ORDINANCE NO. 2011-08

AN ORDINANCE ENACTING WATER EFFICIENT LANDSCAPE DESIGN AND INSTALLATION REQUIREMENTS.

THE CITY COUNCIL OF THE CITY OF AVENAL DOES ORDAIN AS FOLLOWS:

**Section 1**. NAME. This ordinance shall be known and referred to as the "Efficient Landscape Ordinance".

**Section 2**. PURPOSE. The provisions of this ordinance are intended to promote the efficient use of water resources.

**Section 3**. CODE ADOPTION. Chapter 9.64 of Title 9 of the Municipal Code of the City of Avenal, along with appendices "A" through "C", is added to read in its entirety as follows:

Chapter 9.64

WATER EFFICIENT LANDSCAPE DESIGN AND INSTALLATION

Sections:


9.64.01 STATEMENT OF PURPOSE AND APPLICATION
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9.64.21 IRRIGATION AUDIT, IRRIGATION SURVEY AND IRRIGATION WATER ANALYSIS (EXISTING LANDSCPAES)
9.64.22 WATER WASTE PREVENTION

9.64.01 PURPOSE AND APPLICATION. The purpose of these regulations is to establish standards and procedures for landscape designs and installations which are publicly and privately owned and maintained. The intent of these regulations is to develop guidelines for landscapes which utilize reasonable amounts of water and maintain design freedom. To this end, the regulations call for reduced water consumption, responsible landscape design, water efficient landscape irrigation practices and responsible landscape maintenance. These regulations are hereby incorporated by this reference into the City's existing procedures for checking landscape and irrigation plans as part of the building permit process.

9.64.02 APPLICABILITY. After January 1, 2012, these regulations shall be applicable to all of the following landscape projects:

A. New construction and rehabilitation landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit.

B. New construction and rehabilitated landscapes which are developer installed in single family and multi-family projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscaping permit.

C. New construction 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.

D. Existing landscapes are limited to 9.64.21 and 9.64.22.

E. New cemeteries are limited to Sections 9.64.08, 9.64.11, and 9.64.16.

F. Projects that are exempt from this ordinance are the following:

1. Register local, state or federal historical sites;

2. Ecological restoration projects that do not require a permanent irrigation system; Mined-land reclamation projects that do not require a permanent irrigation system; or
3. Plant collections as part of botanical gardens and arboretums open to the public

Additionally, the Community Development Director may exempt any project from specific regulation due to specific conditions associated with the project so long as the project is in substantial compliance with the regulations.

9.64.03 PERMITS AND FEES. A landscape permit shall be required for all landscape projects as outlined in Section 9.64.02. Fees for landscape permits shall be set by City Council resolution.

9.64.04 AUTHORIZATION TO DESIGN A LANDSCAPE.

A. Landscape Architect. Must hold a professional license to practice landscape architecture. May perform professional services for the purpose of landscape preservation, development and enhancement, such as consultation, investigation, reconnaissance, research, planning, design, preparation of drawings, construction documents and specifications, and responsible construction observation. (Business and Professions Code, Section 5615)

B. Architect. Must hold a professional license to practice architecture. May offer, perform, or be in responsible control of professional services which require the skills of an architect in the planning of sites. (Business and Professions Code, Section 5500.1 and 5641.3)

C. Professional Engineers. Must hold professional registration to practice engineering. May perform professional services as defined under Business and Professions Code, Section 5615, as long as the work is incidental to an engineering project. (Business and Professions Code, Section 5615, 5641.3 and 6701 et seq.)

D. Landscape Contractors. Must hold a C-27 Landscaping Contractor's license. May design systems and facilities for work to be performed and supervised by that contractor. (Business and Professions Code, Section 5641.4 and 7027.5 and California Code of Regulations , Title 16, Division 8, Section 832.27)

E. Nurserypersons. Must hold a license to sell nursery stock. May prepare planting plans or drawings as an adjunct to merchandizing nursery stock and related products. (Business and Professions Code, Section 5641.2 and Food and Agriculture Code, Section 6721 et seq.)

F. Unlicensed Persons. The unlicensed persons noted below may perform services as described:

1. Landscape/Garden Designers, etc. May prepare plans, drawings and specifications for the selection, placement or use of plants for single family dwellings; may prepare drawings for the conceptual design and placement of tangible objects and landscape features; may NOT prepare construction documents, details or specification for tangible landscape objects or landscape features; and may NOT prepare grading and drainage plans for the alteration of sites.

2. Personal Property Owners (Home Owners). May prepare any plans, drawings or specifications for any one or two family dwelling property owned by that person.

3. Golf course Architect. May engage in the practice of, or offer to practice as, a golf course architect. May perform professional services such as consultation, investigation, reconnaissance, research, design, preparation of drawings and specifications and responsible supervision, where the dominant purpose of such service is the design of a golf course, in accordance with accepted professional standards of public health and safety.

4. Irrigation Consultants. May engage in the practice of, or offer to practice as an irrigation consultant. May perform consultation, investigation, reconnaissance, research, design, preparation of drawings and specifications and responsible supervision, where the dominant purpose of such service is the design of landscape irrigation, in accordance with accepted professional standards of public health and safety.

(The applicable statues which govern the above unlicensed categories are Business and Professions Code, Section 5641, 5641.1, 5641.5, and 5641.6)

9.64.05 DEFINITIONS. For the purposes of this chapter, certain words and phrases used in this chapter are defined as follows:

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

AUTOMATIC IRRIGATION CONTROLLER. An automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather based) or soil moisture data.

