Established in 1918 as a public agency

Coachella Valley Water District

Directors:
Patricia A. Larson, President
Peter Nelson, Vice President
Tellis Codekas
John W. McFadden
Russell Kitahara

Officers:
Steven B. Robbins, General Manager-Chief Engineer
Julia Fernandez, Secretary
Dan Parks, Asst. General Manager
Redwine and Sherrill, Attorneys

December 23, 2009

File: 0585.09
1150.112

Mr. Simon Eching
California Department of Water Resources
Water Use Efficiency Branch
Post Office Box 942836
Sacramento, CA 942836-0001

Dear Mr. Eching:

Subject: Adoption of Updated Model Water Efficient Landscape Ordinance (MWELO)

I am writing in response to Director Snow's letter concerning the mandated adoption of an updated MWELO. This is to confirm that the Coachella Valley Water District has completed the process of updating and approving its Ordinance 1302.1 "An Ordinance of the Coachella Valley Water District Establishing Landscape and Irrigation System Design Criteria." The Board of Directors of the Coachella Valley Water District approved the updated version on November 24, 2009. It is now in effect.

I have enclosed a copy of the ordinance for your review. As Director Snow requested, I have also enclosed a comparison table to show that Ordinance 1302.1 is at least as effective at conserving water as the Department of Water Resources' MWELO.

Ordinance 1302.1 is applicable to all cities and the County of Riverside within the Coachella Valley Water District's boundaries. Cities, or portions of cities, within our service territory include Cathedral City, Coachella, Indian Wells, Indio, La Quinta, Palm Desert, and Rancho Mirage. All these local agencies have participated in a cooperative effort to develop a uniform MWELO specifically tailored for the unique desert climate of the Coachella Valley. The Coachella Valley Association of Governments facilitated the development process which will result in all cooperating local agencies adopting a MWELO based on the enclosed Coachella Valley Water District Ordinance 1302.1.

I trust you will find Ordinance 1302.1 exceeds the requirements of the state MWELO. If you have questions or comments please contact Dave Koller, Conservation Coordinator at extension 3518.

Yours very truly,

Steve Robbins
General Manager – Chief Engineer

Enclosures/2/as

DK:sa\wtrmag[illegible] Water Resources

P.O. Box 1058 Coachella, CA 92236
Phone (760) 398-2651 Fax (760) 398-3711
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Coachella Valley Water District, Ordinance 1302.1 "An Ordinance of the Coachella Valley Water District Establishing Landscape and Irrigation System Design Criteria"

	Ordi-nance	Types of Projects	Document-ation Package	Plan Check	Review Fees	Min. SqFt.	ETAF	Smart Control	Irrigation Schedule	Water Budget	Maint-enance Require-ments	Land-scape Inspec-tion	Recycled Water Use	Public Edu-cation	Water Auditing	Waste Water Preven-tion	Plant List	Certifi-cate of Comple-tion	Soil Manage-ment Report	24" hards-cape setback	Min. Irr. Effi-ciency	WUCOLS Plant Factor Reqm't
STATE MWELO	Yes	UR	Yes	No**	No**	2,500	0.7	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No**	Yes	Yes	Yes	0.71	Yes
CVWD 1302.1	Yes	UR,GC	Yes	Yes	Yes	0	0.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	0.75	Yes
Legend	CVWD - Coachella Valley Water District																					
	STATE - State of California																					
	Types of Projects- Urban, Golf Course																					
	Plan Checking - Landscape Architectural Plan Checking																					
	Doc. Package - Documentation Package Submission Required																					
	Review Fees - Fees for Landscape Plan Checking																					
	ETAF - Adjustment Factor for Water Use Calculation - The Lower, the More Water Conserving																					
	Smart Control - Weather Based Irrigation Controller or Smart Controller																					
	Irrigation Schedule - A Schedule of Time to be Programmed on an Irrigation Controller																					
	Water Budget - Estimated and Maximum Applied Water Use Calculations																					
	Maintenance Requirements - Landscape Plans Include Requirements for Maintaining Landscaping																					
	Hardscape Setbacks - Sprinkler Head Setbacks from Hardscaped Areas																					
	Recycled Water Use - Requires Recycled Water Use When Available																					
	Public Education - Provisions for Public Education																					
	Min. Sq. Ft. - Minimum Square Footage for Applicability																					
	Water Auditing - Provisions for Landscape Water Auditing and Evaluation																					
	Waste Water Prevention - Provisions for Waste Water Prevention																					
	Plant List - Plant List Provided or Referred to in Ordinance																					
	Certificate of Comp. - Certificate of Completion - to be submitted at end of project																					
	24" Setback - A Landscape buffer zone between street curbs or sidewalks																					
	Min. Irr. Efficiency - Minimum Irrigation System Design Efficiency																					
	WUCOLS - Water Use Classification of Landscape Species																					
	UR - Urban landscapes																					
	GC - Golf Course																					
	** Refer to Local Jurisdiction																					

I, the undersigned Acting Board Secretary of the Coachella Valley Water District, do hereby certify that the foregoing is a true and correct copy of Ordinance No. 1302.1 of said District introduced and passed at meeting of said Board held August 28, 2007, and that said Ordinance was passed by the following vote:

Ayes:	Four
Directors:	Larson, Codekas, Kitahara, McFadden
Noes:	None
Absent:	Nelson

I further certify that said Ordinance was thereupon signed by the Vice President of the Board of Directors of said District.

Grace Hil

Acting Board Secretary

(SEAL)

REVISIONS TO ORDINANCE 1302.1

No.	Ordinance No.	Section	Date
1	1374	Attachment A	11/24/2009

ORDINANCE NO. 1302.1

AN ORDINANCE OF THE
COACHELLA VALLEY WATER DISTRICT
ESTABLISHING LANDSCAPE AND
IRRIGATION SYSTEM DESIGN CRITERIA

WHEREAS, on July 17, 2007, the Riverside County Board of Supervisors declared a local emergency for Riverside County due to severe drought conditions.

WHEREAS, on July 19, 2007, the governor of the State of California, Arnold Schwarzenegger, declared a State of Emergency in Riverside County due to severe and continuing drought conditions.

WHEREAS, drought conditions in the Colorado River Basin persist, resulting in water levels of Lake Mead and Lake Powell at near-historic lows that could result in reduced water deliveries.

WHEREAS, water supply reliability through the State Water Project and issues associated with the California Bay Delta threaten reduced water deliveries to California State Water Project contractors.

WHEREAS there is an existing water shortage as demonstrated by the continuing overdraft of the groundwater basin.

WHEREAS Sections 31026 and 31027 of the California Water Code state that a district shall have the power to restrict the use of district water during an emergency caused by drought, or other threatened or existing water shortage.

WHEREAS, landscape and outdoor water use account for the vast majority of domestic water use in the Coachella Valley and represent enormous conservation opportunities consistent with the Coachella Valley Water Management Plan.

THEREFORE, BE IT NOW ORDAINED by the Board of Directors of the Coachella Valley Water District that Ordinance No. 1302.1 Landscape and Irrigation System Design Criteria is hereby adopted.

All requirements for landscape design and construction of Ordinance 1302.1 are contained in Attachment A, Landscape and Irrigation System Design Criteria, as revised from time to time.

REPEALS: All other ordinances or parts of ordinances, and codes, in conflict with the provisions of this Ordinance, are hereby expressly repealed.

BE IT FINALLY ORDAINED that is Ordinance shall become effective October 1, 2007.

/s/ Patricia A. Larson
Vice President

ATTACHMENT A OF
ORDINANCE 1302.1

LANDSCAPE AND IRRIGATION SYSTEM DESIGN CRITERIA

Sections:

0.00.010	Purpose and Intent
0.00.020	Definitions
0.00.030	Provisions for New or Rehabilitated Landscapes
0.00.040	Other Provisions
0.00.050	Review and Program Monitoring Fees
0.00.060	Appeals
0.00.070	Penalties
0.00.080	Hearing Regarding Penalties
0.00.090	Appeal of Penalties

0.00.010 Purpose and Intent

A. The California State Legislature has found:

1. The waters of the state are of limited supply and are subject to ever increasing demands;
2. The continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future users;
3. 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. 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. Landscape design, installation, maintenance and management can and shall be water efficient; and
6. 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 and unreasonable method of use.

B. Consistent with these legislative findings, the purpose of these criteria is to:

1. Promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;
2. Establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects;
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 (MAWA) as an upper limit for water use and reduce water use to the lowest practical amount; and

5. Promote the benefits of consistent landscape criteria with neighboring local and regional agencies.

C. It is also the purpose of these criteria to implement the requirements of the California Code of Regulations Title 23. Waters Division 2. Department of Water Resources Chapter 2.7. Model Water Efficient Landscape Ordinance, and State of California Water Conservation in Landscaping Act. Authority cited: Section 65593, Government Code, Reference: Sections 65591, 65593, 65596 Government Code.

