County of Yolo

PLANNING AND PUBLIC WORKS DEPARTMENT

John Bencomo
DIRECTOR

292 West Beamer Street
Woodland, CA 95695-2598
(530) 666-8775 FAX (530) 666-8156
www.yolocounty.org

January 4, 2011

Mr. Peter Brostrom
California Department of Water Resources
Water Use and Efficiency Branch
PO Box 942836
Sacramento, CA 94236-0001

Re: Submittal of Yolo County Water Efficiency Landscape Ordinance

Dear Mr. Brostrom:

The County of Yolo is pleased to submit to the California Department of Water Resources the enclosed Water Efficient Landscape Ordinance. The Yolo County Board of Supervisors adopted the ordinance on December 7, 2010, in response to the requirements of AB 1881. The Yolo County ordinance is based on the State's model ordinance and complies with AB 1881, but was developed to fit local conditions specific to Yolo County. Much of the required technical information has been included in the County's Application and Submittal Guidance Package, instead of in the text of the ordinance. The Application and Submittal Guidance Package describes the water budgeting requirements and calculations, plan submittal requirements, and related resources for plant choice and soil amendments.

As evidenced in Section 3 of the enclosed ordinance, the Yolo County ordinance is at least as effective as the State's model ordinance. The Yolo County Board of Supervisors made the following four findings when adopting the ordinance: The ordinance (1) promotes the vales and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible; (2) establishes a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects; (3) establishes provisions for water management practices and water waste prevention for existing landscapes; and (4) uses 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.

If you have any questions or if clarification is needed, please contact me by phone at (530) 666-8036, or by email at jeff.anderson@yolocounty.org.

Respectfully,

Jeff Anderson
Assistant Planner

Cc: John Bencomo, Director
David Morrison, Assistant Director

Enclosure

FILED

DEC 13 2010

CLERK OF THE BOARD

BY _____ DEPUTY

ORDINANCE NO. 1404

(An Ordinance Revising and Updating Provisions of the Yolo County Code Relating to Water Efficient Landscaping)

The Board of Supervisors of the County of Yolo hereby ordains as follows:

Section 1. Purpose.

The purpose of this Ordinance is to add provisions to the Yolo County Code to address permitting requirements for water efficient landscaping. These changes are necessary to reflect changes in California law (Assembly Bill 1881, Government Code Section 65591 et seq.) and to promote the conservation and efficient use of water. These changes are also necessary and appropriate to implement the Yolo County General Plan.

Section 2. Addition of Article 35 to Chapter 2 of Title 8, of the Yolo County Code.

Article 35 shall be added to Chapter 2 of Title 8 of the Yolo County Code, and shall read in full as follows:

Article 35. Water Efficient Landscaping

8-2.3501. Purpose.

This Article is adopted in accordance with Government Code Section 65595 for the purpose of complying with California law and promoting water conservation. The provisions set forth in this Article establish a framework for the design, installation, and management of water efficient landscapes.

8-2.3502. Applicability.

(a) The provisions of this Article shall apply to all of the following landscape projects that are provided and/or required as part of a building permit, grading permit, discretionary permit, or site plan review:

(1) Public agency and private development projects. New construction and rehabilitated landscape projects with landscape area equal to or greater than 2,500 square feet.

(2) Developer-installed in single-family and multi-family residential projects. New construction and rehabilitated landscape projects with landscape area equal to or greater than 2,500 square feet cumulative.

(3) Homeowner-provided in single-family and multi-family residential projects. New construction landscape projects with landscape area equal to

or greater than 5,000 square feet that are served by a community water system.

(b) The provisions of this Article shall also apply to the following landscape projects with significant water needs:

(1) Existing landscapes equal to or greater than one acre, with a dedicated water meter. Such landscapes are limited to preparing a water efficient landscape worksheet in accordance with the specifications in the Landscape Documentation Package (see Section 8-2.3502 Submittal Requirements). If water use exceeds the Maximum Applied Water Allowance, the property owner shall consult the Planning and Public Works Department for recommendations to reduce water use and to prevent water waste.

