



Graywater Update

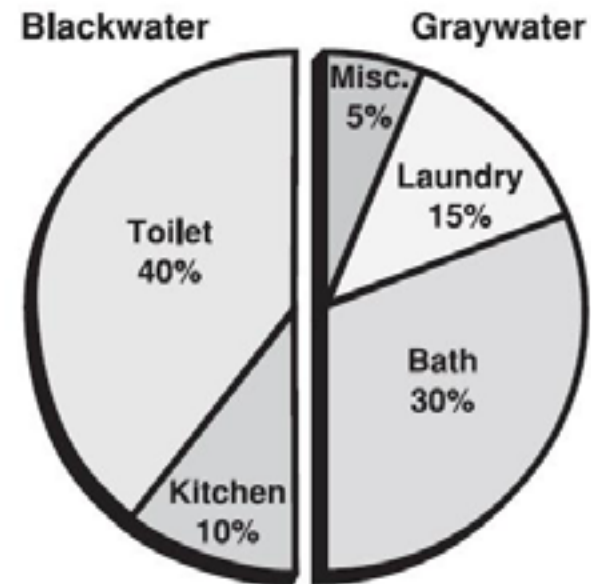
Resource Management
Commission

April 19, 2016

Robert Stefani
Conservation Program Specialist
Austin Water

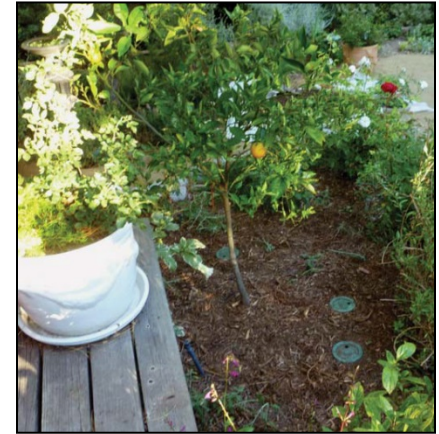
What is Graywater?

- Untreated wastewater from bathtubs, showers, lavatories and laundry
- Benefits:
 - Potential savings of 40-90 gpd
 - Sustainable onsite water reuse
 - Reduces pressure on wastewater infrastructure
 - Reliable source for irrigation during drought



System types

- Laundry to Landscape
- Branched drain
- Gravity fed
- Pressurized



Graywater History

- TAC 210 Subchapter F adopted in 2005
- 2009 UPC Local Amendments
- 2012 Graywater Working Group
- 2012 UPC Local Amendments
- 2014 Austin Water Auxiliary Water Code Revisions Consultant Contract
- 2014 revisions to 2012 UPC Local Amendments
- 2015 House Bill 1902

Regulatory requirements

- TCEQ Regulations (TAC Chapter 210, Subchapter F)
 - Connected to public wastewater system
 - Approval not required for domestic use under 400 gal/day
 - Originates from a private residence
 - Diversion to wastewater system
 - Tanks labeled, access restricted, pest habitat eliminated, cleanable
 - Does not create a nuisance or damage water quality
- City of Austin Regulations (2012 UPC Chapter 16 & City Code §25-12-153)
 - Level, sturdy, durable tank
 - Connections to drain or sewer
 - Non-potable labeling & coloring
 - Subsurface, subsoil and mulch basin irrigation
 - Backflow protection required for pressurized systems

Permit requirements

- Required for all graywater systems
- Homestead permit available for Laundry to Landscape Systems
- New Auxiliary Water Permit sub-work type available



Auxiliary Water System Permit Application
Special Services Division 3907 South Industrial Drive, Suite 100, Austin, TX 78744
 (512) 972-1060 www.austintexas.gov/department/special-services-division
AWUCrossConnection@austintexas.gov

Property Address:		Zip Code:
Contact Name:		Phone Number: ()
Mailing Address:		
City:	State:	Zip Code:
Email:		

Type of Auxiliary Water on site (check all that apply):		
<input type="checkbox"/> Condensate	<input type="checkbox"/> Gray Water	<input type="checkbox"/> Ground Water
<input type="checkbox"/> Lake/River	<input type="checkbox"/> Reclaimed	<input type="checkbox"/> Rainwater
<input type="checkbox"/> Re-Irrigation	<input type="checkbox"/> Spray Aerobic (OSSF)	<input type="checkbox"/> Well
<input type="checkbox"/> Other (please describe):		

