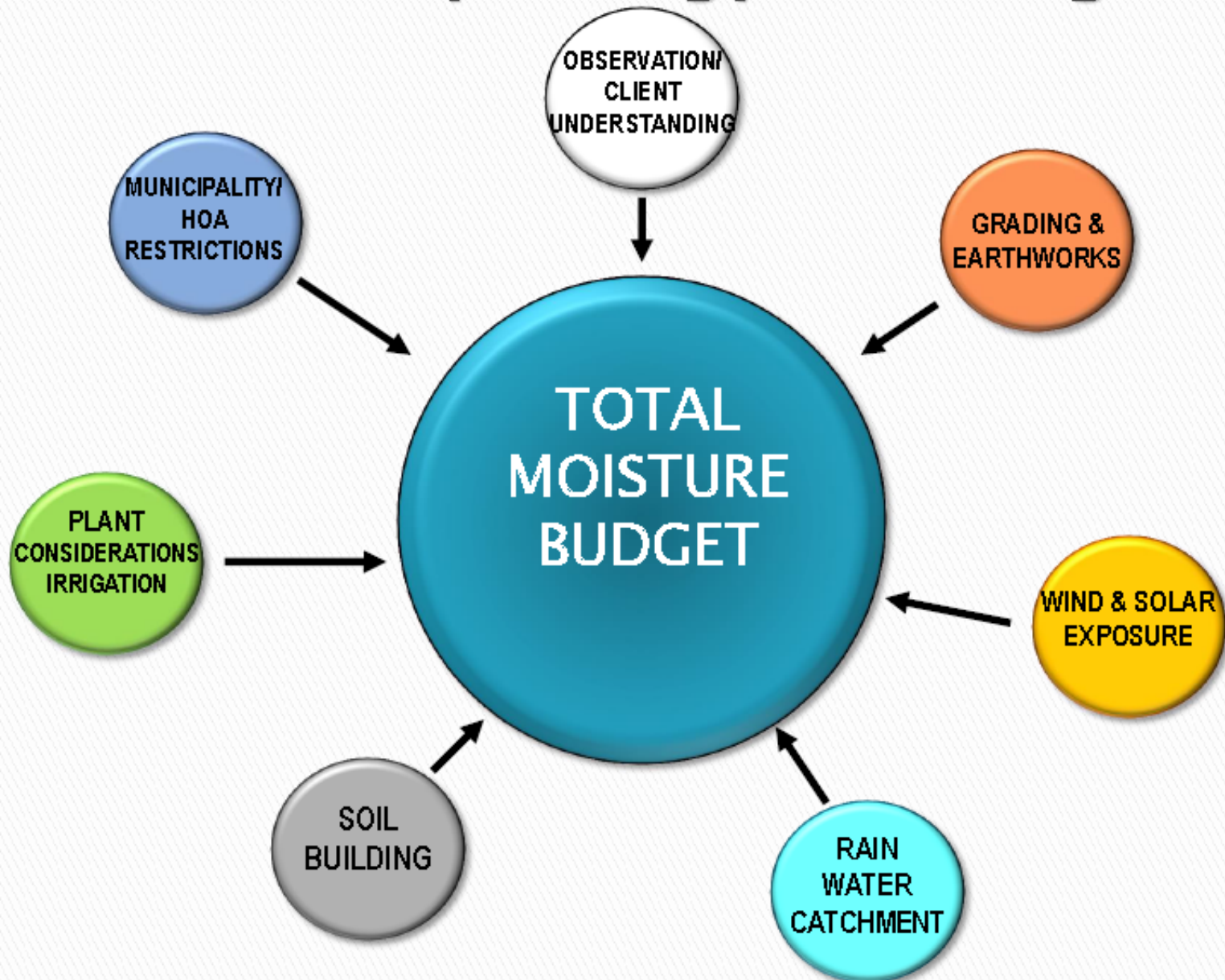


Rainwater Harvesting for Grow Green Professionals



Dick Peterson
www.DickPeterson.com

Total Hydrology Planning



Rainwater Harvesting Methods



Passive Catchment

Use finish grading and earthworks to manipulate water for the following reasons:

Absorb catchment overflow

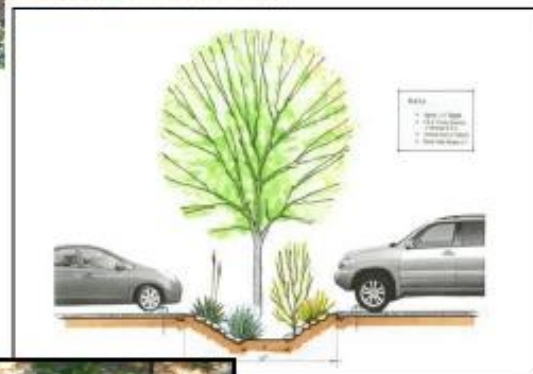
Slow, Spread & Sink stormwater into soil

Reduce offsite runoff & erosion

Reduce grey infrastructure, LID

Make available to plants & habitat

Self irrigating landscape



- * The cheapest way to get water back into the landscape. Not a significant ground water recharge strategy.



limited time latitude,
- more planning required

Rainwater Harvesting Methods



Active Catchment

Capture rain off roof or other surface.

Basic organic / particulate filtering

Store in tanks above or underground.

Filter options

(Pressurize?)

Delivery system



Maximum time latitude
-less planning

Storm water Run-off

Just how much?