(2) New and rehabilitated cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries shall require the preparation of a water efficient landscape worksheet and submittal of a Certificate of Completion. Existing cemeteries are limited to (1) above.

(c) The provisions of this Article shall not apply to the following:

(1) registered local, state or federal historical sites;

(2) ecological restoration and similar projects that do not require irrigation systems for longer than five years in duration to establish the plants;

(3) mined-land reclamation projects that do not require irrigation systems for longer than five years in duration to establish the plants;

(4) plant collections, as part of botanical gardens, arboretums, and nature centers open to the public; and

(5) community gardens.

8-2.3503. Definitions.

For the purposes of this Article, unless otherwise apparent from the context, certain words and phrases used in this Article are defined as follows:

(a) "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.

(b) "California Invasive Plant Inventory" means the California Invasive Plant Inventory maintained by the California Invasive Plant Council.

(c) "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.

(d) "Community garden" means a piece of property or area of a property that is dedicated solely to edible plants and gardened by a cooperative group of people living in the area.

(e) "Community water system" means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

(f) "Developer-installed" means a landscape project installed by or under the direction of the developer of a development project.

(g) "Ecological restoration project" means a project, where the primary function of such project is to assist in the recovery of an ecosystem that has been degraded, damaged, or destroyed. For purposes of this ordinance, restoration focuses on establishing the composition, structure, pattern, and ecological processes necessary to make terrestrial and aquatic ecosystems sustainable, resilient, and healthy under current and future conditions.

(h) "Estimated Total Water Use" (ETWU) means the total water used for the landscape.

(i) "ET adjustment factor" (ETAF) means, except for special landscape areas, a factor of 0.7, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. The ET adjustment factor for special landscape areas shall not exceed 1.0.

(j) "ETo" see reference evapotranspiration.

(k) "Head to head coverage" means full coverage from one sprinkler head to the next.

(l) "Homeowner-provided landscaping" means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner.

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

(n) "Invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources.

(o) "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.

(p) "Irrigation efficiency" (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.

(q) "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).

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

(s) "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 8-2.3502 (Applicability).

(t) "Low volume irrigation" (also "point source 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.

(u) "Low-head drainage" means water that flows out of the system after the valve turns off due to elevation changes within the system.

(v) "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor (ETAF), and the size of

the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance.

(w) "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.

(x) "Mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

(y) "New construction" means, for the purposes of this ordinance, a new building or structure with a landscape, such as a house, accessory structure, pool, gazebo, or commercial or industrial building. This definition also includes other new landscapes, such as a park, playground, or greenbelt without an associated building.

(z) "Overhead irrigation system" means a system that delivers water through the air (e.g., spray heads and rotors).

(aa) "Overspray" means the irrigation water which is delivered beyond the target area.

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

(cc) "Plant factor" is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for low water use plants is 0 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species."

(dd) "Point source irrigation" see low volume irrigation.

(ee) "Precipitation rate" means the rate of application of water measured in inches per hour.

(ff) "Rain sensor" means a component which automatically suspends an irrigation event when it rains.

(gg) "Recycled water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.

(hh) "Reference Evapotranspiration" or "ETo" means a standard measurement of environmental parameters that affect the water use of plants, and is an estimate of the Evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered.

(ii) "Rehabilitated landscape" means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of Section 8-2.3502 (Applicability), and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.

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

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

(ll) "Subsurface irrigation" means an irrigation device with a delivery line and water emitters installed below the soil surface that slowly and frequently emit small amounts of water into the soil to irrigate plant roots.

(mm) "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.

(nn) "Turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses. The meaning of "turf" does not include landscape areas planted with non-irrigated native California grasses.

(oo) "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.

8-2.3504. Submittal Requirements.

(a) Landscape Documentation Package. Prior to commencing construction on a landscape project subject to the provisions of this Article, a Landscape Documentation Package shall be submitted to the County for review and approval.

