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WELO IRRIGATION INSPECTION

Lot 11_88 Cowpens Way
San Mateo, CA 94402

Noel Chamberlain
AUGUST 30, 2022

Inspector
Andrew Bolt
CLIA/CGIA # 57436, ASIC
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Irrigation Audit Procedures in WELO

The irrigation audit includes the following procedures and are highlighted in our Standards of Practice section:

Visual inspection of irrigation system
Evaluation of distribution uniformity (DU)
Determination of precipitation rate (PR)
Determination of landscape's watering needs
Review and development of irrigation schedule

California WELO Ordinance

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

All landscape irrigation audits shall be conducted by a local agency landscape irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.
In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.
For new construction and rehabilitated landscape projects installed after December 1, 2015, 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, including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;
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; and sections 11 and 30, Governor's Exec. Order No. B-29-15 (April 1, 2015). Reference: Section 65596, Government Code; and section 11, Governor's Exec. Order No. B-29-15 (April 1, 2015)

I, Andrew Bolt declare that I have performed a third party Irrigation Audit on the property listed above and not affiliated with the property owner, builder or landscape installer. This audit was performed with all guidelines and codes of licensing body that certified me as a landscape irrigation auditor.

Irrigation Auditor Name: **Andrew Bolt** Certification #: **57436**

SUMMARY

ITEMS INSPECTED

CORRECTED/MAINTENANCE ITEM

Irrigation Audit Procedures in WELO

The irrigation audit includes the following procedures:

Visual inspection of irrigation system

Observation of each zone in a sprinkler system and the landscape surrounding sprinkler heads to identify sources of inefficient water use: broken, damaged, or leaking heads; improperly positioned sprinklers watering streets and sidewalks; sprinkler heads too low or off vertical; sprinkler heads improperly spaced or arranged in pentagon patterns instead of water-conserving triangle or square patterns; misting around sprinkler heads (excessive water pressure) or large water droplets falling close to heads.

Observation of each drip zone to identify sources of inefficient water use: broken, damage or leaking pipes: improperly positioned emitters or bubblers, run off, drip line spacing and use of manufacturer recommended or specified equipment.

Evaluation of distribution uniformity (DU)

While many of the problems described above in the sprinkler installation affect DU, a catch can test is routinely used to quantify whether or not irrigation water is being uniformly applied to the landscape. To perform a catch can test place collection containers in a grid pattern on the surface of an irrigated zone, runs the irrigation system through a typical timed cycle, and collect and record the amount of water in each catch container. The data gathered is then used to identify areas of over- and under-irrigation (relative to the targeted application amount); results of a catch can test may also be correlated to observations of plant health in the test area.

Determination of precipitation rate (PR)

Data from a catch can test is also used to determine the rate at which water is applied by the irrigation system. Since individual site conditions, specifically water pressure and sprinkler head spacing, may alter a system's performance, using catch can test results is more accurate than relying on the system manufacturer's performance specifications. Knowing the rate of application is important for developing appropriate irrigation schedules.

Determination of landscape's watering needs

An evaluation of the landscape features present at a site provides a great deal of information about that site's water requirements. Factors to consider in developing a watering schedule include the types of plants present and the depth of their roots; whether they are growing in sun or shade, on flat areas or slopes; the presence or absence of a thatch layer in turf; whether or not non-turf plantings are mulched; soil texture and structure; and evidence of compaction and drainage problems.

Review and development of irrigation schedule

A review of the site's current irrigation schedule (amount of water applied and the interval between watering events), and generate a watering schedule based on catch can test results, soil conditions, and plant water requirements, taking into account local climate and rainfall patterns. An irrigation audit is only a tool, audit findings and recommendations must be put into practice for water conservation to be realized.

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Irrigation Auditor Name: **Andrew Bolt** Certification #: **57436**

3.4.1 Irrigation Controller - As Built Map & Zone Schedule Present: Irrigation Schedule

1: INSPECTION DETAILS

Information

Site Overview: Name of People In Attendance

General Contractor

Attendee Information

1. Name of Company: NexGen Builders
2. Name(s) of attendees: Bob

Site Overview: Project Type

Site

New Project, Residential

Describe Site: Describe Site: New single family, two story house. Landscape front and back consisting of cs turf, trees and shrubs

Site Overview: Project Status

Post Plant Audit

The project is subject to a WELO Irrigation Inspection. This report must be turned into the required division at the building/planning department.

Site Overview: Weather at Time of Audit

Sunny

Weather conditions have been recorded for the period of time during the audit. If winds exceeds 5 mph we can not conduct any catch can testing.

Site Overview: Site & Landscape Conditions

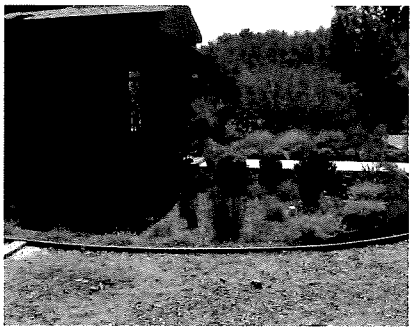
New Landscape Project

New Shubs, New Trees, New Bio Basins, Clay Loam Soil Type, Sloped Site, No Standing Water, 2-3" Bark Mulch Installed

The irrigation that is being audited has been designed by a professional Landscape Architect, Irrigation Consultant or Landscape Contractor and has been approved by the local building/planning department.

All installation has been installed by a professional landscape contractor and is subject to all State and Local codes and ordinances.





Contractor or Owner Responsibilties: Prior to Audit Inspection

Contractor /Owner Responsibility

It remains the responsibility of the contractor to have the project 100% complete and irrigation fully operational prior to the time of the inspection.

Irrigation Controller, All Valves, Sensors and other equipment must be fully functional

Contractor or Owner Responsibilties: Audit Inspection & Reporting

Auditor Responsibility

We will only report on the conditions of the irrigation operation, conditions of and compliance to WELO. Any deficiencies of the system will need to be corrected prior to our final sign off.

2: POINT OF CONNECTION

		IN	NS	DE	CI	MI
2.1	Water Source and Connection	X				
2.2	Backflow Prevention	X				
2.3	Landscape Flow/Water Meter	X				
2.4	Master Valve		X			
2.5	Flow Sensor		X			
2.6	Hydrometer		X			

IN = Inspected NS = Not Specified DE = Deficiency CI = Corrected Item MI = Maintenance Item

Information

Water Source and Connection: Booster Pump Installed

Only installed if specified

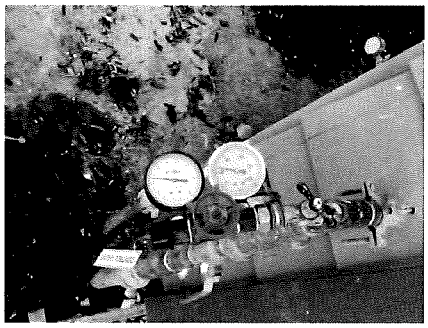
See section on Booster Pump

Water Source and Connection: Master Valve & Flow Meter Inspection & Conditions

City Installed Flow Meter

Backflow Prevention: Backflow or Water Source Pressure Test

50 Static PSI

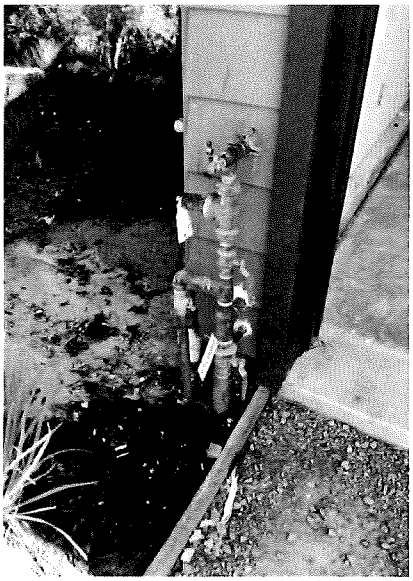


Water Source and Connection: Point Of Connection

Street/House

Hose Bib Pressure Test, Flow Meter Inspection, Gate Valve installed

- Manual Shut Off Valves such as a gate valves, 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 or routine repair.
- Backflow Prevention Devices shall be required to protect water supply from contamination by the irrigation system.
- Flow Sensors that detect high flow conditions created by system damage or malfunction are required for ALL non residential and residential landscapes of 5000 square feet or large. Local cities may have stricter requirements.
- Master Shut Of Valves are required on all landscapes that make use of technologies that allow the individual control of sprinklers that are pressurized in a system equipped with low pressure shut down features.
- Landscape Water Meters, defined as either a dedicated water service or private submeter, shall be installed for all non residential landscapes of 1000 square feet but no more than 5000 square feet and residential irrigated landscapes of 5000 square feet or greater. A landscape water meter can be either a customer service meter dedicated to landscape use provided by the local water purveyor or a privately owned meter or submeter.
- Static water pressure, dynamic or operating pressure and flow reading of water supply shall be measured at the point of connection.
- If the static pressure is above or below required dynamic pressure of the irrigation system, pressure regulating devices, booster pumps pr other devices shall be installed to meet the dynamic pressure of the irrigation system.



Water Source and Connection: Water Source Type

Potable Water

Irrigation Water Source is from the following:

Potable or Non Potable Water.

IF Non Potable Water may require Purple signage, ID Tags and Purple Equipment. See approved irrigation plans for information.

Landscape Flow/Water Meter: Landscape Flow/Water Meter Installation

Down Stream or Up Stream of Backflow Preventer

All New Commercial Projects will have an independent Water Meter installed, typically by the Local Water Purveyor

All New Residential Projects with over 5000 square feet of landscape must have an Independent Flow Mater Installed. WELO 2015 Section 429.7 Irrigation Design (1) System (A). 1 & 2

Note installation of Flow Meter:

- Installed by Water Purveyor-No
- Installed by Irrigation Contractor-No

3: IRRIGATION CONTROLLER

		IN	NS	DE	CI	MI
3.1	Controller Installation Overview	X				
3.2	Irrigation Controller Installation	X				
3.3	Two Wire Decoder System Installation & Grounding of Two Wire Path		X			
3.4	As Built Map & Zone Schedule Present		X			
3.5	Power Source at Controller	X				
3.6	Programmed with Schedule	X				
3.7	Weather Adjusted Scheduling Set Up	X				

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Information

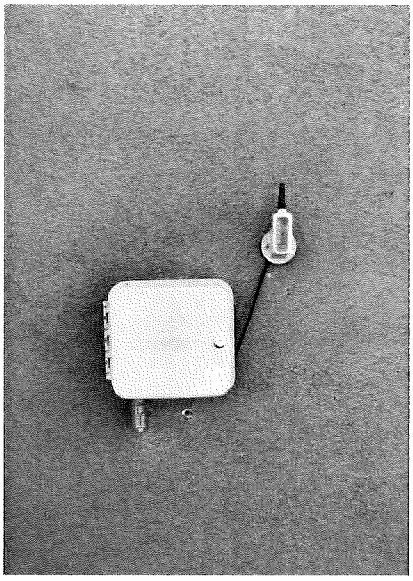
Controller Installation Overview: Irrigation Controller Inspection

Controller Powered, Controller Outside, Weather Self Adjusting Based

Automatic Irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.

Note Status of Controller. Weather Adjustment programmed.