Distribution Method (check one):		<input type="checkbox"/> Gravity	<input type="checkbox"/> Pumped
Does the Auxiliary Water enter the building?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is potable water used for makeup?		<input type="checkbox"/> Yes	<input type="checkbox"/> No

Usage (check all that apply):			
<input type="checkbox"/> Car Wash	<input type="checkbox"/> Cooling Tower	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Toilet/Urinal Flushing
<input type="checkbox"/> Trap Primer	<input type="checkbox"/> Process Water	<input type="checkbox"/> Water Feature	
<input type="checkbox"/> Other (please describe):			

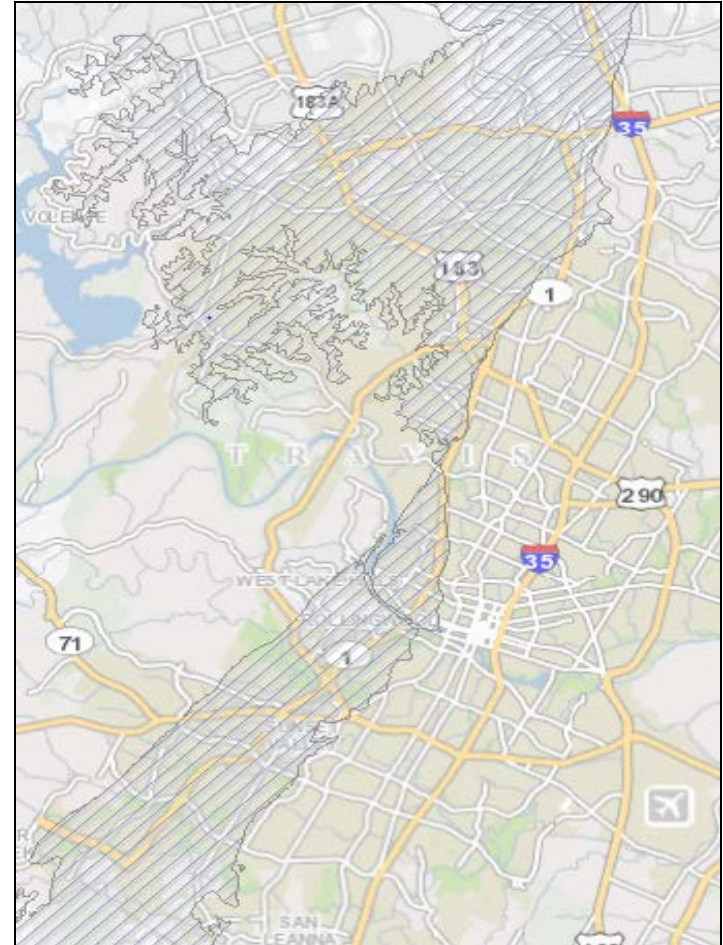
Print Name: _____ Date: _____

Signature: _____

FOR OFFICE USE ONLY	
Received by:	Date:
Entered by:	Date:
Status:	<input type="checkbox"/> Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Withdrawn
Notes:	

Prohibited Locations

- 1602.6 Prohibited Location:
 - Where there is insufficient lot area or inappropriate soil conditions for adequate absorption to prevent the ponding, surfacing, or runoff of the graywater.
 - A graywater system is not permitted in the Edwards Aquifer Recharge Zone or in any other geologically sensitive area.



Setback requirements

- Main concerns related to structures, adjoining property, septic tanks, and potable water lines
- Measured from system to structure
- Could be greater due to special hazards and circumstances

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SURGE TANK (feet)	SUBSURFACE AND SUBSOIL IRRIGATION FIELD AND MULCH BED (feet)
Building structures ¹	5 ^{2,9}	2 ^{3,8}
Property line adjoining private property	5	5 ⁸
Water supply wells ⁴	50	100
Sewage pits or cesspools	5	5
Sewage disposal field ¹⁰	5	4 ⁶
Septic tank	0	5
On-site domestic water service line	5	5
Pressurized public water main	10	10

Graywater Looking Forward

- HB 1902 TCEQ TAC rule making
- Potential Plumbing Code adjustments
- Austin specific guidance under development
- NWRI onsite water treatment standards



Graywater Resources

- Austin Water Conservation Division – (512) 974-2199
- Austin Water Special Services Division - (512) 972-1060
- City of Austin Permit Center – (512) 978-4000
- Austin Water's Graywater homepage –
(austintexas.org/departments/water-conservation)
- Oasis Designs* (oasisdesign.net)
- Greywater Action* (greywateraction.org)
- San Francisco Graywater Design Manual* (sfwater.org)

***Check with local regulations when referring to guidance not specific to Austin**



Questions?