(1) The Landscape Documentation Package shall be filed with the Planning and Public Works Department on a County approved application form. The Landscape Documentation Package application shall include all required fees and/or deposits, and all plans, specifications, and submittals required by the department, including but not limited to:

(i) General project information
(ii) Water Efficient Landscape Worksheet
(iii) Soil management report
(iv) Landscape and grading design plan
(v) Irrigation design plan

(2) The Landscape Documentation Package application shall only be approved after the Planning Director verifies that the proposed landscape project complies with the provisions of this Article, other applicable provisions of this code, and any applicable conditions of a discretionary permit or other entitlement.

(b) Certificate of Completion. Following installation of landscaping subject to the provisions of this Article, the project applicant shall submit a Certificate of Completion to the Planning and Public Works Department for review and final approval.

(1) Prior to issuance of a certificate of occupancy or final building or grading permit, the Certificate of Completion shall be submitted to the Planning and Public Works Department on a form prescribed by the Planning Director that shall include the following information and documentation:

(i) General project information
(ii) Certificate of Installation
(iii) Copy of Landscape Irrigation Audit

(c) Permit Issuance and Enforcement.

(1) Upon successful completion of the Certificate of Completion, the County shall issue a "final" landscape permit to the property owner/project applicant.

(2) The County may conduct inspections for the purpose of enforcing this Ordinance and, as necessary and appropriate, may utilize any of the enforcement mechanisms set forth in the Yolo County Code or otherwise authorized by law to address violations.

8-2.3505. Landscaping Standards.

All landscape projects subject to the provisions of this Article shall comply with the following landscaping standards.

(a) Plant selection and grouping.

(1) Any plant may be selected for the landscape, providing the Estimated Total Water Use (ETWU) in the landscape area does not exceed the Maximum Applied Water Allowance (MAWA), and that the plants meet the specifications set forth in (2), (3), (4), and (5) below.

(2) With the exception of Special Landscape Areas, a minimum 25% of landscape area shall be comprised of native plants.

(3) Plants having similar water needs shall be grouped together in distinct hydrozones.

(i) Within distinct hydrozones, plants of moderate and low water use, or moderate and high water use can be mixed, so long as the plant factor of the higher water using plant is used for calculations.

(ii) High water use plants shall not be mixed with low water use plants.

(4) Plants shall be selected appropriately based on their adaptability to the climate, geologic, and topographical conditions of the site. Protection and preservation of existing native California species and natural areas is encouraged.

(5) The use of invasive plant species, as listed in the California Invasive Plant Inventory produced by the California Invasive Plant Council, or as determined by the Director of Planning and Public Works, is prohibited.

(6) Fire prevention needs shall be addressed in fire-prone areas. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b).

(b) Turf requirements.

(1) Turf shall be used wisely and in response to functional needs and shall not be planted if the ETWU exceeds the MAWA.

(2) Turf shall not comprise greater than 25% of the front yard landscape area of developer-installed single-family landscaping.

(3) With the exception of Special Landscape Areas, turf shall not comprise greater than 30% of non-residential landscaped area.

(4) Turf shall not be planted on slopes exceeding 25% where the toe of the slope is adjacent to or within four feet of an impermeable hardscape (rise divided by run x 100 = slope percent).

(c) Soil Amendments, conditioning, and mulching.

(1) A minimum two inch 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.

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

(3) Soil amendments shall be incorporated based on the recommendations of the soil management report.

(d) Water features.

(1) Recirculating water systems shall be used for all water features.

(2) The surface area of a water feature shall be indicated on the landscape plans and included in the high water use hydrozone area of the water budget calculation.

(3) Recycled water shall be used for decorative water features when available on site.

(e) Stormwater Management.

(1) The landscape project area shall be graded so that all irrigation and normal rainfall remains within the property lines and does not drain on to non-permeable hardscapes.

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

(3) Soil compaction in landscape areas is prohibited unless required by the geotechnical or engineering report.

8-2.3506. Irrigation Requirements.

All landscape projects subject to the provisions of this Article shall comply with the following irrigation requirements.

(a) Irrigation system.

(1) All irrigation systems shall be designed and installed to meet irrigation efficiency criteria as described in the Maximum Applied Water Allowance.