D. It is the intent of these criteria to promote water conservation through climate-appropriate plant material and efficient irrigation systems, and to create a "Lush and Efficient" landscape theme through enhancing and improving the physical and natural environment.

E. Applicability

1. These criteria shall apply to all of the following landscape projects:

   a. New construction and rehabilitated landscapes for public agency projects and private development projects requiring a building or landscape permit, plan check or design review;

   b. New construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects requiring a building or landscape permit, plan check or design review;

   c. New construction and rehabilitated landscapes which are homeowner-provided and/or homeowner-hired in single family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check or design review; and

   d. Existing landscapes limited to section 0.00.040 (B).

2. These criteria do not apply to:

   a. Registered local, state or federal historical sites;

   b. Ecological restoration projects that do not require a permanent irrigation system;

   c. Mined-land reclamation projects that do not require a permanent irrigation system; or

   d. Plant collections, as part of botanical gardens and arboretums open to the public.

0.00.020 Definitions

The words used in this section have the meanings set forth below:

ANTIDRAIN VALVE or CHECK VALVE - A valve located under/in a sprinkler head to hold water in the system to eliminate drainage from the lower elevation sprinkler heads.

APPLICATION RATE - The depth of water applied to a given area, usually measured in inches per hour. Also known as precipitation rate (sprinklers) or emission rate (drippers/microsprayers) in gallons per hour.

APPLIED WATER - The portion of water supplied by the irrigation system to the landscape.

AUTOMATIC CONTROLLER - An electronic or solid-state timer capable of operating valve stations to set the days, time and length of time of a water application.

BACKFLOW PREVENTION DEVICE - A safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

BENEFICIAL USE - Water used for landscape evapotranspiration.

BILLING UNITS - Units of water (100 cubic feet = 1 billing unit = 748 gallons = 1 CCF) for billing purposes. To convert gallons per year to 100 cubic feet per year, divide gallons per year by 748. (748 gallons = 100 cubic feet).

CONVERSION FACTOR (0.62) - A number that converts the Maximum Applied Water Allowance from acre-inches per acre to gallons per square foot. The conversion factor is calculated as follows:

(325,851 gallons/43,560 square feet)/12 inches	= (0.62)
325,851 gallons	= one acre-foot
43,560 square feet	= one acre
12 inches	= one foot

DESERT LANDSCAPE - A desert landscape using native plants spaced to look like a native habitat.

DISTRIBUTION UNIFORMITY - A measure of how evenly sprinklers apply water. The low-quarter measurement method (DULQ) utilized in the irrigation audit procedure is utilized for the purposes of these criteria. These criteria assume an attainable performance level of 75% DULQ for spray heads, 80% DULQ for rotor heads and 85% DULQ for recreational turf grass rotor heads.

DISTRICT – Coachella Valley Water District.

DRIP IRRIGATION - A method of irrigation where the water is applied slowly at the base of plants without watering the open space between plants.

ECOLOGICAL RESTORATION PROJECT - A project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

EFFECTIVE PRECIPITATION or USABLE RAINFALL - The portion of total natural precipitation that is used by the plants, usually assumed to be three inches annually. Precipitation or rainfall is not considered a reliable source of water in the desert.

ELECTRONIC CONTROLLERS - Time clocks that have the capabilities of multiprogramming, water budgeting and multiple start times.

EMISSION UNIFORMITY - A measure of how evenly drip and microspray emitters apply water. The low-quarter measurement method (EULQ) utilized in the landscape irrigation evaluation procedure is utilized for the purposes of these criteria. These criteria assume 90% EULQ for drippers, microsprays and pressure compensating bubblers.

EMITTER - Drip irrigation fittings that deliver water slowly from the watering system to the soil.

ESTABLISHED LANDSCAPE - The point at which new plants in the landscape have developed roots into the soil adjacent to the root ball.

ESTABLISHMENT PERIOD - The first year after installing the plant in the landscape.

ESTIMATED TOTAL WATER USE (By hydrozone) - The portion of the estimated annual total applied water use that is derived from applied water to a specified hydrozone.

ESTIMATED ANNUAL TOTAL APPLIED WATER USE (Total of all hydrozones) - The annual total amount of water estimated to be needed by all hydrozones to keep the plants and water features in the landscaped area healthy and visually pleasing. It is based upon such factors as the local evapotranspiration rate, the size of the landscaped area, the size and type of water feature, the types of plants, and the efficiency of the irrigation system. The estimated annual total applied water use shall not exceed the Maximum Applied Water Allowance (MAWA).

EVAPOTRANSPIRATION or ET - The quantity of water evaporated from adjacent soil surfaces and transpired by plants expressed in inches during a specific time.

ET ADJUSTMENT FACTOR - A factor of 0.5 that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. A

combined plant mix with a site-wide average 0.38 is the basis of the plant factor portion of this calculation. The irrigation efficiency for purposes of the ET adjustment factor is 0.75. Therefore, the ET adjustment factor (0.5) = (0.38/0.75).

FINISHED GRADE – Grade height after surface mulch covering has been installed.

FLOW RATE - The rate at which water flows through pipes, valves and meters (gallons per minute or cubic feet per second).

HARDSCAPE - Concrete or asphalt areas including streets, parking lots, sidewalks, driveways, patios and decks.

HEAD-TO-HEAD COVERAGE - One hundred percent sprinkler coverage of the area to be irrigated, with maximum practical uniformity.

HIGH FLOW CHECK VALVE - A valve located under/in a sprinkler head to stop the flow of water if the spray head is broken or missing.

HYDROZONE - A portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or non-irrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation (once established) is a non-irrigated hydrozone.

INFILTRATION RATE - The rate of water entry into the soil expressed as a depth of water per unit of time (inches per hour).

IRRIGATION EFFICIENCY - The measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum irrigation efficiency for purposes of these regulations is 0.75 or 75 percent. Greater irrigation efficiency can be expected from well-designed and maintained systems.

LANDSCAPE IRRIGATION AUDIT - A process to perform site inspections, evaluate irrigation systems and develop efficient irrigation schedules.

LANDSCAPED AREA - The entire parcel less the building footprint, driveways, non-irrigated portions of the parking lots, hardscapes (such as decks and patios), and other nonporous areas. Water features are included in the calculation of a site's landscaped area.

LATERAL LINE - The water delivery pipeline that supplies water to the emitters sprinklers from a valve.

LOCAL AGENCY – A city, county, or water purveyor responsible for adopting and implementing the ordinance. The local agency is also responsible for

enforcement of the ordinance, including, but not limited to, approval of a design review, permit, plan check, or inspection of a project.

MAIN LINE - The pressurized pipeline that delivers water from the water source to a valve or outlet.

MAXIMUM APPLIED WATER ALLOWANCE (MAWA) - For design purposes, the upper limit of annual applied water for the established landscape area as specified in Division 2, Title 23, California Code of Regulations, Chapter 7, Section 702. It is based upon the area's reference evapotranspiration, ET adjustment factor, and the size of the landscaped area. The estimated applied water use shall not exceed the Maximum Applied Water Allowance (MAWA).

MICROIRRIGATION - See drip irrigation.

MULCH - Any organic material such as leaves, bark, straw or inorganic material such as pebbles, stones, gravel, decorative sand or decomposed granite left loose and applied to the soil surface to reduce evaporation.

NATIVE PLANTS - Native plants are low water using plants that are:
1) indigenous to the Coachella Valley and lower Colorado Desert region of California and Arizona, 2) native to the southwestern United States and northern Mexico or 3) native to other desert regions of the world, but adapted to the Coachella Valley.

NATURAL GRADE – Grade height of native soil before application of surface mulch.

OPERATING PRESSURE - The pressure at which an irrigation system's sprinklers, bubblers, drippers or microsprays are designed to operate, usually indicated at the base of an irrigation head.

OVERHEAD SPRINKLER IRRIGATION STATIONS - Sprinklers with high flow rates (spray heads, impulse sprinklers, gear rotors, etc.) that are utilized to apply water through the air to large irrigated areas.

OVERSPRAY - The water which is delivered beyond the landscaped area onto pavements, walks, structures or other non-landscape areas. Also known as hardscape applications.

PLANT FACTOR - A factor that, when multiplied by reference evapotranspiration, estimates the amount of water used by plants. For purposes of these criteria, the average plant factor of very low water using plants ranges from 0.01 to 0.10, for low water using plants the range is 0.10 to 0.30, for moderate water using plants the range is 0.40 to 0.60, and for high water using plants, the range is 0.70 to 0.90. Reference: Water Use Classifications of Landscape Species III (WUCOLS III).

PRESSURE COMPENSATING (PC) BUBBLER – An emission device that allows the output of water to remain constant regardless of input pressure. Typical flow rates for this type of bubbler range between 0.25 gpm to 2.0 gpm.

PRESSURE COMPENSATING SCREENS/DEVICES - Small screens/devices inserted in place of standard screens/devices that are used in sprinkler heads for radius and high pressure control.