1. Note Make & Model of Controller. Hunter ProC
2. Note Station Count. 6
3. Note Grounding Method. None

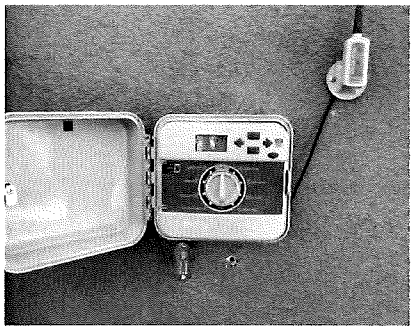
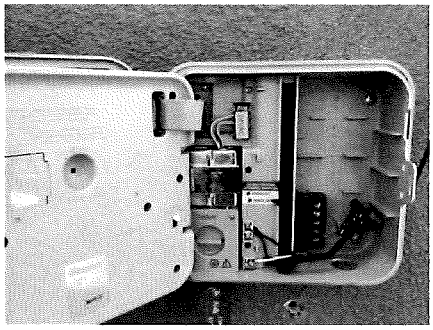


Irrigation Controller Installation: Irrigation Controller Installation

Secured to Wall, On Site Sensor

Irrigation Controller Assembly or Cabinet must be anchored to concrete base or to wall. Install Controller as per Manufacturer requirements

Hunter Controller installed-owner is responsible for set up of controller on WIFI and/or connect On Site Weather sensor and maintaining a weather based adjusted schedule

As Built Map & Zone Schedule Present: As Built Map & Zone Schedule at Controller
Irrigation Controller

Provide owner with copies and place copies at the controller for future use during Maintenance Period

Power Source at Controller: Power Source and Wiring
At Irrigation Controller

Controller Powered, 110 Volt grounding

Controller Power Source must be connected to an approved 110volt connection as per local electrical codes

Programmed with Schedule: Programmed with Schedule
At Irrigation Controller

Program controller with Maintenance Schedule until plants are established enough so that they can be irrigated on an Established Plant Schedule.

Weather Adjusted Scheduling Set Up: Self Adjusted Scheduling Method
At Irrigation Controller or On SW Corner Building

Weather Sensor on Site

A Weather Sensor, Connection to Manufacturers Web Server or Central Control must be installed, connected and functioning for WELO Compliance


Limitations

Programmed with Schedule

SCHEDULES

Set up post plant schedule after 90 days

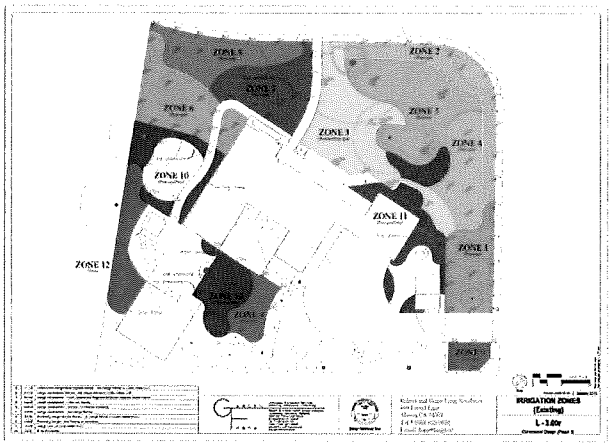
Deficiencies

3.4.1 As Built Map & Zone Schedule Present

Corrected/Maintenance Item

IRRIGATION SCHEDULE

Place copies of Irrigation Schedule and As Built's at controller and provide customer with copies-Sample copy below of AS Built Irrigation Zoning. Include POC, controller, mainline and valve locations



Recommendation

Contact a qualified landscaping contractor

4: REMOTE CONTROL VALVES

		IN	NS	DE	CI	MI
4.1	Irrigation Valve Installation	X				
4.2	Operation of Valve	X				
4.3	Leaks	X				
4.4	Wire Connections	X				

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Information

Irrigation Valve Installation: Valve Installation

Gate Valve Installed, Atmospheric Valve Installed, Silicone Gel Wire Splices

Installation of and Condition of Valves has been inspected. If Standard Details have been provided with Approved Irrigation Plans all Valve Installation must be in accordance with details

Operation of Valve: Operation of Valves

Irrigation Valves

All Valves will be operated and any deficient conditions noted

- All valves operate as intended

Leaks: Examine for Leaks
Irrigation Valve Installation

No Leaks

Review Operation of all Valves and note any leaks at Valves, Unions or Fittings. If Valves are Sticking Open make a note under deficiencies

- No leaks found

Wire Connections: Wire Connections Condition
Irrigation Valve Installation

All Wire Connections must be connected with either 3M DBRY Connectors (or equal) or Silicone Filled (Gel) Wire Nuts and secured.

All wire must be secure and Pig Tailed as per any attached details

5: SPRAY/ROTOR ZONES

		IN	NS	DE	CI	MI
5.1	Spray Head and Rotors Installation		X			
5.2	24" Set Back		X			
5.3	Coverage		X			
5.4	Nozzles		X			
5.5	Overspray		X			
5.6	Check Valve		X			
5.7	Pressure Regulation		X			

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Information

Spray Head and Rotors Installation: Overhead Irrigation Installation
Turf/Shrub Areas

Not Specified

Inspection of installation of All Rotors and Sprinklers, all Nozzles must be installed per plan or adjusted to best suite Site Conditions. Set back all Overhead Irrigation 24" from Noon Permable hardscape. Exceptions would be ONLY if any overspray stays on site and drains into site landscape

Coverage: Head to Head Coverage
Turf & Planting Areas

Coverage Tests will be conducted to ensure that coverage is adequate to irrigate efficiently.

Nozzles: Nozzle Installation
Spray/Rotor Heads

Not specified

Nozzles must be installed as per Approved Plans or to best represent Site Conditions

- Installed per plan

6: LOW FLOW/MICRO & BUBBLER IRRIGATION

		IN	NS	DE	CI	MI
6.1	Bubblers or Drip Rings Overview	X				
6.2	Tree Bubblers or Drip Rings	X				
6.3	Plant Bubblers or Drip Rings		X			
6.4	Drip Irrigation	X				
6.5	Drip Kits	X				
6.6	Drip Line Coverage	X				
6.7	Drip Line Leaks	X				
6.8	Air Relief Valves	X				
6.9	Flush Valves	X				
6.10	Drip Indicators	X				

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Information

Bubblers or Drip Rings Overview: Overview of Bubblers or Drip Ring/Emitter Installation

Trees & Shrubs

Bubblers on Flex Pipe

Installation of Tree and Plant Bubblers as per Approved Irrigation Plans. All Bubblers must be placed at Root Ball so as to adequately Irrigate Plant Root Ball and surrounding Native Soils

Tree Bubblers or Drip Rings: Bubblers or Drip Rings-Emitters

Trees

Bubblers on Flex Hose

Inspect Conditions and Placement of all Bubblers and/or Drip Rings

Description of irrigation method:

Trees on independent Valve as required by WELO: Yes

Two Count per tree

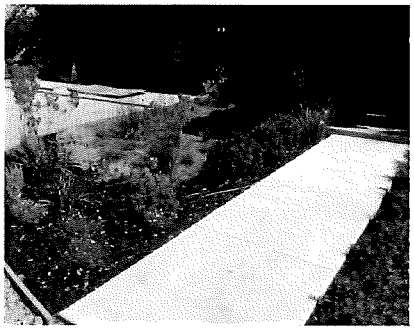
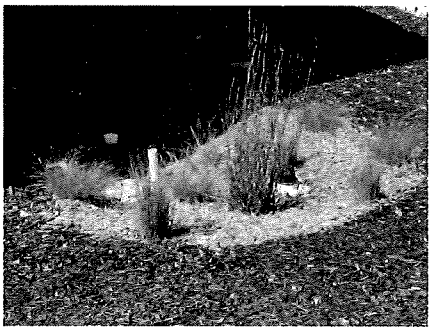



Plant Bubblers or Drip Rings: Low Flow Bubblers or Drip Rings
Shrubs
Not Specified
Inspect Conditions and Placement of all Bubblers and/or Drip Rings
Description of irrigation method:
Shrubs Hydrozoned as per approved plans: Yes/No

Drip Irrigation: Drip-Micro-Low Flow Irrigation
Planting Areas
Drip Pressure Regulation, Drip Filter(s), Point Source Drip, Drip Flush Valves, Drip Air Relief, Drip Indicators, Drip Line Buried, Drip Line Covered by Mulch
All Drip Irrigation will be inspected and conditions noted. Leaks will be photographed and noted as a deficiency

Drip Kits: Drip Filters & Pressure Regulation Installation
Drip Valves
Drip Filters and Pressure Regulation must be installed for Efficient Operation of all Drip Zones

Drip Line Coverage: Drip Line Coverage
Planting Areas
Drip Line must be adequately covered by mulch or buried and staked accordingly. Any exposed Drip Line must be buried under 2-3" of mulch or soil covering. Review Approved Irrigation Plans for detail information

Drip Line Leaks: Check for Leaks
Planting Areas

Note all Drip Leaks as described under Drip Irrigation Section

- No Leaks found

Air Relief Valves: Air Relief as Specified
Drip Zones

Air Relief Valves must installed at highest point oil drip zone and in valve boxes for inspection. Consult with Approved Irrigation Plans and with Drip Manufacturer for all installation requirements

- Air Relief installed

Flush Valves: Flush Valve Installation
Drip Zones

Flush Valves must be installed and placed in valve boxes for service access at ends of drip zones. Flush Valves are to be used to flush out debris from within the drip from either Dirty Water Conditions or from Line Breaks

- Flush Valves installed

Drip Indicators: Drip Indicators installed as specified

Drip Zones

Drip Indicators are a good way of checking that the Drip System is operating at the required pressures. Any Specified Drip Indicators must installed as per approved plans

- Drip Indicators installed

STANDARDS OF PRACTICE

Inspection Details

Irrigation Audit Procedures in WELO

The irrigation audit includes the following procedures:

Visual inspection of irrigation system

1. Observation of each zone in a sprinkler system and the landscape surrounding sprinkler heads to identify sources of inefficient water use: broken, damaged, or leaking heads; improperly positioned sprinklers watering streets and sidewalks; sprinkler heads too low or off vertical; sprinkler heads improperly spaced or arranged in pentagon patterns instead of water-conserving triangle or square patterns; misting around sprinkler heads (excessive water pressure) or large water droplets falling close to heads.
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Review and development of irrigation schedule

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All Standards Of Practice have been followed:

Irrigation Auditor name. Andrew Bolt Certificate #: 57436

Point Of Connection

1. The inspector will inspect the Back Flow Preventer if specified and installed.
2. Static Water Pressure(s) noted at back flow preventer outlet, at quick coupler and or at hose bib.

3. Inspect Master Valve, Flow Sensor and Flow Meter will be inspected, wired connections noted.

Irrigation Controller

1. Inspector will need access to the Irrigation Controller
2. Inspect for Weather Based Operation Mode
3. Inspect for Weather Sensor
4. Inspect for programming of Master Valve, Flow Sensor and Landscape Water Meter(if specified)
5. Inspect for grounding of controller
6. Inspect for Irrigation Schedule and Irrigation Zone As Built Plan

Remote Control Valves

1. Inspect each valve for operation from Irrigation Controller
2. Inspect each valve for correct wire connection method(s). Wire nuts without silicone gel will NOT be accepted
3. Inspect each valve(s) for numbering ID Tags or Branded Numbered Valve Box Lids
4. Two Wire System(s). Inspect for Decoder installation and wire connection techniques.
5. Inspect Two Wire for GROUNDING as required by controller manufacturer standards.
6. Inspect all valve box installations for gravel layer and or gopher wire as specified.

Spray/Rotor Zones

1. Inspect for correct installation of specified spray or rotor as specified.
2. Inspect for installation of correct nozzles, all must me matched precipitation.
3. Inspect for uniform coverage of spray pattern.
4. Inspect for installation of pressure regulation and check valves or as specified.
5. Inspect for overspray of water onto hardscape or into planting areas.
6. Inspect for 24" set back from all non permeable hardscape areas as required by WELO
7. Conduct Catch Can Test, method as per Irrigation Association Guidelines.
8. Record Catch Can results and use to determine Distribution Uniformity and Precipitation Rate.

