7	9.9	7.9	6.4	4.0	2.6	1.6	59.9
Pomona	1.7	2.0	3.4	4.5	5.0	5.8	6.5	6.4	4.7	3.5	2.3	1.7	47.5
Redondo Beach	2.2	2.4	3.3	3.8	4.5	4.7	5.4	4.8	4.4	2.8	2.4	2.0	42.6
San Fernando	2.0	2.7	3.5	4.6	5.5	5.9	7.3	6.7	5.3	3.9	2.6	2.0	52.0
Santa Clarita	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Santa Monica	1.8	2.1	3.3	4.5	4.7	5.0	5.4	5.4	3.9	3.4	2.4	2.2	44.2
<b>MADERA</b>													
Chowchilla	1.0	1.4	3.2	4.7	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Madera	0.9	1.4	3.2	4.8	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.5
Raymond	1.2	1.5	3.0	4.6	6.1	7.6	8.4	7.3	5.2	3.4	1.4	0.7	50.5
<b>MARIN</b>													
Black Point	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
Novato	1.3	1.5	2.4	3.5	4.4	6.0	5.9	5.4	4.4	2.8	1.4	0.7	39.8
Point San Pedro	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
San Rafael	1.2	1.3	2.4	3.3	4.0	4.8	4.8	4.9	4.3	2.7	1.3	0.7	35.8
<b>MARIPOSA</b>													
Coulterville	1.1	1.5	2.8	4.4	5.9	7.3	8.1	7.0	5.3	3.4	1.4	0.7	48.8
Mariposa	1.1	1.5	2.8	4.4	5.9	7.4	8.2	7.1	5.0	3.4	1.4	0.7	49.0
Yosemite Village	0.7	1.0	2.3	3.7	5.1	6.5	7.1	6.1	4.4	2.9	1.1	0.6	41.4
<b>MENDOCINO</b>													
Fort Bragg	0.9	1.3	2.2	3.0	3.7	3.5	3.7	3.7	3.0	2.3	1.2	0.7	29.0
Hopland	1.1	1.3	2.6	3.4	5.0	5.9	6.5	5.7	4.5	2.8	1.3	0.7	40.9
Point Arena	1.0	1.3	2.3	3.0	3.7	3.9	3.7	3.7	3.0	2.3	1.2	0.7	29.6
Sanel Valley	1.0	1.6	3.0	4.6	6.0	7.0	8.0	7.0	5.2	3.4	1.4	0.9	49.1
Ukiah	1.0	1.3	2.6	3.3	5.0	5.8	6.7	5.9	4.5	2.8	1.3	0.7	40.9
<b>MERCED</b>													
Kesterson	0.9	1.7	3.4	5.5	7.3	8.2	8.6	7.4	5.5	3.8	1.8	0.9	55.1
Los Banos	1.0	1.5	3.2	4.7	6.1	7.4	8.2	7.0	5.3	3.4	1.4	0.7	50.0
Merced	1.0	1.5	3.2	4.7	6.6	7.9	8.5	7.2	5.3	3.4	1.4	0.7	51.5