AMENDMENT. Any material added to the soil to alter the pH or improve the physical

properties of the soil.

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

CERTIFICATE OF COMPLETION. The document required under Section 9.64.13.

CERTIFIED IRRIGATION DESIGNER. A person certified to design irrigation systems by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's Water Sense irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program.

CERTIFIED LANDSCAPE IRRIGATION AUDITOR. A person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's Water Sense irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program.

CHECK VALVE or ANTI-DRAIN VALVE. A valve located under a sprinkler head or other location in the irrigation system to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.

COMMON INTEREST DEVELOPMENTS. Community apartment projects, condominium projects, planned developments and stock cooperatives per Civil Code Section 1351.

CONVERSION FACTOR (0.62). The number that converts acre-inches per acre per year to gallons per square foot per year.

CONTROLLER. An automatic timing device with enclosure, which signals remote control irrigation valves to open and close on a pre-set program.

CYCLE. The complete operation of an irrigation controller station.

DRIP IRRIGATION. Any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

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

EMITTER. A drip irrigation emission device that delivers water slowly from the system to the soil.

ESTABLISHED LANDSCAPE. The point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.

ESTABLISHMENT PERIOD OF THE PLANTS. The first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years or growth.

ESTIMATED TOTAL WATER USE (ETWU). The total water used for the landscape as described in Section 9.64.08.

ET ADJUSTMENT FACTOR (ETAF). A factor of 0.7 that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. A combined plant mix with a site-wide average or 0.5 is the basis of the plant factor portion of this calculation. For purposes of the ETAF, the average irrigation efficiency is 0.71. Therefore, the ET Adjustment Factor is (0.7) = (0.5/0.71). ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing non-rehabilitated landscapes is 0.8.

EVAPOTRANSPIRATION or ETo. A standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month or year and is an estimate of the evapotranspiration of a large field of four to seven inch tall, cool-season grass that is well-watered. Evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated. The Kettleman ETo is 60.18 inches per year (per www.cimis.water.ca.gov ETo zone map dated 1999).

EVAPOTRANSPIRATION RATE. The quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

FLOW RATE. The rate at which water flows through pipes, valves and emission devices measured in gallons per minute (gpm), gallons per hour or cubic feet per second.

GRADING. The earthwork performed to alter the natural contours of an area to be planted.

HARDSCAPES. Any durable material (pervious and non-pervious), such as paving (decks and patios) and hard surfaces which are part of the calculated total landscape area.

HOMEOWNER-PROVIDED LANDSCAPING. Any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who

occupies the dwelling he or she owns. This excludes speculative homes which are not owner-occupied dwellings.

HYDROZONE. A portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

IRRIGATION SYSTEM. A complete connection of system components, including the water source, the water distribution network, and the necessary irrigation equipment.

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

INVASIVE PLANT SPECIES. Species of plants not historically found in California spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. "Noxious weeds" means any weed designated by the Weed Control Regulation in the Weed Control Act and identified on a Regional District noxious week control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.

IRRIGATION AUDIT. An in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to, inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow and preparation of an irrigation schedule.

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

IRRIGATION SURVEY. An evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test and written recommendations to improve performance of the irrigation system.

IRRIGATION WATER USE ANALYSIS. Any analysis of water use data based on meter readings and billing data.

LANDSCAPE ARCHITECT. A person who holds a license to practice landscape architect in the State of California per Business and Professionals Code, Section 5615.

LANDSCAPE AREA. All the planting areas, turf areas and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks,

driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g. open space and existing native vegetation).

LANDSCAPE CONTRACTOR. A person licensed by the state of California to design, construct, maintain, repair, install or subcontract the development of landscape systems.

LANDSCAPED DOCUMENTATION PACKAGE. The documents required under Section 9.64.07.

LANDSCAPE PROJECT. Total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 9.64.07.

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

LOCAL AGENCY. The City of Avenal that is responsible for adoption and implementing the ordinance. The City of Avenal is also responsible for the enforcement of this ordinance including, but not limited to, approval of a building or landscape permit for a project.

LOW VOLUME IRRIGATION. The application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

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

MAXIMUM APPLIED WATER ALLOWANCE (MAWA). The upper limit of annual applied water for the established landscaped area as specified in Section 9.64.08. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special landscape areas, including recreation areas, areas permanently and solely dedicated to edible plants, such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.

MICROCLIMATE. The climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density or proximity to reflective surfaces.

MINED-LAND RECLAMATION PROJECTS. Any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

MULCH. Any organic materials such as leaves, bark, straw, compost, sawdust or organic mineral materials such as rocks, gravel and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeks, moderating soil temperature and preventing soil erosion.

NEW CONSTRUCTION. For the purpose of this ordinance, a new building with a landscape or other new landscape such as a park, playground or greenbelt without an associated building.

OPERATING PRESSURE. The pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

OVERHEAD SPRINKLER IRRIGATION SYSTEMS. Systems that deliver water through the air (e.g. spray heads and rotors).

OVERSPRAY. Irrigation water which is delivered beyond the target area.

PERMIT. The authorizing document issued by local agencies for new construction or rehabilitated landscapes.

PERVIOUS. Any surface or material that allows the passage of water through the material and into the underlying soil.

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

POINT OF CONNECTION. The point at which an irrigation system connects (P.O.C.) into the public water system. This is usually near the point at which the meter is located or will be installed.

PRECIPITATION RATE. The rate of application of water measured in inches per hour.

