Bernalillo County

Count on us.

Passive Rainwater Harvesting for Master Gardeners

April 15, 2025

Gutiérrez Hubbell Open Space

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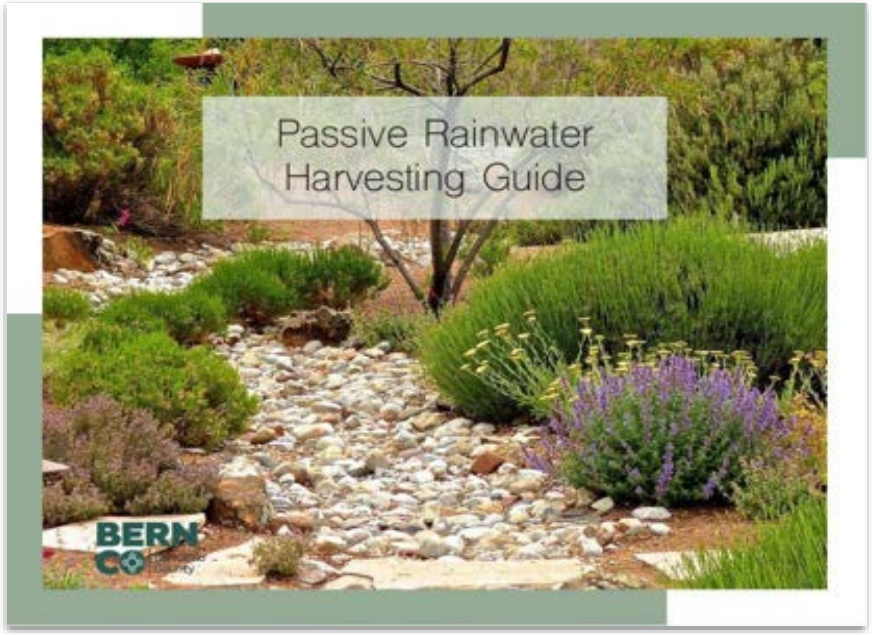
Bernalillo County Natural Resource Services

The mission of Natural Resource Services is to steward Bernalillo County's natural resources. We do this by educating the public about protection and conservation of these resources, assisting with prudent development, monitoring, and providing technical input to the county's policies and projects

Presentation Objectives

1. Provide resources that will guide your passive rainwater harvesting project
2. Inspire you to:
   - Implement passive rainwater harvesting at your home
   - Spread the word about passive rainwater harvesting



Agenda

1. Passive Rainwater Harvesting presentation
2. Open floor for discussion and questions
3. Tour Rainwater Harvesting Learning Landscape
4. Distribute rain barrels