QUALIFIED PROFESSIONAL - A person who has been certified by their professional organization or a person who has demonstrated knowledge and is locally recognized as qualified among landscape architects due to longtime experience.

RAIN-SENSING DEVICE - A system which automatically shuts off the irrigation system when it rains.

RECYCLED WATER/RECLAIMED WATER - Treated or recycled wastewater of a quality suitable for nonpotable uses such as landscape irrigation. Recycled water is <u>not</u> for human consumption.

RECORD DRAWING or AS-BUILTS - 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.

RECREATIONAL AREA - Areas of active play or recreation such as golf courses, sports fields, school yards, picnic grounds, or other areas with intense foot or vehicular traffic.

RECREATIONAL TURF GRASS - High traffic turf grass that serves as a playing surface for sports and recreational activities. Athletic fields, golf courses, parks and school playgrounds are all examples of areas having recreational turf grass.

RECREATIONAL TURF GRASS ET ADJUSTMENT FACTOR - A factor of 0.82 that, when applied to reference evapotranspiration, adjusts for the additional stress of high traffic on recreational turf grass and the higher irrigation efficiencies of long-range rotary sprinklers. These are the two major influences upon the amount of water that needs to be applied to a recreational landscape. A mixed cool/warm season turf grass with a seasonal average of 0.7 is the basis of the plant factor portion of this calculation. The irrigation efficiency of long-range sprinklers for purposes of the ET adjustment factor is 0.85. Therefore, the ET adjustment factor is 0.82 = 0.7/0.85.

REFERENCE EVAPOTRANSPIRATION or ETo - A standard measurement of the environmental parameters which affect the water use of plants, using cool season grass as a reference. ETo is expressed in inches per day, month or year and is an estimate of the evapotranspiration of a large field of cool-season grass that is well watered. Reference evapotranspiration is used as a basis of determining the Maximum Applied Water Allowances so that regional differences

in climate can be accommodated. For purposes of these criteria, CVWD Drawing No. 29523 will be used for ETo zones.

REHABILITATED LANDSCAPE - Any re-landscaping project in which the choice of new plant material and/or new irrigation system components is such that the calculation of the site's estimated water use will be significantly changed. The new estimated water use calculation must not exceed the Maximum Applied Water Allowance (MAWA) calculated for the site using a 0.5 ET adjustment factor.

RIPARIAN PLANTS - Riparian plants are high water using and water-loving plants that are found growing naturally along flowing rivers and lake shores. They may also be native to wet swampy areas with high water tables or poor drainage.

RUNOFF - Irrigation water which is not absorbed by the soil or landscape to which it is applied and which flows from the planted area.

SERVICE LINE - The pressurized pipeline that delivers water from the water source to the water meter.

SMART CONTROLLER – Weather-based or soil moisture-based irrigation controls that monitor and use information about environmental conditions for a specific location and landscape (such as soil moisture, rain, wind, the plants' evaporation and transpiration rates and, in some cases, plant type and more) to automatically control when to water and when not to, providing exactly the right amount of water to maintain lush, healthy growing conditions.

SOIL MOISTURE-SENSING DEVICE - A device that measures the amount of water in the soil.

SOIL TEXTURE - The classification of soil based on the percentage of sand, silt and clay in the soil.

SPRINKLER HEAD - A device which sprays water through a nozzle.

STATIC WATER PRESSURE - The pipeline or municipal water supply pressure when water is not flowing.

STATION - An area served by one valve or by a set of valves that operate simultaneously.

TURF - A surface of earth containing mowed grass with roots.

VALVE - A device used to control the flow of water in the irrigation system.

WATER FEATURE - Any water applied to the landscape for nonirrigation, decorative purposes. Fountains, streams, ponds and lakes are considered water features. Water features use more water than efficiently irrigated turf grass and are assigned a plant factor of 1.1 for a stationary body of water and 1.2 for a moving body of water.

WATER SYSTEM - The network of piping, valves and irrigation heads.

WUCOLS III - Water Use Classifications of Landscape Species III

0.00.030 Provisions for new or rehabilitated landscapes

A. Submittal and Approval of a Landscape Documentation Package

1. Prior to construction, the project applicant shall:

   a. Submit two copies of a Landscape Documentation Package to the Coachella Valley Water District (District) that conform to this chapter. No water meter will be issued until the District reviews and approves the Landscape Documentation Package.

   b. Submit one copy of the Landscape Documentation Package to the local agency (city/county).

2. Upon receipt of the Landscape Documentation Package, the District shall:

   a. Review the Landscape Documentation Package.

   b. Approve or deny the Landscape Documentation Package.

3. Upon approval of the Landscape Documentation Package, the District will:

   a. Sign and date the approved plans and return them to the project applicant.

   b. Submit a copy of the project's Water Efficient Landscape Worksheet (Appendix B) to the local agency.

4. Upon approval of the Landscape Documentation Package by the local agency, the project applicant shall:

   a. Receive an approval of the landscape design review or plan check.

   b. Finalize the Certificate of Completion, including recording the date of the approval.

   c. File the Certificate of Completion with the District and the local agency, and provide a copy to the property owner or designee.

d. Submit a copy of the approved Landscape Documentation Package, along with the record drawings and any other information, to the property owner or designee.

5. Each Landscape Documentation Package shall include the following elements:

   a. A completed Landscape Documentation Package Checklist (Appendix A), which includes the date, project applicant, and project address information. This checklist serves to verify that the elements of the Landscape Documentation Package have been completed.

   b. Total landscaped area (square feet)

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

   d. Water Efficient Landscape Worksheet (Appendix B), which may be imbedded in the plan sheets of the Landscape Documentation Package, and include the following:

      i. Hydrozone Information Table (reference Appendix C)

   e. Water Budget Calculations (reference Appendix D) that adhere to the following requirements:

      i. The plant factor used shall be from WUCOLS. The plant factors ranges from 0 to 0.3 for the low use plants, from 0.4 to 0.6 for the moderate use plants, from 0.7 to 1.0 for the high use plants and 1.1 to 1.2 for water features.

      ii. All water features shall be included in the 1.1 to 1.2 hydrozone and temporary irrigated areas shall be included in the low water use hydrozone.. For the calculation of the Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use, a project applicant shall use ETo values from the Reference Evapotranspiration Table, Appendix C. For geographic areas not covered in Appendix C, use data from other cities located nearby in the same reference evapotranspiration zone.

   f. Landscape Design Plan

   g. Irrigation Design Plan

   h. Grading Design Plan (as required)

   i. Soil Management Report (as required)

   j All plans must contain a signature block for both the local agency and the District.

6. The Landscape Documentation Package shall be submitted by the following procedure:

   a. The applicant or applicant's representative may bring, send or ship copies of the Landscape Documentation Package to the District, and the local agency, as applicable. Appropriate fees must accompany the Landscape Documentation Package.

   b. The plans will normally be returned to the applicant or local agency with comments by the District (Water Management Department) within ten working days of receipt.

   c. After noted corrections have been made, the applicant shall re-submit the Landscape Documentation Package to the District for approval and signing by the Water Management Department and Development Services Department for the District.

   d. Signed plans will be held at the District's Palm Desert office for applicant pick up or sent by certified shipping at the applicant's request and expense.

   e. For direct communication:

Telephone No.:	(760) 398-2651 Water Management Department
Mailing Address:	Coachella Valley Water District Attention: Water Management Department Post Office Box 1058 Coachella, California 92236
Hand Delivery or Shipping Address:	Coachella Valley Water District Attention: Water Management Department 85-995 Avenue 52 Coachella, California 92236
Hand Delivery or Shipping Address:	Coachella Valley Water District Attention: Water Management Department 75-525 Hovley Lane East Palm Desert, California 92211

   f. The District will inspect the landscaped area(s) for conformance with the approved Landscape Documentation Package. Landscaping that does not conform to the approved Landscape Documentation Package is subject to penalties as provided in Section 0.00.070.

7. Upon review and approval of the Landscape Documentation Package by the District, the project applicant shall:

a. Submit a copy of the District-approved Landscape Documentation Package and Water Efficient Landscape Worksheet to the local agency.

b. Provide the property owner or site manager a copy of the District-approved Landscape Documentation Package, in addition to the record drawings and any other information normally forwarded to the property owner or site manager.

8. Upon review and approval of the Landscape Documentation Package by the local agency, the project applicant shall:

a. Record the date of the permit on the Certificate of Completion.

b. Provide the property owner or designee a copy of the local-agency approved Landscape Documentation Package, in addition to the record drawings, and any other information normally forwarded to the property owner or designee.

B. Landscape Design Plan

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

1. 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 (MAWA). To encourage the efficient use of water the following is highly recommended:

a. Protection and preservation of native species and natural vegetation;

b. Selection of water-conserving plant and turf species;

c. Selection of trees based on applicable local tree ordinances or tree shading guidelines; and

d. Selection of plants from local and regional landscape program plant lists.