PROJECT APPLICANT. The individual or entity submitting a Landscape Documentation package required under Section 9.64.07 to request a building or landscape permit from the City. A project applicant may be the property owner or his or her designee.

RAIN SENSOR or RAIN SENSING SHUTOFF DEVICE. A component which automatically suspends an irrigation event when it rains.

RECORD DRAWING or AS BUILT. 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 dedicated to active play such as parks, sports fields and golf courses where turf provides a playing surface.

RECYCLING WATER, RECLAIMED WATER or TREATED SEWAGE EFFLUENT WATER. Treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.

REHABILITATED LANDSCAPE. Any re-landscaping project that requires a building or landscape permit and meets the requirements of Section 9.64.02 and the modified landscape area is equal to or greater than 2,500 square feet.

REMOTE CONTROL VALVE. A valve (R.C.V.) in an irrigation system which is activated by an automatic electric controller via an electric control wire.

RIGHT-OF-WAY. Area directly adjacent to and property for use by public agencies.

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

SOIL MOISTURE SENSOR. An instrument for measuring the moisture content of the soil and capable of interruption of the irrigation cycle sensor when excessive or inadequate moisture is detected.

SOIL TEXTURE. The classification of soil based on its percentage of sand, silt and clay.

SPECIAL LANDSCAPE AREA (SLA). An area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses and where turf provides a playing surface.

SPRINKLER HEAD. A device which delivers 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.

SWING JOINT. An irrigation component provides a flexible, leak-free connection between the emissions device and lateral pipeline to allow movement in any direction and to prevent equipment damage.

TURF. A ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, perennial ryegrass, red fescue and tall fescue are cool season grasses. Bermudagras, Kikuyugrass, Seashore Paspalum, St. Augustine grass, Zoysiagrass and Buffalo grass are warm-season grasses.

TOTAL LANDSCAPE AREA. The real property parcel area less the building footprint, driveways, walkways and parking areas. Landscape areas include water bodies (i.e., fountains, swimming pools, planting areas, ponds and hardscape as defined above) and natural areas.

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

WATER CONSERVING PLANT SPECIES. A plant species identified as having a low plant factor.

WATER FEATURE. A design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for onsite wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stromwater retention are not water features and therefore are not subject to the water budget calculation.

WATERING WINDOW. The time of day irrigation is allowed.

WUCOLS. The Water use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000.

9.64.06 IMPEMENTATION. To assure that the intent of these regulations is carried out, the applicant for a building or landscape permit is required to submit to the building department, a Landscape Documentation Package as described in Section 9.64.07 for review and approval by the Building Official.

During the installation of the approved landscape plan, it is the responsibility of the Community Development Department (Public Works Department for landscape improvements constructed within public property or street ways) to inspect the project to confirm that the landscaping for the project was installed in accordance with the approved plans. The landscape designer shall certify that the project is in compliance with these regulations by signing and submitting a completed Certificate of Completion. The Community

Development Director, Director of Public Works, or their designated representative, may authorize the deferral of landscape completion for good and valid reasons subject to the posting of appropriate security with the City.

The City may establish and administer penalties to the project applicant for noncompliance with this ordinance to the extent permitted by law. The amount of these penalties shall be set by City Council resolution.

9.64.07 LANDSCAPE DOCUMENTATION PACKAGE SUBMITTAL REQUIREMENTS. Prior to construction of all new or rehabilitated landscapes, the following Landscape Documentation Package shall be submitted to the building department for plan check review and approval as part of an application for a building or landscape permit for projects indentified in Section 9.64.02. All landscape plans and specifications shall be prepared and signed by a licensed landscape architect, a licensed landscape contractor or any other person authorized landscape designer shall be inserted next to their signature on such plans.

The Landscape Documentation Package shall include the following elements:

A. Project Information:
   1. Date
   2. Project applicant
   3. Project address (if available, parcel or lot number(s))
   4. Total landscape area (square feet)
   5. Project type (e.g., new, rehabilitated public, private, cemetery, homeowner-installed)
   6. Water supply type (e.g., public well, private well, recycled)
   7. Project applicant and property owner contact information
   8. Landscape Documentation Package submittal checklist, see Appendix "A"
   9. Applicant signature and date with statement, "I agree to comply with the requirements of the Water Efficient Landscape Design and Installation Ordinance and submit a complete Landscape Documentation Package."

B. Water Efficient Landscape Worksheet:

   1. Hydrozone information table
   2. Water budget calculations
      a. Maximum Applied Water Allowance (MAWA)
      b. Estimated Total Water Use (ETWU)

C. Soil Management Report

D. Grading Plan

E. Landscape Design Plan

F. Irrigation Design Plan

G. Landscape improvement plans shall be drawn on sheets no larger than thirty (30) inches by forty-two (42) inches and no smaller than eighteen (18) inches by twenty-four (24) inches at a scale which shows sufficient detail to clearly interpret the plans, preferably not less than one inch equals thirty (30) feet.

9.64.08 WATER EFFICIENT LANDSCAPE WORKSHEET.

A. A project applicant shall complete the following Water Efficient Landscape Worksheets as identified in Appendix "B":
   1. A hydrozone information table (see Appendix "B", Section "A") for the landscape project; and
   2. A water budget calculation (see Appendix "B," Section "B") for the landscape project.

