



CITY OF PLEASANT HILL

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100 Gregory Lane
Pleasant Hill, CA 94523

WATER-EFFICIENT LANDSCAPE ORDINANCE PROJECT APPLICATION AND SUBMITTAL REQUIREMENTS

Prior to receiving a building or grading permit, when applicable (see the Planning Division for applicability) the applicant must submit a completed Landscape Project Application (LPA) demonstrating that the project complies with the City of Pleasant Hill Water-Efficient Landscape Ordinance.

Application: Submit one (1) copy of the completed application in electronic format to the City of Pleasant Hill Planning Division. Use the application attached.

Submittals: Submit one (1) copy of the completed attached worksheets and forms in electronic format to the City of Pleasant Hill Planning Division.

Please note that a deposit will be required to cover the costs of the peer review that will occur to verify compliance with the City water efficient landscape provisions. Please contact a planner for additional information.



**CITY OF PLEASANT HILL
LANDSCAPE PROJECT APPLICATION**

Complete all sections of this form. If you believe that an item does not apply to your project, mark it "N/A". Do not leave any blank spaces.

Application Information

Applicant Name: _____

Address: _____

Phone Number: _____ e-Mail: _____

Fax Number: _____

Property Owner Name: _____

Address: _____

Phone Number: _____ e-Mail: _____

Fax Number: _____

Project Description

Project Name: _____

Project Address, Parcel Number(s) and/or lot numbers: _____

Project Type: _____

Water Supply Type: _____

Total New and Rehabilitated Irrigated Landscape Area: _____

Signature

I certify under penalty of perjury that I am the (check one)

- Legal owner (all individuals must sign as their names appear on the deed to the land), **OR**
- Owner's legal Agent, and that the foregoing is true and correct. (Please submit an authorization letter from legal owner).

_____ Signature	_____ Date	_____ Signature	_____ Date
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Appendix A
Water-Efficient Landscaping Ordinance
Chapter 18.52
Definitions

As set forth in Pleasant Hill Municipal Code § 18.52.020, defined terms used in the Water-Efficient Landscaping Ordinance of the City of Pleasant Hill (Chapter 18.52 of Title 18 of the Pleasant Hill Municipal Code) shall have the definitions set forth below.

- A. **Applicant** means the individual or entity submitting a Landscape Project Application (LPA) required under Chapter 18.52, as part of a permit, plan check, or design review. A project applicant may be the property owner or his or her designee.
- B. **Applied water** means the portion of water supplied by the irrigation system to the landscape.
- C. **Automatic irrigation controller** means a timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers are able to self-adjust and schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.
- D. **Backflow prevention device** means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
- E. **Certified irrigation system auditor (designer)** means 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 WaterSense Irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program.
- F. **Check valve or anti-drain valve** means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
- G. **Common interest developments** means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
- H. **Compost** means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.
- I. **Conversion factor (0.62)** means the number that converts acre-inches per acre per year to gallons per square foot per year.
- J. **Distribution uniformity** means the measure of the uniformity of irrigation water over a defined area.
- K. **Drip irrigation** means 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.
- L. **Ecological restoration project** means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- M. **Effective precipitation or usable rainfall (Eppt)** means the portion of total precipitation which becomes available for plant growth.

- N. **Emission Device** means any device that is contained within an irrigation system that is used to apply water. Common emission devices in an irrigation system include, but are not limited to, spray and rotary sprinkler heads, bubblers, and drip irrigation emitters.
- O. **Emitter** means a drip irrigation emission device that delivers water slowly from the system to the soil.
- P. **Established landscape** means 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.
- Q. **Establishment period of the plants** means 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 of growth. Native habitat mitigation areas and trees may need three to five years for establishment.
- R. **Estimated Total Water Use (ETWU)** means the total water used for the landscape as described in the water allowance worksheet.
- S. **ET adjustment factor (ETAF)** means a factor, 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.
- When applied to reference evapotranspiration establishes the upper limit (Maximum Allowable Water Allowance) of the amount of water that can be applied through the irrigation system to sustain landscape. The ETAF shall be 0.55 for residential areas and 0.45 for nonresidential areas. The ETAF for a new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0. The ETAF for existing non-rehabilitated landscapes is 0.8.
- T. **Evapotranspiration** means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants and evaporated from the soil and plant surfaces.
- U. **Flow rate** means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.
- V. **Flow sensor** means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to an automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. This combination flow sensor/controller may also function as a landscape water meter or submeter.
- W. **Friable** means a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.
- X. **Fuel Modification Plan Guideline** means guidelines from a local fire authority to assist residents and businesses that are developing land or building structures in a fire hazard severity zone.
- Y. **Graywater** means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers. Health and Safety Code Section 17922.12.
- Z. **Hardscapes** means any durable material (pervious and non-pervious).