Passive Rainwater Harvesting Presentation Outline

1. What is rainwater harvesting?
2. Design
3. Installation
4. Maintenance

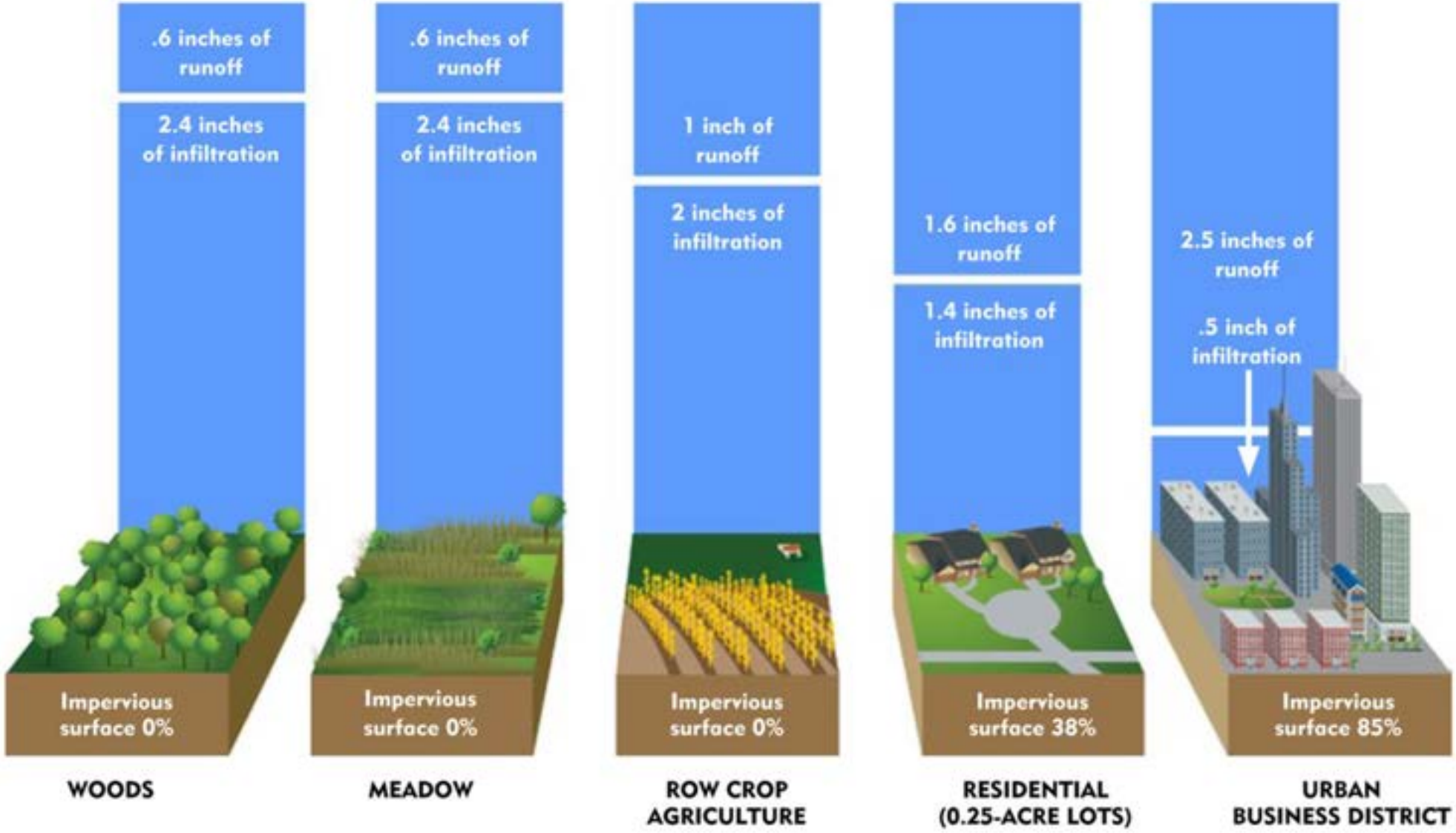
1

What is Passive Rainwater Harvesting?

Design & Photo: H. Ten Broeck,
WaterWise Landscapes

Design & Photo: M. Payt

Why Passive Rainwater Harvesting?



Graphic: Landscape for Life

The goal is to go from this…

- Stormwater is treated as a nuisance.
- Impermeable surfaces (roofs, roads) don’t allow rainwater to soak in where it falls.
- Stormwater runoff picks up pollutants.