2. Specifications for Landscape Design Plan
The landscape design plan shall be drawn on 36-inch by 24-inch project base sheets at a scale that accurately and clearly identifies the following:

a. Tract name, tract number or parcel map number on cover sheet.

b. Proposed planting areas.

c. Plant material location and size.

d. Plant botanical and common names.

e. Plant spacing, where applicable.

f. Natural features including, but not limited to, rock outcroppings, and existing trees and shrubs that will remain incorporated into the new landscape.

g. Vicinity map showing site location on top sheet or on cover sheet.

h. Title block on each sheet with the name and address of the project, and the name and address of the professional design company with its signed professional stamp, if applicable.

i. Reserve two 6-inch by 3-inch spaces for a) the local agency signature block and b) a District signature block in lower right corner of the cover sheet and on all of the landscape, irrigation design/detail/specification sheets.

j. Show plan scale and north arrow on design sheets.

k. Show graphic scale on all design sheets.

l. Show all property lines and street names.

m. Show all paved areas, such as driveways, walkways and streets.

n. Show all pools, ponds, lakes, fountains, water features, fences and retaining walls.

o. Show locations of all overhead and underground utilities within project area.

p. Provide an index map, as necessary, showing the overall project, including all 1/4 and 1/16 section lines and section numbers.

q. Show a note on each design sheet stating, "Trees, plants, walls, sidewalks and permanent structures of any kind shall not be planted, installed or built in CVWD, USBR and local agency easements or rights-of-way without first obtaining an encroachment permit from CVWD and the local agency."

r. Show Maximum Applied Water Allowance (MAWA) for the proposed project. (See formula in Appendix C and Sample MAWA, Appendix D.)

s. Show total landscaped area in square feet. Separate area square footages by hydrozone. Show the total percentage area of each hydrozone. Include total area of all water features as separate hydrozones of still or moving water. Show Estimated Total Water Use, for each major plant group hydrozone and water feature hydrozone expressed in either seasonal (turf grass) or annual (trees, shrubs, groundcovers and water features) billing units.

t. Show Total Estimated Total Water Use for each major plant group hydrozone and water feature hydrozone expressed in either seasonal (turf grass) or annual (trees, shrubs, groundcovers and water features) billing units.

u. Show Total Estimated Water Use for the entire project. (Formula in Appendix C and on Sample Calculation Estimated Water Use, Appendix D.) The Total Estimated Use shall not exceed the Maximum Applied Water Allowance (MAWA).

v. Designate recreational areas and recreational turf areas.

w. When model homes are included, show the Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use (by hydrozone with totals) for each model unit.

3. Landscape Design Criteria

a. The landscape design must be carefully planned and take into account the intended function of the project.

b. Plants' appropriateness shall be selected based upon their adaptability to the climatic, geologic and topographical conditions of the site.

c. Selection of water-efficient and low-maintenance plant material is required.

d. All planted areas must be a minimum of one inch below adjacent hardscapes to eliminate runoff and overflow.

e. Long, narrow or irregularly shaped turf areas shall not be designed because of the difficulty in irrigating uniformly without overspray onto hardscaped areas, streets and sidewalks. Areas less than 8 feet in width shall not be designed with turf. Turf will be allowed in these areas only if irrigation design reflects the use of subsurface irrigation or a surface flow/wick irrigation system.

f. Turf areas irrigated with spray/rotor systems must be set back at least 24 inches from curbs, driveways, sidewalks or any other area that may result in runoff of water onto streets. An undulating landscape buffer area created by the setback shall be designed with rocks, cobble or decomposed granite and/or can be landscaped with drip irrigated shrubs/accents or covered with a suitable ground cover.

g. Plants having similar water use shall be grouped together in distinct hydrozones.

h. The use of a soil covering mulch or a mineral groundcover of a minimum two-inch depth to reduce soil surface evaporation is required around trees, shrubs and on nonirrigated areas. The use of boulders and cobble shall be considered to reduce the total vegetation area.

i. Annual color plantings shall be used only in areas of high visual impact close to where people can appreciate them. Otherwise, drip irrigated, perennial plantings should be the primary source of color.

j. Native desert plants shall be specified to be planted in a shallow, wide, rough hole two times the root ball width. The root ball will be set on either undisturbed native soil or a firmed native soil. The root ball top will be set even with the finished surface grade or above grade if the soil is poorly drained. The hole must be backfilled with native soil. Extra soil may be used to mound up around plants where the soil is poorly drained.

k. Landscaping must not obstruct or interfere with street signs, lights or road/walkway visibility. Screening may be provided by walls, berms or plantings.

l. Use locally approved plant materials lists in the selection of appropriate plants.

m. Planter islands in parking lots with canopy trees shall be sized to meet local land use agency requirements.

n. A landscape plan 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 fire-prone plant material and highly flammable mulches.

o. The use of invasive and/or noxious plant species is prohibited.

p. The architectural guidelines of a common interest development, which includes 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 (California Civil Code, Section 1353.8).

D. Grading Design Plan

1. For 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.

2. 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.

3. To prevent excessive erosion and runoff, it is highly recommended, and per local agency requirements, that 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 patterns and undisturbed soil; and

c. Avoid soil compaction in landscape areas.

4. The grading design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading plan."

5. 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).

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

7. All grading must retain normal stormwater runoff and provide for an area of containment. All irrigation water must be retained within property lines and not allowed to flow into public streets or public rights-of-way. Where appropriate, a simulated dry creek bed may be used to convey storm drainage into retention areas. A drywell shall be installed if the retention basin is to be used as a recreational area.

8. Mounded or sloped planting areas that contribute to runoff onto hardscape are prohibited. Sloped planting areas above a hardscaped area shall be avoided unless there is a drainage swale at toe of slope to direct runoff away from hardscape.

9. Median islands must be graded to prevent stormwater and excess irrigation runoff.

E. Irrigation Design Plan

For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufactures 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 criteria shall be submitted as part of the Landscape Documentation Package.

Separate landscape water meters shall be installed for all projects except single family homes. When irrigation water is from a well, the well shall be metered. The irrigation design plan shall be drawn on project base sheets. It should be separate from, but use the same format as, the landscape design plan. The irrigation system specifications shall accurately and clearly identify the following:

1. Specifications for Irrigation Design.

   a. Control valves, manufacturer's model number, size and location.

   b. Irrigation head manufacturer's model number, radius, operating pressure, gallons per minute/gallons per hour (gpm/gph) and location.

   c. Piping type, size and location.

   d. Point of connection or source of water and static water pressure.

   e. Meter location and size (where applicable).

   f. Pump station location and pumping capacity (where applicable).

   g. Power supply/electrical access and location.

   h. Plan scale and north arrow on all sheets.

   i. Graphic scaling on all irrigation design sheets.

   j. Irrigation installation details and notes/specifications.

   k. The irrigation system shall be automatic, constructed to discourage vandalism and simple to maintain.

   l. All equipment shall be of proven design with local service available.

   m. Show location, station number, size, and design gpm of each valve on plan. Control valves shall be rated at 200 psi.

   n. Visible sprinklers near hardscape shall be of pop-up design.

   o. All heads should have a minimum number of wearing pieces with an extended life cycle.

   p. Sprinklers, drippers, valves, etc., must be operated within manufacturer's specifications.

   q. Manual shut-off valves shall be fully ported ball valves or butterfly valves. Manual shut-off valves are required upstream of automatic valve manifolds.

   r. Master valves shall be metal, located as close to the point of connection as possible, and be metal piped between the master valve and the water meter.

   s. High flow sensors that detect and report high flow conditions created by system damage or malfunction shall be specified for all projects excluding single family and multi-family dwellings.

   t. The following statement "I have complied with the criteria of the ordinance and have applied them accordingly for the efficient use of water in the irrigation design plan;" and

   u. The signature of a licensed landscape architect, certified irrigation designer, irrigation consultant, landscape contractor or any other person authorized to design an irrigation system.

2. Specifications for Irrigation Efficiency

The minimum irrigation efficiency shall be 0.75 (75%). Greater irrigation efficiencies are expected from well-designed and maintained systems. The following are required:

a. Design spray head and rotor head stations with consideration for worst wind conditions. Close spacing and low-angle nozzles are required in high and frequent wind areas (ETo Zone No. 5).

b. Spacing of sprinkler heads shall not exceed manufacturer's maximum recommendations for proper coverage. The plan design shall show a minimum of 0.75 (75%) distribution uniformity.

c. Only irrigation heads with matched precipitation rates shall be circuited on the same valve.

d. Valve circuiting shall be designed to be consistent with hydrozones.

e. Individual hydrozones that mix plants that are moderate and low water use may be allowed if:

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

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

f. Individual hydrozones that mix high and low water use plants shall not be permitted.

g. 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. This table can assist with pre-inspection and final inspection of the irrigation system, and programming the controller.