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>MODOC</b>													
Modoc/Alturas	0.9	1.4	2.8	3.7	5.1	6.2	7.5	6.6	4.6	2.8	1.2	0.7	43.2
<b>MONO</b>													
Bridgeport	0.7	0.9	2.2	3.8	5.5	6.6	7.4	6.7	4.7	2.7	1.2	0.5	43.0
<b>MONTEREY</b>													
Arroyo Seco	1.5	2.0	3.7	5.4	6.3	7.3	7.2	6.7	5.0	3.9	2.0	1.6	52.6
Castroville	1.4	1.7	3.0	4.2	4.6	4.8	4.0	3.8	3.0	2.6	1.6	1.4	36.2
Gonzales	1.3	1.7	3.4	4.7	5.4	6.3	6.3	5.9	4.4	3.4	1.9	1.3	45.7
<b>MONTEREY</b>													
Greenfield	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
King City	1.7	2.0	3.4	4.4	4.4	5.6	6.1	6.7	6.5	5.2	2.2	1.3	49.6
King City-Oasis Rd.	1.4	1.9	3.6	5.3	6.5	7.3	7.4	6.8	5.1	4.0	2.0	1.5	52.7
Long Valley	1.5	1.9	3.2	4.1	5.8	6.5	7.3	6.7	5.3	3.6	2.0	1.2	49.1
Monterey	1.7	1.8	2.7	3.5	4.0	4.1	4.3	4.2	3.5	2.8	1.9	1.5	36.0
Pajaro	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.1
Salinas	1.6	1.9	2.7	3.8	4.8	4.7	5.0	4.5	4.0	2.9	1.9	1.3	39.1
Salinas North	1.2	1.5	2.9	4.1	4.6	5.2	4.5	4.3	3.2	2.8	1.5	1.2	36.9
San Ardo	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
San Juan	1.8	2.1	3.4	4.6	5.3	5.7	5.5	4.9	3.8	3.2	2.2	1.9	44.2
Soledad	1.7	2.0	3.4	4.4	5.5	5.4	6.5	6.2	5.2	3.7	2.2	1.5	47.7
<b>NAPA</b>													
Angwin	1.8	1.9	3.2	4.7	5.8	7.3	8.1	7.1	5.5	4.5	2.9	2.1	54.9
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	45.8
Oakville	1.0	1.5	2.9	4.7	5.8	6.9	7.2	6.4	4.9	3.5	1.6	1.2	47.7
St Helena	1.2	1.5	2.8	3.9	5.1	6.1	7.0	6.2	4.8	3.1	1.4	0.9	44.1
Yountville	1.3	1.7	2.8	3.9	5.1	6.0	7.1	6.1	4.8	3.1	1.5	0.9	44.3
<b>NEVADA</b>													
Grass Valley	1.1	1.5	2.6	4.0	5.7	7.1	7.9	7.1	5.3	3.2	1.5	0.9	48.0
Nevada City	1.1	1.5	2.6	3.9	5.8	6.9	7.9	7.0	5.3	3.2	1.4	0.9	47.4
<b>ORANGE</b>													
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
<b>PLACER</b>													
Auburn	1.2	1.7	2.8	4.4	6.1	7.4	8.3	7.3	5.4	3.4	1.6	1.0	50.6
Blue Canyon	0.7	1.1	2.1	3.4	4.8	6.0	7.2	6.1	4.6	2.9	0.9	0.6	40.5
Colfax	1.1	1.5	2.6	4.0	5.8	7.1	7.9	7.0	5.3	3.2	1.4	0.9	47.9
Roseville	1.1	1.7	3.1	4.7	6.2	7.7	8.5	7.3	5.6	3.7	1.7	1.0	52.2
Soda Springs	0.7	0.7	1.8	3.0	4.3	5.3	6.2	5.5	4.1	2.5	0.7	0.7	35.4
Tahoe City	0.7	0.7	1.7	3.0	4.3	5.4	6.1	5.6	4.1	2.4	0.8	0.6	35.5
Truckee	0.7	0.7	1.7	3.2	4.4	5.4	6.4	5.7	4.1	2.4	0.8	0.6	36.2
<b>PLUMAS</b>													
Portola	0.7	0.9	1.9	3.5	4.9	5.9	7.3	5.9	4.3	2.7	0.9	0.5	39.4
Quincy	0.7	0.9	2.2	3.5	4.9	5.9	7.3	5.9	4.4	2.8	1.2	0.5	40.2
<b>RIVERSIDE</b>													
Beaumont	2.0	2.3	3.4	4.4	6.1	7.1	7.6	7.9	6.0	3.9	2.6	1.7	55.0
Blythe	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Cathedral City	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Coachella	2.9	4.4	6.2	8.4	10.5	11.9	12.3	10.1	8.9	6.2	3.8	2.4	88.1