Robert Stefani

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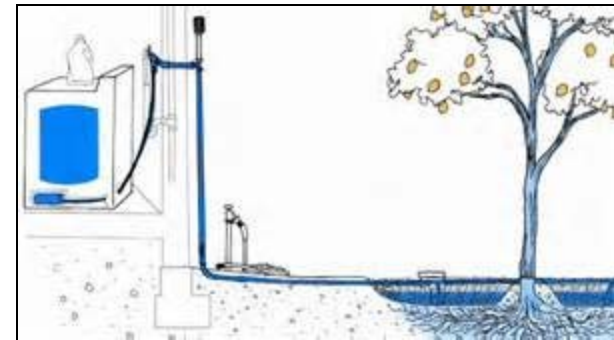
(512) 974-9302

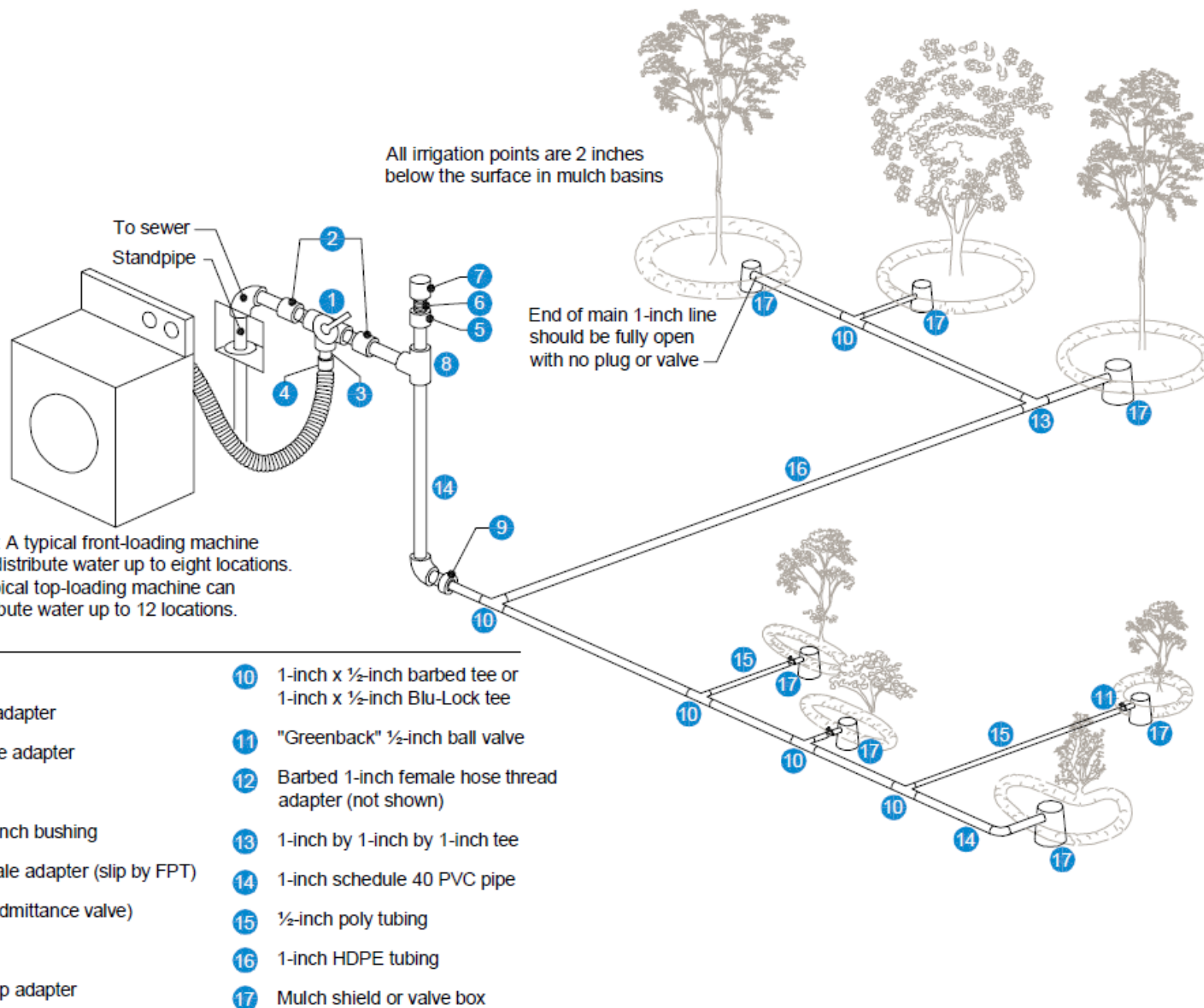
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Backup slides