B. Water budget calculations shall adhere to the following requirements:
   1. Plant types shall be grouped so as to have zoned landscape areas that utilize a similar water requirement. The cumulative effect of this zoning shall be to create a moderate water consuming landscape. The zone types shall be designated low, moderate or high water use with reference to water consumptiveness. The plant factor value used shall be taken from WUCOLS (a copy of this can be obtained form the City Public Works Department). The plant factor ranges from 0 to 0.3 for low water use plants, from 0/4 to 0/6 for moderate water use plants and from 0.7 to 1.0 for high water use plants.
   2. All water use features shall be included in the high water use hydrozone, and temporarily irrigated areas shall be included in the low water use hydrozone.
   3. All special landscape areas shall be identified and their water use calculated as described below.,
   4. The ETAF for special landscape areas shall not excess 1.0.

C. The Maximum Applied Water Allowance (MAWA) shall be calculated using the following equation: MAWA = (ETo)(0.62)[(0.7 x LA) + (0.3 x SLA)] (ETo for Kettleman is 60.18 inches per year (per www.cimis.water.ca.gov ETo zone map dated 1999)).

The following calculations below are hypothetical to demonstrate proper use of the equations and do not represent an existing and/or planned landscape project:

1. Example MAWA calculation: A hypothetical landscape project in Avenal with an irrigated landscape area of 50,000 square feet without any Special Landscape Area (SLA = 0, no edible plants, recreation areas or use or recycled water). To calculate MAWA, the annual evapotranspiration (ETo) value for Kettleman is 60.18 inches (per www.cimis.water.ca.gov ETo zone map dated 1999).

   MAWA = (ETo)(0.62)[(0.7 x LA) + (0.3 x SLA)]
   MAWA = Maximum Applied Water Allowance (gallons per year)
   ETo = Annual Evapotranspiration (inches per year)
   0.62 = Conversion Factor (to gallons)
   0.7 = ET Adjusted Factor (ETAF)
   LA = Landscape Area including SLA (square feet)
   0.3 = Additional Water Allowance for SLA
   SLA = Special Landscape Area (square feet)
   MAWA = (62.5 inches)(0.62)[(0.7 x 50,000 square feet) + (0.3 x 0)] = 1,356,250 gallons per year
   To convert from gallons per year to hundred-cubic-feet per year:
   = 1,356,250/748 = 1,813 hundred-cubic-feet per year (100 cubic feet = 748 gallons)

2. In this next hypothetical example, the landscape project in Avenal has the same ETo of 62.5 inches per year (per www.cimiswaterca.gov ETo zone map dated 1999).and a total landscape area of 50,000 square feet. Within the 50,000 square foot project, there is now a 2,000 square foot area planted with edible plants. This 2,000 square foot is considered to be a Special Landscape Area (SLA).

   MAWA = (ETo)(0.62)[(0.7 x LA) + (0.3 x SLA)]
   MAWA = (62.5 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 2,000 square feet)] = 38.75 x [35,000 + 600] gallons per year = 38.75 x 35,600 gallons per year = 1,379,500 gallons per year or 1,844 hundred-cubic-feet per year

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

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

   Where:
   ETWU= Estimated Total Water Use per year (gallons)
   ETo = Annual Evapotranspiration (inches)
   PF = Plant Factor from WUCOLS
   HA = Hydrozone Area [high, medium and low water use areas] (square feet)

SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor
IE = Irrigation Efficiency (minimum 0.71)

1. Example ETWU calculation: Landscape area is 50,000 square feet; plant water use type, plant factor and hydrozone area are shown in the table below. The ETo value is 62.5 inches per year. There are no special landscape areas (recreational area, area permanently and solely dedicated to edible plants, and area irrigated with recycled water in this example.

| Hydrozone | Plant Water use Type(s) | Plant Factor (PF)* | Hydrozone Area (HA) (square feet) | PF x HA (square feet) |
|---|---|---|---|---|
| 1 | High | 0.8 | 7,000 | 5,600 |
| 2 | High | 0.7 | 10,000 | 7,000 |
| 3 | Medium | 0.5 | 16,000 | 8,000 |
| 4 | Low | 0.3 | 7,000 | 2,100 |
| 5 | Low | .02 | 10,000 | 2,000 |
| | | | Sum | 24,700 |

*Plant Factor from WUCOLS

$$ETWU = (62.5)(0.62)\left(\frac{24,700}{0.71}\right) + 0$$

= 1,348,035 gallons per year

Compare ETWU with MAWA: For this example, MAWA = (62.5)(0.62) [(0.7 x 50,000) + (0.3 x 0)] = 1,356,250 gallons per year. The ETWU (1,348,035 gallons per year) is less than MAWA (1,356,250 gallons per year). In this example, the water budget complies with the MAWA.

2. Example EETWU calculation: Total landscape area is 50,000 square feet, 2,000 square feet of which is planted with edible plants. The edible plant area is considered a Special Landscape Area (SLA). The evapotranspiration value is 62.5 inches per year. The plant type, plant factor and hydrozone area is shown in the table below.

| Hydrozone | Plant Water use Type(s) | Plant Factor (PF)* | Hydrozone Area (HA) (square feet) | PF x HA (square feet) |
|---|---|---|---|---|
| 1 | High | 0.8 | 7,000 | 5,600 |
| 2 | High | 0.7 | 9,000 | 6,300 |
| 3 | Medium | 0.5 | 15,000 | 7,500 |
| 4 | Low | 0.3 | 7,000 | 2,100 |
| 5 | Low | .02 | 10,000 | 2,000 |
| | | | Sum | 23,500 |
| 6 | SLA | 1.0 | 2,000 | 2,000 |

*Plant Factor from WUCOLS

$$ETWU = (62.5)(0.62)\left( \frac{23,500}{0.71} \right) + 2,000$$

= 1,360,047 gallons per year

Compare ETWU with MAWA: For this example, MAWA = (62.5)(0.62) [(0.7 x 50,000) + (0.3 x 2,000)] = 38.75 x [35,000 + 600] = 38.75 x 35,600 = 1,379,500 gallons per year. The ETWU (1,360,047 gallons per year) is less than MAWA (1,379,500 gallons per year). For this example, the water budget complies with the MAWA.