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>RIVERSIDE</b>													
Desert Center	2.9	4.1	6.4	8.5	11.0	12.1	12.2	11.1	9.0	6.4	3.9	2.6	90.0
Elsinore	2.1	2.8	3.9	4.4	5.9	7.1	7.6	7.0	5.8	3.9	2.6	1.9	55.0
Indio	3.1	3.6	6.5	8.3	10.5	11.0	10.8	9.7	8.3	5.9	3.7	2.7	83.9
La Quinta	2.4	2.8	5.2	6.5	8.3	8.7	8.5	7.9	6.5	4.5	2.7	2.2	66.2
Mecca	2.6	3.3	5.7	7.2	8.6	9.0	8.8	8.2	6.8	5.0	3.2	2.4	70.8
Oasis	2.9	3.3	5.3	6.1	8.5	8.9	8.7	7.9	6.9	4.8	2.9	2.3	68.4
Palm Desert	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
Palm Springs	2.0	2.9	4.9	7.2	8.3	8.5	11.6	8.3	7.2	5.9	2.7	1.7	71.1
Rancho California	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
Rancho Mirage	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Ripley	2.7	3.3	5.6	7.2	8.7	8.7	8.4	7.6	6.2	4.6	2.8	2.2	67.8
Salton Sea North	2.5	3.3	5.5	7.2	8.8	9.3	9.2	8.5	6.8	5.2	3.1	2.3	71.7
Temecula East II	2.3	2.4	4.1	4.9	6.4	7.0	7.8	7.4	5.7	4.1	2.6	2.2	56.7
Thermal	2.4	3.3	5.5	7.6	9.1	9.6	9.3	8.6	7.1	5.2	3.1	2.1	72.8
Riverside UC	2.5	2.9	4.2	5.3	5.9	6.6	7.2	6.9	5.4	4.1	2.9	2.6	56.4
Winchester	2.3	2.4	4.1	4.9	6.4	6.9	7.7	7.5	6.0	3.9	2.6	2.1	56.8
<b>SACRAMENTO</b>													
Fair Oaks	1.0	1.6	3.4	4.1	6.5	7.5	8.1	7.1	5.2	3.4	1.5	1.0	50.5
Sacramento	1.0	1.8	3.2	4.7	6.4	7.7	8.4	7.2	5.4	3.7	1.7	0.9	51.9
Twitchell Island	1.2	1.8	3.9	5.3	7.4	8.8	9.1	7.8	5.9	3.8	1.7	1.2	57.9
<b>SAN BENITO</b>													
Hollister	1.5	1.8	3.1	4.3	5.5	5.7	6.4	5.9	5.0	3.5	1.7	1.1	45.1
San Benito	1.2	1.6	3.1	4.6	5.6	6.4	6.9	6.5	4.8	3.7	1.7	1.2	47.2
San Juan Valley	1.4	1.8	3.4	4.5	6.0	6.7	7.1	6.4	5.0	3.5	1.8	1.4	49.1
