

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ordinances or parts of ordinances, and codes, in conflict with the provisions of this Ordinance, are hereby expressly repealed.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

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 Documentation and Follow-up
- 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 purpose of these criteria is to conserve water by establishing effective water efficient landscape requirements for newly installed and rehabilitated landscapes. It is also the intent of these criteria to implement the requirements of the State of California Water Conservation in Landscaping Act, Government Code Section 65591, et seq.
- B. It is the intent of the District to promote water conservation through climate appropriate plant material, efficient irrigation systems and to create a “Lush and Efficient” landscape theme through enhancing and improving the physical and natural environment.

0.00.020 Definitions

The words used in this chapter 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 so it eliminates 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:

$$\begin{array}{rcl} (325,851 \text{ gallons}/43,560 \text{ square feet})/12 \text{ inches} & = & (0.62) \\ 325,851 \text{ gallons} & & = \text{one acre-foot} \\ 43,560 \text{ square feet} & & = \text{one acre} \\ 12 \text{ inches} & & = \text{one foot} \end{array}$$

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.

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% DULQ for drippers, microsprays and pressure compensating bubblers.

EMITTER - Drip irrigation fittings that deliver water slowly from the 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 ANNUAL APPLIED 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.

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 $(0.5) = (0.38/0.75)$.

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 and 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 nonirrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation (once established) is a nonirrigated 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, nonirrigated 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 or sprinklers from a valve.

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

MAXIMUM APPLIED WATER ALLOWANCE - 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.

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.

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 nonlandscape 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 - Treated or recycled wastewater of a quality suitable for nonpotable uses such as landscape irrigation. Recycled water is not 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 hosting 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. (Attached on last page of these criteria.)

REHABILITATED LANDSCAPE - Any relandscaping project whose 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 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 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 decide for themselves 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.

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

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 CONSERVATION CONCEPT STATEMENT – A one-page checklist and narrative summary of the project.

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.

0.00.030 Provisions for new or rehabilitated landscapes.

- A. Applicability.
 - 1. Except as provided in subsection (A)(3) of this section, this section shall apply to:
 - a. All new and rehabilitated landscaping for private, public, recreational, commercial and governmental development projects that require a permit; and
 - b. Developer-installed landscaping in single-family tracts, five or more infill lots and multifamily projects.
 - 2. Projects subject to this section shall conform to the provisions in this section.
 - 3. This section shall not apply to residential home owner-provided landscaping at single-family residences and landscaping for registered historical sites.

B. Landscape Documentation Package

1. Each landscape documentation package shall include the following elements.
 - a. Water conservation concept statement;
 - b. Calculation of the maximum applied water allowance;
 - c. Calculation of the estimated applied water use;
 - d. Calculation of the estimated total water use;
 - e. Landscape design plan;
 - f. Irrigation design plan;
 - g. Grading design plan;
 - h. Soil analysis (optional);
2. Three copies of the landscape documentation package conforming to this chapter shall be submitted to the District. No permit shall be issued until the District reviews and approves the landscape documentation package.
3. Submit landscape, irrigation and grading plans for new irrigation water service or new construction by the following procedure:
 - a. The applicant or applicant's representative should bring, send or ship blue line copies of the landscape documentation package to Coachella Valley Water District, and the planning department of the local city or county as applicable. Appropriate fees must accompany the documentation package.
 - b. The plans will be normally returned to the local planning agency or applicant with comments by the Water Management Department within ten working days of receipt.
 - c. After noted corrections have been made to the plans, the applicant shall submit the original landscape and irrigation plans for signing.
 - d. Plans must contain a Coachella Valley Water District signature block. The plans will be signed by the Water Management Department and the Development Services Department for the

District. 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.

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

4. A copy of the approved landscape documentation package shall be provided to the property owner or site manager along with the record drawings and any other information normally forwarded to the property owner or site manager.
5. 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.

C. Water Conservation Concept Statement

Each landscape documentation package shall include a water conservation concept statement similar to the example illustrated in Appendix B. It serves as a checklist to verify that the elements of the landscape documentation package have been completed and has a narrative summary of the project. The statement must be shown on either the cover sheet or the water use calculation sheet.