9.64.09 SOIL MANAGEMENT REPORT. In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed, after determination by the Community Development Director, the Public Works Director or their designated representative, that conditions warrant such testing.

A. Conditions which warrant the preparation of soil tests include, without limitation:

1. Serve grading that removes substantial topsoil and exposes subsurface soil layers for new landscaping:

2. Suspected pervious land use conditions which could retard or complicate desirable plant growth conditions.

Samples of the onsite soil shall be taken after completion of rough grading work and all ancillary work that may cause compaction of the planting areas. The samples shall be submitted to a certified soil testing laboratory for analysis. The soil samples shall be taken to account for every two acres or less of landscape area and their locations shall be noted on the approved site plan. All soil samples showing adverse rates of compaction shall receive mitigation recommendations in the Soil Management Report issued by the

testing laboratory.

B. The Soil Management Report must provide the following information:

1. Soil texture;
2. Infiltration rate determined by laboratory testing or soil texture infiltration rate table;
3. Ph;
4. Total soluble salts;
5. Sodium;
6. Percent organic material; and
7. Recommendations.

C. The project applicant shall comply with one of the following:

1. If significant mass grading is not planned, the Soil Analysis Report shall be submitted to the city as part of the Landscape Documentation Package;
2. If significant mass grading is planned, the Soil Analysis Report shall be submitted to the city as part of the Certificate of completion;
3. The Soil Analysis Report shall be made available in a timely manner to the professionals preparing the Landscape Design Plans and Irrigation Design Plans to make necessary adjustments to the design plans.
4. The project applicant shall submit documentation verifying implementation of Soil Analysis Report recommendations to the City with Certificate of Completion.

9.64.10 GRADING PLAN. For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff and water waste. A Grading Plan shall be submitted to the Building Official as part of the Landscape Documentation Package. A comprehensive grading plan prepared by a civil engineer for other agency permits satisfies this requirement.

A. The project applicant shall submit a Landscape Grading Plan that includes finished configurations and elevations of the landscape area including:

1. Height of graded slopes;
2. Drainage patterns;
3. Pad elevations;
4. Finish grade; and
5. Stormwater retention improvements, if applicable.

B. To prevent excessive erosion and runoff, it is highly recommended that project applicants:

1. Grad so that all irrigation and normal rainfall remains within property lines and does not drain onto non-permeable hardscapes;
2. Avoid disruption of natural drainage patters and undisturbed soil; and
3. Avoid soil compaction in landscape areas.

The Grading Design Plan shall contain the following statement: "I have complied with the criteria of the Water Efficient Landscape Design and Installation Ordinance and applied them accordingly for the efficient use of water in the grading design" and bear the signature of a licensed professional as authorized by law.

9.64.11 LANDSCAPE DESIGN PLAN. For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A Landscape Design Plan meeting the following design criteria shall be submitted as part of the Landscape Document Package:

A. Plant Material:

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. 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 plants based on disease and pest resistance;
    d. Selection of trees based on applicable local tree ordinances or tree shading guidelines; and
    e. Selection of plants from local and regional landscape program plant lists.

2. Each hydrozone shall have plant materials with similar water use with the exception of hydrozones with plants of mixed water use, as specified in Section 9.64.12.B.4.

3. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic and topographical condition of the project site. To encourage the efficient use of water, the following is highly recommended:

    a. Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude and varying degrees of continental and marine influence on local climate;

b. Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure (e.g., buildings, sidewalks, power lines); and
c. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

4. Turf is not allowed on slopes greater than 25 percent where the toe of the slope is adjacent to an impermeable hardscape and where 25 percent means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).

5. A Landscape Design Plan for projects in fire-prone areas shall address fire safety and prevention. Avoid fire-prone plant materials and highly flammable mulches.

6. 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.

B. Water Features:

1. Reticulating water systems shall be used for water features.
2. Where available, recycled water shall be used as a source for decorative water features.
3. Surface area of water feature shall be included in the high water use hydrozone area for the Water Budget Calculation.
4. Pool and spa covers are highly recommended.

C. Mulch and Amendments:

1. A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers or direct seeding applications where mulch is contraindicated.
2. Stabilizing mulching products shall be used on slopes.
3. The mulching portion of the see/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
4. Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 9.64.07).

D. The Landscape Design Plan, at a minimum, shall:

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

2. Identify each hydrozone as low, moderate, high water or mixed water use. Temporarily irrigate areas of the landscape shall be included in the low water use hydrozone for the water budget calculations;
3. Identify recreational areas;
4. Identify areas permanently and solely dedicated to edible plants;
5. Identify areas irrigated with recycled water;
6. Identify type of mulch and application depth;
7. Identify soil amendments, types and quantity;
8. Identify type and surface area of water features;
9. Identify hardscapes (pervious and non-pervious);
10. Indentify location and installation details of any applicable stormwater best management practices that encourage onsite retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:

    a. Infiltration beds, swales and basins that allow water to collect and soak into the ground;
    b. Constructed wetlands and retention ponds that retain water, handle excess flow and filter pollutants; and
    c. Pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.