<b>SAN BERNARDINO</b>													
Baker	2.7	3.9	6.1	8.3	10.4	11.8	12.2	11.0	8.9	6.1	3.3	2.1	86.6
Barstow NE	2.2	2.9	5.3	6.9	9.0	10.1	9.9	8.9	6.8	4.8	2.7	2.1	71.7
Big Bear Lake	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Chino	2.1	2.9	3.9	4.5	5.7	6.5	7.3	7.1	5.9	4.2	2.6	2.0	54.6
Crestline	1.5	1.9	3.3	4.4	5.5	6.6	7.8	7.1	5.4	3.5	2.2	1.6	50.8
Lake Arrowhead	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Lucerne Valley	2.2	2.9	5.1	6.5	9.1	11.0	11.4	9.9	7.4	5.0	3.0	1.8	75.3
Needles	3.2	4.2	6.6	8.9	11.0	12.4	12.8	11.0	8.9	6.6	4.0	2.7	92.1
Newberry Springs	2.1	2.9	5.3	8.4	9.8	10.9	11.1	9.9	7.6	5.2	3.1	2.0	78.2
San Bernardino	2.0	2.7	3.8	4.6	5.7	6.9	7.9	7.4	5.9	4.2	2.6	2.0	55.6
Twentynine Palms	2.6	3.6	5.9	7.9	10.1	11.2	11.2	10.3	8.6	5.9	3.4	2.2	82.9
Victorville	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
<b>SAN DIEGO</b>													
Chula Vista	2.2	2.7	3.4	3.8	4.9	4.7	5.5	4.9	4.5	3.4	2.4	2.0	44.2
Escondido SPV	2.4	2.6	3.9	4.7	5.9	6.5	7.1	6.7	5.3	3.9	2.8	2.3	54.2
<b>SAN DIEGO</b>													
Miramar	2.3	2.5	3.7	4.1	5.1	5.4	6.1	5.8	4.5	3.3	2.4	2.1	47.1
Oceanside	2.2	2.7	3.4	3.7	4.9	4.6	4.6	5.1	4.1	3.3	2.4	2.0	42.9
Otay Lake	2.3	2.7	3.9	4.6	5.6	5.9	6.2	6.1	4.8	3.7	2.6	2.2	50.4
Pine Valley	1.5	2.4	3.8	5.1	6.0	7.0	7.8	7.3	6.0	4.0	2.2	1.7	54.8
Ramona	2.1	2.1	3.4	4.6	5.2	6.3	6.7	6.8	5.3	4.1	2.8	2.1	51.6
San Diego	2.1	2.4	3.4	4.6	5.1	5.3	5.7	5.6	4.3	3.6	2.4	2.0	46.5
Santee	2.1	2.7	3.7	4.5	5.5	6.1	6.6	6.2	5.4	3.8	2.6	2.0	51.1
Torrey Pines	2.2	2.3	3.4	3.9	4.0	4.1	4.6	4.7	3.8	2.8	2.0	2.0	39.8
Warner Springs	1.6	2.7	3.7	4.7	5.7	7.6	8.3	7.7	6.3	4.0	2.5	1.3	56.0