3. Irrigation System Criteria

a. Reduced pressure backflow prevention devices shall be installed behind meter at curb by the District.

b. Show location, station number, size and design gpm of each valve on plan.

c. Smart Controllers shall be specified for all projects. This includes climate based or sensor based controllers, which can automatically adjust for local weather and/or site conditions.

d. High flow check valves shall be installed in or under all heads adjacent to street curbing, parking lots and where damage could occur to property due to flooding, unless controllers with flow sensor capabilities are specified that can automatically shut off individual control valves when excess flow is detected.

e. Pressure compensating screens/devices shall be specified on all spray heads to reduce radius as needed to prevent overthrow onto hardscape and/or to control high pressure misting.

f. All irrigation systems shall be designed to avoid runoff onto hardscape from low head drainage, overspray and other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways or structures.

g. Rotor type heads shall be set back a minimum of 4 feet from hardscape.

h. The use of drip, microirrigation or pressure compensating bubblers or other systems with efficiencies of 90 percent or greater is required for all shrubs and trees. Small, narrow (less than 8 feet), irregularly shaped or sloping areas shall be irrigated with drip, microspray or PC (pressure-compensating) bubbler heads.

i. Trees in turf areas shall be on a separate station to provide proper deep watering.

j. Street median irrigation

   i. No overhead sprinkler irrigation system shall be installed in median strips or in islands.

   ii. Median islands or strips shall be designed with either a drip emitter to each plant or subsurface irrigation. Bubblers used for trees must be fixed-flow pressure compensating type. Adjustable bubblers are prohibited

k. Meter sizing for landscape purposes shall be 33 gpm per planted acre. Maximum design meter flow rates are: 3/4" = 23 gpm, 1" = 37 gpm, 1-1/2" = 80 gpm, 2" = 120 gpm

l. Large projects located outside Improvement District No. 1 of the Coachella Valley Water District shall connect to or provide future connection to recycled water if such water is available. Large projects located inside Improvement District No. 1 may be required to connect to canal irrigation water or recycled water if such water is available. **(See attached boundary map.)**

4. Drip Irrigation System Criteria

a. The drip system must be sized for mature-size plants.

b. The irrigation system should complete all irrigation cycles during peak use in about 12 hours. Normally, each irrigation controller should not have more than four drip stations that operate simultaneously.

c. Field installed below ground pipe connections shall be threaded PVC or glued PVC. Surface laid hose and tubing is prohibited. Polyethylene tubing is allowed only in subsurface installations. Drip emitter installation shall be directly into polyethylene tubing on a ¼ inch thick-walled riser. Multi-port outlet devices and multi-port distribution is prohibited.

d. Proportion gallons per day per plant according to plant size. The following sizing chart is for peak water use. The low to high end of the range is according to the relative water requirements of the plants. The low end is for desert natives and the high end is for medium water use type plants.

Size of Plant	Gallons Per Day
Large trees (over 30-foot diameter)	58+ to 97+
Medium trees (about 18-foot diameter)	21 to 35
Small trees/large shrubs (9-foot diameter)	6 to 10
Medium shrubs (3.5-foot diameter)	.8 to 1.3
Small shrubs/groundcover	.5 or less

e. Plants with widely differing water requirements shall be valved separately. As an example, separate trees from small shrubs and cactus from other shrubs. Multiple emitter point sources of water for large shrubs and trees must provide continuous bands of moisture from the root ball out to the mature drip line plus 20 percent of the plant diameter. See Appendix C for more information on emitter spacing and wetted area.

f. Most plants require 50 percent or more of the soil volume within the drip line to be wetted by the irrigation system. See Appendix C for more information. For additional information on plant watering and plant relative water needs, see the plant list section of the "Lush and Efficient, Landscape Gardening in the Coachella Valley" or a list provided by the local agency.

5. Recycled Water Specifications

a. When a site has recycled water available or is in an area that will have recycled water available as irrigation water, the irrigation system shall be installed using the industry standard purple colored or marked "Recycled Water Do Not Drink" on pipes, valves and sprinkler heads.

b. The backup groundwater supply (well water or domestic water) shall be metered. Backup supply water is only for emergencies when recycled water is not available.

c. Recycled water users must comply with all county, state and federal health regulations. Cross connection control shall require a 6-inch air gap system or a reduced pressure backflow device. All retrofitted systems shall be dye tested before being put into service.

d. Where available, recycled water shall be used as a source for decorative water features.

e. Sites using recycled water are not exempted from the Maximum Applied Water Allowance (MAWA), prescribed water audits or the provisions of these criteria.

f. A Recycled Water Checklist (Appendix G) shall be submitted to the District upon submittal of the first plan check of the landscape design plan and the irrigation design plan.

6. Irrigation Water (Nonpotable) Specifications

a. When a site is using nonpotable irrigation water that is not recycled water (from an on-site well or canal water) all hose bibs shall be loose key type and quick coupler valves shall be of locking type with nonpotable markings to prevent possible accidental drinking of this water.

b. Sites using nonpotable irrigation water are not exempted from the Maximum Applied Water Allowance (MAWA), prescribed water audits or the provisions of these criteria.

7. Groundwater Water Specifications

a. Sites using groundwater irrigation water from wells are not exempted from the Maximum Applied Water Allowance (MAWA), prescribed water audits, or the provisions of these criteria.

8. Golf Course Criteria

a. For all new golf courses and additions or renovations to existing golf courses, the area of irrigated turf used for tees, fairways, greens and practice areas shall be limited. The total turf area of the golf course shall be limited to a maximum of four (4) irrigated acres average per golf hole. Practice areas such as driving ranges and short game areas shall not exceed ten (10) acres of turf. The golf course design shall reflect the natural topography and drainage ways of the site, minimize the clearing of vegetation and be flexible and water efficient in design.

b. All nonturf areas such as ponds, lakes, artificial water courses, bunkers and irrigated landscapes within the golf course project area must not exceed the Maximum Applied Water Allowance (MAWA) calculations set forth within these criteria.

0.00.040 Other Provisions

A. Landscape Audit, Irrigation Survey, and Irrigation Water Use Analysis for New Construction and Rehabilitated Landscapes

1. This section shall apply to new construction and rehabilitated landscape projects installed after January 1, 2010 as described in Section 0.00.030.

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

3. The project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but not be 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;

4. The District will 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 (MAWA).

5. The owner of the landscaped area shall bear the cost of the audit.

B. Irrigation Audit, Irrigation Survey and Irrigation Water Use Analysis for Existing Landscapes

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

2. The District will administer programs that may include, but not be limited to, irrigation water analysis, irrigation surveys and irrigation audits that verify landscape water use does not exceed the Maximum Applied Water Allowance (MAWA) for existing landscapes. The Maximum Applied Water Allowance (MAWA) for existing landscapes shall be calculated as: MAWA = (.70) (ETo) (LA) (.62/748) unless landscape plans were submitted and approved under a more water conserving ordinance.

C. Water Waste Prevention

1. Water Waste Prevention. Water waste resulting from inefficient landscape irrigation including run-off, low-head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways, or structures is prohibited. All broken heads and pipes must be repaired within 72 hours of notification. Penalties for violation of these prohibitions are established in Section 0.00.070.

2. Water service to customers who cause water waste may have their service discontinued.

3. Customers who appear to be exceeding the Maximum Applied Water Allowance (MAWA) may be interviewed by the District Water Management Department to verify customer water usage to ensure compliance.

D. Soil Management Report

1. In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant or designee as follows:

   a. Submit soil samples to a laboratory for analysis and recommendation.

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

   c. The soil analysis may include:

      i. Determination of soil texture, indicating the available water holding capacity.

      ii. An approximate soil infiltration rate (either) measured or derived from soil texture/infiltration rate tables. A range of infiltration rates shall be noted where appropriate.

      iii. Measure of pH, total soluble salts and percent organic matter.

   d. The project applicant or designee shall comply with one of the following:

      i. 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

      ii. If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.

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

   f. The project applicant or designee shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with the Certificate of Completion.

E. Developer-Provided Documentation

1. The developer/applicant/designee shall provide an approved copy of the Landscape Documentation Package and the following information for the homeowner or irrigation system operator. The package/information shall include a set of drawings, a recommended monthly irrigation schedule, and a recommended irrigation system maintenance schedule as described in Section 0.00.040G.

2. Irrigation Schedules. For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water to maintain plant health. Irrigation schedules shall meet the following criteria:

a. An annual irrigation program with monthly irrigation schedules shall be required for the plant establishment period, for the established landscape, and for any temporarily irrigated areas. The irrigation schedule shall:

i. Include run time (in minutes per cycle), suggested number of cycles per day, and frequency of irrigation for each station.

ii. Provide the amount of applied water (in hundred cubic feet) recommended on a monthly and annual basis.

iii. Whenever possible, incorporate the use of evapotranspiration data, such as those from the California Irrigation Management Information System (CIMIS) weather stations, to apply the appropriate levels of water for different climates.

iv. Whenever possible, be scheduled between 8:00 p.m. and 10:00 a.m. to avoid irrigating during times of high wind or high temperature.