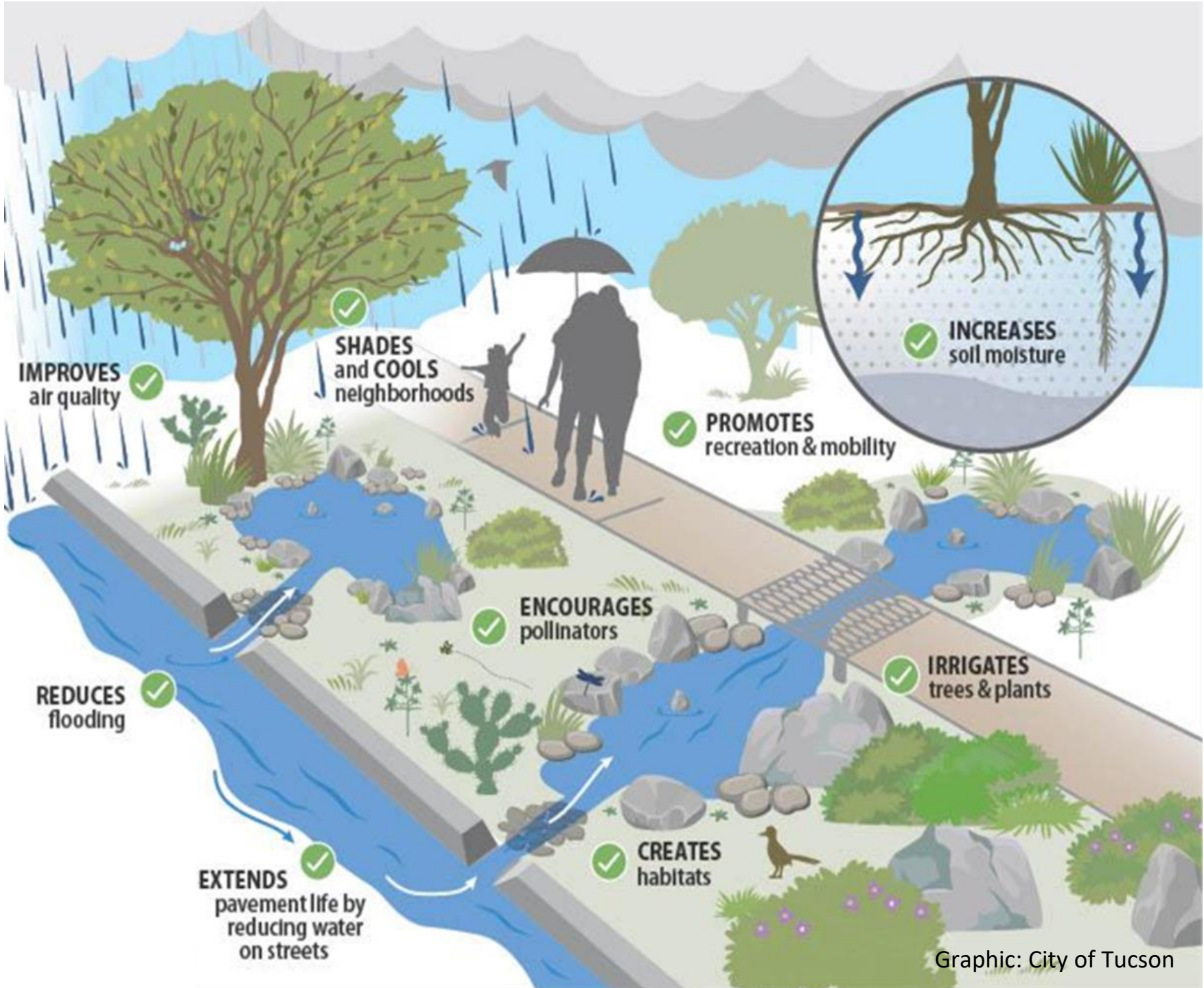
Graphic: M. Nuño-Whelan, Pland Collaborative

To this…

- Water as a resource
- Reduce impermeable areas
- Improve water quality
- Mimic natural conditions
- Keeps water where it falls