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>SAN FRANCISCO</b>													
San Francisco	1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	35.1
<b>SAN JOAQUIN</b>													
Farmington	1.5	1.5	2.9	4.7	6.2	7.6	8.1	6.8	5.3	3.3	1.4	0.7	50.0
Lodi West	1.0	1.6	3.3	4.3	6.3	6.9	7.3	6.4	4.5	3.0	1.4	0.8	46.7
Manteca	0.9	1.7	3.4	5.0	6.5	7.5	8.0	7.1	5.2	3.3	1.6	0.9	51.2
Stockton	0.8	1.5	2.9	4.7	6.2	7.4	8.1	6.8	5.3	3.2	1.4	0.6	49.1
Tracy	1.0	1.5	2.9	4.5	6.1	7.3	7.9	6.7	5.3	3.2	1.3	0.7	48.5
<b>SAN LUIS OBISPO</b>													
Arroyo Grande	2.0	2.2	3.2	3.8	4.3	4.7	4.3	4.6	3.8	3.2	2.4	1.7	40.0
Atascadero	1.2	1.5	2.8	3.9	4.5	6.0	6.7	6.2	5.0	3.2	1.7	1.0	43.7
Morro Bay	2.0	2.2	3.1	3.5	4.3	4.5	4.6	4.6	3.8	3.5	2.1	1.7	39.9
Nipomo	2.2	2.5	3.8	5.1	5.7	6.2	6.4	6.1	4.9	4.1	2.9	2.3	52.1
Paso Robles	1.6	2.0	3.2	4.3	5.5	6.3	7.3	6.7	5.1	3.7	2.1	1.4	49.0
San Luis Obispo	2.0	2.2	3.2	4.1	4.9	5.3	4.6	5.5	4.4	3.5	2.4	1.7	43.8
San Miguel	1.6	2.0	3.2	4.3	5.0	6.4	7.4	6.8	5.1	3.7	2.1	1.4	49.0
San Simeon	2.0	2.0	2.9	3.5	4.2	4.4	4.6	4.3	3.5	3.1	2.0	1.7	38.1
<b>SAN MATEO</b>													
Hal Moon Bay	1.5	1.7	2.4	3.0	3.9	4.3	4.3	4.2	3.5	2.8	1.3	1.0	33.7
Redwood City	1.5	1.8	2.9	3.8	5.2	5.3	6.2	5.6	4.8	3.1	1.7	1.0	42.8
Woodside	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
<b>SANTA BARBARA</b>													
Betteravia	2.1	2.6	4.0	5.2	6.0	5.9	5.8	5.4	4.1	3.3	2.7	2.1	49.1
Carpenteria	2.0	2.4	3.2	3.9	4.8	5.2	5.5	5.7	4.5	3.4	2.4	2.0	44.9
Cuyama	2.1	2.4	3.8	5.4	6.9	7.9	8.5	7.7	5.9	4.5	2.6	2.0	59.7
Goleta	2.1	2.5	3.9	5.1	5.7	5.7	5.4	5.4	4.2	3.2	2.8	2.2	48.1
Goleta Foothills	2.3	2.6	3.7	5.4	5.3	5.6	5.5	5.7	4.5	3.9	2.8	2.3	49.6
Guadalupe	2.0	2.2	3.2	3.7	4.9	4.6	4.5	4.6	4.1	3.3	2.4	1.7	41.1
Lompoc	2.0	2.2	3.2	3.7	4.8	4.6	4.9	4.8	3.9	3.2	2.4	1.7	41.1
Los Alamos	1.8	2.0	3.2	4.1	4.9	5.3	5.7	5.5	4.4	3.7	2.4	1.6	44.6
Santa Barbara	2.0	2.5	3.2	3.8	4.6	5.1	5.5	4.5	3.4	2.4	1.8	1.8	40.6
<b>SANTA BARBARA</b>													
Santa Maria	1.8	2.3	3.7	5.1	5.7	5.8	5.6	5.3	4.2	3.5	2.4	1.9	47.4
Santa Ynez	1.7	2.2	3.5	5.0	5.8	6.2	6.4	6.0	4.5	3.6	2.2	1.7	48.7
Sisquoc	2.1	2.5	3.8	4.1	6.1	6.3	6.4	5.8	4.7	3.4	2.3	1.8	49.2
Solvang	2.0	2.0	3.3	4.3	5.0	5.6	6.1	5.6	4.4	3.7	2.2	1.6	45.6
<b>SANTA CLARA</b>													
Gilroy	1.3	1.8	3.1	4.1	5.3	5.6	6.1	5.5	4.7	3.4	1.7	1.1	43.6
Los Gatos	1.5	1.8	2.8	3.9	5.0	5.6	6.2	5.5	4.7	3.2	1.7	1.1	42.9
Morgan Hill	1.5	1.8	3.4	4.2	6.3	7.0	7.1	6.0	5.1	3.7	1.9	1.4	49.5
Palo Alto	1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.7	1.0	43.0
San Jose	1.5	1.8	3.1	4.1	5.5	5.8	6.5	5.9	5.2	3.3	1.8	1.0	45.3
<b>SANTA CRUZ</b>													
De Laveaga	1.4	1.9	3.3	4.7	4.9	5.3	5.0	4.8	3.6	3.0	1.6	1.3	40.8
Green Valley Rd	1.2	1.8	3.2	4.5	4.6	5.4	5.2	5.0	3.7	3.1	1.6	1.3	40.6
Santa Cruz	1.5	1.8	2.6	3.5	4.3	4.4	4.8	4.4	3.8	2.8	1.7	1.2	36.6
Watsonville	1.5	1.8	2.7	3.7	4.6	4.5	4.9	4.2	4.0	2.9	1.8	1.2	37.7
Webb	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.2