- AA. **Hydrozone** means a portion of the landscaped area having plants with similar water needs and rooting depth. A hydrozone may be irrigated or non-irrigated.
- BB. **Infiltration rate** means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
- CC. **Invasive plant species** means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.
- DD. **Irrigation audit** means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule. The audit must be conducted in a manner consistent with the Irrigation Association's Landscape Irrigation Auditor Certification program or other U.S. Environmental Protection Agency "Watersense" labeled auditing program.
- EE. **Irrigation efficiency (IE)** means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The irrigation efficiency for purposes of this ordinance are 0.75 for overhead spray devices and 0.81 for drip systems. Greater irrigation efficiency can be expected from well-designed and well-maintained systems.
- FF. **Irrigation survey** means 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.
- GG. **Irrigation water use analysis** means an analysis of water use data based on meter readings and billing data.
- HH. **Landscape architect** means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
- II. **Landscape area** means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).
- JJ. **Landscape contractor/installer** means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
- KK. **Landscape water meter** means an inline device installed at the irrigation supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.
- LL. **Lateral line** means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- MM. **Local water purveyor** means any entity, including a public agency, city, county, or private water company that provides retail water service.

- NN. **Low volume irrigation** means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- OO. **Main line** means the pressurized pipeline that delivers water from the water source to the valve or outlet.
- PP. **Master shut-off valve** is an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed water will not be supplied to the irrigation system. A master valve will greatly reduce any water loss due to a leaky station valve.
- QQ. **Maximum Applied Water Allowance (MAWA)** means the upper limit of annual applied water for the established landscaped area as specified in the “Water Allowance Work Sheets.” 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. $MAWA = (ET_o) (0.62) [(ETAF \times LA) + ((1-ETAF) \times SLA)]$.
- RR. **Median** is an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.
- SS. **Microclimate** means 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.
- TT. **Mulch** means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, or decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.
- UU. **New construction** means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.
- VV. **Non-Permeable** means any surface or material that will not allow the passage of water through that surface or material and into the underlying soil at a rate that ensures run-off will not occur.
- WW. **Operating pressure** means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
- XX. **Overhead irrigation** (overhead sprinkler irrigation systems or overhead spray irrigation systems) means systems that deliver water through the air (e.g., spray heads and rotors).
- YY. **Overspray** means the irrigation water which is delivered beyond the target area.
- ZZ. **Parkway** means the area between a sidewalk and the curb or traffic lane. It may be planted or unplanted, and with or without pedestrian egress.
- AAA. **Pervious** means any surface or material that allows the passage of water through the material and into the underlying soil.
- BBB. **Plant factor or plant water use factor** is a factor, when multiplied by ET_o , estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for very low water use

plants is 0 to 0.1, the plant factor range for low water use plants is 0.1 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. The plant factors for this ordinance are from the WUCOLS publication. Plant factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).

- CCC. **Precipitation rate** for this ordinance means the rate of application of water measured in inches per hour.
- DDD. **Rain sensor or rain sensing shutoff device** means a component which automatically suspends an irrigation event when it rains.
- EEE. **Recreational area** means areas, excluding private single family residential areas, designated for active play, recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters or golf course tees, fairways, roughs, surrounds and greens.
- FFF. **Recycled water, reclaimed water, or treated sewage effluent water** means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation and water features. This water is not intended for human consumption.
- GGG. **Reference evapotranspiration or ET_o** means a standard measurement of environmental parameters that affect the water use of plants.
- HHH. **Rehabilitated landscape** means any re-landscaping project that requires a permit, plan check, or design review, or requires a new or expanded water service application or meets the requirements of Section 18.52.030, and the modified landscape area is equal to or greater than 2,500 square feet.
- III. **Retail water supplier** means any entity, including a public agency, city, county, district or private water company that provides retail water service.
- JJJ. **Runoff** means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area.
- KKK. **Smart irrigation controllers** means controllers using weather information or soil moisture readings along with site information to automatically adjust the irrigation schedule on a daily basis.
- LLL. **Soil moisture sensing device or soil moisture sensor** means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.
- MMM. **Special Landscape Area (SLA)** means an area of the landscape dedicated solely to edible plants, recreational (active play) areas, areas irrigated with recycled water, cemeteries, or water features using recycled water.
- NNN. **Sprinkler head or spray head** means a device which delivers water through a nozzle.
- OOO. **Static water pressure** means the pipeline or municipal water supply pressure when water is not flowing.
- PPP. **Station** means an area served by one valve or by a set of valves that operate simultaneously.
- QQQ. **Storm Water Control Plan Requirements (C.3)** means Provision C.3 of the City's Municipal Regional Stormwater Permit, as approved by San Francisco Bay Regional Water Quality Control Board on October 14, 2009 under Order No. R2-2009-0074, NPDES Permit No. CAS612008, which requires jurisdictions to include appropriate source control, site design, and stormwater treatment mea-