11. Identify any applicable rain harvesting or catching technologies (e.g., rain gardens, cisterns, etc.);
12. Contain the following statement, " I have complied with the criteria of the Water Efficient Landscape Design and Installation Ordinance and applied them for the efficient use of water in the Landscape design Plan"; and
13. Bear the signature of a licensed landscape architect, licensed landscape contractor or any other person authorized to design a landscape.

9.64.12 IRRIGATION DESIGN PLAN. For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturer's recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management and maintenance. An Irrigation Design Plan meeting the following design criteria shall be submitted to the Building Official as part of the Landscape Documentation Package.

A. System:

1. Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.
2. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data shall be required for irrigation scheduling in all irrigation systems.
3. The irrigation system shall be designed to ensure that the dynamic pressure at each emission devise is within the manufacturer's recommended pressure range for optimal performance.
    a. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps or other devices shall be installed to meet the required dynamic pressure of the irrigation system.
    b. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage the measurements shall be conducted at installation.
4. Sensors (rain, freeze, wind, etc.) either integral or auxiliary that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems as appropriate for local climatic conditions, Irrigation should avoided during windy or freezing weather or during rain.
5. Manual shut-off valves (such as gate valve, ball valve or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.
6. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable City Standards and Specifications for additional backflow prevention requirements.
7. High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.
8. The irrigation system shall be designed to prevent runoff, low head drainage, overspray or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways or structures.
9. Relevant information from the Soil Management Plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
10. The design of the irrigation system shall conform to the hydrozones of the Landscape Design Plan.
11. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 9.64.08 regarding the Maximum Applied Water Allowance.

12. It is highly recommended that the project applicant inquire with the City about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
13. In mulched planning areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
14. Sprinkler head and other emission devices shall have matched precipitation rates , unless otherwise directed by the manufacturer's recommendations.
15. Head to head coverage is recommendations. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
16. Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.
17. Check valves or anti-drain valves are required for all irrigation systems.
18. Narrow or irregularly shaped areas, including turf, less than seven (7) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.
19. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel or other porous material. These restrictions may be modified if:

    a. The landscape area is adjacent to permeable surfacing and no runoff occurs; or
    b. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
    c. The irrigation designer specifies an alternative design or technology as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 9.64.12. Prevention of overspray and runoff must be confirmed during the irrigation audit.

20. Slopes greater than 25 percent 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 and erosion must be confirmed during the irrigation audit.

B. Hydrozone:

1. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions and plant materials with similar water use.
2. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plan type within that hydrozone.
3. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers and turf.
4. Individual hydrozones that mix plants of moderate and low water use or moderate and high water use may be allowed if:

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

5. Individual hydrozones that mix high and low water use plants shall not be permitted.
6. On the Landscape Design Plan and Irrigation Design Plan, hydrozone areas shall be designated by number, letter or other designation. On the Irrigation Design Plan, designate the areas irrigated by each valve and assign a number to each valve. Use this valve number in the hydrozone information table (see Appendix "B," Section "A"). This table can also assist with the irrigation audit and programming the controller.
7. The Irrigation Design Plan, at a minimum, shall contain:

    a. Location and size of separate water meters for landscape;
    b. Location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators and backflow prevention devices;
    c. Static water pressure at the point of connection to the public water supply;
    d. Flow rate (gallons per minute), application rate (inches per hour) and design operating pressure (pressure per square inch) for each station;
    e. Recycled water irrigation systems as specified in Section 9.64.18.
    f. The following statement: "I have complied with the criteria of the Water Efficient Landscape Design and installation Ordinance and applied them accordingly for the efficient use of water in the Irrigation Design Plan"; and
    g. The signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor or any other person authorized to design an irrigation system.

## 9.64.13 CERTIFICATE OF COMPLETION

A. The Certification of Completion (see Appendix "C") shall include the following six elements:

1. Project information sheet that contains:
   a. Date;
   b. Project name;
   c. Project applicant name, telephone and mailing address;
   d. Project address and location; and
   e. Property owner name, telephone and mailing address.

2. Certification by either the signer of the Landscape Design Plan, the signer of the Irrigation Design Plan or the licensed landscaper contractor that the landscape project has been installed per the approved Landscape Documentation Package.

   a. Where there have been significant changes made in the field during construction, these "as-built" or record drawing shall be included with the certification.

3. Irrigation scheduling parameters used to set the controller (see Section 9.64.14).
4. Landscape and irrigation maintenance schedule (see Section 9.64.15).
5. Irrigation audit report (see Section 9.64.16).
6. Soil analysis report, if not submitted with Landscape Documentation Package and documentation verifying implementation of soil report recommendations (see Section 9.64.09).

B. The project applicant shall:

1. Submit the signed Certificate of Completion to the Building Official for review;
2. Ensure that copies of the approved Certificate of Completion are submitted to the city and property owner or his or her designee.

C. The City shall:

1. Receive the signed Certificate of Completion from the project applicant;
2. Approve or deny the Certificate of Completion. If the Certificate of completion is denied, the Building Official shall provide information to the project applicant regarding reapplication, appeal or other assistance.

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

A. Irrigation scheduling shall be regulated by automatic irrigation controllers.

B. Overhead irrigation shall be scheduled between 6:00 a.m. & 10:00 a.m. and 6:00 p.m. & 10:00 p.m. during daylight savings time unless weather conditions prevent it. Operation of irrigation system outside the normal watering window is allowed for auditing and system maintenance.

C. For implementation of the Irrigation Schedule, particular attention must be paid to irrigation run times, emission device, flow rate and current reference evapotranspiration so that applied water meets the Estimated Total Water use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.