(2) Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system.

(3) Manual shut-off valves 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.

(4) Weather-based self-adjusting irrigation controllers with rain sensors shall be required.

(5) Pressure regulators and/or booster pumps shall be installed so that all components of the irrigation system operate at the manufacturer's recommended optimal pressure.

(6) Irrigation systems shall be designed to prevent runoff or overspray onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

(7) Point source irrigation is required where plant height at maturity will affect the uniformity of an overhead irrigation system.

(8) Low volume irrigation is required in mulched planting areas.

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

(10) Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface unless the irrigation audit confirms no overspray or runoff occurs.

(11) Slopes greater than 15 percent shall be irrigated with point source or other low-volume irrigation technology.

(12) Sprinkler heads, rotors, and other emission devices on one valve shall have matched precipitation rates, unless otherwise directed by the manufacturer's specifications.

(13) Head to head coverage shall be required unless otherwise directed by the manufacturer's specifications.

(14) Swing joints or other riser protection components shall be required on all risers.

(15) Check valves or anti-drain valves shall be installed to prevent low-head drainage.

(b) Hydrozones.

(1) Irrigation systems that serve trees shall be exclusively low volume type, and shall be placed on separate valves except when planted in turf areas.

(2) Distinct hydrozones shall be irrigated with separate valves.

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

8-2.3507. Public Education.

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 throughout Yolo County.

(a) Literature and resources. The Yolo County Planning and Public Works Department shall make available information to the general public regarding the design, installation, management, and maintenance of water efficient landscapes.

(b) Model homes. Landscaping shall be installed, in compliance with this Article, for all model homes in subdivisions where a Final Subdivision Map has been approved by the County. The landscaping for model homes shall incorporate the policies of this Article and the developer shall include the following:

(1) Signs that identify the model home landscaping as an example of a water efficient landscape featuring elements such as hydrozones, irrigation equipment, and others that contribute to the overall water efficient theme.

(2) Literature shall be provided to anyone touring a model home that describes the design, installation, management, and maintenance of water efficient landscapes.

Section 3. Findings.

The Board of Supervisors finds that the provisions of Section 3 of this ordinance are at least as effective in conserving water as the updated Model Water Efficient Landscape Ordinance adopted by the California Department of Water Resources pursuant to the Water Conservation in Landscaping Act (Government Code Section 65591 et seq.). The provisions of Section 3 of this ordinance protect water supplies through the implementation of a whole systems approach to the design, installation, and maintenance of landscapes, which results in water conserving, climate-appropriate landscapes, improved water quality, and the minimization of natural resource inputs. Specifically, this ordinance (1) promotes the vales and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible; (2) establishes a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects; (3) establishes provisions for water management practices and water waste prevention for existing landscapes; and (4) uses 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. The Director of Planning and Public Works is directed to submit a copy of this ordinance and evidence in the record supporting the preceding findings to the California Department of Water Resources.

Section 4. Severability.

If any section, sub-section, sentence, clause, or phrase of this ordinance is held by a court of competent jurisdiction to be invalid, such decision shall not affect the remaining portions this Ordinance. The Board of Supervisors hereby declares that it would have passed this Ordinance, and each section, sub-section, sentence, clause, and phrase hereof, irrespective of the fact that one or more sections, sub-sections, sentences, clauses, and phrases be declared invalid.

Section 5. Effective Date.

This Ordinance shall take effect and be in force thirty (30) days after its passage, and prior to expiration of fifteen (15) days after its passage thereof, shall be published by title and summary only in the Davis Enterprise together with the names of members of the Board of Supervisors voting for and against the same.

[Continued on the following page]

PASSED AND ADOPTED by the Board of Supervisors of the County of Yolo, State of California, this 7th day of Dec., 2010, by the following vote.

AYES: Rexroad, Provenza, McGowan, Thomson.
NOES: Chamberlain.
ABSENT: None.
ABSTAIN: None.