tures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. (See PHMC Chapter 15.05.)

- RRR. **Swing joint** means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
- SSS. **Submeter** means a metering device to measure water applied to the landscape that is installed after the primary utility water meter.
- TTT. **Turf** means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.
- UUU. **Valve** means a device used to control the flow of water in the irrigation system.
- VVV. **Water conserving plant species** means a plant species identified as having a very low or low plant factor.
- WWW. **Water feature** means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.
- XXX. **Watering window** means the time of day irrigation is allowed.
- YYY. **WUCOLS** means the Water Use Classification of Landscape Species, published by the University of California Cooperative Extension, the Department of Water Resources 2014.

(Ord. 900 § 1, 2016)

Appendix B
Water-Efficient Landscaping Ordinance
Chapter 18.52
Water Efficient Landscape Worksheet

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

Reference Evapotranspiration (Eto) _____

Hydrozone # /Planting Description ^a	Plant Factor (PF)	Irrigation Method ^b	Irrigation Efficiency (IE) ^c	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF x Area	Estimated Total Water Use (ETWU) ^e
Regular Landscape Areas							
				Totals	(A)	(B)	
Special Landscape Areas							
				1			
				1			
				1			
				Totals	(C)	(D)	
						ETWU Total	
						Maximum Applied Water Allowance (MAWA)^e	

^aHydrozone #/Planting Description

E.g

1.) front lawn

2.) low water use plantings

3.) medium water use planting

^bIrrigation Method

overhead spray

head or drip

^cIrrigation Efficiency

0.75 for spray

0.81 for drip

^dETWU (Annual Gallons Required) = Eto x

0.62 x ETAF x Area

where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

^eMAWA (Annual Gallons Allowed) = (Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]

where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	(B)
Total Area	(A)
Average ETAF	B ÷ A

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

All Landscape Areas

Total ETAF x Area	(B+D)
Total Area	(A+C)
Sitewide ETAF	(B+D) ÷ (A+C)

(Ord. 900 § 1, 2016)

Appendix C
Water-Efficient Landscaping Ordinance
Chapter 18.52
Certificate of Compliance: Landscape Design Sheet

[Note: the Certificate of Compliance: Landscape Design Sheet used by the zoning administrator shall be in substantially the following form.]

Project Name: _____ Project Address/ Parcel No.: _____
Applicant Name: _____ Applicant Address: _____

Landscape and Irrigation Plans Includes the Following:

- Identify each hydrozone by number, letter or other method.
- Identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation.
- Identify recreational areas, areas permanently and solely dedicated to edible plants, and areas irrigated with recycle water.
- Identify special landscape areas.
- Identify plants by their common and botanical names.
- Identify type of mulch and application depth.
- Identify soil amendments, type and quantity.
- Identify type and surface area of water features.
- Show the location and size of the landscape irrigation water meter.
- Show the location, type and size of all components of the irrigation system, including, but not limited to, controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices.
- Identify hardscapes (pervious and non-pervious)
- Identify location, installation details, and 24-hour retention or infiltration capacity of any applicable storm-water best management practices that encourage on-site retention and infiltration of stormwater.
- Identify any applicable graywater discharge piping, system components and area(s) of distribution.
- Identify the static water pressure at the point of connection to the public water supply.
- Identify the flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station.