Low Flow/Micro & Bubbler Irrigation

1. Inspect Drip Valves for leaks, pressure regulation and filtration.
2. Inspect Drip Valves for ID Tags/Branding, gravel in valve boxes.
3. Run Drip Zones and inspect for leaks.
4. Inspect for Drip Flush Valves and boxes
5. Inspect for Drip Air Relief if applicable
6. Inspect for Drip Indicators if specified
7. Inspect for uniformity coverage ensuring that all plants are being adequately irrigated
8. Pressure test at end of drip lines (use flush valves or drip indicators for a pressure test connection point)
9. Inspect for burial of drip line as specified

ESTABLISHED PLANT IRRIGATION SCHEDULE

CLIENT: LOT 11													July Eto:	6.20		Site Annual Eto:	49.5
																Avg Plant Factor Et:	0.3
CONTROLLER:			HUNTER		PRO-C					ET SOURCE	SOLAR SYNC				Soil Type	CLAY	0.2	% Site Irrigation Effic:	0.79
Hydrozone Type	*Zone Numbers*	*Program*	*Plant Type*	*Plant Factor*	*ET Plant Factor*	*Plant Factor x Eto*	*Root Depth "*	*Shade Factor*	*Density Factor*	*Irrigation Equipment*	*Inches Precip Rate*	*% Dist Unif*	*Irri Water Requirement Inches*	*Total Period Run Time*	*Valve Cycle Time*	*Cycles*	*Totals Days Per July*	*Notes*	
1	1	B	Tree	Low	0.3	1.9	18	1	1	Bubbler	1	0.85	0.35	16	8	2	8		
2	2,3	A	Shrub	Low	0.3	1.9	12	1	1	Inline Drip	0.66	0.9	0.33	23	12	2	8		
3																			
4																			
5																			
6																			
										Average Site % DU		0.89		20	Total Run Time				

Estimated Total Water Use: Gallons -

SCHEDULED IRRIGATION DAYS

	JANUARY	FEBRUARY	MARCH	APIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL DAYS
Program A	1	2	4	5	7	8	8	7	5	3	2	1	51
Program B	1	2	4	5	7	8	8	7	5	3	2	1	51
Program C													
Program D													
Program E													

NOTE TO IRRIGATION CONTROLLER PROGRAMMER: DAYS PER MONTH ARE BASED ON AN ESTABLISHMED PLANT WATER REQUIREMENT SCHEDULE. THESE DAYS ARE PURELY A RECOMMENDATION AND ADJUSTMENTS NEED TO BE TAKEN BASED ON THE SITE CONDITIONS SUCH AS SUN OR SHADE, SOIL TYPE, ALLOTED DAYS GIVEN BY THE LOCAL ENFORCING AGENCY, PLANT TYPE AND CONDITION OF PLANT; WE CANNOT BE HELD RESPONSIBLE FOR THE CONDITION OF PLANTS DURING ANY PLANT ESTABLISHMENT OR ESTABLISHED PLANT LIFE PERIOD.

PROGRAM	LANDSCAPE TYPE	CYCLES	CYCLE RUN/VALVE		SOAK TIME/VALVE	TOTAL SOAK TIME/VALVE		Notes
A	SHRUBS-DRIP	2	12	MINS	40	40	MINS	CONTRACTOR TO SET UP CYCLE SOAK ON ALL SCHEDULES OR MULTIPLE START TIMES. THIS WILL ELIMINATE PUDDLING OR RUN OFF. RUN MULTIPLE START TIME TO ACCOMPLISH WATER WINDOW RESTRICTIONS. IT OS THE OPERATORS RESPONSIBILITY TO MANAGE THIS SITE SO AS NOT TO EXCEED THE ESTIMATED. TOTAL WATER USE ETWU
B	TREES-BUBBLERS	8		MINS	40	40	MINS	
C				MINS			MINS	
D				MINS			MINS	
E				MINS			MINS	
F				MINS			MINS	

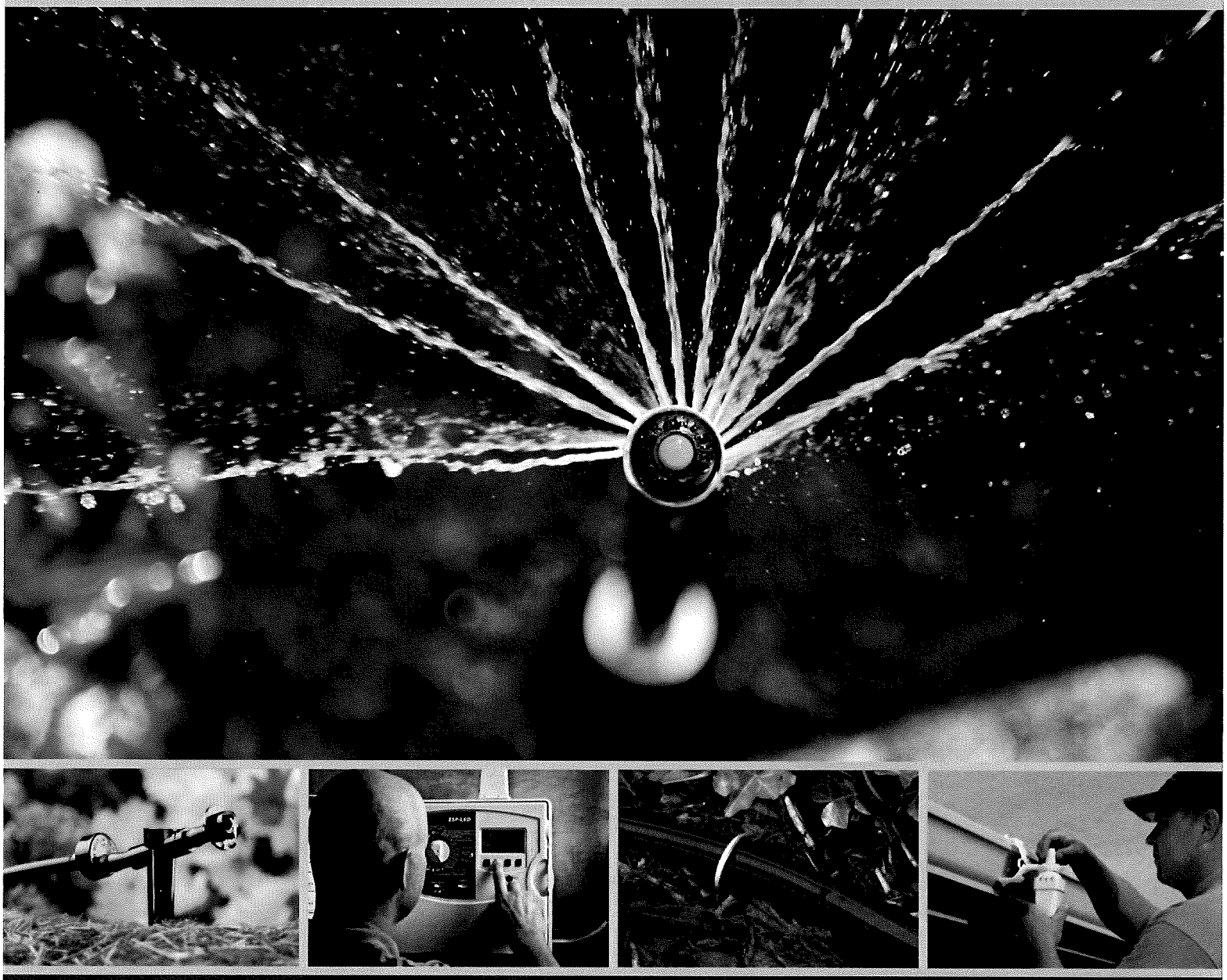
NOTES: This irrigation schedule is set up as a base guide only, contractor must adjust irrigation controller so as to irrigate based on plants needs and not to exceed the ETWU usage. Set irrigation controller to maximise Cycle Soak through programming.We are not responsible for overseeing controller scheduling. All Spray Irrigation must be scheduled between the hours of 8:00 PM and 10:00 AM

RUN TIM E FORMULA = 60 X ET X Kc/PRXEA

60 = MINUTES
ET = EVAPOTRANSPIRATION (DAILY)
Kc PLANT COEFFICIENCY
PR = PRECIPITATION RATE
EA = APPLICATION EFFICIENCY

MWELO 2015 Compliance Guide to Irrigation-Related Requirements

for New Construction Projects ≥500 Square Feet and
Rehabilitated Landscape Projects ≥2500 Square Feet



Easy-to-use guide and compliance tips for irrigation professionals.

MWELO 2015 Compliance Guide to Irrigation-related Requirements

How to Use This Guide

QUICK INFO:
Quick information or summary about a section or provision.

COMPLIANCE TIP:
General recommendations for compliance.

PRODUCT TIP:
Recommended Rain Bird products that comply with specific MWELO requirements.

Return to interactive table of contents.

This is a general reference guide for compliance with the 2015 California Model Water Efficient Landscape Ordinance (MWELO) for these two types of projects:

- New construction projects with an aggregate landscape area equal to or greater than 500 square feet requiring a building or landscape permit, plan check or design review or
- Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review

Exceptions:

- This guide does not address cemeteries, which are also subject to MWELO
- Historical sites, restoration and reclamation projects that do not require permanent irrigation, or botanical gardens and arboretums are exempt from the ordinance
- This guide does not address existing landscapes that do not require permits

This guide is based on information published by the State of California and the California Department of Water Resources. It references only the landscape and irrigation-related provisions of the ordinance and does not represent the entire ordinance. Any information in this guide is for general reference only and is subject to change without notice. For the entire current version and status of the ordinance, please visit www.water.ca.gov.

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Statement on California's Drought Conditions

California is facing an unprecedented water crisis, with 98 percent of the state experiencing some level of drought and 44 percent experiencing extreme drought. Governor Brown's recent mandate for Californians to cut their water use by 25 percent has brought a long-standing issue to the forefront of the state's consciousness—perhaps even to the world's. The conversation has finally turned from how we should use less water to how we must use less water.

The Association of California Water Agencies (ACWA) says more than 50 percent of all residential water use in the state of California takes place outdoors. Furthermore, the ACWA estimates that California residents tend to over-water outdoor plants and lawns by as much as 60 percent. These statistics indicate a tremendous opportunity to use this valuable resource more efficiently throughout California and the rest of the world.

Rain Bird's Water Conservation Legacy

California's current situation strikes a very personal chord for me and my family. Back in the early 1930s, my parents, Clem and Mary LaFetra, established Rain Bird in the family barn in Glendora, California. Our very first product, the original impact sprinkler, was developed to more efficiently irrigate nearby citrus orchards. Today, Rain Bird is a global leader in efficient irrigation, but we have deep roots in California and remain headquartered just a few miles away from where it all began.

Decades before the term "water restrictions" became a part of common vernacular, we recognized the need to protect and efficiently use our world's most precious resource. Our guiding philosophy, The Intelligent Use of Water™, continues to influence all aspects of our business. Rain Bird has spent the past eight decades developing the industry's most comprehensive line of water-efficient irrigation solutions for everything from homes and schools to parks, sports fields, golf courses and farms. With efficient irrigation products and practices, it is absolutely possible for the average California resident to reduce outdoor water consumption by 25 percent or more without having to give up the plants, trees and gardens that add so much to our lives.

Championing the Need for Change

We know that water-efficient irrigation products represent just one step down a long path toward positive change. That's why Rain Bird also focuses on helping people learn how to use water wisely and efficiently. From our industry-leading training group to our sales and engineering professionals, employees throughout our organization are committed to the Intelligent Use of Water™. Every day, Rain Bird teaches irrigation professionals how to design, install and operate more efficient systems and educate consumers worldwide about responsible outdoor water use.

Today, Rain Bird and our partners in the irrigation and water management industries are in a unique position to make a difference during this time of water crisis. By working together, we can make it easier for all Californians to significantly reduce their outdoor water use while still enjoying the many benefits that green spaces have to offer. Rain Bird will continue to develop products and initiatives that will help Californians make responsible, informed choices about the ways we all use water. By taking advantage of intelligent watering products and practices today, we can usher in a new era of water efficiency and sustainable water use, not just in California, but around the world.

Anthony LaFetra, President
Rain Bird Corporation

Part 1: Irrigation Requirements

§ 492.7 Irrigation Design Plan

(a) This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. 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) Landscape water meters, defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential irrigated landscapes of 1,000 sq. ft. but not more than 5,000 sq.ft. (the level at which Water Code 535 applies) and residential irrigated landscapes of 5,000 sq. ft. or greater. A landscape water meter may be either:

1. A customer service meter dedicated to landscape use provided by the local water purveyor; or

2. A privately owned meter or submeter.

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

(C) If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

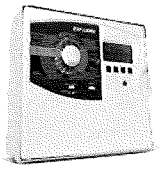
1. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

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.