D. Parameters used to set the automotive controller shall be developed and submitted for each of the following:

1. The plant establishment period;
2. The established landscape; and
3. Temporarily irrigated areas.

E. Each irrigation schedule shall consider for each station all of the following that apply;

1. Irrigation intervals (days between irrigation);
2. Irrigation run times (hours or minutes per irrigation event to avoid runoff);
3. Number of cycle starts required for each irrigation event to avoid runoff;
4. Amount of applied water scheduled to be applied on a monthly basis;
5. Application rate setting;
6. Root depth setting;
7. Plant typesetting;
8. Soil type;
9. Slope factor setting;
10. Shade factor setting; and
11. Irrigation uniformity or efficiency setting.

9.64.15 LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE. Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted to the Community Development Department with the Certificate of Completion.

A regular maintenance schedule shall include, but not be limited to, routine inspection, adjustment and repair of the irrigation system and its components, aerating and dethatching turf areas, replenishing mulch, fertilizing, pruning, weeding in all landscape areas, and removing obstructions to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.

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

9.64.16 IRRIGATION AUDIT, IRRIGATION SURVEY AND IRRIGATION WATER ANALYSIS (NEW AND REHABILITATED LANDSCPAES). All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor. For new construction and rehabilitated landscape projects installed after January 1, 2012, as described in Section 9.64.02, the following apply:

A. The project applicant shall submit an Irrigation Audit Report with the Certificate of Completion to the City that may include, but is not limited to, inspection, system tune-up, system test with distribution uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.

B. The city shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

9.64.17 IRRIGATION EFFICIENCY. For the purpose of determining Maximum Applied Water Allowance, average irrigation efficiency is assumed to be 0.71. Irrigation systems shall be designed, maintained and managed to meet or exceed an average landscape irrigation efficiency of 0.71.

9.64.18 RECYCLED WATER. Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the City stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.

All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and state laws.

Landscapes using recycled water are considered special landscape areas. The ET adjustment factor for special landscape areas shall not exceed 1.0.

9.64.19 STORMWATER MANAGEMENT. 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 onsite retention and infiltration are encouraged.

Project applicants shall refer to the City or Regional Water Quality Control Board for information on any applicable stormwater ordinance and stormwater management plans.

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

9.64.20 PUBLIC EDUCATION.

A. Publications: Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation management and maintenance that save water is encouraged in the community.

1. Developers/builders shall provide information to owners of new, single-family residential homes regarding the design, installation, management and maintenance of water efficient landscapes.

B. Model Homes: All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in their ordinance.

1. Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as hydozones, irrigation equipment and others that contribute to the overall water efficient theme.
2. Information shall be provided about designing, installing, managing and maintaining water efficient landscapes.

9.64.21 IRRIGATION AUDIT, IRRIGATION SURVEY AND IRRIGATION WATER ANALYSIS (EXISTING LANDSCPAES). This section shall apply to all existing landscapes that were installed before January 1, 2012 and are over one acre in size.

A. For all landscapes in 9.64.21 that have a water meter, the City shall

administer program that may include, but not be limited to, irrigation water use analyses, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance for existing landscapes. The Maximum Applied Water Allowance for existing landscapes shall be calculated as:

$$MAWA = (0.8)(ETo)(LA)(0.62).$$

B. For all landscapes in 9.64.21 that do not have a water meter, the City shall administer program that may include, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.

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

9.64.22 WATER WASTE PREVENTION. The city shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff from leaving the target landscape due to low head drainage, overspray or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots or structures. Penalties for violations of those prohibitions shall be established by City Council resolution.

Restrictions regarding overspray and runoff may be modified if:

A. The landscape area is adjacent to permeable surfacing and no runoff occurs; or
B. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

## Appendix "A"

### Landscape Documentation Package Submittal Checklist

1. City of Avenal Building Permit Application Form
2. Four (4) complete sets of drawing and documentation
3. Project information
4. Water Efficient Landscape Worksheet
5. Soil Management Report
6. Landscape Design Plan

7. Irrigation Design Plan
8. Grading Plan
9. All documents are signed per the Landscape Ordinance requirements
10. A Plan Review deposit (amount per the Fee Schedule)
11. This "Landscape Documentation Package Submittal Checklist"

Appendix "B"

Sample Water Efficient Landscape Worksheet

WATER EFFICIENT LANDSCAPE WORKSHEET

This Worksheet is filled out by the project applicant and is a requirement of the Landscape Documentation Package.

Please complete all sections (A and B) of the worksheet.

SECTION A. HYDROZONE INFORMATION TABLE

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

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

Appendix "B" (continued)

*Hydrozone

HW = High Water Use Plants

MW = Moderate Water Use Plants

LW = Low Water Use Plants

**Irrigation Method

MS = Micro-spray

S = Spray

R = Rotor

B = Bubbler

D = Drip

O = Other

SECTION B. WATER BUDGET CALCULATIONS

Section B1. Maximum Applied Water Allowance (MAWA)

The project's Maximum Applied Water Allowance shall be calculated using this equation:

$MAWA = (ETo)(0.62)[(0.7 \times LA) + (0.3 \times SLA)]$

Where:

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Annual Evapotranspiration (for Kettleman is 60.18 inches per year)

0.7 = ET Adjustment Factor (ETAF)

LA = Landscaped Area includes Special landscape Area (square feet)

0.62 = Conversion factor (to gallons per square foot)

SLA = Portion of the landscape area identified as Special Landscape Area (square feet)