- 1" of rain on 1 acre generates 27,000 gal. of water
- 1" of rain on a 20 x 50 mile heavily urbanized city will generate 17.4 billion gal. of water!
- 1" of rain on a 1,000 sq. ft. roof can STORE 600 gal. of water!

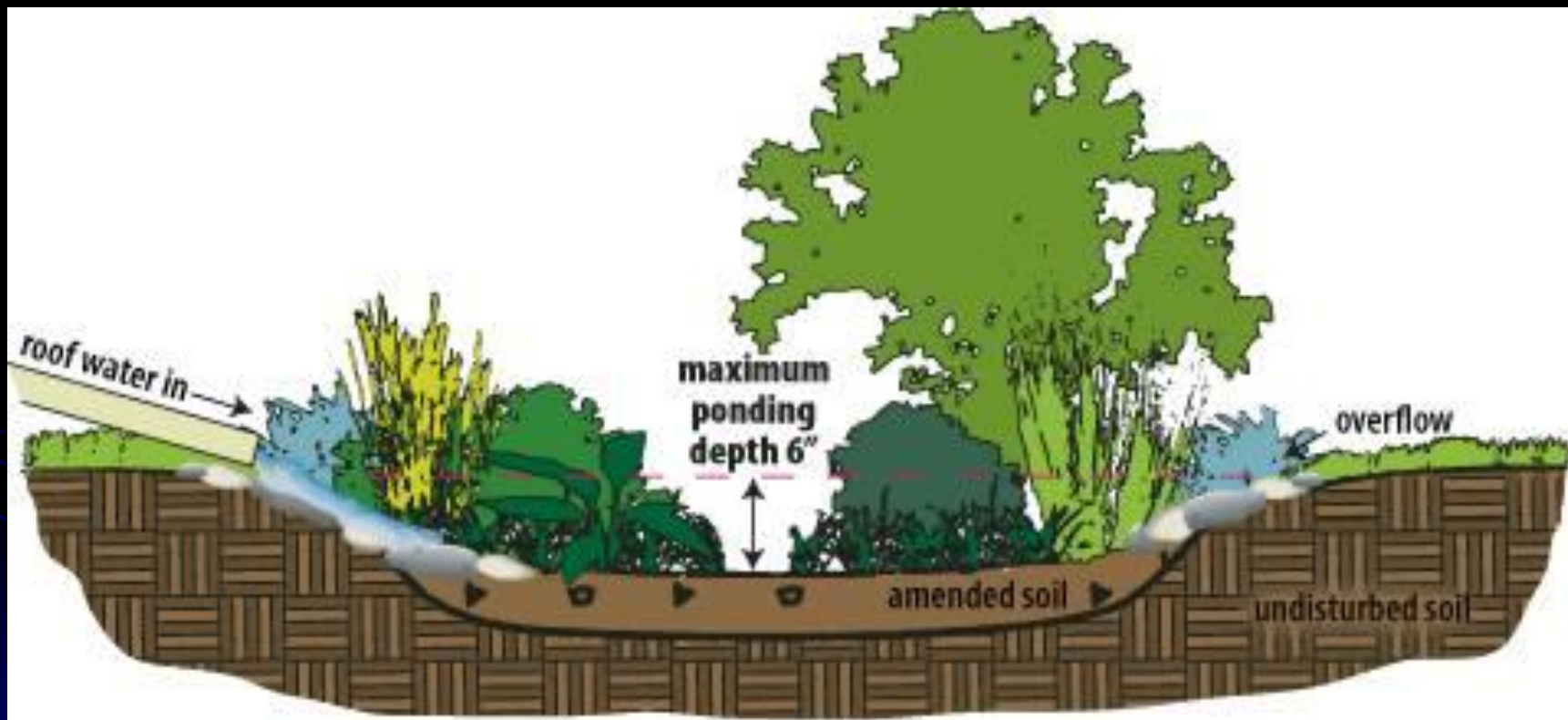
This...



or This?