Helen M. Thomson

Helen Thomson, Chairwoman
Yolo County Board of Supervisors

ATTEST:
Julie Dachtler, Deputy Clerk
Board of Supervisors

By _____
Deputy (Seal)

APPROVED AS TO FORM;
Robyn Truitt Drivon, County Counsel

By _____
Philip J. Pogledich, Senior Deputy

COUNTY OF YOLO

WATER EFFICIENT LANDSCAPE ORDINANCE APPLICATION & SUBMITTAL GUIDANCE

Planning and Public Works Department
292 West Beamer Street
Woodland, California 95695-2598

(530) 666-8775
(530) 666-8156 fax

DOES THE WATER EFFICIENT LANDSCAPE ORDINANCE APPLY TO YOUR PROJECT?

Use the table below to determine if the Water Efficient Landscape Ordinance applies to your project. Answer the questions in the left-hand column and use the "yes" or "no" answers to the right to guide your assessment. If you have any questions with regards to the applicability of the Water Efficient Landscape Ordinance, please consult a planner.

Question	YES	NO
1. Does your project require a building permit, grading permit, discretionary permit, or site plan review from the County?	Answer question #2	Does not apply
2. Will new or rehabilitated landscaping be provided as part of the project? **OR** Is new or rehabilitated landscaping required as part of the Conditions of Approval for the project?	Answer question #3 or #4, whichever applies	Does not apply
3. Is this a public agency, private development, or developer installed project with 2,500 square feet or more of landscape area?	Applies	Does not apply
4. Is this a homeowner-provided project with 5,000 square feet or more of landscape area that is served by a community water system?	Applies	Does not apply
5. Is the project a new or rehabilitated cemetery?	Special conditions apply.	

Exempt projects include:

- registered local, state, or federal historical sites;
- ecological restoration and similar projects that do not require irrigation systems for longer than five years in duration to establish the plants;
- mined-land reclamation projects that do not require irrigation systems for longer than five years in duration to establish the plants;
- plant collections, as part of botanical gardens, arboretums, and nature centers open to the public; and
- community gardens.

County of Yolo

PLANNING AND PUBLIC WORKS DEPARTMENT

John Bencomo
DIRECTOR

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LANDSCAPE DOCUMENTATION PACKAGE & CERTIFICATE OF COMPLETION REQUIRED MATERIALS

The following list specifies the information needed to submit the proposed application.

EXPLANATION	**Required number of copies**
Application Fee(s): Please check with a planner regarding applicable fees	
Landscape Documentation Package *(To be submitted prior to landscape installation):*	
1. Application Form (SECTION A)	1
2. Water Efficient Landscape Worksheet (SECTION B)	1
3. Soil Management Report (SECTION C)	1
4. Landscape and Grading Design Plan (SECTION D)	3 (two full size plans and one 8 ½ x 11 reduction)
5. Irrigation Design Plan (SECTION E)	3 (two full size plans and one 8 ½ x 11 reduction)
Certificate of Completion *(To be submitted after landscape installation and prior to issuance of Final Building Permit or Certificate of Occupancy):*	
1. Project Information Sheet (SECTION F)	1
2. Certification of Installation (SECTION G)	1
3. Landscape Irrigation audit (SECTION H)	1
Additional Information: Depending upon the exact nature of the application, additional information may be required after submittal of the project application	

APPLICATION FORM

Applicant/Owner Information					
Applicant			Owner (if different)		
Street Address			Street Address		
City	State	Zip	City	State	Zip
Daytime Phone			Daytime Phone		
E-mail			E-mail		

Project Information	
Property Address	
Assessor's Parcel Number (APN):	Parcel Size
Project Type (Check all that apply) ☐ New ☐ Public Agency ☐ Homeowner-installed ☐ Other _____ ☐ Rehabilitated ☐ Private Development ☐ Developer-installed	
Total Landscape Area (square feet)	
Water Supply Type (potable, recycled, well)	Name of Water Supplier (if not served by private well)

I agree to comply with the requirements of the Water Efficient Landscape Ordinance (Title 8, Chapter 2, Article 35 of the Yolo County Code) and submit a complete Landscape Documentation Package. I certify that all the information contained in this application, including but not limited to the information contained in the Landscape Documentation Package (see items in checklist) is complete and accurate to the best of my knowledge.