Project Area Measurements (irrigated)

Total turf area: _____ square feet

Total non-turf landscape area: _____ square feet

Total water feature area: _____ square feet

Landscape Design Requirements:

- The plan shall protect and preserve native species and natural vegetation.
- Plants selected shall be appropriate to the area's climate suitability and the site's soil conditions.
- Select water-conserving plants, trees and turf species, especially local native plants.
- Select plants from applicable local Fuel Modification Plan Guidelines (particularly to avoid fire-prone plant materials and highly flammable mulches).
- The proposed landscape shall be designed so that distinct hydrozones are irrigated separately by one or more irrigation valves. Refer to the WUCOLS report for plant water needs. (See definitions at PHMC 18.52.020, water efficient landscape.)
- Plants shall be spaced appropriately based on their expected mature spread.
- If the geometry of the planting area does not conform to the spray pattern of the sprinkler, resulting in over-spray onto the adjacent pavement, then overhead irrigation shall not be used.

- Plants shall be spaced so that at mature size they do not block sprinklers.
- Turf shall not be planted on slopes steeper than 25%.
- Turf shall not be planted in any medians or in areas narrower than 10'0" unless an alternative irrigation method, that does not incorporate overhead irrigation, is provided that does not result in overspray of adjacent surfaces or allow excessive evaporation prior to plant material utilization.
- Plants selected shall emphasize water and energy efficiency; color, form and pattern; solar access for solar heat gain of buildings in winter and to allow photovoltaic (PV) facilities and plant shading for buildings in summer; reduction of the heat island effect, particularly in parking lots and on roadways; soil retention; and fire resistance. The overall landscape plan must be integrated into all elements of the project, including but not limited to buildings, structures, parking lots and streets, so as to achieve a desirable microclimate and to minimize energy demands.
- Use the Sunset Western Climate Zone system, recognize the horticultural attributes of plants to minimize damage to property or infrastructure, allow for adequate soil volume for healthy root growth.
- High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians.
- At least 90% of the plants selected for planting in non-turf areas shall be drought resistant and require minimal water once established.
- Plants selected shall be spaced so that, at maturity, they do not interfere with visibility of vehicular, bicycle or pedestrian traffic; do not conflict with overhead utility lines, overhead lights or walkway lights; and do not block or interfere with pedestrian or bicycle right-of-way.
- Planting areas shall be a minimum of three feet wide, excluding curbs or other hardscape, except for turf areas (turf shall not be planted in any medians or in areas narrower than 10'0" unless an alternative irrigation method, that does not incorporate overhead irrigation, is provided that does not result in overspray of adjacent surfaces or allow excessive evaporation prior to plant material utilization) and planter fixtures.
- When shrub groupings are proposed without plant groundcover, the shrubs shall be spaced so that at maturity, they cover at least 90 percent of the landscaped area in which they are placed.
- Deciduous trees proposed shall be planted 20' to 40' apart on the south and west sides of buildings to maximize energy efficiency.
- A minimum of 30% of all hardscape areas (including parking lots) shall be naturally shaded in the summer when plants are at maturity. Shading of 50% of the hardscape areas is preferred if feasible.
- All water features shall have re-circulating water systems.
- Water fountain(s) shall be designed so that no wind drift or overspray occurs.
- Recycled water shall be used as the source for decorative water features, where available.
- Swimming pools are not considered water features pursuant to this ordinance and are not subject to the requirements of this section.
- Comply with Storm Water Control Plan requirements (C.3), if applicable.
- Improve or maintain the infiltration rate of landscape soils typical of their soil texture and minimize soil erosion.
- Avoid drainage onto non-permeable hardscapes within the property lines and prevent runoff of all irrigation and natural rainfall outside property lines.
- The use of crushed rock or gravel to serve as landscaping for large area coverage shall be avoided, except for walkways.
- The use of invasive plant species, such as those listed by the California Invasive Plant Council, is strongly discouraged.

Soil preparation, mulch and amendments (Landscape):

- Only specify soil amendments if appropriate for the selected plants.
- Specify a minimum three-inch layer of mulch which shall be applied on all exposed soil surfaces of planting areas unless there is a horticultural reason not to use mulch in a portion of the planting area. Mulch, such as shredded bark, shall be specified in bioretention areas so that they will stay in place during rain events.
- Soil sampling shall be submitted to a laboratory for analysis and recommendations and in projects with multiple landscape installations (ie. residential subdivisions) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement, and is required to include:

- a. Soil texture;
 - b. Infiltration rate determined by the laboratory test or soil texture infiltration rate table;
 - c. pH;
 - d. Total soluble salts;
 - e. Sodium;
 - f. Percent organic matter; and
 - g. Recommendations
- Prior to the planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need meet this requirement.
 - Soil amendments shall be incorporated according to recommendations of soil report and what is appropriate for the plants selected.
 - For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top 6 inches of soil are exempt from adding compost and tilling.
 - Specify a minimum three-inch layer of mulch which shall be applied on all exposed soil surfaces of planting areas unless there is a horticultural reason not to use mulch in a portion of the planting area. To provide habitat for beneficial insects and other wildlife, up to 5% of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.
 - Mulch, such as shredded bark, shall be specified in bioretention and on slope areas so that they will stay in place during rain events and meet current engineering standards.
 - Organic mulch materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless the recycle post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.

Stormwater Management and Rainwater Retention

- Comply with storm water control plan requirements (C.3), if applicable.
- Improve or maintain the infiltration rate of landscape soils typical of their soil texture and minimize soil erosion.
- Avoid drainage onto non-permeable hardscapes within the property lines and prevent runoff of all irrigation and natural rainfall outside property lines.
- All planted landscape areas are required to have friable soil to maximize water retention and infiltration.
- It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from either: the one inch, 24-hour rain event or (2) the 85th percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.
- It is recommended that storm water projects incorporate any of the following elements to improve on-site storm water and dry weather runoff capture and use:
 - i. Grade impervious surfaces, such as driveways, during construction to drain to vegetated areas.
 - ii. Minimize the area of impervious surfaces such as paved areas, roof and concrete driveways.
 - iii. Incorporate pervious or porous surfaces (e.g., gravel, permeable pavers or blocks, pervious or porous concrete) that minimize runoff.
 - iv. Direct runoff from paved surfaces and roof areas into planting beds or landscaped areas to maximize site water capture and reuse.
 - v. Incorporate rain gardens, cisterns, and other rain harvesting or catchment systems.
 - vi. Incorporate infiltration beds, swales, basins and drywells to capture storm water and dry weather runoff and increase percolation into the soil.
 - vii. Consider constructed wetlands and ponds that retain water, equalize excess flow, and filter pollutants.

Landscape Irrigation Requirements:

- Smart irrigation controller(s) using one of the below methods shall be required on all irrigation systems:
 - i. Daily evapotranspiration data utilizing non-volatile memory.

- ii. Daily soil moisture sensor data utilizing non-volatile memory.
- A landscape water meter, defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential irrigated landscapes of 1,000 square feet but not more than 5,000 square feet or greater.
- The installation of recycled water irrigation systems shall allow for the current and future use of recycled water. Recycled water shall be used for landscape irrigation if it is available at the project site.
- Specify technology and practices to prevent runoff, low head drainage, overspray, or other water waste.
- Overhead irrigation shall not be permitted within 12" of any impervious surface (walkways, driveways, etc.).
- Specify sprinkler heads and other emission devices that have matched precipitation rates within each irrigation zone. No irrigation zone shall specify a precipitation rate greater than 1.2 inches per hour. On slopes steeper than 25%, the specified application rate shall not exceed 0.75 inches per hour.
- Specify irrigation controls so the dynamic water pressure at sprinkler head or other emission device is within manufacturer's recommended optimal operating range. If the water pressure is below or exceeds the recommended pressure of the specified irrigation device, the installation of a pressure regulating device is required.
- Flow sensors that detect high flow conditions created by system damage or malfunction are required for all non-residential landscapes and residential landscape of 5,000 square feet or larger.
- No overhead irrigation shall be specified in planting areas less than 10'0" wide in any dimension.
- Sensors, 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 be avoided during windy or freezing weather or during rain.
- Specify a manual shut-off valve for each point of connection and specify that each shut-off valve be identified on the controller map.
- Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.
- Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- Prepare a controller map and programming table and specify that this be stored in the controller cabinet. The controller map shall visually differentiate each controller zone. For each irrigation valve, the controller programming table shall list the plant water requirement (high, medium, low, or very low), the sun exposure, irrigation emission device type, precipitation rate, station flow rate, optimal pressure, soil type, infiltration rate, square foot area, and degree of slope.
- Each irrigation valve shall control irrigation to only one distinct hydrozone. A hydrozone is an area with similar sun exposure, irrigation precipitation rate, soil conditions, slope, and plant material with similar water needs. Refer to the WUCOLS report for plant water needs.
- Trees shall be placed on separate valves from shrubs, groundcovers, and turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.
- Specify a separate irrigation valve and hydrozone for the top of a slope and the bottom of a slope.
- All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard. American Society of Agricultural and Biological Engineers/International Code Councils (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard," All sprinkler heads installed in the landscape must document a distribution uniformity low quarter 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

I/we certify that the landscape plans for the above-listed project comply with the Water-Efficient Landscape Standards and Landscape Plan Requirements of the City of Pleasant Hill Water-Efficient Landscape Ordinance.