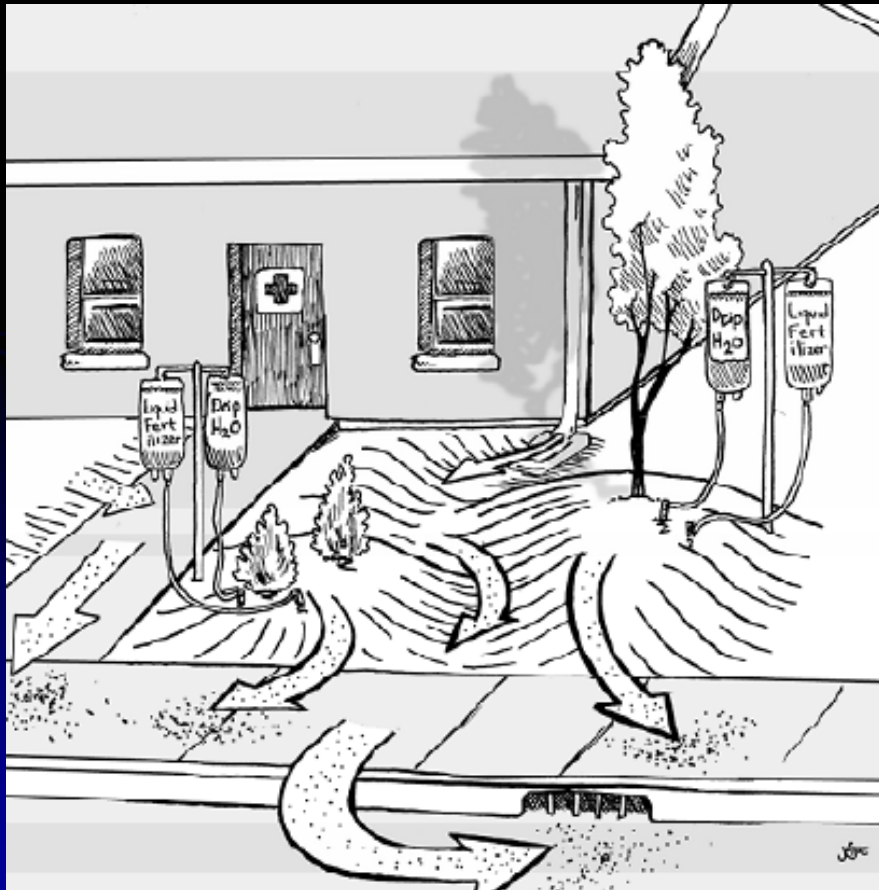


Green Solutions for Stormwater Runoff

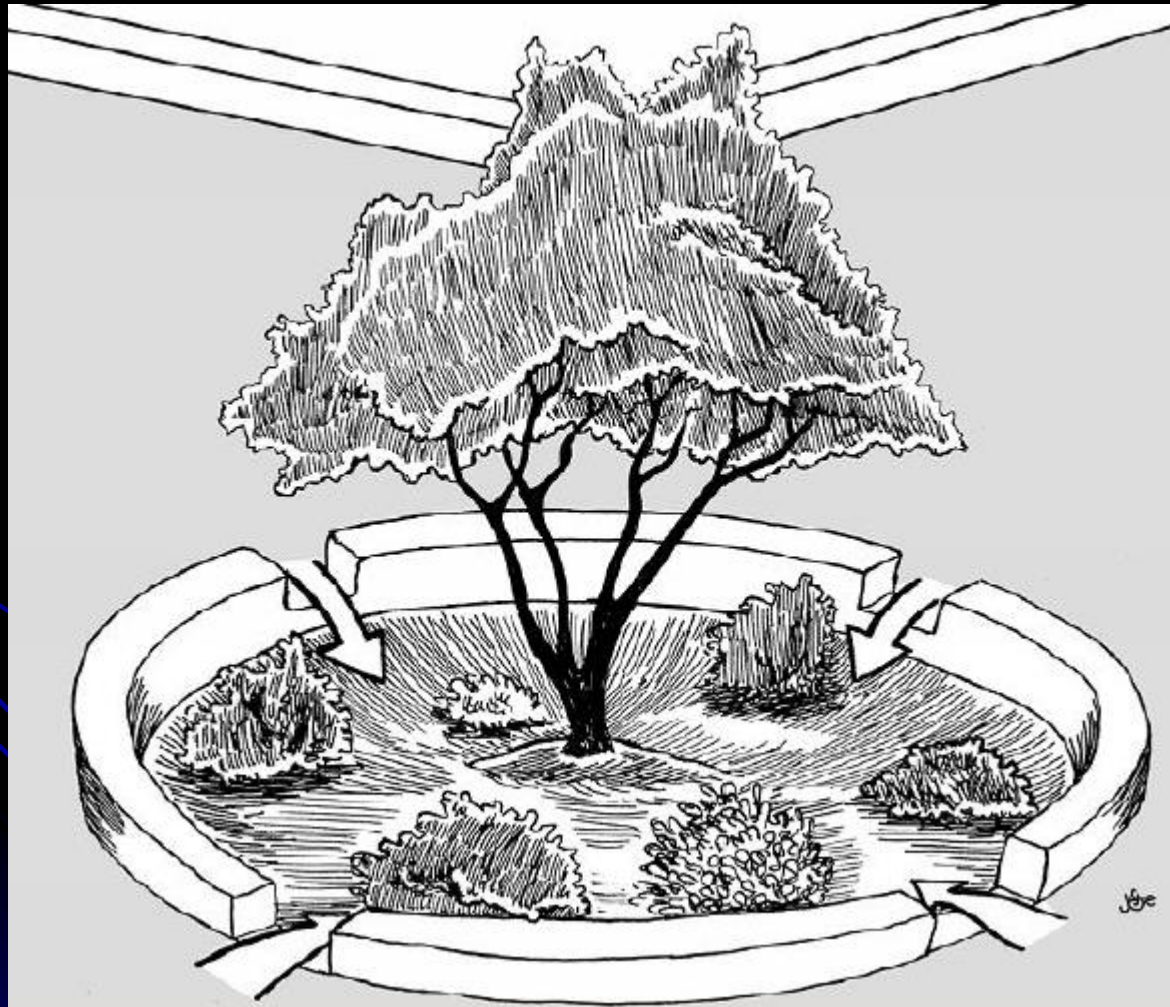


Green Solutions for Stormwater Runoff

Make runoff water take the LONG way to the river!
From Brad Lancaster's books, www.harvestingrainwater.com