PRODUCT TIP:
(A) LANDSCAPE WATER METERS Rain Bird offers a complete family of central control, commercial-grade controllers and flow sensors that, when designed together, qualify as a water meter or submeter. And, Rain Bird's FMD Series Landscape Water Meters are the only irrigation submeters available through traditional irrigation distribution channels.

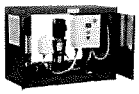
FMD Series Landscape Water Meters

PRODUCT TIP:
(B) AUTOMATIC IRRIGATION CONTROLLERS Rain Bird offers a full line of smart controllers, all with non-volatile memory.



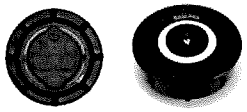
ESP-LXME Controller

PRODUCT TIP:
(C.1) WATER PRESSURE Rain Bird offers solutions to increase and decrease pressure to operate at optimal water pressure. Use a pump to increase pressure.



D-Series Pump Stations

Use pressure-regulating sprays and pressure-regulating rotors and drip filters to decrease pressure.



PRS-SAM Rotors and Sprays

Pressure-Regulating Filter (RBY)

(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) Flow sensors that detect high flow conditions created by system damage or malfunction are required for all on non-residential landscapes and residential landscapes of 5000 sq. ft. or larger.

(H) Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.

(I) 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.

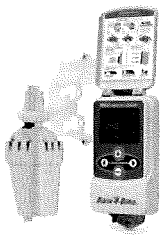
(J) Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

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

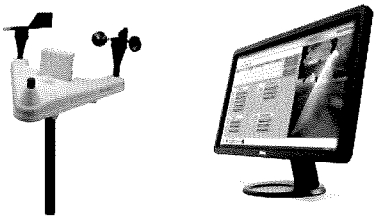
(L) The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 492.4 regarding the Maximum Applied Water Allowance.

(M) All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/ International Code Council's (ASABE/ICC) 802-2014 Landscape Irrigation Sprinkler and Emitter Standard, All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

PRODUCT TIP:
(D) WEATHER SENSORS Rain Bird offers wireless rain/freeze sensors. Anemometers are also available with central control.

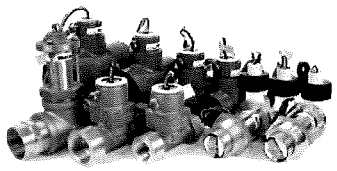


WR2 Wireless Rain Freeze Sensor



WS-PRO LT Weather Station | IQ Remote Water Management

PRODUCT TIP:
(G) FLOW SENSORS Rain Bird offers a complete family of flow sensors.



Flow Sensor Family

PRODUCT TIP:
(M) IRRIGATION EMISSION DEVICES
Rain Bird® HE-VAN, U-Series, R-VAN and R-Series Nozzles all meet the requirements of ASABE/ICC 802-2014 and achieve DU^{LQ} of 70% or greater.

HE-VAN

U-Series

R-VAN

R-Series

(N) 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.

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

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

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

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

(S) Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.

(T) Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.

COMPLIANCE TIP:
(O) LOW-VOLUME IRRIGATION is required in mulched planting areas.

Xeri-Bug™ Emitters

PRODUCT TIP:
(P) MATCHED PRECIPITATION RATES (MPR)
Rain Bird offers a full line of matched precipitation rate spray nozzles and MPR nozzles for 5000 Series Rotors.

HE-VAN

U-Series

R-VAN

R-Series

5000 MPR

PRODUCT TIP:
(R) SWING JOINTS Rain Bird has swing assemblies for sprays and turf swing joints for rotors.

TSJ/TSJ PRS Series Swing Joints

PRODUCT TIP:
(S) CHECK VALVES Rain Bird offers check valves for sprays, rotors and drip to prevent drainage at low points or when the sprinkler is off or damaged.

PRS-SAM Rotors & Sprays

XFCV Dripline

PRODUCT TIP:
(T) AREAS LESS THAN 10' Use Rain Bird XFS Subsurface Dripline irrigation for areas less than 10'.

XFS Subsurface Dripline

(U) 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:

1. The landscape area is adjacent to permeable surfacing and no runoff occurs; or
2. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
3. 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)(I). Prevention of over-spray and runoff must be confirmed during the irrigation audit.

(V) Slopes greater than 25% shall not be irrigated with an irrigation system with a application 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

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

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

(C) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.

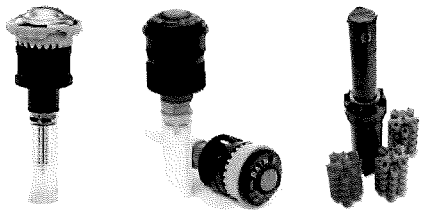
(D) Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:

1. Plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
2. The plant factor of the higher water using plant is used for calculations.

PRODUCT TIP:
(U) 24" SETBACK Rain Bird has a full line of low volume irrigation solutions to irrigate within the 24" setback.

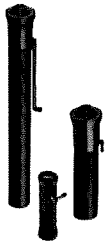
Xeri-Bug™ Emitters

PRODUCT TIP:
(V) SLOPES Rain Bird's low precipitation rate R-VAN, R-Series Nozzles and 5000 Series Rotors with MPR nozzles have a precipitation rate of 0.6 in./hr.



R-Series **R-VAN** **5000 MPR**

PRODUCT TIP:
(C) TREES The Root Watering System (RWS) enables vital water, oxygen, and nutrients to bypass compacted soil and directly reach tree and shrub root systems.



RWS Root Watering System

(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:

(1) Location and size of separate water meters for landscape;

(2) 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) Recycled water irrigation systems as specified in Section 492.14;

(6) 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

(7) 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.

QUICK INFO:
(b) IRRIGATION DESIGN PLAN
Note the requirements for the irrigation design plan.

QUICK INFO:
(4) FLOW RATE Note that application rate is the same as precipitation rate.

§ 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;

(B) The established landscape; and

(C) Temporarily irrigated areas.

(5) Each irrigation schedule shall consider for each station all of the following that apply:

(A) Irrigation interval (days between irrigation);

(B) Irrigation run times (hours or minutes per irrigation event to avoid runoff);

(C) Number of cycle starts required for each irrigation event to avoid runoff;

(D) Amount of applied water scheduled to be applied on a monthly basis;

(E) Application rate setting;

(F) Root depth setting;

(G) Plant type setting;

(H) Soil type;

(I) Slope factor setting;

(J) Shade factor setting; and

(K) Irrigation uniformity or efficiency setting.

QUICK INFO:

(492.10) IRRIGATION SCHEDULING

Note that the irrigation schedule parameters must be included with the Certificate of Completion.

COMPLIANCE TIPS:

(2) HOURS ALLOWED Schedule irrigation between 8 p.m. and 10 a.m. or to local water windows, if stricter.

(3) SCHEDULE CONSIDERATIONS

- Reclaimed or other water sources high in salts or sites with salt water intrusion may require leaching.
- Adjust valves for proper flow rates and closing speeds.
- Refine irrigation schedules using real-time data from weather stations and soil moisture sensors.

§ 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; auditing, adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; topdressing with compost, replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing obstructions 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 or with components with greater efficiency.

(d) A project applicant is encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities.

QUICK INFO:

(492.11) LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE A landscape and maintenance schedule must be submitted as part of the Certificate of Completion.

§ 492.12 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis

(a) All landscape irrigation audits shall be conducted by a local agency landscape irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.

(b) In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.

(c) For new construction and rehabilitated landscape projects installed after December 1, 2015, as described in Section 490.1:

(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, including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;

(2) 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.

QUICK INFO:

(492.12) IRRIGATION AUDITS

- Submit an irrigation audit with the Certificate of Completion.
- Landscape audits must be conducted by either a local agency or a third-party certified landscape irrigation auditor.
- Neither the designer nor the installer may conduct the audit.

QUICK INFO:

(b) PRODUCTION HOMES Large projects with multiple landscape installations require a 15% audit rate (1 in 7 lots).

§ 492.13 Irrigation Efficiency

(a) For the purpose of determining Estimated Total Water Use, average irrigation efficiency is assumed to be 0.75 for overhead spray devices and 0.81 for drip system devices.

QUICK INFO:

(492.13) IRRIGATION EFFICIENCY

You no longer have to calculate irrigation efficiency. Use:

- 0.75 for overhead spray devices
- 0.81 for drip system devices

Part 2: Soil Management, Landscape Design and Grading Design Requirements

§ 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 shall include:

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) In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement. Large landscape projects shall sample at a rate equivalent to 1 in 7 lots.

(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

(B) 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.

QUICK INFO:

(492.5) SOIL MANAGEMENT REPORT

Note the emphasis on proper soils and analysis.

§ 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. Methods to achieve water efficiency shall include one or more of the following:

1. Protection and preservation of native species and natural vegetation;
2. Selection of water-conserving plant, tree and turf species, especially local native plants;
3. Selection of plants based on local climate suitability, disease and pest resistance;
4. Selection of trees based on applicable local tree ordinances or tree shading guidelines, and size at maturity as appropriate for the planting area; and
5. Selection of plants from local and regional landscape program plant lists.
6. Selection of plants from local Fuel Modification Plan Guidelines.

(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. Methods to achieve water efficiency shall include one or more of the following:

1. 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;
2. 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]; allow for adequate soil volume for healthy root growth; and
3. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

QUICK INFO:

492.6. LANDSCAPE DESIGN PLAN

Note the emphasis on plant selection and hydrozones.

(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) High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians.

(F) 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 4291(a) and (b). Avoid fireprone plant materials and highly flammable mulches. Refer to the local Fuel Modification Plan guidelines.

(G) The use of invasive plant species, such as those listed by the California Invasive Plant Council, is strongly discouraged.

(H) 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

(A) Recirculating water systems shall be used for water features.

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

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

(D) Pool and spa covers are highly recommended.

(3) Soil Preparation, Mulch and Amendments

(A) Prior to the planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need meet this requirement.

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

(C) For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top 6 inches of soil are exempt from adding compost and tilling.

QUICK INFO:
(D) TURF Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape.

Slope percent = rise divided by run x 100.

QUICK INFO:
(2) WATER FEATURES Recirculating water systems are required and recycled water use is encouraged.

(D) A minimum three inch (3") 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. To provide habitat for beneficial insects and other wildlife, up to 5% of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.

(E) Stabilizing mulching products shall be used on slopes that meet current engineering standards.

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

(G) Organic mulch materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.

(b) The landscape design plan, at a minimum, shall:

(1) Delineate and label each hydrozone by number, letter, or other method;

(2) 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;

(3) Identify recreational areas;

(4) Identify areas permanently and solely dedicated to edible plants;

(5) Identify areas irrigated with recycled water;

(6) Identify type of mulch and application depth;

(7) Identify soil amendments, type, and quantity;

(8) Identify type and surface area of water features;

(9) Identify hardscapes (pervious and non-pervious);

(10) Identify location, installation details, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Project applicants shall refer to the local agency or regional Water Quality Control Board for information on any applicable stormwater technical requirements. Stormwater best management practices are encouraged in the landscape design plan and examples are provided in Section 492.16.

QUICK INFO:

(D) SOIL PREPARATION, MULCH AND AMENDMENTS At least 3" of mulch is required on all exposed soil surfaces, except:

- Turf areas
- Creeping or rooting groundcovers
- Direct seeding applications where mulch is contraindicated.
- In designated insect habitats, up to 5% of landscaped area.

COMPLIANCE TIP:

(D) 3" Mulch Layer

Mulch can obscure secondary utility boxes containing flush valves for drip irrigation systems. Install a drip irrigation system indicator to more easily locate the flush point.

QUICK INFO:

(b) LANDSCAPE DESIGN PLAN Note the requirements of the landscape design plan.

QUICK INFO:

(10) LANDSCAPE DESIGN PLAN Refer to Section 492.16 for examples of stormwater best management practices

(11) Identify any applicable rain harvesting or catchment technologies as discussed in Section 492.16 and their 24-hour retention or infiltration capacity;

(12) Identify any applicable graywater discharge piping, system components and area(s) of distribution;

(13) 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

(14) 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.)

§ 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:

(A) Height of graded slopes;

(B) Drainage patterns;

(C) Pad elevations;

(D) Finish grade; and

(E) Stormwater retention improvements, if applicable.