D. Landscape Design Criteria

Objectives are to ensure that future landscaping projects are designed and constructed to the highest level of aesthetic values and water efficiency, and to make wise water management viable and reasonable.

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:

1. Specifications for Landscape Design.
 - a. Show tract name, tract number or parcel map number on cover sheet.
 - b. Show proposed planting areas.
 - c. Show plant material location and size.
 - d. Show plant botanical and common names.
 - e. Where applicable, plant spacing shall be identified.
 - f. Natural features including but not limited to rock outcroppings, existing trees and shrubs that will remain incorporated into the new landscape.
 - g. Show a vicinity map showing site location on top sheet or on cover sheet.
 - h. Show a title block on each sheet with the name of the project, city, name and address of the professional design company with its signed professional stamp if applicable.
 - i. Reserve a 6-inch by 3-inch space for a District signature block on lower right corner of the cover page and on all of the landscape, irrigation design/detail/specification sheets.
 - j. Show plan scale and north arrow on design sheets.
 - k. Show graphic scaling 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. Show an index map 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 and USBR easements or right-of-way without first obtaining an encroachment permit from CVWD.”
- r. 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 Annual Applied 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.
- s. Show Total Estimated Annual Applied 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 Annual Applied Water Use for the entire project. (Formula in Appendix C and on Sample Calculation Estimated Water Use, Appendix A.) The Total Estimated Annual Applied Water Use shall not exceed the Total Maximum Annual Applied Water Allowance.
- u. Show Total Maximum Annual Applied Water Allowance for the proposed project. (See formula in Appendix C and Sample Maximum Annual Applied Water Allowance, Appendix A.)

- v. Designate recreational areas and recreational turf areas.
- w. When model homes are included, show the Maximum Annual Applied Water Allowance and Estimated Annual Applied Water Use (by hydrozone with totals) for each model unit.

2. Landscape Design Plan

- 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 creek stones shall be considered to reduce the total vegetation area; make sure these areas have enough shade to avoid reflected or retained heat.
- 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 to three 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 surface grade or above grade if the soil is poorly drained. The hole must be backfilled with native soil. Extra soil may be brought in to mound up around plants where the soil is poorly drained. Any organic material will be applied only as a surface mulch over the planting hole.
- 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. See District publication “Lush and Efficient” for a suggested plant list or call the District’s Water Management Department for further information on other plant lists available. The book may be purchased at the District’s Palm Desert or Coachella office facilities.
- m. Planter islands in parking lots with canopy trees to meet local jurisdiction's shading requirements shall have planter beds sized roughly by the expected canopy area in square feet equaling the square feet of planter bed.

3. Landscape Grading Plan

- a. The grading plan design shall indicate finished configurations and elevations of the landscaped areas, including the height of graded slopes, drainage patterns, pad elevations and finish grade.
- b. Turf grass plantings are prohibited on slopes greater than three-to-one. Slopes steeper than three-to-one shall be planted to permanent ground covering plants adequate for proper slope protection.
- c. 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.
- d. Avoid mounded or sloped planting areas that contribute to runoff onto hardscape. 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.
- e. Median islands must be graded to prevent stormwater and excess irrigation runoff.

E. Irrigation Design Criteria

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. Power supply/electrical access and location.
- e. Plan scale and north arrow on all sheets.
- f. Irrigation installation details and notes/specifications.
- g. Graphic scaling on all irrigation design sheets.
- h. The irrigation system shall be automatic, constructed to discourage vandalism and simple to maintain.
- i. All equipment shall be of proven design with local service available.
- j. Control valves shall be rated at 200 psi.
- k. Visible sprinklers near hardscape shall be of pop-up design.
- l. All heads should have a minimum number of wearing pieces with an extended life cycle.
- m. Sprinklers, drippers, valves, etc., must be operated within manufacturer's specifications.

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. 4).
- 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 circuited shall be designed to be consistent with hydrozones.

3. Irrigation System Design

- a. Point of connection or source of water.
- b. Meter location and size (where applicable).
- c. Pump station location and pumping capacity (where applicable).
- d. Reduced pressure backflow prevention devices shall be installed behind meter at curb by the District.
- e. Show location, station number, size and design gpm of each valve on plan.
- f. 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.
- g. 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.
- h. 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.
- i. 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.
- j. Rotor type heads shall be set back a minimum of 4 feet from hardscape.
- k. 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.