Green Solutions for Stormwater Runoff



The Perfect Marriage of Two Effective Strategies



Rain Cisterns + Rain Gardens

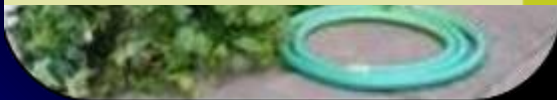
The Perfect Marriage of Two Effective Strategies



earth-wise guide to

Rain Gardens

Keeping Water on the Land

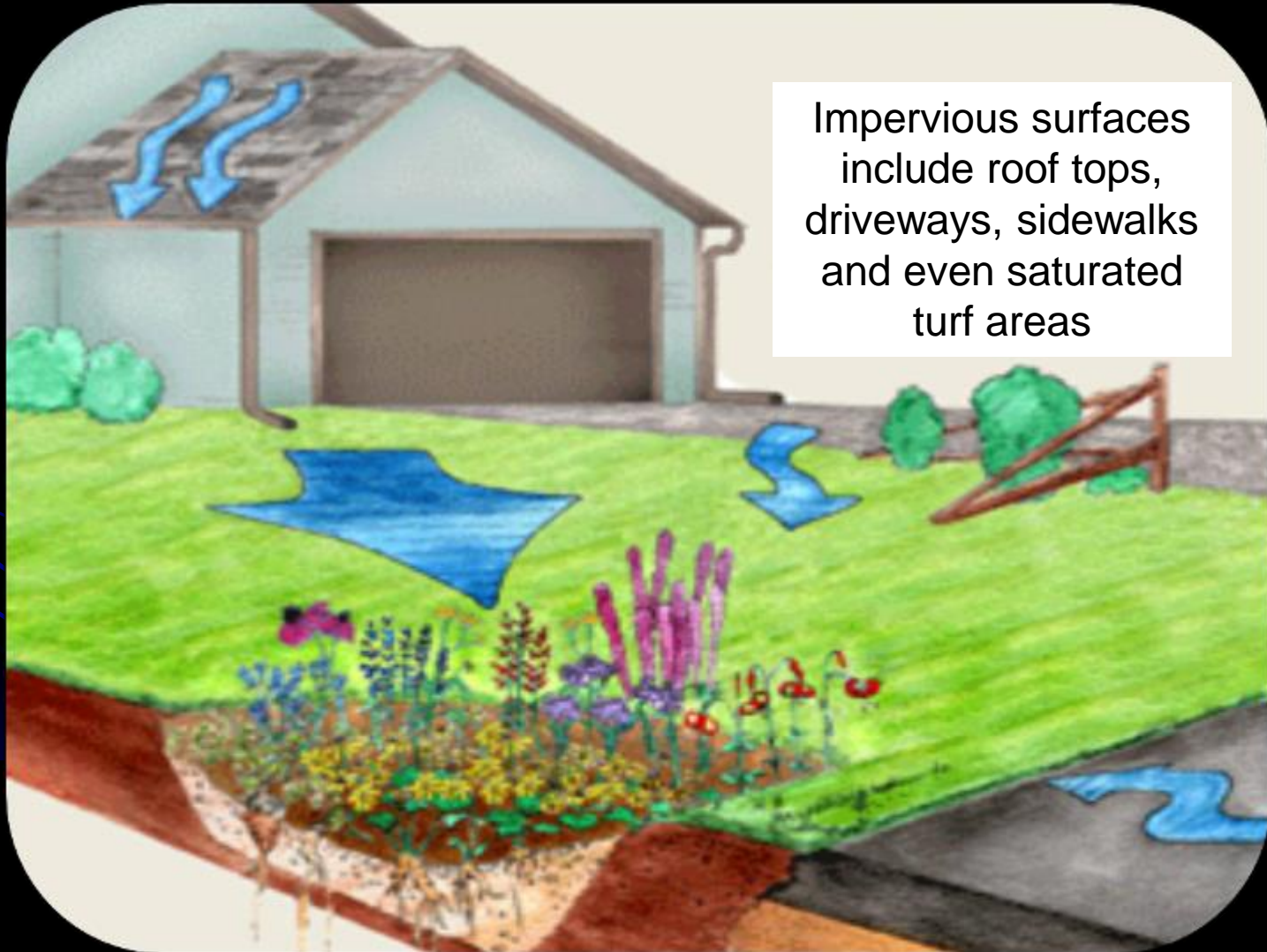


Rain Cisterns

+

Rain Gardens

Green Solutions for Stormwater Runoff



Impervious surfaces include roof tops, driveways, sidewalks and even saturated turf areas

Green Solutions for Stormwater Runoff



Tucson as you expect to see....



Tucson, 10 years later!