(2) To prevent excessive erosion and runoff, it is highly recommended that the project applicants:

(A) Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;

(B) Avoid disruption of natural drainage pattern and undisturbed soil; and

(C) 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 us of water in the grading design plan" and shall bear the signature of a licensed professional as authorized by law.

QUICK INFO:

(492.8) GRADING DESIGN PLAN

Design to minimize soil erosion, runoff and water waste.

Part 3: Recycled Water, Graywater and Stormwater Requirements

§ 492.14 Recycled Water

(a) The installation of recycled water irrigation systems shall allow for the current and future use of recycled water.

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

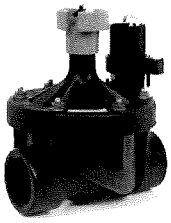
(c) Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

PRODUCT TIP:

(492.14) RECYCLED WATER

Landscapes using recycled water are considered Special Landscape Areas (SLA). SLAs have an ET Adjustment Factor (ETAF) of 1.0.

Rain Bird offers components designed specifically to withstand the harsh conditions found in recycled water, like the RD1800™ Series Sprays and PESB-R Series Valves.



RD1800™ Series Sprays | PESB-R Series Valves

§ 492.15 Graywater Systems

(a) Graywater systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation. All graywater systems shall conform to the California Plumbing Code (Title 24, Part 5, Chapter 16) and any applicable local ordinance standards. Refer to § 490.1 (d) for the applicability of this ordinance to landscape areas less than 2,500 square feet with the Estimated Total Water Use met entirely by graywater.

QUICK INFO:

(492.15) GRAYWATER Graywater systems are encouraged. Refer to Section 490.1 (d) for ordinance applicability to landscape areas < 2,500 sq.ft. with ETWU met entirely by graywater.

§ 492.16 Stormwater Management and Rainwater Retention

(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 rainwater 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 technical requirements.

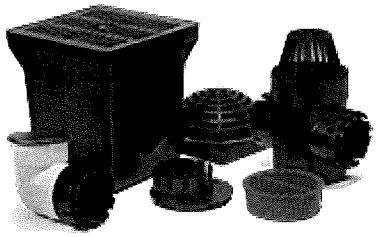
(c) All planted landscape areas are required to have friable soil to maximize water retention and infiltration. Refer to § 492.6(a)(3).

(d) It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from either: the one inch, 24-hour rain event or (2) the 85th percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.

(e) It is recommended that storm water projects incorporate any of the following elements to improve on-site storm water and dry weather runoff capture and use:

- Grade impervious surfaces, such as driveways, during construction to drain to vegetated areas.
- Minimize the area of impervious surfaces such as paved areas, roof and concrete driveways.
- Incorporate pervious or porous surfaces (e.g., gravel, permeable pavers or blocks, pervious or porous concrete) that minimize runoff.
- Direct runoff from paved surfaces and roof areas into planting beds or landscaped areas to maximize site water capture and reuse.
- Incorporate rain gardens, cisterns, and other rain harvesting or catchment systems.
- Incorporate infiltration beds, swales, basins and drywells to capture storm water and dry weather runoff and increase percolation into the soil.
- Consider constructed wetlands and ponds that retain water, equalize excess flow, and filter pollutants.

PRODUCT TIP:
(492.16) STORMWATER MANAGEMENT
Rain Bird offers a complete family of drainage products.



Rain Bird® Drainage Products

Part 4: Public Education Requirements

§ 492.17 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 or water supplier/purveyor shall provide information to owners of permitted renovations and new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes based on a water budget.

(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.

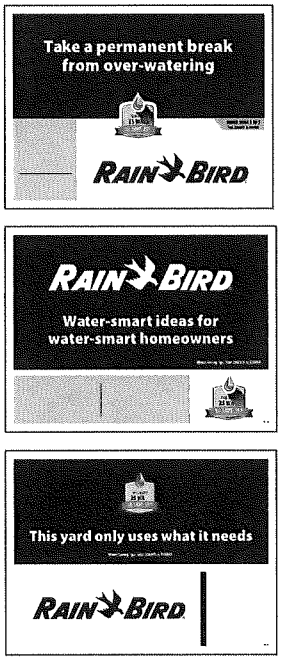
(1) Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as hydrozones, irrigation equipment, and others that contribute to the overall water efficient theme. Signage shall include information about the site water use as designed per the local ordinance; specify who designed and installed the water efficient landscape; and demonstrate low water use approaches to landscaping such as using native plants, graywater systems, and rainwater catchment systems.

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

QUICK INFO:

(492.17) PUBLIC EDUCATION Rain Bird's 25 Ways offers practical, effective tips and advice drawn from the company's 80-plus years of experience in the irrigation industry. These resources can be used anywhere and by anyone who wants to improve their watering efficiency. Visit 25ways.rainbird.com.

COMPLIANCE TIP:
(b) MODEL HOMES SIGNAGE
You can find customizable signage to promote water efficiency on your projects on the 25 Ways web page.



Example of 25 Ways Yard Signs

Part 5: Agency Requirements

§ 492 Provisions for New Construction or Rehabilitated Landscapes

(a) A local agency may designate by mutual agreement, 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.

§ 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= (ETo - Eppt) (0.62) [(0.55 x LA) + (0.45 x SLA)] for residential areas.

MAWA= (ETo-EPPT) (0.62) [(0.45 x LA) + (0.55 x SLA)] for non-residential areas.

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

QUICK INFO:
(494) EFFECTIVE PRECIPITATION
Refer to Appendix B (page 52).

§ 492.18 Environmental Review

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

Part 6: Documentation

§ 492.1 Compliance with Landscape Documentation Package

(a) Prior to construction, the local agency shall:

(1) Provide the project applicant with the ordinance and procedures for permits, plan checks or design reviews;

(2) Review the Landscape Documentation Package submitted by the project applicant;

(3) Approve or deny the Landscape Documentation Package;

(4) Issue a permit or approve the plan check or design review for the project applicant; and

(5) 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:

(1) Receive a permit or approval for the plan check or design review and record the date of the permit in the Certificate of Completion;

(2) Submit a copy of the approved Landscape Documentation Package along with the record drawings, and any other information to the property owner or his/her designee; and

(3) Submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.

QUICK INFO:

492.1. COMPLIANCE WITH LANDSCAPE DOCUMENTATION PACKAGE Prior to construction, check with your local agency.

§ 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.

§ 492.3 Elements of the Landscape Documentation Package

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

(1) Project information;

(A) Date

(B) Project applicant

(C) Project address if available, parcel and/or lot number(s))

(D) Total landscape area (square feet)

(E) Project type (e.g., new rehabilitated, public, private, cemetery, homeowner-installed)

(F) 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

(G) Checklist of all documents in Landscape Documentation Package

(H) Project contacts to include contact information for the project applicant and property owner

(I) 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;

(A) Hydrozone information table

(B) Water budget calculations

1. Maximum Applied Water Allowance (MAWA)

2. Estimated Total Water Use (ETWU)

(3) Soil management report;

(4) Landscape design plan;

(5) Irrigation design plan; and

(6) Grading design plan.

QUICK INFO:

492.3. ELEMENTS OF THE LANDSCAPE DOCUMENTATION PACKAGE

Must include:

- Project information
- Water efficient landscape worksheet
- Soil management report
- Landscape design plan
- Irrigation design plan
- Grading design plan

§ 492.4 Water Efficient Landscape Worksheet

(a) A project applicant shall complete the Water Efficient Landscape Worksheet in Appendix B which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for residential areas and 0.45 for non-residential areas, exclusive of Special Landscape Areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance is calculated based on the maximum ETAF allowed (0.55 for residential areas and 0.45 for non-residential areas) and expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and irrigation method selected for the landscape design. ETWU must be below the MAWA.

(1) In calculating 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 or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources (DWR). The plant factor ranges from 0 to 0.1 for very low water using plants, 0.1 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 shown in Appendix B.

(4) ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

QUICK INFO:

492.4. WATER EFFICIENT LANDSCAPE WORKSHEET Refer to Appendix B (page 52) for the Water Efficient Landscape Worksheet. ETo values can be found in the Reference Evapotranspiration Table in Appendix A (page 38).

COMPLIANCE TIP: (b)(1) PLANT FACTORS:

- 0.0 - 0.1 = Very Low Water Use Plants
- 0.1 - 0.3 = Low Water Use Plants
- 0.4 - 0.6 = Moderate Water Use Plants
- 0.7 - 1.0 = High Water Use Plants

§ 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:

(A) Date;

(B) Project name;

(C) Project applicant name, telephone, and mailing address;

(D) Project address and location; and

(E) 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;

(B) A diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes.

(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:

(1) Submit the signed Certificate of Completion to the local agency for review;

(2) 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:

(1) Receive the signed Certificate of Completion from the project applicant;

(2) 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.

QUICK INFO:

(492.9) CERTIFICATE OF COMPLETION

Refer to Appendix C (page 53) for a sample of the Certificate of Completion.

Appendix A - Reference Evapotranspiration (ETo) Table*

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
ALAMEDA													
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
ALPINE													
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
AMADOR													
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
BUTTE													
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
CALAVERAS													
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
COLUSA													
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
CONTRA COSTA													
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

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
CONTRA COSTA													
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
DEL NORTE													
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
EL DORADO													
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
FRESNO													
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
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
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
GLENN													
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
HUMBOLDT													
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

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
IMPERIAL													
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
INYO													
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
KERN													
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
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

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
KERN													
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
KINGS													
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
LAKE													
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
LASSEN													
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
LOS ANGELES													
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

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
LOS ANGELES													
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
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
MADERA													
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
MARIN													
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
MARIPOSA													
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

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
MENDOCINO													
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
MERCED													
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
MODOC													
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
MONO													
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
MONTEREY													
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
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

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
NAPA													
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
NEVADA													
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
ORANGE													
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
PLACER													
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
PLUMAS													
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
RIVERSIDE													
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

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
RIVERSIDE													
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
SACRAMENTO													
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
SAN BENITO													
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
SAN BERNARDINO													
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

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SAN BERNARDINO													
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	1.0	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
SAN DIEGO													
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
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	.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
SAN FRANCISCO													
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
SAN JOAQUIN													
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

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SAN JOAQUIN													
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
SAN LUIS OBISPO													
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
SAN MATEO													
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
SANTA BARBARA													
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
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

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SANTA CLARA													
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
SANTA CRUZ													
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
SHASTA													
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
SIERRA													
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
SISKIYOU													
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

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SOLANO													
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
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
SONOMA													
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
STANISLAUS													
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
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

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
SUTTER													
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
TEHAMA													
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
TRINITY													
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
TULARE													
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
TUOLUMNE													
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
VENTURA													
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

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YOLO													
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
YUBA													
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.

Reference Evapotranspiration (ETo) _____

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

ETAF Calculations

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

Regular Landscape Areas

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

All Landscape Areas

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

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

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

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

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

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

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

Appendix C – Sample Certificate of Completion

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

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

Signature*	Date	
Name (print)	Telephone No.	
	Fax No.	
Title	Email Address	
License No. or Certificate 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 492.6.

Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 492.6.

Part 7: Background and References

By Executive Order

On April 1, 2015, California Governor Jerry Brown issued Executive Order B-29-15 mandating statewide water reductions to make the state more resilient to drought. The order focuses on saving water, increasing enforcement to prevent water waste, streamlining the state's drought response and investing in new technologies.

Specific actions in the Executive Order that have a direct impact on the green industry include:

- Replacing 50 million square feet of lawns and ornamental turf with drought tolerant landscapes
- Implementing rebate programs to replace inefficient household devices
- Banning watering of ornamental turf on public street medians
- Prohibiting use of potable water to irrigate unless it is delivered by drip or microspray in new construction

In addition, the order directed the Department of Water Resources to update the Model Water Efficient Landscape Ordinance that has regulated water efficient landscape design, installation, maintenance and management since 1992.

Who must comply with MWELO

All projects that require a building or landscape permit, plan check or design review and are 1) a new development project with aggregate landscape area ≥ 500 sq. ft. or 2) a rehabilitated landscape with aggregate landscape area ≥ 2,500 sq. ft. must comply with MWELO. All projects with aggregate landscape areas ≤ 2,500 sq. ft. can either comply with the entire ordinance or may use the Prescriptive Checklist Option. (Please refer to Rain Bird's MWELO Guide for Prescriptive Checklist Option).