Designer's Name

Company Name

Date

Address

Telephone

Professional
Stamp

Email

Professional License Number

(Ord. 900 § 1, 2016)

Appendix D
 Water-Efficient Landscaping Ordinance
 Chapter 18.52
Certificate of Compliance: Landscape Installation Sheet

[Note: the Certificate of Compliance: Landscape Installation Sheet used by the zoning administrator shall be in substantially the following form.]

Project Name: _____ Project Address/ Parcel No.: _____
 Applicant Name: _____ Applicant Address: _____

- Installed Project Area Measurements match those of the Landscape Design and Irrigation Plans.
- Plant material is the same as that specified in the plans and any substitutes are determined to be equivalent or less in water need, per Water Use Classification of Landscape Species (WUCOLS).
- Installation incorporates most recent acceptable best management practices for water-efficient landscape design.
- Any plant substitutes used are well suited to the local climate and soil conditions.
- All plants are located per the design plans.
- Plants selected shall be spaced so that, at maturity, they do not interfere with visibility of vehicular, bicycle or pedestrian traffic; do not conflict with overhead utility lines, overhead lights or walkway lights; and do not block or interfere with pedestrian or bicycle right-of-way.
- Irrigation hydrozones are the same as plans and any field-adjusted irrigation zones were installed so that distinct hydrozones are irrigated separately by one or more irrigation valves.
- All irrigation equipment is the same as specified, and any substitutes are equivalent.
- Point of connection (POC) is the same as specified in plans.
- Installation complies with Storm Water Control Plan requirements.
- Installation work minimized any soil erosion and maintained or improved the landscape soil's infiltration rate.
- A minimum of 3 inches of mulch was applied to all exposed soil surfaces in non-turf planting areas.

I/we certify that the landscape has been installed as specified in the landscape plans for the above-listed project to comply with the Water-Efficient Landscape Standards and Landscape Plan Requirements of the City of Pleasant Hill Water-Efficient Landscape Ordinance.

Owner/Resident's Name <i>(Individual single-family project)</i>	Signature	Date
Installer's Name <i>(All other projects)</i>	Company Name	Date
Address	Telephone	Professional Stamp
Email	Professional License Number	

(Ord. 900 § 1, 2016)

Appendix E
Water-Efficient Landscaping Ordinance
Chapter 18.52
Certificate of Compliance: Landscape Maintenance Sheet

[Note: the Certificate of Compliance: Landscape Maintenance Sheet used by the zoning administrator shall be in substantially the following form.]

Project Name: _____ Project Address/ Parcel No.: _____
Applicant Name: _____ Applicant Address: _____

Landscape Maintenance Schedule Requirements:

- The annual landscape maintenance schedule shall include the following:
 - Routine inspection;
 - Adjustment and repair of the irrigation system and its components;
 - Aerating turf areas;
 - Replenishing mulch;
 - Seasonal pruning;
 - Weeding in all landscape areas; and
 - Removing obstructions to emission devices.
- Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
- Project shall be irrigated so that total annual water applied is less than or equal to the maximum applied water allowance (MAWA), if applicable.
- A diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent purposes.

Landscape Maintenance Requirements:

- Maintenance practices incorporate most recent acceptable best management practices for water-efficient landscape maintenance.
- Plants selected for replanting are well-suited to the local climate and soil conditions.
- Plants for replanting are spaced appropriately based on their expected mature size.
- Any changes to overhead irrigation do not result in overspray.
- Replacement plants are spaced so at mature size they do not block sprinklers.
- Repair of all irrigation equipment shall be done with the originally installed components or their equivalents or with components with greater efficiency.
- Changes to irrigation system or plant material shall maintain distinct hydrozones that are irrigated separately by one or more irrigation valves.
- Any irrigation change shall not be connected to the domestic meter.
- Maintenance practices are incorporated to prevent run-off, low head drainage, and overspray.
- No overhead irrigation can be moved within 12 inches of any non-permeable surface (walkways, driveway, etc.).
- Specify sprinkler heads and other emission devices that have matched precipitation rates within each irrigation zone. No irrigation zone shall specify a precipitation rate greater than 1.2 inches per hour. On slopes steeper than 25%, the specified precipitation rate shall not exceed 0.75 inches per hour.
- Manual shutoff valves are maintained at each point of connection.
- A copy of the controller map(s) and programming table(s) are kept in all irrigation controller cabinets.
- Separate irrigation valves and hydrozones are maintained for the top of a slope and bottom of a slope.
- Re-circulation system(s) is maintained for all water features.
- Fountain(s) and their nozzles are maintained so that no wind drift or overspray will occur.
- Maintenance practices comply with Storm Water Control Plan requirements (C.3), if applicable.