The Perfect Marriage of Two Effective Strategies



Rain Barrels

+

Ponds

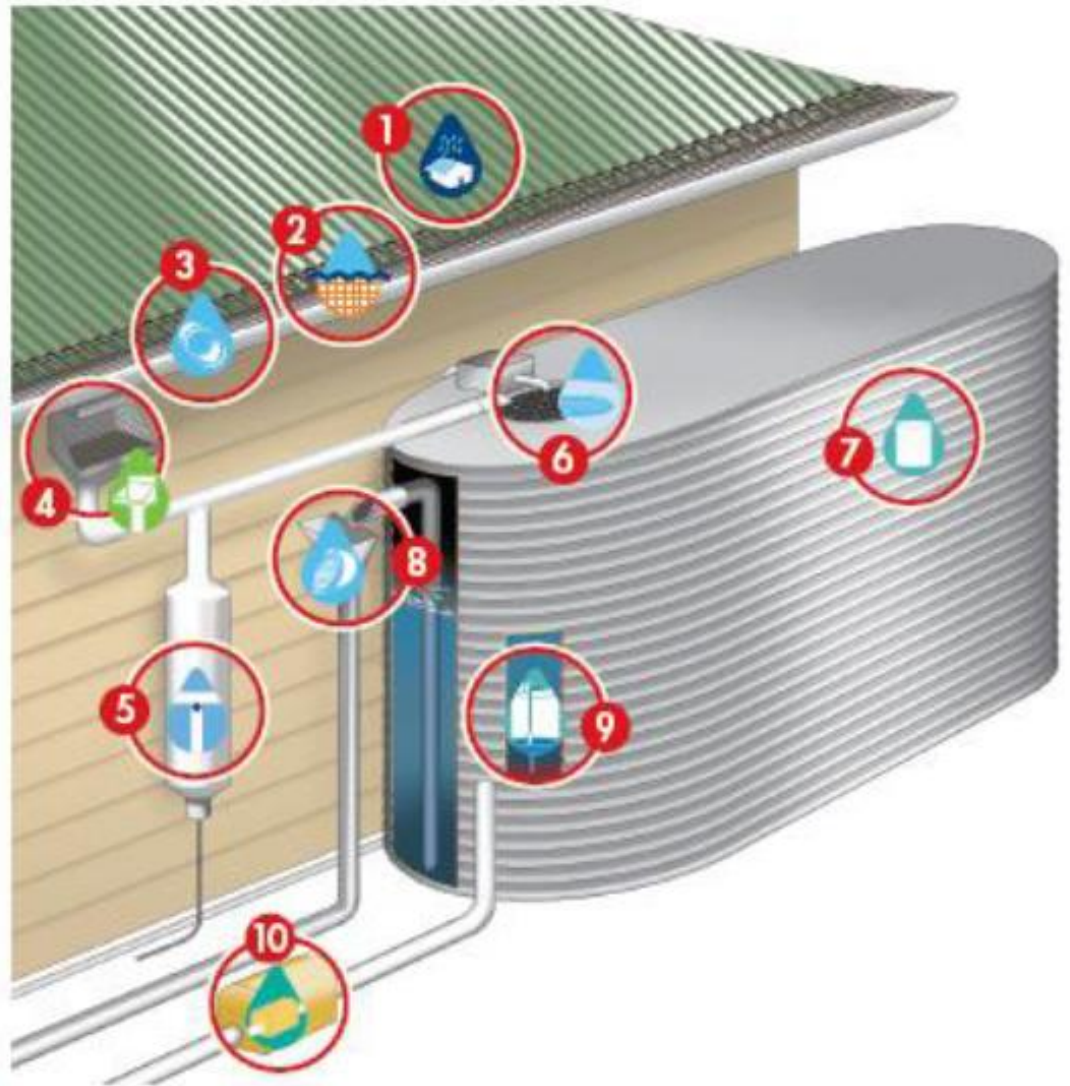
A 10' x 10' garden shed can collect
60 gallons in just a 1" rain



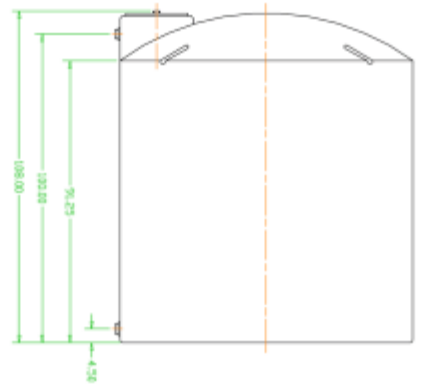
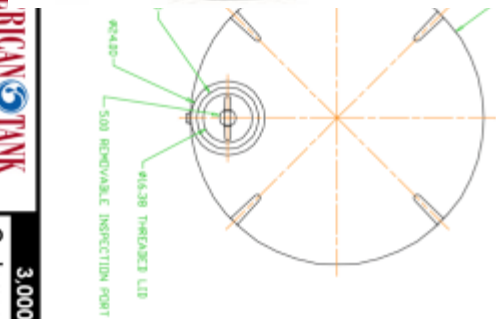
750 gallon fiberglass tank

Typical System

1. Rain
2. Mesh filter
3. Gutter
4. Leaf filter
5. Diverter
6. Filter
7. Storage tank
8. Output
9. Monitor
10. Pump



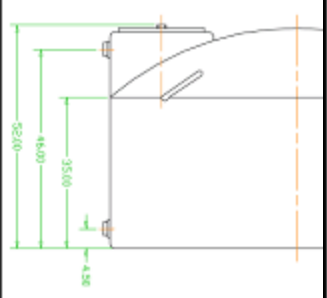
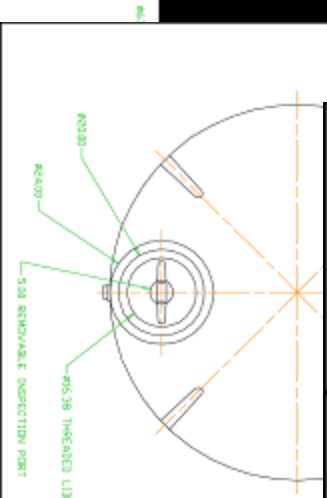
Tanks are available in many sizes and configurations



Product #: 005-040

AMERICAN TANK COMPANY, INC.
 (800) 455-9100 www.american-tank.com
 Customer: _____ Order #: _____
 Approvals: _____ Date: _____

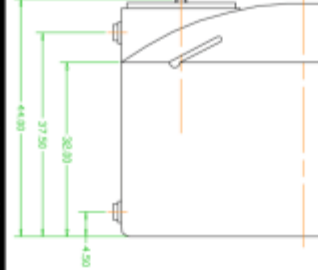
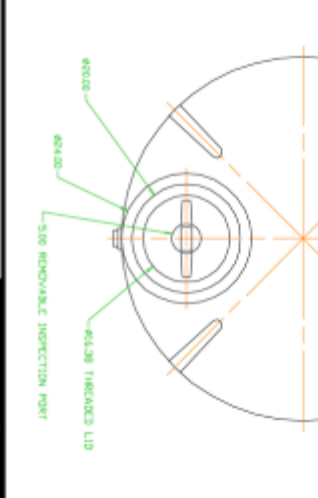
3,000 Gallon FreshWater Poly Tank 95Dx108H