Existing landscapes that do not require permits, cemeteries, landscapes using recycled water, and rain water or grey water projects are subject to limited application of MWELO. Historical sites, restoration and reclamation projects that do not require permanent irrigation, or botanical gardens and arboretums are exempt from the ordinance.

Who's in charge of MWELO

There are numerous entities involved in executing the drought directives:

California Department of Water Resources: DWR is responsible for the management of water use including delivery to two-thirds of California's population. They are also responsible for the development of the MWELO. For more information: www.water.ca.gov

California Water Commission: This appointed 9-member panel provides guidance to DWR and is responsible for approving regulations put forth by DWR, including MWELO. For more information: cwc.ca.gov

State Water Resource Control Board: This is an appointed board responsible for the state's policy on water quality. They are also solely responsible for assigning all surface water rights. For more information: www.swrcb.ca.gov

California Building Standards Commission: This is an 11-member appointed commission responsible for the building standards code, including the Cal Green code, California's green building standard. For more information: www.bsc.ca.gov

Water Districts: The regional and local water districts are the parties responsible for enforcing regulations such as MWELO.

When it starts

The local water districts and agencies must adopt the ordinance or their own version that must be just as effective) by December 1, 2015. If the local agency does not adopt the ordinance or their own ordinance, MWELO becomes effective be default.

§ 490 Purpose

(a) The State Legislature has found:

(1) That the waters of the state are of limited supply and are subject to ever increasing demands;

(2) That the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses;

(3) 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;

(4) 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;

(5) That landscape design, installation, maintenance and management can and should be water efficient; and

(6) 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 the legislative findings, the purpose of this model ordinance is to:

(1) Promote the values and benefits of landscaping practices that integrate and go beyond the conservation and efficient use of water;

(2) Establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects by encouraging the use of a watershed approach that requires cross-sector collaboration of industry, government and property owners to achieve the many benefits possible;

(3) Establish provisions for water management practices and water waste prevention for existing landscapes;

(4) 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;

(5) Promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;

QUICK INFO:

Section 490

Provides great insight into the direction of the ordinance.

(6) 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

(7) 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.

(c) Landscapes that are planned, designed, installed, managed and maintained with the watershed based approach can improve California's environmental conditions and provide benefits and realize sustainability goals. Such landscapes will make the urban environment resilient in the face of climatic extremes. Consistent with the legislative findings and purpose of the Ordinance, conditions in the urban setting will be improved by:

(1) Creating the conditions to support life in the soil by reducing compaction, incorporating organic matter that increases water retention, and promoting productive plant growth that leads to more carbon storage, oxygen production, shade, and habitat and esthetic benefits.

(2) Minimizing energy use by reducing irrigation water requirements, reducing reliance on petroleum based fertilizers and pesticides, and planting climate appropriate shade trees in urban areas.

(3) Conserving water by capturing and reusing rainwater and gray water wherever possible and selecting climate appropriate plants that need minimal supplemental water after establishment.

(4) Protecting air and water quality by reducing power equipment use and landfill disposal trips, selecting recycled and locally sourced materials, and using compost, mulch and efficient irrigation equipment to prevent erosion.

(5) Protecting existing habitat and creating new habitat by choosing local native plants, climate adapted non-natives and avoiding invasive plants. Utilizing integrated pest management with least toxic methods as the first course of action.

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

§ 490.1 Applicability

(a) After December 1, 2015, and consistent with Executive Order No. B-29-15, this ordinance shall apply to all of the following landscape projects:

(1) New construction projects with an aggregate landscape area equal to or greater than 500 square feet requiring a building or landscape permit, plan check or design review;

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

(3) Existing landscapes limited to Sections 493, 493.1 and 493.2; and

(4) 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) For local land use agencies working together to develop a regional water efficient landscape ordinance, the reporting requirements of this ordinance shall become effective December 1, 2015 and the remainder of this ordinance shall be effective no later than February 1, 2016.

(c) Any project with an aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this ordinance or conform to the prescriptive measures contained in Appendix D.

(d) For projects using treated or untreated gray water or rainwater captured on site, any lot or parcel within the project that has less than 2500 sq. ft. of landscape and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated gray water or through stored rainwater captured on site is subject only to Appendix D section (5).

(e) This ordinance 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; or

(4) Existing 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.

QUICK INFO:

APPLIES TO ALL PROJECTS THAT REQUIRE BUILDING OR LANDSCAPE PERMIT, PLAN CHECK OR DESIGN REVIEW AND MEET THE FOLLOWING CRITERIA:

- New development projects with an aggregate landscape area ≥ 500 sq. ft.
- Rehabilitated landscape projects with an aggregate landscape area ≥ 2,500 sq. ft.

ALL PROJECTS WITH AGGREGATE LANDSCAPE AREAS ≤ 2,500 SQ. FT. CAN EITHER:

- Comply with the entire ordinance

or

- Conform to prescriptive measures. Please use MWELO Compliance Guide for the Prescriptive Checklist Option.

QUICK INFO:

(3,4) CEMETERIES AND EXISTING LANDSCAPES are subject to only certain portions of MWELO.

QUICK INFO:

(d) LANDSCAPES USING RECYCLED WATER are Special Landscape Areas and get a larger water budget (ETAF = 1.0).

§ 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 a timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers are able to self-adjust and 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) "compost" means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.

(j) "conversion factor (0.62)" means the number that converts acre-inches per acre per year to gallons per square foot per year.

(k) "distribution uniformity" means the measure of the uniformity of irrigation water over a defined area.

(l) "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.

PRODUCT TIP:
(b) AUTOMATIC IRRIGATION CONTROLLER Rain Bird offers a full line of residential and commercial smart controllers, weather sensors and soil-moisture sensors.

COMPLIANCE TIP:
(f) CERTIFIED LANDSCAPE IRRIGATION AUDITOR Rain Bird Training offers certification classes.

PRODUCT TIP:
(g) CHECK VALVE Use Rain Bird's built-in Seal-a-Matic™ (SAM) check valve in 1800-SAM-PRS Series Sprays and 5000 Series Rotors to prevent drainage when sprinkler is off or damaged.

PRODUCT TIP:
(l) DRIP IRRIGATION Rain Bird offers an entire family of low-flow emitters and dripline.

(m) **"ecological restoration project"** means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

(n) **"effective precipitation" or "usable rainfall" (Eppt)** means the portion of total precipitation which becomes available for plant growth.

(o) **"emitter"** means a drip irrigation emission device that delivers water slowly from the system to the soil.

(p) **"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.

(q) **"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. Native habitat mitigation areas and trees may need three to five years for establishment.

(r) **"Estimated Total Water Use" (ETWU)** means the total water used for the landscape as described in Section 492.4.

(s) **"ET adjustment factor" (ETAF)** means a factor of 0.55 for residential areas and 0.45 for non-residential areas, 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. The ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0. The ETAF for existing non-rehabilitated landscapes is 0.8.

(t) **"evapotranspiration rate"** means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

(u) **"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.

(v) **"flow sensor"** means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to an automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. This combination flow sensor/ controller may also function as a landscape water meter or submeter.

(w) **"friable"** means a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.

(x) **"Fuel Modification Plan Guideline"** means guidelines from a local fire authority to assist residents and businesses that are developing land or building structures in a fire hazard severity zone.

QUICK INFO:

(s) ET ADJUSTMENT FACTOR (ETAF)

- Residential ETAF = 0.55
- Non-Residential ETAF = 0.45
- Special Landscape Area (SLA) ETAF = 1.0
- Existing Landscapes ETAF = 0.8

PRODUCT TIP:

(v) FLOW SENSOR Rain Bird offers a complete family of flow sensors. When designed with the ESP-LXMEF, ESP-LXD Controllers or our central control platforms, this also qualifies as a water meter or submeter.

(y) "graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers. Health and Safety Code Section 17922.12.

(z) "hardscapes" means any durable material (pervious and non-pervious).

(aa) "hydrozone" means a portion of the landscaped area having plants with similar water needs and rooting depth. A hydrozone may be irrigated or non-irrigated.

(bb) "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).

(cc) "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. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.

(dd) "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. The audit must be conducted in a manner consistent with the Irrigation Association's Landscape Irrigation Auditor Certification program or other U.S. Environmental Protection Agency "Watersense" labeled auditing program.

(ee) "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 irrigation efficiency for purposes of this ordinance are 0.75 for overhead spray devices and 0.81 for drip systems.

(ff) "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.

(gg) "irrigation water use analysis" means an analysis of water use data based on meter readings and billing data.

QUICK INFO:

(y) GRAYWATER use is encouraged.

COMPLIANCE TIP:

(dd) IRRIGATION AUDIT Rain Bird offers the Certified Landscape Irrigation Auditor classes. The Rain Bird Factory Trained MWELO Expert course provides the expertise you need to successfully navigate MWELO requirements. Go to www.rainbirdservices.com.

QUICK INFO:

(ee) IRRIGATION EFFICIENCY (IE)

Note that irrigation efficiency is preset at **0.75 for overhead spray devices** and **0.81 for drip systems**. No math required.

(hh) "landscape architect" means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.

(ii) "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).

(jj) "landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

(kk) "Landscape Documentation Package" means the documents required under Section 492.3.

(ll) "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.

(mm) "landscape water meter" means an inline device installed at the irrigation supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.

(nn) "lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

(oo) "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.

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

(qq) "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.

(rr) "main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.

(ss) "master shut-off valve" is an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed water will not be supplied to the irrigation system. A master valve will greatly reduce any water loss due to a leaky station valve.

QUICK INFO:

(kk) LANDSCAPE DOCUMENT PACKAGE Make sure you review Section 492.3 for the Landscape Documentation Package.

COMPLIANCE TIP:

(jj) Professionals who have industry certification from the Irrigation Association (IA), California Landscape Contractor's Association (CLCA), Qualified Water Efficient Landscaper (QWEL) or Rain Bird Factory Trained have taken steps to advance their qualifications and professionalism.

PRODUCT TIP:

(mm) LANDSCAPE WATER METER Rain Bird offers a complete family of central control, commercial-grade controllers and flow sensors that, when designed together, qualify as a water meter or submeter.

PRODUCT TIP:

(ss) MASTER SHUT-OFF VALVE Rain Bird offers plastic, brass and combination plastic and brass valves that can be used as a master shut-off valves.

(tt) **"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. MAWA = (ETo) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]

(uu) **"median"** is an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.

(vv) **"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.

(ww) **"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.

(xx) **"mulch"** means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, or 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.

(yy) **"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.

(zz) **"non-residential landscape"** means landscapes in commercial, institutional, industrial and public settings that may have areas designated for recreation or public assembly. It also includes portions of common areas of common interest developments with designated recreational areas.

(aaa) **"operating pressure"** means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

(bbb) **"overhead sprinkler irrigation systems"** or **"overhead spray irrigation systems"** means systems that deliver water through the air (e.g., spray heads and rotors).

(ccc) **"overspray"** means the irrigation water which is delivered beyond the target area.

(ddd) **"parkway"** means the area between a sidewalk and the curb or traffic lane. It may be planted or unplanted, and with or without pedestrian egress.

QUICK INFO:

(tt) MAXIMUM APPLIED WATER ALLOWANCE (MAWA) Refer to Appendix B (page 52).

(eee) **"permit"** means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

(fff) **"pervious"** means any surface or material that allows the passage of water through the material and into the underlying soil.

(ggg) **"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 very low water use plants is 0 to 0.1, the plant factor range for low water use plants is 0.1 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 publication "Water Use Classification of Landscape Species". Plant factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).

(hhh) **"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.

(iii) **"rain sensor"** or **"rain sensing shutoff device"** means a component which automatically suspends an irrigation event when it rains.

(jjj) **"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.

(kkk) **"recreational area"** means areas, excluding private single family residential areas, designated for active play, recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters or golf course tees, fairways, roughs, surrounds and greens.

(lll) **"recycled water," "reclaimed water,"** or **"treated sewage effluent water"** means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation and water features. This water is not intended for human consumption.