_____ ____/____/____
Signature of Applicant Date

_____
Print Applicant Name

_____ ____/____/____
Signature of Property Owner Date

_____
Print Property Owner Name

WATER EFFICIENT LANDSCAPE WORKSHEET

Please complete all sections (B1, B2, & B3) of the worksheet.

SECTION B1. HYDROZONE INFORMATION TABLE

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

Hydrozone*	Zone or Valve	Irrigation Method**	Area (Sq. Ft.)	% of Total Landscape Area
		Total (Sq. Ft.):		100%

Summary Hydrozone Table		
Hydrozone*	**Area (Sq. Ft.)**	**% of Total Landscape Area**
High Water Use		
Moderate Water Use		
Low Water Use		
Total:		**100%**

** Hydrozone*

HW = High Water Use Plants
MW = Moderate Water Use Plants
LW = Low Water Use Plants

*** Irrigation Method*

MS = Micro-spray
S = Spray
R = Rotor
B = Bubbler
D = Drip
O = Other

SECTION B2. MAXIMUM APPLIED WATER ALLOWANCE

- Please complete the calculations below. Or, you may use the electronic form (excel spreadsheet) provided on the Department of Water Resources website at (http://www.water.ca.gov/wateruseefficiency/landscapeordinance/). Please print the completed excel spreadsheet and submit as part of the Landscape Documentation Package.
- See Appendix B for examples how to complete this worksheet.

The project's Maximum Applied Water Allowance shall be calculated using the following formula:

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]

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

Maximum Applied Water Allowance = _____gallons per year

Show calculations.

Effective Precipitation (Eppt) (OPTIONAL)

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

MAWA= (ETo – Eppt) (0.62) [(0.7 x LA) + (0.3 x SLA)]

Maximum Applied Water Allowance = _____gallons per year

Show calculations.

SECTION B3. ESTIMATED TOTAL WATER USE (ETWU)

- Please complete the calculations below. Or, you may use the electronic form (excel spreadsheet) provided on the State of California Department of Water Resources website at (http://www.water.ca.gov/wateruseefficiency/docs/WaterBudget101.xls). Please print the completed excel spreadsheet and submit as part of the Landscape Documentation Package.
- See the examples (Appendix B) for how to complete this worksheet.

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

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

where:

ETWU = Estimated total water use per year (gallons per year)
ETo = Reference Evapotranspiration (inches per year) (SEE ATTACHMENT)
PF = Plant Factor from WUCOLS[1]
HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor (to gallons per square foot)
IE = Irrigation Efficiency (minimum 0.71)

Hydrozone Table for Calculating ETWU

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

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

Estimated Total Water Use = _____gallons

Show calculations.

[1] To obtain plant factors from WUCOLS, see http://www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf - *Water Use Classification of Landscape Species, UCCE 2000.*

SOIL MANAGEMENT REPORT

In order to reduce runoff and encourage healthy plant growth, the project applicant, or his/her designee shall submit soil samples to a laboratory for analysis and recommendations. The report must contain an analysis of the soil for the proposed landscaped areas of the project. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants. 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. A copy of the soil management report shall be submitted to Yolo County Planning and Public Works as part of this Landscape Documentation Package.

The soil analysis may include:

a. soil texture;
b. infiltration rate determined by laboratory test or soil texture infiltration rate table;
c. pH;
d. total soluble salts;
e. sodium;
f. percent organic matter; and
g. recommendations about the type and amount of amendments necessary to sustain the vegetation proposed in the landscape and grading design plan.