- l. Trees in turf areas shall be on a separate station to provide proper deep watering.
 - m. Street median irrigation
 - 1) No overhead sprinkler irrigation system shall be installed in median strips or in islands.
 - 2) Median islands or strips shall be designed with either a drip emitter to each plant or subsurface irrigation. PC bubblers are acceptable for trees only.
 - n. Meter sizing for landscape purposes shall be 40 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
 - o. Large projects located outside Improvement District No. 1 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 Design
- 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 not allowed. Microtube distribution is not allowed unless emitter/manifold is installed in an access box. Microtubing must be buried at least 6 inches below grade and the end of microtubing must be secured by a stake. The maximum length of microtubing must be specified on the plan to be 10 feet or less.

- 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 "Lush and Efficient, Landscape Gardening in the Coachella Valley" in the plant list section.

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

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 Annual Applied Water Allowance, 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 Annual Applied Water Allowance, 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 annual water allowance calculations set forth within these criteria.

0.00.040 Other Documentation and Follow-up

A. Landscape Audits

1. Water Management. All landscaped areas covered by these criteria which exceed 1.0 acre (43,560 square feet), may be subject to a landscape irrigation audit at the discretion of the District if the District has determined that the annual maximum applied water allowance has been exceeded for a minimum of 2 consecutive years. At a minimum, the audit shall be conducted by a certified landscape irrigation auditor and shall be in accordance with the California Landscape Irrigation Auditor Handbook, the entire document which is hereby incorporated by reference. (See Landscape Irrigation Audit Handbook, Department of Water Resources, Water Conservation Office updated 2004).
2. The owner of the landscaped area shall bear the cost of the audit.

B. 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 shall be 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 Water Allowance may be interviewed by the Water Management Department to verify customer water usage to ensure compliance.

C. Soil Analysis

1. A soil analysis satisfying the following conditions shall be submitted as part of the landscape documentation package:
 - a. Determination of soil texture, indicating the available water holding capacity.
 - b. 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.
 - c. Measure of pH and total soluble salts.

D. Developer Provided Assistance

1. The landscape architect will provide a site-specific landscape irrigation package for the homeowner or irrigation system operator. The package will include a set of drawings, a recommended monthly irrigation schedule and a recommended irrigation system maintenance schedule.
2. Irrigation Schedules. Irrigation schedules satisfying the following conditions shall be submitted as part of the landscape irrigation package:
 - 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:
 - b. Include run time (in minutes per cycle), suggested number of cycles per day, and frequency of irrigation for each station.

- c. Provide the amount of applied water (in hundred cubic feet) recommended on a monthly and annual basis.
- d. Whenever possible, irrigation scheduling shall 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.
- e. Whenever possible, landscape irrigation shall be scheduled between 10:00 p.m. and 5:00 a.m. to avoid irrigating during times of high wind or high temperature.

E. 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.

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 D 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

SAMPLE CALCULATION/ESTIMATED ANNUAL APPLIED WATER USE (by Hydrozone)

Using the following formula from Appendix D:

- EAAWU = $(ET_o) \times (PF) \times (LA) \times (.62) / (748) / (IE)$
- EAAWU = Estimated Water Use (hundred cubic feet)
- ET_o = Reference Evapotranspiration (inches)
[for period of estimate]
- PF = Plant Factor (K_c)
- 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. 3A (75.0" Annual ET_o).

- 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 D for formula factors. ET_o 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

<u>Turf</u>	<u>Low Native</u>	<u>Moderate</u>
<u>Grass</u>	<u>Plants</u>	<u>Shrubs</u>
0.70	0.20	0.50

$$EAAWU = [(ET_o) \times (PF) \times (LA) \times (.62) / (748)] / (IE) = CCF$$

$$\text{Overseeded Turf Grass: Season} = 75.0 \times .7 \times 16,500 \times .62 / 748 / .80 = 897 \text{ CCF}$$

$$\text{Seasonal Turf EWU} = 897 \text{ CCF}$$

$$\text{"Low" Native Plants: Annual} = 75.0 \times .2 \times 28,200 \times .62 / 748 / .90 = 389 \text{ CCF}$$

$$\text{"Low" Native EAAWU} = 389 \text{ CCF}$$

$$\text{"Moderate" Shrubs and Ground Cover: Annual} = 75.0 \times .5 \times 15,300 \times .62 / 748 / .90 = 528 \text{ CCF}$$

$$\text{"Moderate" EAAWU} = 528 \text{ CCF}$$

$$\text{Project Total EAAWU} = 1,814 \text{ CCF}$$

APPENDIX A (continued)