0.3 = the additional ET adjustment Factor for Special Landscape Area (1.0 - .07 = 0.3)

Maximum Applied Water Allowance = _____gallons per year

Show calculations:

| |
|---|
| |

Section B2. Estimated Total Water Use (ETWU)

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

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

Where:

ETWU= Estimated total water use per year (gallons per year)

ETo = Annual Evapotranspiration (for Kettleman 60.18 inches per year)

PF = Plan Factor from WUCOLS (see Definitions)

HA = Hydrozone Area (high, medium and low water use areas) (square feet)

SLA = Special Landscape Area (square feet)

0.62 = Conversion Factor (to gallons per square foot)

IE = Irrigation Efficiency (minimum 0.71)

Hydrozone Table for Calculating ETWU

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

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

Estimated Total Water Use = _____gallons

Show calculations:

Appendix "C"
Sample Certificate of Completion

CERTIFICATE OF COMPLETION

This certificate is filled out by the project applicant upon completion of the landscape project.

PART 1. PROJECT INFORMATION SHEET

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

Project Address and Location:

| | | |
|---|---|---|
| Street Address | | Parcel, tract, or lot number, if available |
| City | | Latitude/Longitude (optional) |
| State | Zip Code | |

Property Owner or his/her designee:

| | |
|---|---|
| Name | Telephone |
| | Fax No. |

| | | |
|---|---|---|
| | | |
| Title | Email Address | |
| Company | Street Address | |
| City | State | Zip Code |

Property Owner:

"I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule."

_____

Property Owner Signature Date

Please answer the questions below:

1. Date the Landscape Documentation Package was submitted to the City _____.
2. Date the Landscape Documentation Package was approved by the City _____.
3. Date that a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the City _____.

PART2. CERTIFICATION OF INSTALLATION ACCORDING TO THE LANDSCAPE DOCUMENTATION PACKAGE

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

<table>
<tr><td>Signature*</td><td colspan="2">Date</td></tr>
<tr><td>Name (Print)</td><td colspan="2">Telephone No.</td></tr>
<tr><td rowspan="2">Name of Project Applicant</td><td colspan="2">Fax No.</td></tr>
<tr><td colspan="2">Email Address</td></tr>
<tr><td colspan="3">License no. or certification No.</td></tr>
<tr><td>Company</td><td colspan="2">Street Address</td></tr>
<tr><td>City</td><td>State</td><td>Zip Code</td></tr>
</table>

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

PART 3. IRRIGATION SCHEDULING

Attached parameters for setting the irrigation schedule on controller per ordinance Section 9.64.14.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attached schedule of Landscape and Irrigation Maintenance per ordinance Section 9.64.15.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report per ordinance Section 9.64.16.

PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report if not previously submitted with the Landscape Documentation Package per ordinance Section 9.64.09.

Attached documentation verifying implementation of recommendations from soil analysis report per ordinance Section 9.64.09.

**Section 4**. CEQA REVIEW. The City Council hereby finds that this ordinance is not subject to review under the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines sections 15060(c)(2) [the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment] and 15061(b)(3) [there is no possibility the activity in question may have a significant effect on the environment]. In addition to the foregoing general exemptions, the City Council further finds that the ordinance is categorically exempt from review under CEQA under the Class 8 categorical exemption [regulatory activity to assure the protection of the environment]. The City Manager is hereby directed to ensure that a Notice of Exemption is filed pursuant to CEQA Guidelines section 15062 [14 C.C.R. § 15062].

**Section 5**. NO LIABILITY. The provisions of this ordinance shall not in any way be construed as imposing any duty of care, liability or responsibility for damage to person or property upon the City of Avenal, or any official, employee or agent thereof.

**Section 6**. PENDING ACTIONS. Nothing in this ordinance or in the codes hereby adopted shall be construed to affect any suit or proceeding pending or impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance or code repealed by this ordinance, nor shall any just or legal right or remedy of any character be lost, impaired or affected by this ordinance.

**Section 7**. SEVERABILITY. If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this ordinance, or its application to any person or circumstance, is for any reason held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases of this ordinance, or its application to any other person or circumstance. The City Council of the City of Avenal hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase hereof, irrespective of the fact that any one or more other sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases hereof be declared invalid or unenforceable.

**Section 8.** CONSTRUCTION. The City Council intends this ordinance to supplement, not to duplicate or contradict, applicable state and federal law and this ordinance shall be construed in light of that intent. To the extent the provisions of the Avenal Municipal Code as amended by this ordinance are substantially the same as provisions in the Avenal Municipal Code existing prior to the effectiveness of this ordinance, then those amended provisions shall be construed as continuations of the earlier provisions and not as new enactments.

**Section 9.** EFFECTIVE DATE. The foregoing ordinance shall take effect thirty (30) days from the date of the passage hereof. Prior to the expiration of fifteen (15) days from the passage hereof a certified copy of this ordinance shall be posted in the office of the City Clerk pursuant to Government Code section 36933(c)(1) and a summary shall be published once in the Chimes, a newspaper printed and published in the City of Avenal, State of California, together with the names of the Council members voting for and against the same.

**PASSED AND ADOPTED** at a regular meeting of the Avenal City Council on the ~~12~~ 27th day of October, 2011, by the following roll call vote:

**AYES:** PRECIADO, OVALLE, CASIDA, CURTY.
**NOES:** NONE.
**ABSENT:** GRAVELLE.
**ABSTAIN:** NONE.

Approved: _____
Harlin Casida, **MAYOR**

ATTEST:

_____
Pamela Bonilla, **CITY CLERK**