LANDSCAPE AND GRADING DESIGN PLAN

Provide two full-sized copies of the landscape and grading design plan and one 8 ½ x 11 reduction. The landscape and grading design plan shall describe the design actions that will be employed to meet the landscape design specifications required by the ordinance (Sec. 8-2.3505). At a minimum, the landscape and grading design plan shall also:

a. delineate all hydrozones grouped by water needs;
b. identify new and existing trees, shrubs, groundcovers, turf, and any other planting areas
c. identify plants by botanical name and common name separated by water needs;
d. identify plant sizes and quantities;
e. identify property lines, new and existing building footprints, streets, driveways, sidewalks, and other hardscape features;
f. identify pools, fountains, or other water features;
g. indicate total planned square footage of planted areas for high water use plants, moderate water use plants, and low water use plants;
h. identify height of graded slopes;
i. identify drainage patterns;
j. identify pad elevations;
k. identify finish grade;
l. indicate stormwater retention improvements, if applicable;
m. 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 and grading design plan"; and
n. bear the signature of a licensed landscape architect[2], licensed landscape contractor[3], or any other person authorized to design a landscape.

<u>When applicable, please include the following on the landscape and grading design plan:</u>

o. identify special landscape areas (e.g., recreation areas, areas permanently and solely dedicated to edible plants, and areas irrigated with recycled water);
p. identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.); and
q. identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Examples of stormwater best management practices include, but are not limited to:

    1. infiltration beds, swales, and basins that allow water to collect and soak into the ground;
    2. constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
    3. pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.

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[2] "landscape architect means a person who holds a license to practice landscape architecture in the State of California Business and Professions Code, Section 5615.

[3] "landscape contractor means a person licensed by the State of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

IRRIGATION DESIGN PLAN

Provide two full-sized copies of the irrigation design plan and one 8 ½ x 11 reduction. The irrigation design plan shall describe the irrigation methods and design actions that will be employed to meet the irrigation specifications required by the ordinance (Sec. 8-2.3506). At a minimum, the irrigation design plan shall also:

a. identify and depict irrigation system point of connection;
b. identify and depict irrigation system components, (e.g., controller, pipe, remote-control valves, sprinklers, rain shutoff device, check valves, pressure regulating devices, and backflow prevention devices;
c. indicate flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
d. contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and
e. bear the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system.

<u>When applicable, please include the following on the irrigation design plan:</u>

f. indicate location and size of separate water meters for landscape;
g. indicate static water pressure at the point of connection to the public water supply; and
h. identify any recycled water irrigation systems;

PROJECT INFORMATION SHEET

Owner Information	
Property Owner Name	
Mailing Address (street number, city, zip code)	
Daytime Phone	E-mail

Landscape Project Information	
Property Address (if different from above)	Assessor's Parcel Number (APN)
Total area of installed landscape (square feet)	Special Landscape Area (if any)
Date Landscape Documentation Package was submitted to PPW	Date Landscape Documentation Package was approved by PPW

"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 _____

CERTIFICATE OF INSTALLATION

"I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package. I/we have provided the applicant and/or property owner with a landscape and irrigation maintenance schedule to ensure water use efficiency."

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

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

LANDSCAPE IRRIGATION AUDIT

All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor. The applicant shall provide one copy of the landscape irrigation audit to the Planning and Public Works Department as part of this Certificate of Completion. The landscape irrigation audit shall include, but is not limited to:

a. proof of inspection;
b. system tune-up;
c. system test with distribution uniformity;
d. reporting overspray or run off that causes overland flow;
e. preparation of an irrigation schedule; and
f. photographs (hard copies) that reflect and accurate depiction of the landscape.

APPENDIX A
REFERENCE EVAPOTRANSPIRATION (ETo) TABLE*

The following table can be used to determine the Reference Evaoptranspiration (ETo) in inches per year for various locations in Yolo County. Select the reference location nearest your project or interpolate between two sites as appropriate to determine the Annual ETo for your particular project. Annual ETo is used to calculate your project's Maximum Applied Water Allowance (MAWA).

Nearest Reference Location	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	**Annual ETo (in/yr)**
W. Sac.	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

*Table excerpted from *Appendix A—Evapotranspiration Table, California Code of Regulations, Title 23. Waters, Division 2. Department of Water Resources, Chapter 2.7 – Model Water Efficient Landscape Ordinance* (09/10/09). The values in this table were derived from 1) California Irrigation Management Information System (CIMIS); 2) Reference Evapotranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept. of Water Resources 1999; 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922; and 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426.