Product #: 005-020

AMERICAN TANK COMPANY, INC.
 (800) 455-9100 www.american-tank.com
 Customer: _____ Order #: _____
 Approvals: _____ Date: _____

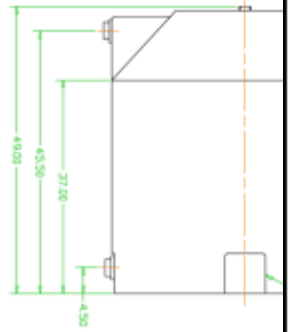
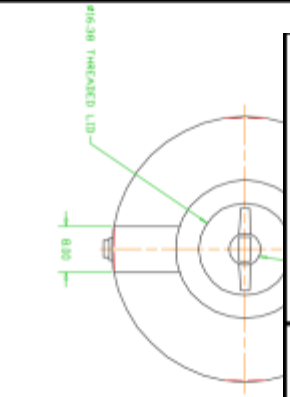
1,100 Gallon FreshWater Poly Tank 87Dx52H



Product #: 005-010

AMERICAN TANK COMPANY, INC.
 (800) 455-9100 www.american-tank.com
 Customer: _____ Order #: _____
 Approvals: _____ Date: _____

550 Gallon FreshWater Poly Tank 67Dx44H



Product #: 005-005

AMERICAN TANK COMPANY, INC.
 (800) 455-9100 www.american-tank.com
 Customer: _____ Order #: _____
 Approvals: _____ Date: _____

305 Gallon FreshWater Poly Tank 46Dx49H

Components



House+Earth

Components



Components



Components



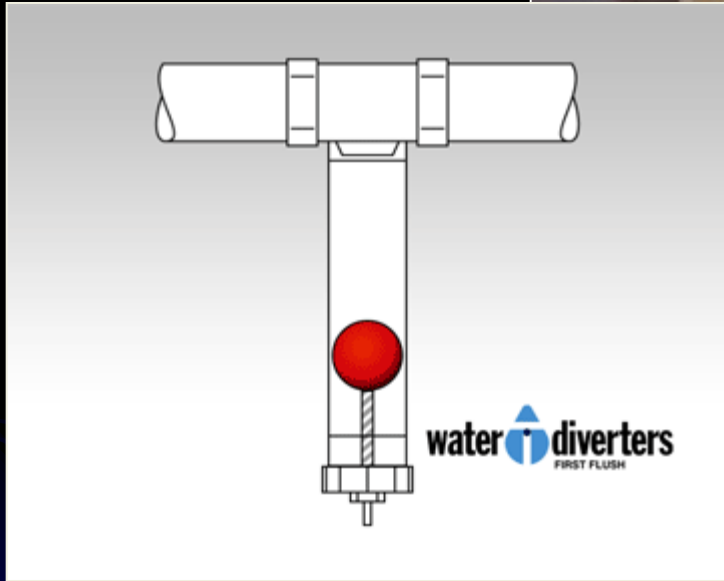
09/24/2011

Components



04/18/2011

Components



DRY System

House+Earth

Components



Vortex Filters

complements Joe Wheeler

Components



Potable water system
with filtration and UV
light on a 365 day
count-down timer



New Underground Systems

Rainwater harvesting with Aquascape's



shown with
Pondless® Waterfall

Please note: The numbers
represented in this drawing show
the stages of rain water harvest.

- 1 IRRIGATION SYSTEM**
- Natural water is loaded with micronutrients and compounds that will make your plants flourish.
 - A healthy garden consumes more greenhouse gases and properly irrigated soils allow for greater water infiltration and better overall soil profiles.

- 2 AQUATIC PLANTS**
- Providing food and shelter for a great number of birds, insects and amphibians and the cornerstone for maintaining our biodiversity.

- 3 BIOLOGICAL FILTER**
- Beneficial bacteria and enzymes reduce organic wastes and pollutants to less toxic substances that can be absorbed by plants, thereby creating a perfect cycle of nutrient re-use.

- 1 RAIN FILTER**
- Captures and removes pollutants flushed into the system during a rain event.
 - Coarse filter screen removes leaves, twigs, and seeds.
 - Smaller suspended particles are captured in a fine mesh which can easily be removed for cleaning.

- 2 CONNECTING PIPE**
- Carries the water via gravity to the main storage chamber. (sold separately)