G. Maintenance Schedules

A regular maintenance schedule satisfying the following conditions shall be submitted as part of the Landscape Documentation Package:

1. Landscapes shall be maintained to ensure water efficiency. A regular maintenance schedule shall include but not be limited to checking, adjusting, cleaning and repairing equipment; resetting the automatic controller, aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; and weeding in all landscaped areas.

2. Repair of irrigation equipment shall be done with the originally specified materials or their approved equal.

3. A project applicant is encouraged to implement sustainable or environmentally-friendly practices for the overall landscape maintenance.

H. Certificate of Completion

1. The Certificate of Completion (Appendix E) shall include the following:

a. Submittal and Approval Dates of the Landscape Documentation Package and Submittal Date of the Water Efficient Landscape Worksheet

b. Project Name

c. Project Address and Location

d. Applicant Name, Telephone and Mailing Address

e. Property Owners 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.

3. Irrigation scheduling parameters used to set the controller.
4. Landscape and irrigation maintenance schedule.
5. Irrigation audit report.
6. Soil analysis report and documentation verifying implementation of soil report recommendations.
7. The project applicant shall:
   a. Submit the signed Certificate of Completion to both the local agency and the District for review and approval.
   b. Ensure that copies of the Certificate of Completion with all approvals are submitted to the local agency, the District, and property owner or his or her designee.
8. The District and the local agency shall:
   a. Receive the signed Certificate of Completion from the project applicant.
   b. 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.

I. Stormwater Management

1. Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration are encouraged.
2. Project applicants shall refer to the District, the local agency, and/or Regional Water Quality Control Board for information on any applicable stormwater ordinances and stormwater management plans.
3. Rain gardens and other landscape features that increase rain water capture and infiltration are recommended.

J. Public Education

1. Public 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.
2. The District and the local agency shall provide information to owners of new, single family residential homes regarding the design, installation, management and maintenance of water efficient landscapes.

0.00.050 Review and Program Monitoring Fees

A. Review and Program Monitoring fees are deemed necessary to review Landscape Documentation Packages and monitor landscape irrigation audits and shall be imposed on the subject applicant, property owner or designee.

B. A Landscape Documentation Package review fee will be due at the time of initial project application submission to the District.

C. The Board of Directors, by resolution, shall establish the amount of the above fees in accordance with applicable law.

0.00.060 Appeals

A. Appeal to General Manager-Chief Engineer. An applicant, property owner or designee of any applicable project may appeal decisions made by the Water Management Department or Service Director other than imposition of penalties (see Sections 0.00.070 – 0.00.090 regarding imposition of penalties) to the General Manager-Chief Engineer, in writing, within fifteen (15) days of notification of decision. The General Manager-Chief Engineer's decision shall become final on the fifteenth (15th) day following service of written notification of said decision unless a timely appeal is filed pursuant to 0.00.060 B.

B. Appeal to Board of Directors. An applicant, property owner or designee of any applicable project may appeal decisions made by the General Manager-Chief Engineer pursuant to Section 0.00.060 A. to the Board of Directors. Said appeal must be written and submitted to the Secretary of the Board of Directors within fifteen (15) days of the date of notification of the General Manager-Chief Engineer's decision. The Board of Directors' decision shall be final upon its adoption.

0.00.070 Penalties

A. Violation of any part of Ordinance No. 1302.1 may result in any or all of the following penalties:

1. Monetary. See Appendix F for schedule of monetary penalties.
2. Termination of Service.

B. Notice. The District shall issue a written notice of imposition of penalty. The notice shall set forth penalty imposed and the reason for imposition of it. The notice shall be served on the customer by registered or certified mail and shall advise that the customer may request review of the imposition of penalty by filing a written request for a hearing pursuant to the provision of Section 0.00.080.

0.00.080 Hearing Regarding Penalties

A. Request for Hearing. Customers who have received notice of imposition of penalty may make a written request for a hearing. The District must receive the request for hearing no later than fifteen (15) days from the date of the notice of imposition of penalty. The request for hearing shall set forth, in detail, all facts supporting the request. Upon District's receipt of a timely request for a hearing, imposition of penalty shall be stayed until the Statement of Decision after hearing becomes final, or, if the Statement of Decision is timely appealed, the Board of Directors' order on appeal is adopted.

B. Notice of Hearing. Within ten (10) days of the District's receipt of the request for hearing, the District shall provide written notice to the customer of the date, time and place of the hearing. The hearing date shall be within thirty (30) days of the mailing of the notice of hearing, unless the parties agree, in writing, to a later date.

C. Hearing. The General Manager-Chief Engineer, or his designee, shall act as the Hearing Officer. At the hearing, the customer shall have an opportunity to respond to the allegations set forth in the notice of imposition of penalty by producing written and/or oral evidence.

D. Statement of Decision. Within ten (10) days following the hearing, the Hearing Officer shall prepare a written Statement of Decision, which shall set forth the facts upon which the decision is based. The Statement of Decision shall be served by personal delivery or registered or certified mail on the customer. The Statement of Decision shall become final on the sixteenth (16th) day after service on the customer unless a request for appeal is timely filed with the Board of Directors pursuant to Section 0.00.090.

0.00.090 Appeal of Penalties

A. Request for Appeal. A customer may appeal a Statement of Decision by filing a written request for appeal with the Board of Directors before the date the Statement of Decision becomes final, i.e., no later than the fifteenth (15th) day following service of the Statement of Decision on the customer. The request for appeal shall set forth, in detail, all the issues in dispute and all facts supporting the request.

B. Notice of Appeal Hearing. No later than thirty (30) days after receipt of the request for appeal, the Board of Directors shall set the matter for a hearing. Written notice of said hearing of appeal shall be served on the appellant by personal delivery or registered or certified mail. The hearing date shall be a date within thirty (30) days of service of the notice of hearing of appeal, unless the parties agree, in writing, to a later date. If the Board of Directors does not hear the appeal within the required time due to acts or omissions of the appellant, the Statement of Decision shall become final on the thirty-first (31st) day after service of notice of hearing of appeal on the customer.

C. Determination and Order on Appeal. After the hearing of appeal, the Board of Directors shall issue an order affirming, modifying or reversing the General Manager-Chief Engineer's decision. The Board of Directors shall set forth its Determination and Order, in writing, and shall serve the Determination and Order to the customer by personal delivery or registered or certified mail within thirty (30) days following the hearing. The Determination and Order of the Board of Directors shall be final upon its adoption.

APPENDIX A

Landscape Documentation Package Checklist

Project Site: _____ Tract or Parcel Number: _____

Project Assessor's Parcel Number (APN): _____

Project Location: _____

Landscape Architect/Irrigation Designer/Contractor and Name and Contact Information: _____

_____

Included in this Landscape Documentation Package are: (Check to indicate completion)

_____ 1. Water Efficient Landscape Worksheet (Appendix B)
WATER BUDGET CALCULATIONS (Appendix D)

_____ 2. Maximum Applied Water Allowance (MAWA):

Conventional Landscape: _____ 100 cubic feet/year
+ Recreational Turf grass Landscape: _____ 100 cubic feet/year (if applicable)
Maximum Applied Water Allowance: _____ 100 cubic feet/year

_____ 3. Estimated Total Water Use by Hydrozone:
Turf grass Hydrozones: _____ 100 cubic feet/year
Recreational Turf grass Hydrozones: _____ 100 cubic feet/year
Low Plant Hydrozones: _____ 100 cubic feet/year
Medium Plant Hydrozones: _____ 100 cubic feet/year
High Plant Hydrozones: _____ 100 cubic feet/year
Water Features: _____ 100 cubic feet/year
Other _____: _____ 100 cubic feet/year
Estimated Total Water Use: _____ 100 cubic feet/year

_____ 4. ETWU < MAWA
PLAN SETS

_____ 5. Landscape Design Plan

_____ 6. Irrigation Design Plan

_____ 7. Grading Design Plan

_____ 8. Soil Management Report

I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package.