(mmm) **"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 Appendix A , 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 so that regional differences in climate can be accommodated.

QUICK INFO:

(ggg) PLANT FACTOR or PLANT WATER USE FACTOR Derived from Water Use Classification of Landscape Species (WUCOLS)*

- Very Low Water Use Plants = 0 - 0.1
- Low Water Use Plants = 0.1 - 0.3
- Moderate Water Use Plants = 0.4 - 0.6
- High Water Use Plants = 0.7 - 1.0

* California DWR-approved horticultural researchers, academic institutions or professional associations are alternative sources for plant factors.

QUICK INFO:

(kkk) RECREATIONAL AREA

Areas, excluding private single family residential areas, designated for active play, recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters or golf course tees, fairways, roughs, surrounds and greens.

(nnn) **"Regional Water Efficient Landscape Ordinance"** means a local Ordinance adopted by two or more local agencies, water suppliers and other stakeholders for implementing a consistent set of landscape provisions throughout a geographical region. Regional ordinances are strongly encouraged to provide a consistent framework for the landscape industry and applicants to adhere to.

(ooo) **"rehabilitated landscape"** means any relandscaping 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.

(ppp) **"residential landscape"** means landscapes surrounding single or multi-family homes.

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

(rrr) **"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.

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

(ttt) **"Special Landscape Area" (SLA)** means an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water.

(uuu) **"sprinkler head"** or **"spray head"** means a device which delivers water through a nozzle.

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

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

(xxx) **"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.

(yyy) **"submeter"** means a metering device to measure water applied to the landscape that is installed after the primary utility water meter.

(zzz) **"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.

QUICK INFO:

(nnn) "Regional Water Efficient Landscape Ordinance" Check with your local jurisdiction, who may have a stricter local ordinance.

PRODUCT TIP:

(rrr) SOIL MOISTURE SENSOR SMRT-Y Soil Moisture Sensor Kit turns any controller into a smart controller.

QUICK INFO:

(ttt) SPECIAL LANDSCAPE AREA (SLA) means an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water. Note definition **(kkk)** Recreational Area for additional details.

PRODUCT TIP:

(yyy) SUBMETER Rain Bird's FMD Series Landscape Water Meters are the only irrigation submeters available through traditional irrigation distribution channels.

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

(bbbb) **"water conserving plant species"** means a plant species identified as having a very low or low plant factor.

(cccc) **"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.

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

(eeee) **"WUCOLS"** means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension and the Department of Water Resources 2014.

§ 495 Reporting

(a) Local agencies shall report on implementation and enforcement by December 31, 2015. Local agencies responsible for administering individual ordinances shall report on their updated ordinance, while those agencies developing a regional ordinance shall report on their existing ordinance. Those agencies crafting a regional ordinances shall also report on their new ordinance by March 1, 2016. Subsequently, reporting for all agencies will be due by January 31st of each year. Reports shall be submitted to the Department of Water Resources.

(b) Local agencies are to address the following:

(1) State whether you are adopting a single agency ordinance or a regional agency alliance ordinance, and the date of adoption or anticipated date of adoption.

(2) Define the reporting period. The reporting period shall commence on December 1, 2015 and the end on December 28, 2015. For local agencies crafting regional ordinances with other agencies, there shall be an additional reporting period commencing on February 1, 2016 and ending on February 28, 2016. In subsequent years, all local agency reporting will be for the calendar year.

(3) State if using a locally modified Water Efficient Landscape Ordinance (WELO) or the MWELO. If using a locally modified MWELO, how is it different than MWELO, is it at least as efficient as MWELO, and are there any exemptions specified?

(4) State the entity responsible for implementing the ordinance.

(5) State number and types of projects subject to the ordinance during the specified reporting period.

(6) State the total area (in square feet or acres) subject to the ordinance over the reporting period, if available.

(7) Provide the number of new housing starts, new commercial projects, and landscape retrofits during the reporting period.

(8) Describe the procedure for review of projects subject to the ordinance.

(9) Describe actions taken to verify compliance. Is a plan check performed; if so, by what entity? Is a site inspection performed; if so, by what entity? Is a post installation audit required; if so, by whom?

(10) Describe enforcement measures.

(11) Explain challenges to implementing and enforcing the ordinance.

(12) Describe educational and other needs to properly apply the ordinance.

QUICK INFO:

(495) REPORTING Local agencies must report to the DWR.

QUICK INFO:

3) LOCAL WATER EFFICIENT LANDSCAPE ORDINANCE (WELO) Check with your local water district to see if there is a stricter local or regional WELO in place. A list of local water efficient landscape ordinances can be found:

- Index of Ordinances By City
- Index of Ordinance By County

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Fax: (626) 812-3411

Rain Bird Technical Services
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Rain Bird International, Inc.
1000 W. Sierra Madre
Azusa, CA 91702
Phone: (626) 963-9311
Fax: (626) 963-4287

GROUNDCOVER AND SHRUB BEDS

Shrub Bed Weed Control

Weeds in shrub and groundcover areas shall be controlled by application of approved pre-emergent and post-emergent herbicide, as well as hoeing and hand pulling.

Landscape Maintenance Contractor shall provide weed control to all landscaped shrub beds. Gravel beds and paved areas on site will be addressed as designated on the Task Frequency Chart. Where conditions permit its safe use, a broad spectrum non-selective herbicide shall be used. All instructions and precautions set by manufacturer's label shall be followed.

Landscape Maintenance Contractor will use a liquid formulation of a broad spectrum herbicide applied using a backpack sprayer unit to shrub beds areas which have a persistent weed problem.

All planter beds, tree circles and sidewalk cracks adjacent to landscaped areas shall be sprayed to control unwanted grasses and broadleaf weeds. Spraying will not substitute for mechanical removal when the latter is required for complete removal. Said treatments are applied approximately every three weeks through the growing season.

Manual weeding shall be done in conjunction with chemical and mechanical weed control methods.

Shrub Bed Debris Control

Landscape Maintenance Contractor shall provide for regular pick-up and disposal of debris such as litter, leaves and branches. Method of cleaning will be by hand, and where appropriate, aided by gasoline powered blower units. Attention shall be given to shrubs and flower beds.

Weeds, debris and litter shall be removed on a scheduled once a visit basis from all landscaped areas. Particular attention shall be afforded to entry ways, focal points and high traffic areas. Streets and parking lots are not included.

Planter beds will be raked and groomed once each quarter, more frequently in high traffic areas, to remove debris and promote an attractive, fresh appearance.

All plant debris accumulated as a result of normal maintenance operations shall be removed from the site. At the conclusion of each visit, walks adjacent to work areas will be swept or blown clean.

Spring clean-up shall include the removal of debris accumulated over the winter from all shrub beds, turf areas, groundcover beds and flower beds. This procedure shall be completed in late February, before regular seasonal maintenance begins.

Removal of accumulated leaves from lawns, planter beds and walkways will be completed throughout the year as needed to maintain a clean appearance throughout the project. All landscape areas shall have a complete leaf removal monthly from November through January.

Landscape Maintenance Contractor shall remove all debris that accumulates in and among walkways and curb lines. Method of cleaning may be by hand or gasoline powered blower or vacuum.

Edging and Trimming of Groundcover Plants

Groundcovers shall be kept within designated areas. Invasive groundcovers, such as English ivy, shall be kept at least four inches from buildings and other structures.

Groundcovers such as English ivy and Vinca shall be pruned on a regular basis throughout the season. Spring groundcover growth trimming shall be completed prior to July 1st. Plant material may be trimmed by hand or mechanical implements.

Groundcovers shall be prevented from invading shrubs or climbing trees.

Plant Fertilization

An application of granular fertilizer shall be applied to all shrub beds at the beginning of each growing season. All fertilizers shall be uniformly applied at the drip line of the plant. When material is applied for groundcover plantings, it shall be distributed evenly over the entire area.

Throughout the season, plant material shall be fertilized where there are signs of nutritional deficiencies or a desire for additional growth. Refer to Task Frequency Chart for schedule of application.

Landscape Maintenance Contractor shall provide a complete fertilization program for all shade and ornamental trees smaller than 5" in diameter. Trees shall be fertilized in late winter, prior to bud swell.

All fertilizers shall be a complete analysis, slow release fertilizer.

The cost of fertilizer and its application is included.

Mowing/Height Reduction of Groundcovers

Certain mature groundcovers must be periodically mowed to maintain plant health, a uniform appearance, control trash and reduce rodent habitat.

Hypericum will be mowed every dormant season.

Mowing of other type groundcovers shall be considered extra work (e.g.. ivy, *Vinca* and *Cotoneaster*).

TREE AND SHRUB PRUNING AND CARE

Tree Pruning

Trees less than 15 feet in height will be addressed.

A complete and balanced pruning program shall be provided for all shade trees on the site. Specifically, all dead, damaged, diseased, crossing, rubbing or otherwise unhealthy plant parts shall be removed. Recognized horticultural practices shall be followed; including the use of clean sharp tools. Plant parts shall be cut flush to the branch collar. Trees known to "bleed", such as birches, alders, maples and pines shall not be pruned during the spring and early summer months.

All trees shall be pruned as needed to provide adequate clearance for pedestrians, vehicles and signs. As much as possible, pruning for clearance should be performed carefully to preserve the form and beauty of the plant.

Pruning shall promote structural strength and accentuate the plant's natural forms and features within the limitations of space.

Boxing, balling or formal shaping of trees and shrubs shall be avoided.

Trees shall be pruned annually only as necessary.

Staking and Tying

New trees have been guyed and staked by the landscape contractor to maintain plumb. These stakes and wires should be left intact until a vertical growth habit is established.

Stakes and ties shall be adjusted to prevent girdling and chaffing, and shall be removed as soon as possible.

Plants that are not able to stand on their own in two or three years shall be removed upon approval. Removal and replacement are considered extra work.

Shrub Pruning

Landscape Maintenance Contractor will provide a complete and horticultural correct shrub pruning program. Pruning operations shall promote the desired appearance and enhance the health of shrub. Landscape Maintenance Contractor shall provide a pruning program specific to the aesthetic, physiological and biological requirements of the trees and shrubs on the site. Pruning shrubs to rejuvenate or reduce size is not included.

Each plant's desired appearance shall be determined prior to beginning any pruning operations. This information may be available on site landscape plans or in a written description of the design intent prepared by the Landscape Architect. In the absence of recorded design intent, plant descriptions and pruning guidelines from the Sunset Western Garden Book will prevail.

A combination of shearing and selective hand pruning shall be performed during specific periods of the season. When planted in masses, shrubs shall be allowed to grow together to fill the bed. Do not shear into individual "gumdrop or gumball" shapes. Shearing shall only be done to maintain a neat and uniform appearance and to keep shrubs growing within their intended space.

The shearing of all hedge plantings shall be completed in a neat and uniform manner. Care shall be taken so that no large gaps or holes develop in material as a result of improper shearing practices. Hedge plants should be sheared so that the base of the plants are wider than the top.

SEASONAL FLOWER PLANTING AND MAINTENANCE

Maintenance of Seasonal Flower Beds

Landscape Maintenance Contractor shall provide regular maintenance to all seasonal and perennial flower beds. This will include the removal of spent blooms and dead plant material. Beds shall be cleaned and weeded at least once per month.

At the end of each season, perennials shall be cut back to ground level after the foliage has died back. All annual flowers shall be removed once damaged by either frost or heat. Upon removal of plant materials, flower beds shall be raked level and all debris removed and disposed of.

HORTICULTURAL PEST CONTROL

Plant Health Care and Pest Inspections

The contractor shall take reasonable steps necessary to maintain the landscape areas essentially free of harmful insect and disease infestations as customarily occur in the vicinity of the project and as preventable by application of available cultural practices.

All trees and shrubs shall be inspected once per month in the spring and throughout the remainder of the growing season by a qualified professional for possible presence of disease and insects. Six such inspections are recommended, in mid-March, early April, early May, mid-June, early August, and mid-September. A detailed discussion of potential plant pests on the site is available, upon Owner/Agent request and authorization.

Execution of Plant Health Care and Pest Control

All materials used in the landscape maintenance program must comply with local, state and federal laws. All pesticides must be applied by or under the supervision of a licensed Pesticide Applicator.