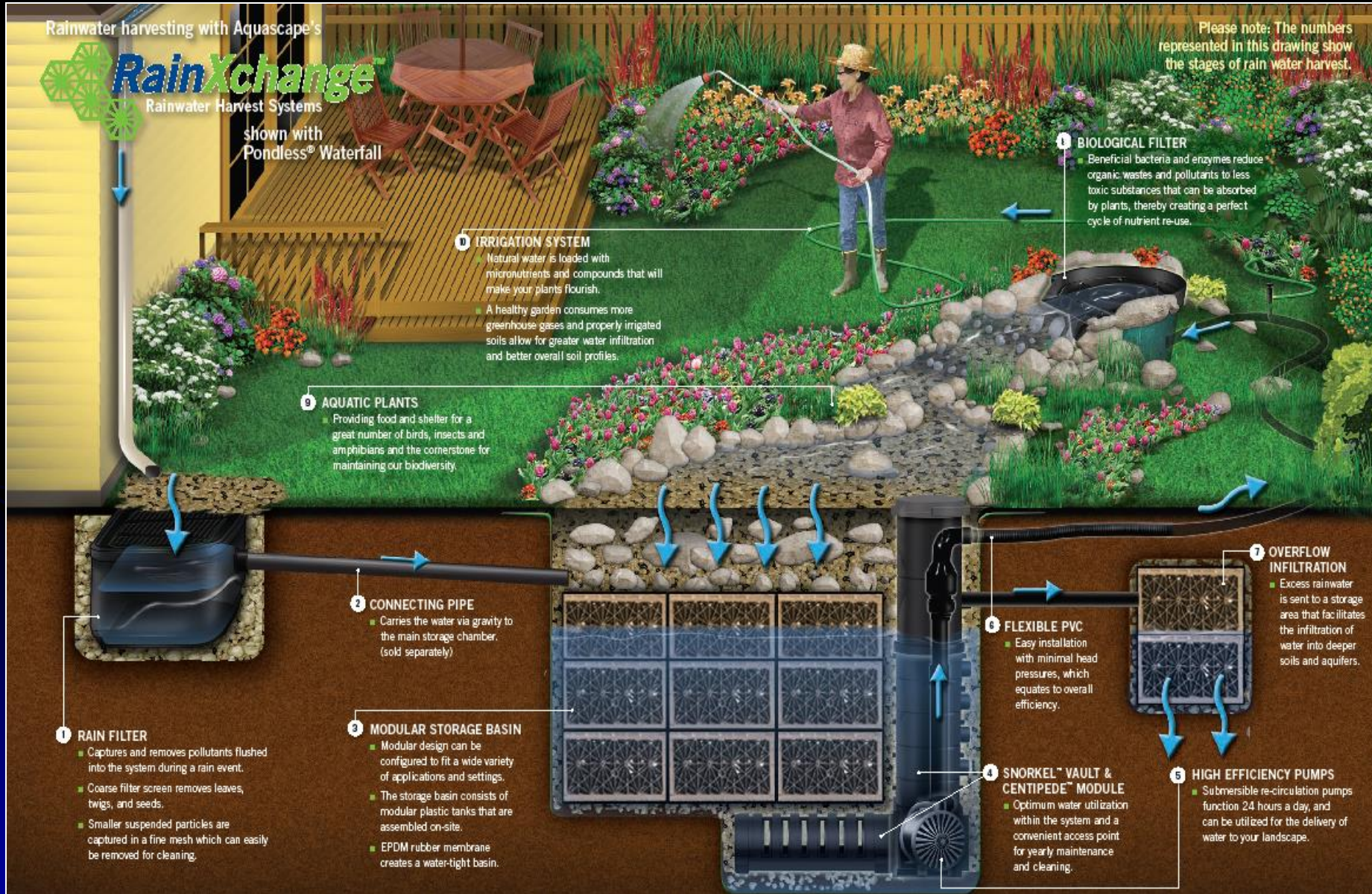
- 2 MODULAR STORAGE BASIN**
- Modular design can be configured to fit a wide variety of applications and settings.
 - The storage basin consists of modular plastic tanks that are assembled on-site.
 - EPDM rubber membrane creates a water-tight basin.

- 3 FLEXIBLE PVC**
- Easy installation with minimal head pressures, which equates to overall efficiency.

- 4 SNORKEL™ VAULT & CENTIPEDE™ MODULE**
- Optimum water utilization within the system and a convenient access point for yearly maintenance and cleaning.

- 7 OVERFLOW INFILTRATION**
- Excess rainwater is sent to a storage area that facilitates the infiltration of water into deeper soils and aquifers.

- 5 HIGH EFFICIENCY PUMPS**
- Submersible re-circulation pumps function 24 hours a day, and can be utilized for the delivery of water to your landscape.