Date: _____ Applicant: _____

APPENDIX B

SAMPLE WATER EFFICIENT LANDSCAPE WORKSHEET

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

PROJECT INFORMATION

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

SECTION A. HYDROZONE INFORMATION TABLE

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

Irrigation Point of Connection (P.O.C.) No. _____					
Controller No.	**Valve Circuit No.**	**Plant Types(s)***	**Irrigation Method****	**Area (Sq. Ft.)**	**% of Landscape Area**
Total					**100%**

***Plant Type**
Cst = Cool Season Turf
WST = Warm Season Turf
HW = High Water Use Plants
MW = Moderate Water Use Plants
LW = Low Water Use Plants

****Irrigation Method**
MS = Microspray
S = Spray
R = Rotor
B = Bubbler
D = Drip
O = Other

APPENDIX C
ET PROFILE AND PLANT FACTORS

Monthly ETo (inches)	Jan>	<Feb	Mar	Apr>	<May	Jun	Jul	Aug	Sep>	<Oct	Nov	Dec	Totals Inches	Totals Feet
Zone No. 1-Coves	1.71	2.84	4.00	5.70	6.84	7.98	7.98	6.27	5.70	4.00	2.28	1.71	57.01	4.75
Zone No. 2-COD	2.00	3.36	4.68	6.68	8.02	9.35	9.35	7.35	6.68	4.68	2.67	2.00	66.82	5.57
Zone No. 3-EMC	2.25	3.75	5.25	7.50	9.00	10.50	10.50	8.25	7.50	5.25	3.00	2.25	75.00	6.25
Zone No. 4-TH	2.64	4.40	6.16	8.80	10.56	12.32	12.32	9.68	8.80	6.16	3.52	2.64	88.00	7.33
Zone No. 5-I10	2.82	4.68	6.57	9.39	11.27	13.15	13.15	10.33	9.39	6.57	3.76	2.82	93.90	7.83
% Annual ETo per Month	3	5	7	10	12	14	14	11	10	7	4	3		

Zone No. 1 = Most protected cove areas with minimum wind, longest mountain shadows, higher rainfall, Palm Can. to La Q. Cove

Zone No. 2 = Lower cove areas, light winds, long afternoon shadows from mountains, typ. Hwy 111 from Cathedral City to La Quinta

Zone No. 3, 4 = Moderate winds, minimum mountain shadows, some blowing sand and dust; 3) Upper valley predominate wind from northwest, 4) Lower valley has lower elevation and more summer southeast wind

Zone No.5 = Frequent strong northwest winds, heavy blowing sand and dust, typical of I-10 corridor to Washington Street

Maximum Applied Water Allowance (CCF) = ETo (in inches for season) X .50 X Area (in square feet) X .62 / 748

ET Adjustment Factor = .38 Plant Factor / .75 Irrigation System Efficiency = 0.50

.62 = gallons per square foot per inch deep

CCF = 100 cubic feet = 1 billing unit = 748 gallons

Estimated Total Water Use (CCF) = $\frac{\text{ETo (in inches for season) X Plant Factor X Area (in square feet) X 0.62 / 748}}{\text{Irrigation System Efficiency}}$

Target Irrigation Efficiency = .80 Turf Rotor
= .75 Sprayheads
= .90 Drip/Micro/PC Bubbler

Emitters per Plant Estimate = $\frac{\text{Area Of Plant In Square Feet X \% Of Area To Be Wet}}{\text{Square Feet Wet Per Emitter}}$

Soil Type	(inches water holding capacity per inch of depth)	
Very Coarse Sand	0.05	Typical of high on an alluvial fan
Blow Sand	0.07	Typical of mid valley ridge area
Fine Sand	0.10	Typical of low on alluvial fans from Rancho Mirage to Indian Wells
Very Fine Silty Sand	0.15	Typical of lowest alluvial fans from La Quinta, Indio, & Coachella
Silt Loam	0.17	Typical of lower valley agricultural areas located below sea level

Emitter Wetted Area Square Feet Each	Emitter Spacing
.75 to 1.75	10"
1.75 to 3	18"
3 to 5	3'
5 to 10	4'
10 to 28	4.5'

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Plant Factor (Kc)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Cool Turf 100%**	1.00	1.00	1.00	NR	NR	NR	NR	NR	NR	1.00	1.00	1.00	1.00
Warm Turf 100%**	NR	NR	NR	0.80	0.80	0.80	0.80	0.80	0.80	NR	NR	NR	0.80
Cool Turf 80%*	0.80	0.80	0.80	0.70	NR	NR	NR	NR	NR	0.80	0.80	0.80	0.79
Warm Turf 60%*	NR	NR	NR	0.60	0.60	0.60	0.60	0.60	0.60	0.60	NR	NR	0.60
Combined TurfSav*	0.80	0.80	0.80	0.70	0.60	0.60	0.60	0.60	0.60	0.70	0.80	0.80	0.70
Tree/Shrub/GC L*	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tree/Shrub/GC L**	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Tree/Shrub/GC M*	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Tree/Shrub/GC M**	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Tree/Shrub/GC H*	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Tree/Shrub/GC H**	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Open WaterFactor	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10

(Approx. Evaporation from a still water surface, higher factor (1.2) with falls and fountains.) Reference; WUCOLS III

CombinedTurfSav =	Combination of cool and warm season turf according to normal management in the Coachella Valley
* =	Normal irrigation level to maintain established planting
** =	Normal irrigation level during plant establishment
GC =	Groundcover
L =	Low water use Kc .1 to .3
M =	Moderate water use Kc .4 to .6
H =	High water use Kc .7 to .9
NR =	Not Recommended

APPENDIX D

SAMPLE CALCULATION/ESTIMATED TOTAL WATER USE (by Hydrozone)

Using the following formula from Appendix C:

ETWU = (ETo) x (PF) x (LA) x (.62)] / (748) / (IE)
ETWU = Estimated Water Use (hundred cubic feet)
ETo = Reference Evapotranspiration (inches) [for period of estimate]
PF = Plant Factor (Kc)
LA = Landscaped Area (in square feet)
.62 = Conversion Factor (to gallons per square foot)
748 = Conversion Factor (to hundred cubic feet)
IE = Irrigation System Efficiency

Project Site Example: Total landscaped area 60,000 square feet in Palm Desert near the intersection of Cook Street and Country Club Drive in Zone No. 3 (75.0" Annual ETo).

- 16,500 square feet of turf grass overseeded with rye grass in winter, irrigated with low angle rotor sprinklers.
- 28,200 square feet of "low" desert native plantings on drip irrigation.
- 15,300 square feet of "moderate" water using plantings on drip irrigation.

See Appendix C for formula factors. ETo is totaled for season. Turf grass plant factors are the average for the season and tree/shrub/groundcover plant factors are considered constant annually.

Plant Factors

Turf Grass	Low Native Plants	Moderate Shrubs
0.70	0.20	0.50

ETWU = [(ETo) x (PF) x (LA) x (.62) / (748)] / (IE) = CCF

Overseeded Turf Grass: Season = 75.0 x .7 x 16,500 x .62 / 748 /.80 = 897 CCF
Seasonal Turf ETWU = 897 CCF

"Low" Native Plants: Annual = 75.0 x .2 x 28,200 x .62 / 748 / .90 = 389 CCF
"Low" Native ETWU = 389 CCF

"Moderate" Shrubs and Ground Cover: Annual = 75.0 x .5 x 15,300 x .62 / 748 / .90 = 528 CCF
"Moderate" ETWU = 528 CCF
Project Total ETWU = 1,814 CCF

APPENDIX D

SAMPLE CALCULATION

Maximum Applied Water Allowance (MAWA)

Using the following formula:

MAWA = [(ETo) x (0.50) x (LA) x (0.62)] / (748)
MAWA = Maximum Applied Water Allowance (CCF or hundred cubic feet)
ETo = Reference Evapotranspiration (inches per year)
0.50 = ET adjustment factor = .38 PF / .75 IE
LA = Landscaped Area (square feet)
0.62 = Conversion Factor (to gallons per square foot)
748 = Conversion Factor (to hundred cubic feet)

Using the project for the Estimated Total Water Use example:

Landscaped area of 60,000 square feet in Palm Desert near the intersection of Cook Street and Country Club Drive in Zone No. 3 (75.0" Annual ETo).

MAWA = 75.0 (ETo) x (0.50) x (LA) x (0.62) / (748)
= [75.0(.50) (60,000) (0.62)] / (748)
MAWA = 1,864 CCF

ETWU total of 1,814 CCF is < the MAWA of 1,865 CCF

APPENDIX E

SAMPLE CERTIFICATE OF COMPLETION

Project Name:_____

Parcel Map or Tract No.:_____ APN:_____

Project Location:_____

Maximum Applied Water Allowance (MAWA):_____ (in hundred cubic feet)

Estimated Annual Total Applied Water Use:_____ (in hundred cubic feet)

Preliminary project documentation submitted (initials indicate submittal)

_____1. Grading design plan

_____2. Landscape design plan

_____3. Irrigation design plan

_____4. Irrigation schedules

Post Installation inspection (initials indicate completion)

_____1. Plants installed as specified

_____2. Irrigation System installed as designed

Comments:_____

_____

_____

A copy of this certification has been provided to the owner/developer, the local agency and to the District. I certify the work has been completed in accordance with District Ordinance 1302.1, Landscape and Irrigation System Design Criteria.

_____

Landscape Architect/Designee Signature License No. Date

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 a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the District: _____

APPENDIX F

SCHEDULE OF MONETARY PENALTIES

1. $250 upon receipt of first written Notice of Non-compliance.
2. An additional $250 (for a total of $500) upon receipt of the second Notice of Non-compliance issued thirty (30) days after the receipt of the first Notice of Non-compliance.