Appendix A - Reference Evapotranspiration (ET <sub>o</sub> ) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET <sub>o</sub>
<b>SHASTA</b>													
Burney	0.7	1.0	2.1	3.5	4.9	5.9	7.4	6.4	4.4	2.9	0.9	0.6	40.9
Fall River Mills	0.6	1.0	2.1	3.7	5.0	6.1	7.8	6.7	4.6	2.8	0.9	0.5	41.8
Glenburn	0.6	1.0	2.1	3.7	5.0	6.3	7.8	6.7	4.7	2.8	0.9	0.6	42.1
McArthur	0.7	1.4	2.9	4.2	5.6	6.9	8.2	7.2	5.0	3.0	1.1	0.6	46.8
Redding	1.2	1.4	2.6	4.1	5.6	7.1	8.5	7.3	5.3	3.2	1.4	0.9	48.8
<b>SIERRA</b>													
Downieville	0.7	1.0	2.3	3.5	5.0	6.0	7.4	6.2	4.7	2.8	0.9	0.6	41.3
Sierraville	0.7	1.1	2.2	3.2	4.5	5.9	7.3	6.4	4.3	2.6	0.9	0.5	39.6
<b>SISKIYOU</b>													
Happy Camp	0.5	0.9	2.0	3.0	4.3	5.2	6.1	5.3	4.1	2.4	0.9	0.5	35.1
MacDoel	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
Mt Shasta	0.5	0.9	2.0	3.0	4.5	5.3	6.7	5.7	4.0	2.2	0.7	0.5	36.0
Tule lake FS	0.7	1.3	2.7	4.0	5.4	6.3	7.1	6.4	4.7	2.8	1.0	0.6	42.9
Weed	0.5	0.9	2.0	2.5	4.5	5.3	6.7	5.5	3.7	2.0	0.9	0.5	34.9
Yreka	0.6	0.9	2.1	3.0	4.9	5.8	7.3	6.5	4.3	2.5	0.9	0.5	39.2
<b>SOLANO</b>													
Dixon	0.7	1.4	3.2	5.2	6.3	7.6	8.2	7.2	5.5	4.3	1.6	1.1	52.1
Fairfield	1.1	1.7	2.8	4.0	5.5	6.1	7.8	6.0	4.8	3.1	1.4	0.9	45.2
Hastings Tract	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Putah Creek	1.0	1.6	3.2	4.9	6.1	7.3	7.9	7.0	5.3	3.8	1.8	1.2	51.0
Rio Vista	0.9	1.7	2.8	4.4	5.9	6.7	7.9	6.5	5.1	3.2	1.3	0.7	47.0
Suisun Valley	0.6	1.3	3.0	4.7	5.8	7.0	7.7	6.8	5.3	3.8	1.4	0.9	48.3
Winters	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
<b>SONOMA</b>													
Bennett Valley	1.1	1.7	3.2	4.1	5.5	6.5	6.6	5.7	4.5	3.1	1.5	0.9	44.4
Cloverdale	1.1	1.4	2.6	3.4	5.0	5.9	6.2	5.6	4.5	2.8	1.4	0.7	40.7
Fort Ross	1.2	1.4	2.2	3.0	3.7	4.5	4.2	4.3	3.4	2.4	1.2	0.5	31.9
Healdsburg	1.2	1.5	2.4	3.5	5.0	5.9	6.1	5.6	4.5	2.8	1.4	0.7	40.8
Lincoln	1.2	1.7	2.8	4.7	6.1	7.4	8.4	7.3	5.4	3.7	1.9	1.2	51.9
Petaluma	1.2	1.5	2.8	3.7	4.6	5.6	4.6	5.7	4.5	2.9	1.4	0.9	39.6
Santa Rosa	1.2	1.7	2.8	3.7	5.0	6.0	6.1	5.9	4.5	2.9	1.5	0.7	42.0
Valley of the Moon	1.0	1.6	3.0	4.5	5.6	6.6	7.1	6.3	4.7	3.3	1.5	1.0	46.1
Windsor	0.9	1.6	3.0	4.5	5.5	6.5	6.5	5.9	4.4	3.2	1.4	1.0	44.2
Denair	1.0	1.9	3.6	4.7	7.0	7.9	8.0	6.1	5.3	3.4	1.5	1.0	51.4
La Grange	1.2	1.5	3.1	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Modesto	0.9	1.4	3.2	4.7	6.4	7.7	8.1	6.8	5.0	3.4	1.4	0.7	49.7
Newman	1.0	1.5	3.2	4.6	6.2	7.4	8.1	6.7	5.0	3.4	1.4	0.7	49.3
<b>STANISLAUS</b>													
Oakdale	1.2	1.5	3.2	4.7	6.2	7.7	8.1	7.1	5.1	3.4	1.4	0.7	50.3
Patterson	1.3	2.1	4.2	5.4	7.9	8.6	8.2	6.6	5.8	4.0	1.9	1.3	57.3
Turlock	0.9	1.5	3.2	4.7	6.5	7.7	8.2	7.0	5.1	3.4	1.4	0.7	50.2
<b>SUTTER</b>													
Nicolaus	0.9	1.6	3.2	4.9	6.3	7.5	8.0	6.9	5.2	3.4	1.5	0.9	50.2
Yuba City	1.3	2.1	2.8	4.4	5.7	7.2	7.1	6.1	4.7	3.2	1.2	0.9	46.7
<b>TEHAMA</b>													
Corning	1.2	1.8	2.9	4.5	6.1	7.3	8.1	7.2	5.3	3.7	1.7	1.1	50.7
Gerber	1.0	1.8	3.5	5.0	6.6	7.9	8.7	7.4	5.8	4.1	1.8	1.1	54.7
Gerber Dryland	0.9	1.6	3.2	4.7	6.7	8.4	9.0	7.9	6.0	4.2	2.0	1.0	55.5
Red Bluff	1.2	1.8	2.9	4.4	5.9	7.4	8.5	7.3	5.4	3.5	1.7	1.0	51.1