Design Options



Joe Wheeler

Design Options



Joe Wheeler

Design Options



Joe Wheeler

Design Options



Design Options



Design Options



Design Options



Design Options



Design Options



Design Options



Mueller

Design Options



Dry System

Design Options

Casis Elementary School

Garden Classroom



baldridgeARCHITECTS

www.baldridge-architects.com

512.441.1700

CASIS GARDEN CLASSROOM

Design Options



Design Options



Design Options





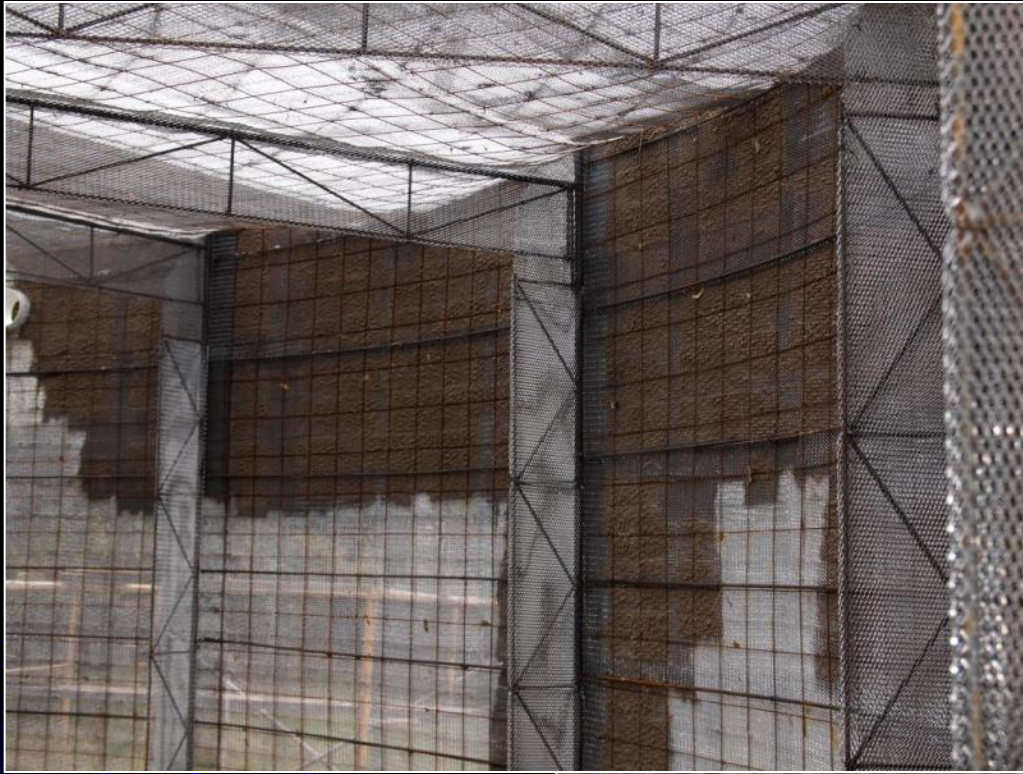
First Flush
System is
Custom

Design Options



Ferrocement,
a mixture of Portland cement and sand applied
over layers of woven or expanded steel mesh and
closely spaced small-diameter steel rods rebar.

Design Options



Design Options



Wet System w/FFF



Wet System w/FFF



Design Options



Design Options



Design Options



Rotational Molding in Austin!



10,000 Gallon Available Soon



Wet System w/FFF



Non-potable System in CoA

Purple
Pipe Now
Required
for
Rainwater
Systems





Rainwater Rebate

Rebates of \$0.50 per gallon (non-pressurized) and \$1.00 per gallon (pressurized) are available to customers of Austin Water or a [qualifying water provider](#) for installing rainwater harvesting systems. The maximum lifetime rebate amount is \$5,000, not to exceed 50 percent of the project cost. Participation is limited to once every 12 months until the maximum rebate amount is reached. Systems of 500 gallons or more require approval prior to purchase and installation. For tax purposes, commercial and multi-family properties must submit a completed IRS Form W-9.



Rainwater Rebate

Additional Program Requirements

For systems with 500 gallons or more of capacity:

- Include site and system drawings with rebate application. [View examples.](#)
- Submit a completed rebate calculation worksheet with final receipts. [Download the rebate calculation worksheet.](#)

Rainwater Rebate



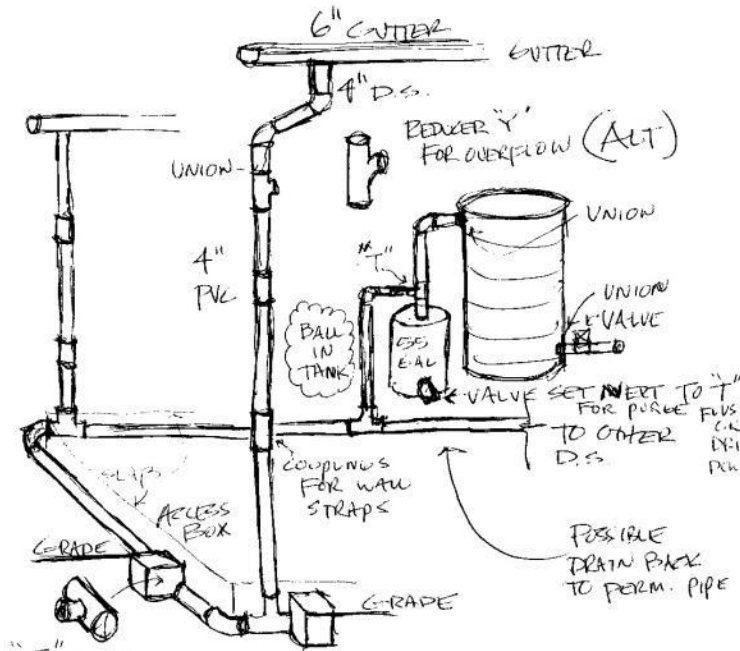
5811 Sinclair Ave.

Rainwater Rebate

Proposed System For
 LAS CASAS VERDES Model

12-8-09

PAUL MARTIN
 D MARTIN HOMES





Rainwater Rebate

For pressurized rainwater harvesting systems:

- Install a Reduced Pressure Principle Backflow Preventer (RPZ) immediately downstream of City of Austin water meters.
- Install an RPZ supplying the make-up water for the irrigation system, or permanently disconnect the irrigation system from the potable water system. Alternatively, an approved air gap may be installed immediately upstream of the connection to the irrigation system.
- An operational test of each RPZ must be conducted by a state licensed Backflow Prevention Assembly Tester registered with the City of Austin.
- Install an expansion tank or similar device to allow for the dissipation of excessive pressure.
- Retain the services of a qualified person to perform a Customer Service Inspection.
- Visit the [Special Services Division website](#) or contact them at 972-1060 for additional requirements and questions.



Rainwater Rebate

No
Purple
Pipe
Here!

Why?



Bt-Biological Mosquito Control



Rainwater Harvesting for Grow Green Professionals



Dick Peterson
www.DickPeterson.com