Application of all materials should be carefully timed to provide positive results and promote safety. Application of control products are to be targeted specifically to the identified pest. Applications are to be timed during the season when numerous pests are at a vulnerable stage for control, while providing minimal environmental impact.

The cost of the chemicals and their application is considered an additional service and will be billed as an extra upon approval.

The control of reptiles and vertebrate pests is considered an additional service and will be billed as an extra upon approval.

RCHITECTURAL SOLUTIONS

"A RESOURCE COMPANY"

Other Reports

Run Time Schedule
Lot_11_WELO_Audit_Schedule_Work_Sheet.pdf

Certificate Of Completion with Signature
COC_FORM.pdf

Irrigation Maintenance Recommendations
Irrigation_Maintenance_for_Audit.pdf

Attachments

Landscape Maintenance Recommendations
Residential_Landscape_Maintenance_Specifications.pdf

WELO 2015 Compliance Guide to Irrigation-Related Requirements - Produced by Rain Bird
MWELO-OrdinanceGuide.pdf

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Report Tools ▾
Lot 11_88 Cowpens Way
San Mateo, CA 94402
08/30/2022 8:00 am

Inspector
Andrew Bolt

CLIA/CGIA # 57436, ASIC

☰
Full Report
Summary
⚠ Immediate Repair
PDF ▾
37
Items Inspected
1
Corrected/Maintenance Item
Items Inspected
Corrected/Maintenance Item

Irrigation Audit Procedures in WELO

The irrigation audit includes the following procedures and are highlighted in our Standards of Practice section:

Visual inspection of irrigation system
Evaluation of distribution uniformity (DU)
Determination of precipitation rate (PR)
Determination of landscape's watering needs
Review and development of irrigation schedule

California WELO Ordinance

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

All landscape irrigation audits shall be conducted by a local agency landscape irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.
In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.
For new construction and rehabilitated landscape projects installed after December 1, 2015, 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, including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;
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; and sections 11 and 30, Governor's Exec. Order No. B-29-15 (April 1, 2015). Reference: Section 65596, Government Code; and section 11, Governor's Exec. Order No. B-29-15 (April 1, 2015)

I, Andrew Bolt declare that I have performed a third party Irrigation Audit on the property listed above and not affiliated with the property owner, builder or landscape installer. This audit was performed with all guidelines and codes of licensing body that certified me as a landscape irrigation auditor.

Irrigation Auditor Name: **Andrew Bolt** Certification #: **57436**

1 - Inspection Details

Information

Standards

Site Overview: Name of People In Attendance

General Contractor

Attendee Information

1. Name of Company: NexGen Builders
2. Name(s) of attendees: Bob

Site Overview: Project Type

Site

New Project, Residential

Describe Site: Describe Site: New single family, two story house. Landscape front and back consisting of cs turf, trees and shrubs

Site Overview: Project Status

Post Plant Audit

The project is subject to a WELO Irrigation Inspection. This report must be turned into the required division at the building/planning department.

Site Overview: Weather at Time of Audit

Sunny

Weather conditions have been recorded for the period of time during the audit. If winds exceeds 5 mph we can not conduct any catch can testing.

Site Overview: Site & Landscape Conditions

New Landscape Project

New Shubs, New Trees, New Bio Basins, Clay Loam Soil Type, Sloped Site, No Standing Water, 2-3" Bark Mulch Installed

The irrigation that is being audited has been designed by a professional Landscape Architect, Irrigation Consultant or Landscape Contractor and has been approved by the local building/planning department.

All installation has been installed by a professional landscape contractor and is subject to all State and Local codes and ordinances.

Contractor or Owner Responsibilties: Prior to Audit Inspection

Contractor /Owner Responsibility

It remains the responsibility of the contractor to have the project 100% complete and irrigation fully operational prior to the time of the inspection.

Irrigation Controller, All Valves, Sensors and other equipment must be fully functional

Contractor or Owner Responsibilties: Audit Inspection & Reporting

Auditor Responsibility

We will only report on the conditions of the irrigation operation, conditions of and compliance to WELO. Any deficiencies of the system will need to be corrected prior to our final sign off.

2 - Point Of Connection

Overview

Information

Standards

IN

NS

DE

CI

MI

2.1

Water Source and Connection

X

X

X
X
X
2.2
Backflow Prevention
X
X
X
X
X
2.3
Landscape Flow/Water Meter
X
X
X
X
X
2.4
Master Valve
X
X
X
X
X
2.5
Flow Sensor
X
X
X
X
X
2.6
Hydrometer
X
X
X
X
X
IN = Inspected NS = Not Specified DE = Deficiency CI = Corrected Item MI = Maintenance Item
3 - Irrigation Controller
Overview
Information
Limitations
Standards

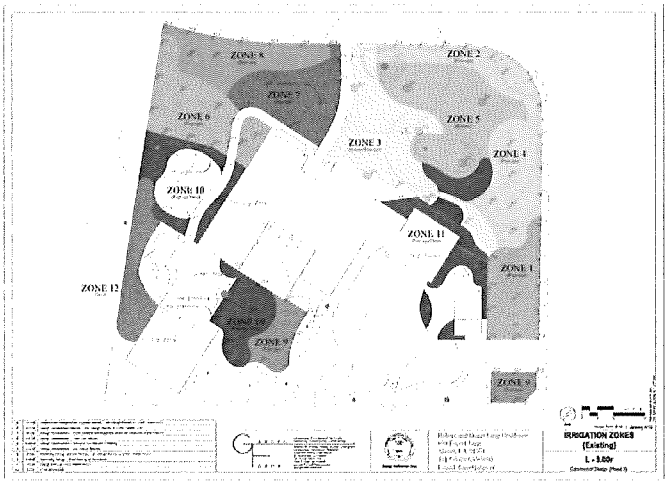
IN
NS
DE
CI

MI
3.1
Controller Installation Overview
X
X
X
X
X
3.2
Irrigation Controller Installation
X
X
X
X
X
3.3
Two Wire Decoder System Installation & Grounding of Two Wire Path
X
X
X
X
X
3.4
As Built Map & Zone Schedule Present
X
X
X
X
X
3.5
Power Source at Controller
X
X
X
X
X
3.6
Programmed with Schedule
X
X
X
X
X
3.7
Weather Adjusted Scheduling Set Up
X
X
X
X
X

3.4.1 - As Built Map & Zone Schedule Present

Irrigation Schedule

Place copies of Irrigation Schedule and As Built's at controller and provide customer with copies- Sample copy below of AS Built Irrigation Zoning. Include POC, controller, mainline and valve locations



Landscaping Contractor

4 - Remote Control Valves

Overview

Information

Standards

IN

NS

DE

CI

MI

4.1

Irrigation Valve Installation

X

X

X

X

X

4.2

Operation of Valve

X

X

X

X

X

4.3

Leaks

X

X

X

X

X

4.4

Wire Connections

X

X

X

X

X

5 - Spray/Rotor Zones

Overview
Information
Standards

IN
NS
DE
CI
MI
5.1
Spray Head and Rotors Installation
X
X
X
X
X
5.2
24" Set Back
X
X
X
X
X
5.3
Coverage
X
X
X
X
X
5.4
Nozzles
X
X
X
X
X
5.5
Overspray
X
X
X
X
X
5.6
Check Valve
X
X
X

X
X
5.7
Pressure Regulation
X
X
X
X
X
IN = Inspected NS = Not Specified DE = Deficiency CI = Corrected Item MI = Maintenance Item
6 - Low Flow/Micro & Bubbler Irrigation
Overview
Information
Standards

IN
NS
DE
CI
MI
6.1
Bubblers or Drip Rings Overview
X
X
X
X
X
6.2
Tree Bubblers or Drip Rings
X
X
X
X
X
6.3
Plant Bubblers or Drip Rings
X
X
X
X
X
6.4
Drip Irrigation
X
X
X
X
X
6.5

Drip Kits
X
X
X
X
X
6.6
Drip Line Coverage
X
X
X
X
X
6.7
Drip Line Leaks
X
X
X
X
X
6.8
Air Relief Valves
X
X
X
X
X
6.9
Flush Valves
X
X
X
X
X
6.10
Drip Indicators
X
X
X
X
X
IN = Inspected NS = Not Specified DE = Deficiency CI = Corrected Item MI = Maintenance Item

ESTABLISHED PLANT IRRIGATION SCHEDULE

CLIENT: LOT 11													July Eto:	6.20		Site Annual Eto:	49.5
																Avg Plant Factor Et:	0.3
CONTROLLER:			HUNTER		PRO-C					ET SOURCE	SOLAR SYNC				Soil Type	CLAY	0.2	% Site Irrigation Effic:	0.79
Hydrozone Type	*Zone Numbers*	*Program*	*Plant Type*	*Plant Factor*	*ET Plant Factor*	*Plant Factor x Eto*	*Root Depth "*	*Shade Factor*	*Density Factor*	*Irrigation Equipment*	*Inches Precip Rate*	*% Dist Unif*	*Irri Water Requirement Inches*	*Total Period Run Time*	*Valve Cycle Time*	*Cycles*	*Totals Days Per July*	*Notes*	
1	1	B	Tree	Low	0.3	1.9	18	1	1	Bubbler	1	0.85	0.35	16	8	2	8		
2	2,3	A	Shrub	Low	0.3	1.9	12	1	1	Inline Drip	0.66	0.9	0.33	23	12	2	8		
3																			
4																			
5																			
6																			
										Average Site % DU		0.89		20	Total Run Time				

Estimated Total Water Use: Gallons -

SCHEDULED IRRIGATION DAYS

	JANUARY	FEBRUARY	MARCH	APIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL DAYS
Program A	1	2	4	5	7	8	8	7	5	3	2	1	51
Program B	1	2	4	5	7	8	8	7	5	3	2	1	51
Program C													
Program D													
Program E													

NOTE TO IRRIGATION CONTROLLER PROGRAMMER: DAYS PER MONTH ARE BASED ON AN ESTABLISHMED PLANT WATER REQUIREMENT SCHEDULE. THESE DAYS ARE PURELY A RECOMMENDATION AND ADJUSTMENTS NEED TO BE TAKEN BASED ON THE SITE CONDITIONS SUCH AS SUN OR SHADE, SOIL TYPE, ALLOTED DAYS GIVEN BY THE LOCAL ENFORCING AGENCY, PLANT TYPE AND CONDITION OF PLANT; WE CANNOT BE HELD RESPONSIBLE FOR THE CONDITION OF PLANTS DURING ANY PLANT ESTABLISHMENT OR ESTABLISHED PLANT LIFE PERIOD.

PROGRAM	LANDSCAPE TYPE	CYCLES	CYCLE RUN/VALVE		SOAK TIME/VALVE	TOTAL SOAK TIME/VALVE		Notes
A	SHRUBS-DRIP	2	12	MINS	40	40	MINS	CONTRACTOR TO SET UP CYCLE SOAK ON ALL SCHEDULES OR MULTIPLE START TIMES. THIS WILL ELIMINATE PUDDLING OR RUN OFF. RUN MULTIPLE START TIME TO ACCOMPLISH WATER WINDOW RESTRICTIONS. IT OS THE OPERATORS RESPONSIBILITY TO MANAGE THIS SITE SO AS NOT TO EXCEED THE ESTIMATED. TOTAL WATER USE ETWU
B	TREES-BUBBLERS	8		MINS	40	40	MINS	
C				MINS			MINS	
D				MINS			MINS	
E				MINS			MINS	
F				MINS			MINS	

NOTES: This irrigation schedule is set up as a base guide only, contractor must adjust irrigation controller so as to irrigate based on plants needs and not to exceed the ETWU usage. Set irrigation controller to maximise Cycle Soak through programming.We are not responsible for overseeing controller scheduling. All Spray Irrigation must be scheduled between the hours of 8:00 PM and 10:00 AM

RUN TIM E FORMULA = 60 X ET X Kc/PRXEA

60 = MINUTES
ET = EVAPOTRANSPIRATION (DAILY)
Kc PLANT COEFFICIENCY
PR = PRECIPITATION RATE
EA = APPLICATION EFFICIENCY