Laundry to Landscape

- Simple design
- Single Source (Washing Machine)
- Low cost
- Tankless
- Homestead permit available
- Only available for private one and two family dwellings

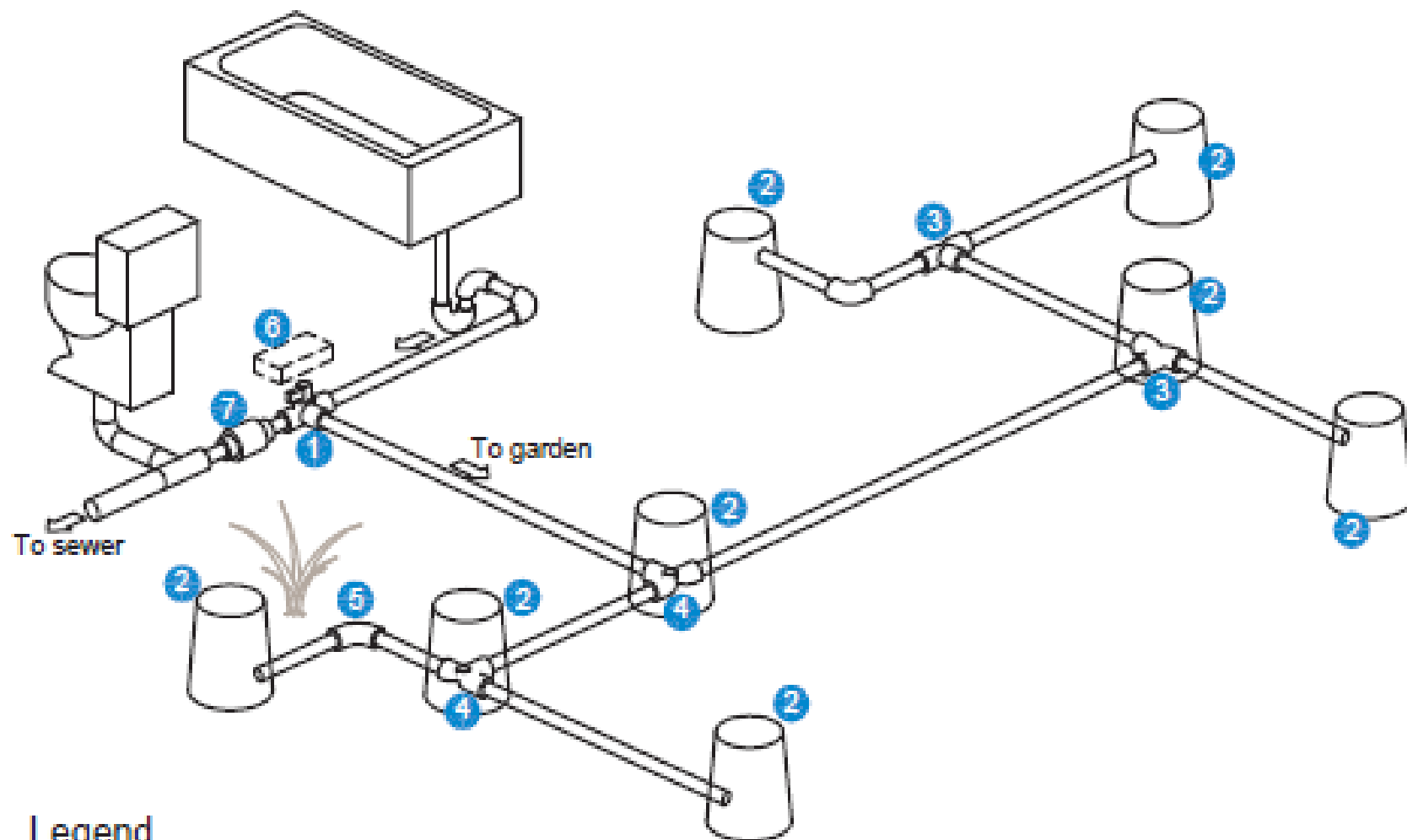




Branched

- Complex design
- Multiple sources
- Higher cost
- Requires a tank
- Requires professional design and installation
- Available for all dwellings and sectors
- Larger yield