<b>Appendix A - Reference Evapotranspiration (ETo) Table*</b>													
<b>County and City</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual ETo</b>
<b>TRINITY</b>													
Hay Fork	0.5	1.1	2.3	3.5	4.9	5.9	7.0	6.0	4.5	2.8	0.9	0.7	40.1
Weaverville	0.6	1.1	2.2	3.3	4.9	5.9	7.3	6.0	4.4	2.7	0.9	0.7	40.0
<b>TULARE</b>													
Alpaugh	0.9	1.7	3.4	4.8	6.6	7.7	8.2	7.3	5.4	3.4	1.4	0.7	51.6
Badger	1.0	1.3	2.7	4.1	6.0	7.3	7.7	7.0	4.8	3.3	1.4	0.7	47.3
Delano	1.1	1.9	4.0	4.9	7.2	7.9	8.1	7.3	5.4	3.2	1.5	1.2	53.6
Dinuba	1.1	1.5	3.2	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Lindcove	0.9	1.6	3.0	4.8	6.5	7.6	8.1	7.2	5.2	3.4	1.6	0.9	50.6
Porterville	1.2	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.3	3.4	1.4	0.7	52.1
Visalia	0.9	1.7	3.3	5.1	6.8	7.7	7.9	6.9	4.9	3.2	1.5	0.8	50.7
<b>TUOLUMNE</b>													
Groveland	1.1	1.5	2.8	4.1	5.7	7.2	7.9	6.6	5.1	3.3	1.4	0.7	47.5
Sonora	1.1	1.5	2.8	4.1	5.8	7.2	7.9	6.7	5.1	3.2	1.4	0.7	47.6
<b>VENTURA</b>													
Camarillo	2.2	2.5	3.7	4.3	5.0	5.2	5.9	5.4	4.2	3.0	2.5	2.1	46.1
Oxnard	2.2	2.5	3.2	3.7	4.4	4.6	5.4	4.8	4.0	3.3	2.4	2.0	42.3
Piru	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Port Hueneme	2.0	2.3	3.3	4.6	4.9	4.9	4.9	5.0	3.7	3.2	2.5	2.2	43.5
Thousand Oaks	2.2	2.6	3.4	4.5	5.4	5.9	6.7	6.4	5.4	3.9	2.6	2.0	51.0
Ventura	2.2	2.6	3.2	3.8	4.6	4.7	5.5	4.9	4.1	3.4	2.5	2.0	43.5
<b>YOLO</b>													
Bryte	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
Davis	1.0	1.9	3.3	5.0	6.4	7.6	8.2	7.1	5.4	4.0	1.8	1.0	52.5
Esparto	1.0	1.7	3.4	5.5	6.9	8.1	8.5	7.5	5.8	4.2	2.0	1.2	55.8
Winters	1.7	1.7	2.9	4.4	5.8	7.1	7.9	6.7	5.3	3.3	1.6	1.0	49.4
Woodland	1.0	1.8	3.2	4.7	6.1	7.7	8.2	7.2	5.4	3.7	1.7	1.0	51.6
Zamora	1.1	1.9	3.5	5.2	6.4	7.4	7.8	7.0	5.5	4.0	1.9	1.2	52.8
<b>YUBA</b>													
Browns Valley	1.0	1.7	3.1	4.7	6.1	7.5	8.5	7.6	5.7	4.1	2.0	1.1	52.9
Brownsville	1.1	1.4	2.6	4.0	5.7	6.8	7.9	6.8	5.3	3.4	1.5	0.9	47.4
* The values in this table were derived from:													
1) California Irrigation Management Information System (CIMIS);													
2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999; and													
3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426													

