

APPENDIX F

WATER CONSERVATION FORMS

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WORKSHEET 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 (Worksheet 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: _____



WORKSHEET B

Water Efficient Landscape

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 Type(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

WORKSHEET C

ET Profile

Monthly ETo (inches)	Jan>	<Feb	Mar	Apr>	<May	June	July	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 wind, 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 elevations and more summer southeast wind
- Zone No. 5 = Frequent strong northwest winds, heavy blowing sand and dust, typical of I-10 corridor to Washington St.

Maximum Applied Water Allowance (CCF) = $(ETo(\text{in inches for seasons})) \times (.50) \times (\text{Area in sq. ft.}) \times (.62/748)$
 ET Adjustment Factor = .45
 .62 = gallons per square foot per inch deep
 CCF = 100 Cubic Feet = 1 billing unit = 748 gallons

Estimated Total Water Use (CCF) = $\frac{(ETo(\text{in inches for season})) \times (\text{Plant factor}) \times (\text{Area in square feet}) \times (.62/748)}{\text{Irrigation Sysytem Efficiency}}$

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

Emitters per Plant Estimate = $\frac{(\text{Area of plants in square feet}) \times (\% \text{ of area to be wet})}{\text{Square feet wet per emitter}}$

Soil Type	(inches water holding capacity per inch of depth)	Emitter wetted area sq. ft. 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, and Coachella	5 to 10	4'
Silt Loam	0.17 Typical of lower valley agricultural areas located below sea level	10 to 28	4.5'

WORKSHEET C

Plant Factors

Plant Factor (Kc)	Jan	Feb	Mar	Apr	May	June	July	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 Water Factor	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

(Approximate evaporation from a still water surface, higher factor (1.2) with falls and fountains) Reference; WUCOLS III

* = Normal irrigation level to maintain established planting

** = Normal irrigation level during plant establishment

Combined TurfSav = Combination of cool and warm season turf according to normal management in the Coachella Valley

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

WORKSHEET D

Sample Calculations/Estimated Total Water Use (by Hydrozone)

Using the following formula from Worksheet 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

See Worksheet 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

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

Over seeded Turf Grass: Season = $75.0 \times .7 \times 12,000 \times .62 / 748 / .80 = 653$ CCF Seasonal Turf
ETWU = 653 CCF

“Low” Native Plants: Annual = $75.0 \times .2 \times 32,700 \times .62 / 748 / .90 = 451$ CCF “Low” Native
ETWU = 451 CCF

“Moderate” Shrubs and Ground Cover: Annual = $75.0 \times .5 \times 15,300 \times .62 / 748 / .90 = 528$ CCF
“Moderate” ETWU = 528 CCF Project Total ETWU = 1,632 CCF

WORKSHEET D

Sample Calculation

Maximum Applied Water Allowance (MAWA)

Using the following formula:

MAWA	= [(ET _o) x (0.45) x (LA) x (0.62)] / (748)
MAWA	= Maximum Applied Water Allowance (CCF or hundred cubic feet)
ET _o	= Reference Evapotranspiration (inches per year)
0.45	= ET adjustment factor
LA	= Landscaped Area (square feet)
0.62	= Conversion Factor (to gallons per square foot)
748	= Conversion Factor (to hundred cubic feet)

$$\text{MAWA} = 75.0 (\text{ET}_o) \times (0.45) \times (\text{LA}) \times (0.62) / (748) = [75.0(.45) (60,000) (0.62)] / (748)$$

$$\text{MAWA} = 1,678 \text{ CCF}$$

ETWU total of 1,632 CCF is < the MAWA of 1,678 CCF



WORKSHEET E

Sample Certification 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 City of Indio Development Services Department and to the IWA. I certify the work has been completed in accordance with IWA’s Landscape and Irrigation System Design Criteria.

Landscape Architect/Designee Signature	License No.	Date
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- 1. Date the Landscape Documentation Package was submitted to the City of Indio Development Services Department: _____
- 2. Date the Landscape Documentation Package was approved by the City of Indio Development Services Department: _____
- 3. Date a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the IWA: _____

WORKSHEET F

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 IWA for receiving non-potable water for golf course and landscape irrigation. The agreement between discharger and IWA 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. IWA.
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 through 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 IWA 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 IWA, 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.