SAMPLE CALCULATION

Maximum Annual Applied Water Allowance (MAAWA)

Using the following formula:

$$\text{MAAWA} = [(\text{ETo}) \times (0.50) \times (\text{LA}) \times (0.62)] / (748)$$

MAAWA = Maximum Annual 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 Annual Applied 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. 3A (75.0" Annual ETo).

$$\begin{aligned} \text{MAAWA} &= 75.0(\text{ETo}) \times (0.50) \times (\text{LA}) \times (0.62) / (748) \\ &= [75.0(.50)(60,000)(0.62)] / (748) \end{aligned}$$

$$\text{MAAWA} = 1,864 \text{ CCF}$$

EAAWU total of 1,814 CCF is < the MAAWA of 1,865 CCF

APPENDIX B

SAMPLE WATER CONSERVATION CONCEPT STATEMENT

Project Site: _____ Tract or Parcel Number: _____

Project Location: _____

Landscape Architect/Irrigation Designer/Contractor: _____

Included in this project submittal package are: (Check to indicate completion)

- ___ 1. Maximum Annual Applied Water Allowance:
Conventional Landscape: _____ 100 cubic feet/year
+ Recreational Turf grass Landscape: _____ 100 cubic feet/year (if applicable)
Maximum Annual Applied Water Allowance: _____ 100 cubic feet/year
- ___ 2. Estimated Annual Applied 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 Annual Total Applied Water Use: _____ 100 cubic feet/year
- ___ 3. EATAWU < MAAWA
- ___ 4. Landscape Design Plan
- ___ 5. Irrigation Design Plan
- ___ 6. Grading Design Plan
- ___ 7. Soil Chemical Analysis (optional)

Description of Project: (Briefly describe the planning and design actions that are intended to achieve conservation and efficiency in water use.):

Date: _____ Prepared by: _____

APPENDIX C
ET PROFILE AND PLANT FACTORS

	Jan>	<Feb	Mar	Apr>	<May	Jun	Jul	Aug	Sep>	<Oct	Nov	Dec	<u>Totals</u>	<u>Totals</u>
<u>Monthly ETo (inches)</u>												Inches	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. 3A-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. 3B-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. 4-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. 3A/B = Moderate winds, minimum mountain shadows, some blowing sand and dust, A) Upper valley predominate wind from northwest, B) Lower valley has lower elevation and more summer southeast wind
- Zone No. 4 = Frequent strong northwest winds, heavy blowing sand and dust, typical of I-10 corridor to Washington Street

Maximum Annual Applied Water Allowance (CCF) = $ETo \text{ (in inches for season)} \times .50 \times \text{Area (in square feet)} \times .62 / 748$
 ET Adjustment Factor = $.38 \text{ Plant Factor} / .75 \text{ Irrigation System Efficiency} = 0.50$
 .62 = gallons per square foot per inch deep
 CCF = 100 cubic feet = 1 billing unit = 748 gallons

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

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

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

Soil Type	(inches water holding capacity per inch of depth)	Emitter Wetted Area Square Feet Each	Emitter Spacing
Very Coarse Sand	0.05 Typical of high on an alluvial fan	.75 to 1.75	10"
Blow Sand	0.07 Typical of mid valley ridge area	1.75 to 3	18"
Fine Sand	0.10 Typical of low on alluvial fans from Rancho Mirage to Indian Wells	3 to 5	3'
Very Fine Silty Sand	0.15 Typical of lowest alluvial fans from La Quinta, Indio, & Coachella	5 to 10	4'
Silt Loam	0.17 Typical of lower valley agricultural areas located below sea level	10 to 28	4.5'

APPENDIX C – Continued
ET PLANT AND PROFILE FACTORS

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
<u>Plant Factor (Kc)</u>												
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

SCHEDULE OF MONETARY PENALTIES

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

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.

/s/ Grace Gil
Acting Board Secretary

(SEAL)