- Infiltration rates for site's landscape soils are maintained or improved with site maintenance practices.
- Site is maintained to avoid drainage onto non-permeable hardscapes within the project and prevent run-off of irrigation and rainfall outside property lines.
- Only use soil amendments that are appropriate for any replacement plants.
- Maintain a minimum of 3 inches of mulch for all exposed soil surfaces in non-turf planting areas.
- The use of crushed rock or gravel to serve as landscaping for large area coverage shall be avoided, except for walkways.

I/we certify that the landscape has been installed as specified in the landscape plans for the above-listed project to comply with the Water-Efficient Landscape Standards and Landscape Plan Requirements of the City of Pleasant Hill Water-Efficient Landscape Ordinance.

 Owner/Resident's Name
(Individual single-family project)

 Signature

 Date

 Designer's Name
(All other projects)

 Company Name

 Date

 Address

 Telephone

Professional Stamp

 Email

 Professional License Number

(Ord. 900 § 1, 2016)

Appendix F
Water-Efficient Landscaping Ordinance
Chapter 18.52
Prescriptive Compliance

[Note: the Prescriptive Compliance sheet used by the zoning administrator shall be in substantially the following form.]

This appendix contains prescriptive requirements which may be used as a compliance option to the Model Water Efficient Landscape Ordinance.

Compliance with the following items is mandatory and must be documented on a landscape plan in order to use the prescriptive compliance option:

A. Submit a Landscape Documentation Package which includes the following elements:

1. Date
2. Project applicant
3. Project address (if available, parcel and/or lot number(s))
4. Total landscape area (square feet), including a breakdown of turf and plant material
5. Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
6. Water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well
7. Contact information for the project applicant and property owner
8. Applicant signature and date with statement, "I agree to comply with the requirements of the prescriptive compliance option to the MWELO".

B. Incorporate compost at a rate of at least four cubic yards per 1,000 square feet to a depth of six inches into landscape area (unless contra-indicated by a soil test);

C. Plant material shall comply with all of the following;

1. For residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 75% of the plant area excluding edibles and areas using recycled water; For non-residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 100% of the plant area excluding edibles and areas using recycled water;
2. A minimum three inch (3") 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.

D. Turf shall comply with all of the following:

1. Turf shall not exceed 25% of the landscape area in residential areas, and there shall be no turf in non-residential areas;
2. Turf shall not be planted on sloped areas which exceed a slope of 1 foot vertical elevation change for every 4 feet of horizontal length;
3. Turf is prohibited in parkways less than 10 feet wide, unless the parkway is adjacent to a parking strip and used to enter and exit vehicles. Any turf in parkways must be irrigated by subsurface irrigation or by other technology that creates no overspray or runoff.

- E. Irrigation systems shall comply with the following:
1. Automatic irrigation controllers are required and must use evapotranspiration or soil moisture sensor data and utilize a rain sensor.
 2. Irrigation controllers shall be of a type which does not lose programming data in the event the primary power source is interrupted.
 3. Pressure regulators shall be installed on the irrigation system to ensure the dynamic pressure of the system is within the manufacturers recommended pressure range.
 4. Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be installed as close as possible to the point of connection of the water supply.
 5. All irrigation emission devices must meet the requirements set in the ANSI standard, ASABE/ICC 802-2014. "Landscape Irrigation Sprinkler and Emitter Standard." All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
 6. Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.
- F. For non-residential projects with landscape areas of 1,000 sq. ft. or more, a private submeter(s) to measure landscape water use shall be installed.
- G. At the time of final inspection, the permit applicant must provide the owner of the property with a certificate of completion, certificate of installation, irrigation schedule and a schedule of landscape and irrigation maintenance.

(Ord. 900 § 1, 2016)