Legend

- | | |
|--|----------------------------------|
| 1 3-way diverter valve | 5 1.5" or 2" long sweep 90° bend |
| 2 Small valve box or rigid plastic pot | 6 Optional 3-way valve actuator |
| 3 ABS 1.5" or 2" double ell (aka twin 90) | 7 Backwater valve |
| 4 ABS 1.5" or 2" double ell (aka twin 90) with inspection/clean-out port | |

Distribution methods

- End-use is an important consideration
- Graywater should not be allowed to pool or pond
- Three distribution methods available
 - Subsoil
 - Subsurface
 - Mulch Basin



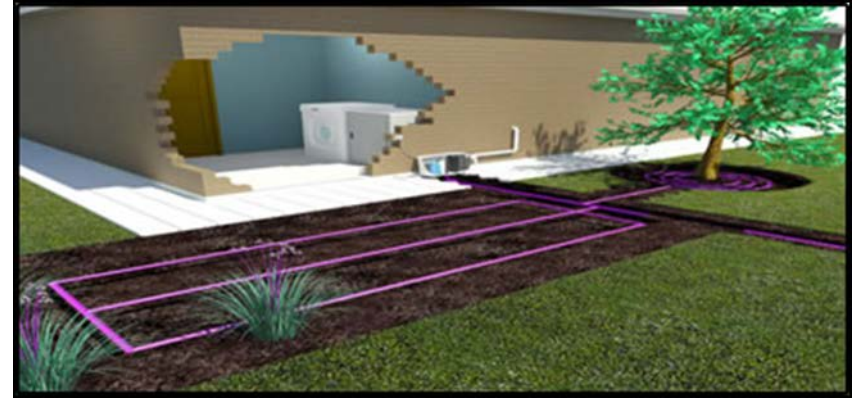
Subsoil

- Distribution piping not less than 3" in diameter
- Good choice for established shrubs
- 10" minimum distribution depth
- Single zone allowed
- Irrigation field requires sizing per soil type and distribution
- Available for all dwellings and sectors



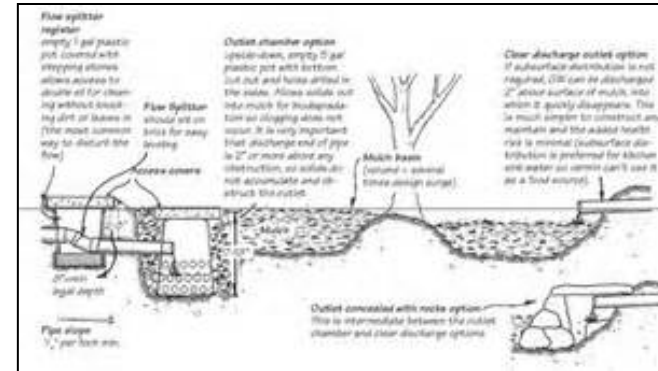
Subsurface

- 2" minimum distribution and supply line depth
- Best for planting beds or turf irrigation
- Single zone allowed
- Irrigation field requires sizing per soil type and distribution
- Available for all dwellings and sectors



Mulch Basin

- Only available for single family and multi-family dwellings
- Depth of basin not less than 10"
- Supply piping no less than 2" in diameter
- Good choice for larger established trees and shrubs
- Basin sizing dependent on soil type and distribution volume



Commercial Graywater Uses

- Commercial process use
- Cooling tower make up supply
- Toilet flushing
- Trap Primers
- Alternate uses can be approved by Plumbing Officials
- Treatment required for most non-irrigation uses



Surge Tanks

- Required for most systems
- Must have overflow connected to Sanitary Sewer System
- Constructed of a durable material
- Should not be stored for more than 24 hours
- Sized to accommodate peak flow