APPENDIX G

Recycled Water Checklist

1. Obtain coverage under the general waste discharge requirements for discharge of recycled water for golf course and landscape irrigation Order No. 97-700 or equivalent version of this permit from the California Regional Water Quality Control Board of the Colorado River Basin Region (Regional Board) by submitting a Notice of Intent to the Regional Board and paying application/annual fees.

2. Enter into an agreement with CVWD for receiving nonpotable water for golf course and landscape irrigation. The agreement between discharger and CVWD must be provided to the Regional Board within 90 days of receiving coverage under the permit referenced above in item #1.

3. Landscape and Irrigation system plans must meet regulatory requirements of Order 97-700 or equivalent version of this permit, the State Board's Recycled Water Policy, and California Department of Public Health (CDPH) Statutes and Regulations related to recycled water, such as the Health and Safety Code, the Water Code, Title 17 and Title 22 Code of Regulations. These requirements include but are not limited to the following:

    a. An air-gap separation, a vertically measured distance between supply pipe and receiving vessel must be present and meet the required distance for the size of the supply pipe.

    b. The appropriate type of backflow protection is to be installed for auxiliary water supplies and recycled water.

    c. The required separation distance between recycled water lines and impoundments and application area; and domestic wells and water lines is maintained and approved by CDPH.

    d. The design of the irrigation system shall not cause the occurrence of ponding anywhere in the reuse area, and overspray or mist around dwellings, outdoor eating areas and/or food handling facilities is eliminated. Irrigation runoff shall be confined to the recycled water use area unless authorized by CDPH.

    e. Drinking fountains will be protected from spray, mist or runoff by use of a drinking fountain cover or shelter approved for this purpose.

    f. Hose bibs are not allowed on portions of the recycled water systems accessible to the general public. Quick couplers that differ from those used on the potable water system are allowed.

g. Signs are posted in areas that the public has access to that are no less than 4 inches high by 8 inches wide and include "RECYCLED WATER—DO NOT DRINK" and the international do not drink symbol as indicated in CCR Title 22 Division 4 Chapter 3 Article 4 Section as figure 60310-A. The number and locations of these signs will be approved by CDPH.

h. The recycled water irrigation system is able to be operated during a time of day that will minimize contact with the public.

i. All pipes installed above or below ground on or after June 1, 1993 designed to carry recycled water are to be colored purple or wrapped in purple tape.

j. Golf course pump houses utilizing recycled water are appropriately tagged with warning signs with proper wording of sufficient size to warn the public that recycled water is not safe for drinking. All new and replacement at grade valve boxes shall be purple or appropriately tagged for water reuse purposes. All other appurtenances and equipment used for recycled water must be identified as used for recycled water distribution per the recommendations of CDPH.

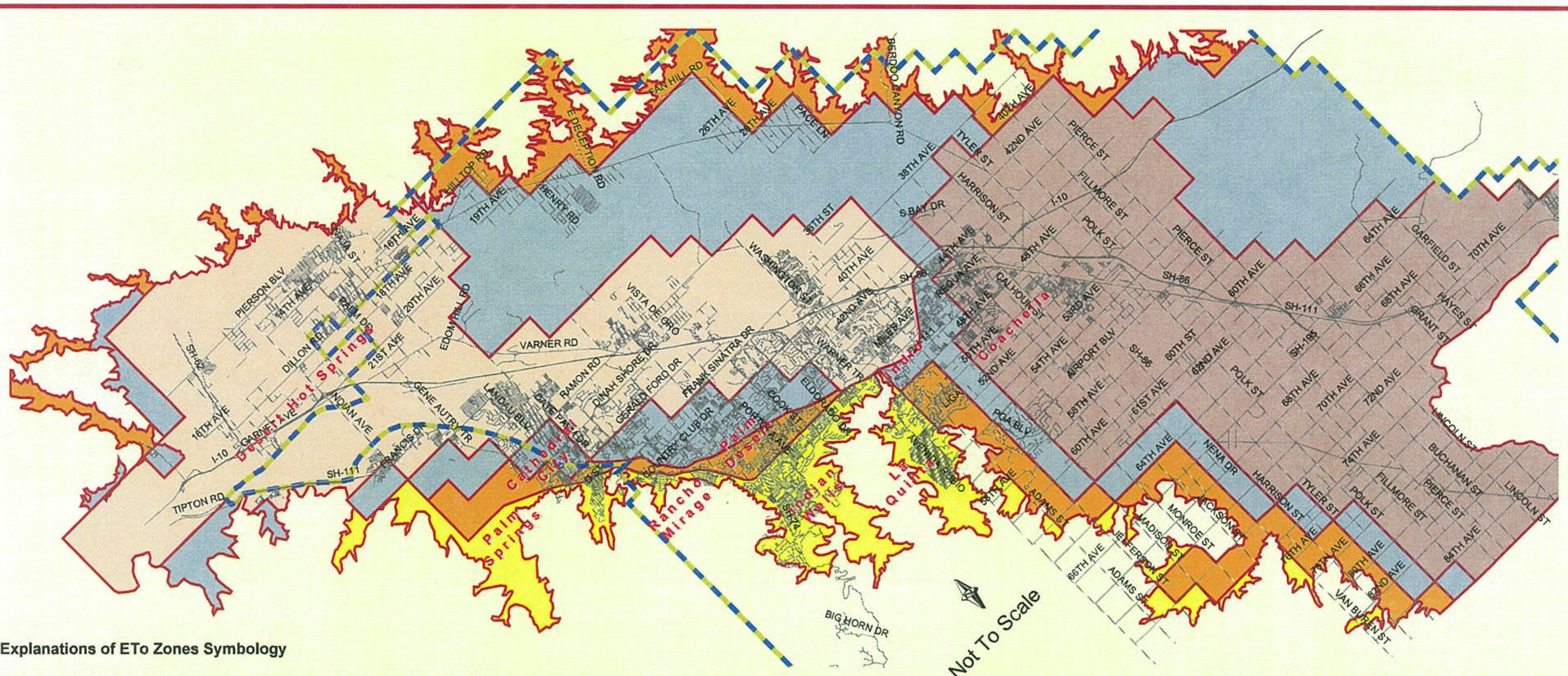
4. Prior to construction, landscape and irrigation system plans must be submitted for approval to the following agencies (please allow for a 30 day comment period):
   a. Regional Board Water Quality Control Board,
   b. California Department of Public Health, and
   c. CVWD.

5. Upon approval from the Regional Board and CDPH, the discharger shall provide notification that recycled water will be used for irrigation to people who reside adjacent to the recycled water use area and to golf course patrons though a method approved by the Regional Board's Executive Officer and CDPH at least 30 days prior to use of recycled water.

6. A Use Site Supervisor must be designated and his or her name and contact information must be provided in writing to CVWD and the Regional Board 30 days prior to discharge of recycled water. This person will be available to be contacted and receive periodic education and training on the uses and restrictions of recycled water.

7. A cross-connection control test will be performed on the irrigation and domestic systems prior to the discharge of recycled water and at least once every four years thereafter. This test is to be conducted by an American Water Works Association (AWWA) certified cross-connection control program specialist or equivalent. The results of these tests are to be submitted to CVWD, CDPH, and the Regional Board within 30 days of test completion.

8. "As-Built" plans and specifications showing the domestic and irrigation systems, location of all potable and recycled water connections and location of all on-site and nearby wells to CDPH, as per the CDPH requested time frame.



Explanations of ETo Zones Symbology

1. Zone #1: North-facing cove areas: Mountain shaded, sheltered from prevailing winds and higher elevations means lowest water consumption. Annual water consumption(ETo) = 57.01”

2. Zone #2: Transition zone area between the north-facing coves and the open desert or the south-facing cove areas of the north valley: The transition zones are somewhat sheltered from prevailing winds and with exposure to higher local humidity from irrigated landscapes means low water consumption. North valley coves are mountain shaded, sheltered from prevailing winds and higher elevations, but are south-facing and heat absorbing. Annual water consumption(ETo) = 66.82”

3. Zone #3: Upper valley open desert border zone, lower valley upper elevation zone or lower valley afternoon mountain shade zones with moderate prevailing winds and blowing sand. Annual water consumption(ETo) = 75.00”

4. Zone #4: Lower valley open desert agricultural zone with moderate prevailing winds and below sea level elevations. Annual water consumption(ETo) = 88.00”

5. Zone #5: Upper valley high wind and blowing sand zone. Annual water consumption = 93.90”

Legend

- Zone 1
- Zone 2
- Zone 3
- Zone 4
- Zone 5
- Center Lines
- District Boundary

ETo Map

CVWD Dwg. No. 29523

File Name: ETo Map small.mxd
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Date Updated: Monday, October 12, 2009 @ 2:05:15 PM
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Department: CVWD Engineering - GIS