## Appendix B – Sample Water Efficient Landscape Worksheet.

### WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.  
Please complete all sections (A and B) of the worksheet.

#### SECTION A. HYDROZONE INFORMATION TABLE

Please complete the hydrozone table(s) for each hydrozone. Use as many tables as necessary to provide the square footage of landscape area per hydrozone.

Hydrozone*	Zone or Valve	Irrigation Method**	Area (Sq. Ft.)	% of Landscape Area
<b>Total</b>				<b>100%</b>

\* **Hydrozone** \*  
*HW = High Water Use Plants*  
*MW = Moderate Water Use Plants* *S = Spray*  
*LW = Low Water Use Plants*

\*\***Irrigation Method**  
*MS = Micro-spray*  
*R = Rotor*  
*B = Bubbler*  
*D = Drip*  
*O = Other*

**SECTION B. WATER BUDGET CALCULATIONS**

**Section B1. Maximum Applied Water Allowance (MAWA)**

The project's Maximum Applied Water Allowance shall be calculated using this equation:

$$MAWA = (ET_o) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$$

where:

- MAWA = Maximum Applied Water Allowance (gallons per year)
- ET<sub>o</sub> = Reference Evapotranspiration from Appendix A (inches per year)
- 0.7 = ET Adjustment Factor (ETAF)
- LA = Landscaped Area includes Special Landscape Area (square feet)
- 0.62 = Conversion factor (to gallons per square foot)
- SLA = Portion of the landscape area identified as Special Landscape Area (square feet)
- 0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)

**Maximum Applied Water Allowance = \_\_\_\_\_ gallons per year**

Show calculations.

**Effective Precipitation (Eppt)**

If considering Effective Precipitation, use 25% of annual precipitation. Use the following equation to calculate Maximum Applied Water Allowance:

$$MAWA = (ET_o - Eppt) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$$

**Maximum Applied Water Allowance = \_\_\_\_\_ gallons per year**

Show calculations.

**Section B2. Estimated Total Water Use (ETWU)**

The project's Estimated Total Water Use is calculated using the following formula:

$$ETWU = (ETo)(0.62) \left( \frac{PF \times HA}{IE} + SLA \right)$$

where:

- ETWU = Estimated total water use per year (gallons per year)
- ETo = Reference Evapotranspiration (inches per year)
- PF = Plant Factor from WUCOLS (see Definitions)
- HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
- SLA = Special Landscape Area (square feet)
- 0.62 = Conversion Factor (to gallons per square foot)
- IE = Irrigation Efficiency (minimum 0.71)

**Hydrozone Table for Calculating ETWU**

Please complete the hydrozone table(s). Use as many tables as necessary.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)	Area (HA) (square feet)	PF x HA (square feet)
			Sum	
	SLA			

Estimated Total Water Use = \_\_\_\_\_ gallons

Show calculations.

## Appendix C – Sample Certificate of Completion.

### CERTIFICATE OF 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 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 \_\_\_\_\_

Date that a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the local water purveyor \_\_\_\_\_

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

“I/we certify that based upon periodic site observations, the work has been substantially 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.”

Signature*	Date	
Name (print)	Telephone No.	
	Fax No.	
Title	Email Address	
License No. or Certification No.		
Company	Street Address	
City	State	Zip Code

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

**PART 3. IRRIGATION SCHEDULING**

Attach parameters for setting the irrigation schedule on controller per ordinance Section 492.10.

**PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE**

Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 492.11.

**PART 5. LANDSCAPE IRRIGATION AUDIT REPORT**

Attach Landscape Irrigation Audit Report per ordinance Section 492.12.

**PART 6. SOIL MANAGEMENT REPORT**

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 492.5.  
 Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 492.5.