APPENDIX B
LANDSCAPE WATER USE CALCULATION EXAMPLES

This form is intended to assist applicants with landscape water use calculations required as part of Section B of the Landscape Documentation Package.

MAXIMUM APPLIED WATER ALLOWANCE (MAWA)

The Maximum Applied Water Allowance shall be calculated using the following equation:

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]

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

(1) Example MAWA calculation: a hypothetical landscape project near Woodland with an irrigated landscape area of 50,000 square feet without any Special Landscape Area (SLA= 0, no edible plants, recreational areas, or use of recycled water). To calculate MAWA, the annual reference evapotranspiration value for Woodland is 51.6 inches as listed in the Reference Evapotranspiration Table in *Appendix A.*

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo= Reference Evapotranspiration (inches per year)
0.62= Conversion Factor (to gallons)
0.7= ET Adjustment Factor (ETAF)
LA= Landscape Area including SLA (square feet)
0.3= Additional Water Allowance for SLA
SLA= Special Landscape Area (square feet)

MAWA = (51.6 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 0)]
MAWA = 1,119,650 gallons per year

(2) In this next hypothetical example, the landscape project near Woodland has the same ETo value of 51.6 inches and a total landscape area of 50,000 square feet. Within the 50,000 square foot project, there is now a 2,000 square foot area planted with edible plants. This 2,000 square foot area is considered to be a Special Landscape Area.

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]
MAWA = (51.6 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 2,000 square feet)]

= 31.99 x [35,000 + 600] gallons per year
= 31.99 x 35,600 gallons per year
MAWA=1,138,844 gallons per year

ESTIMATED TOTAL WATER USE: *For landscaping WITHOUT Special Landscape Areas*

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

$$ETWU = (ETo)(0.62)\left(\frac{PF\,x\,HA}{IE} + SLA\right)$$ Where:

ETWU = Estimated Total Water Use per year (gallons)
ETo = Reference Evapotranspiration (inches)
PF = Plant Factor from WUCOLS (see Section 491)
HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor
IE = Irrigation Efficiency (minimum 0.71)

(1) Example ETWU calculation: landscape area is 50,000 square feet; plant water use type, plant factor, and hydrozone area are shown in the table below. The ETo value is 51.6 inches per year. There are no Special Landscape Areas (recreational area, area permanently and solely dedicated to edible plants, and area irrigated with recycled water) in this example.

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

* Plant Factor from WUCOLS

$$ETWU = (51.6)(0.62)\left(\frac{24{,}700}{0.71} + 0\right)$$

ETWU= 1,112,891 gallons per year

Compare ETWU with MAWA: For this example MAWA = (51.6)(0.62) [(0.7 x 50,000) + (0.3 x 0)] = 1,119,650 gallons per year. The ETWU (1,112,891 gallons per year) is less than MAWA (1,119,650 gallons per year). In this example, the water budget complies with the MAWA.

ESTIMATED TOTAL WATER USE: *For landscaping WITH Special Landscape Areas*

(1) Example ETWU calculation: total landscape area is 50,000 square feet, 2,000 square feet of which is planted with edible plants. The edible plant area is considered a Special Landscape Area (SLA). The reference evapotranspiration value is 51.6 inches per year. The plant type, plant factor, and hydrozone area are shown in the table below.

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

*Plant Factor from WUCOLS

$$ETWU = (51.6)(0.62)\left(\frac{23{,}500}{0.71} + 2{,}000\right)$$

ETWU= (31.99) (33,099 + 2,000)
ETWU= 1,122,817 gallons per year

Compare ETWU with MAWA. For this example: MAWA = (51.6)(0.62) [(0.7 x 50,000) + (0.3 x 2,000)]
= 31.99 x [35,000 + 600]
= 31.99 x 35,600
=1,138,844 gallons per year

The ETWU (1,122,817 gallons per year) is less than MAWA (1,138,844 gallons per year). For this example, the water budget complies with the MAWA.