Graphic: Mario Nuño-Whelan, Pland Collaborative

Passive Rainwater Harvesting Co-Benefits



Graphic: City of Tucson

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Design

- Site assessment
- Sizing your basin
- Plant selection

Site Assessment

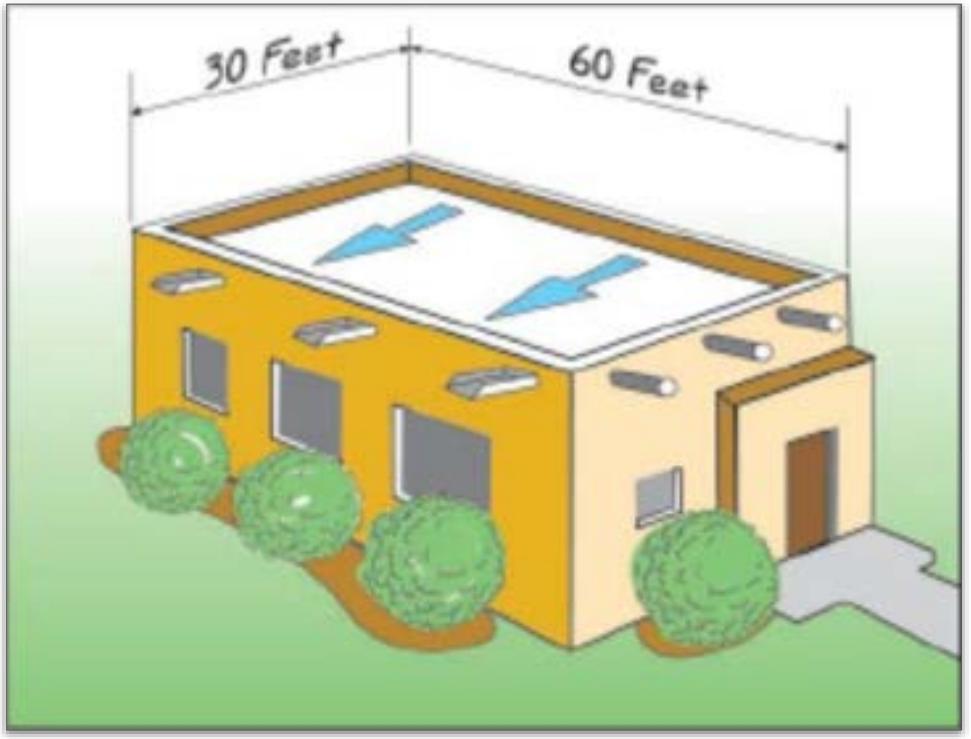
- Where does the water flow?
- Consider installing feature where water already collects
- What is your soil type?
- Avoid underground utilities

Photo: M. Payton

Photo: R. Mullin

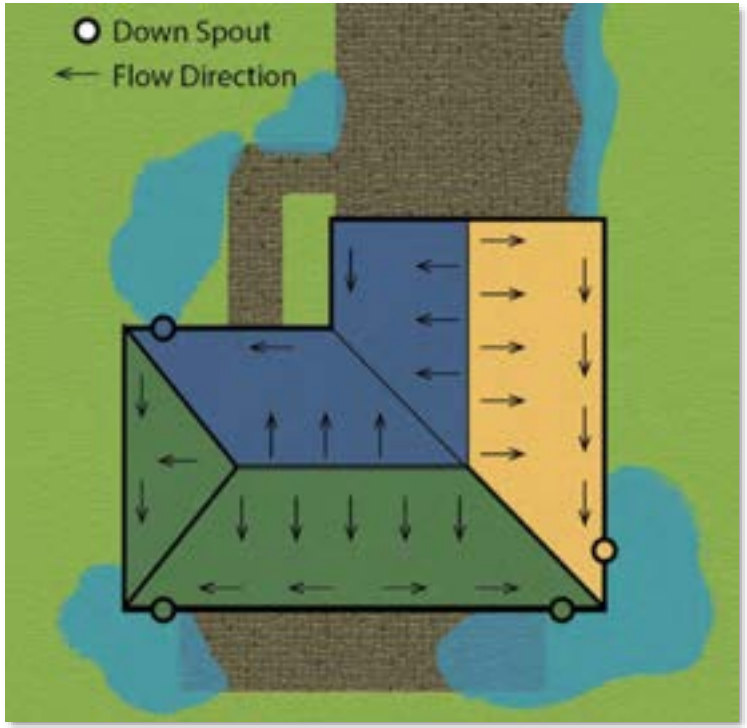
nm811 Professional Resources for Damage Prevention

Sizing Your Basin – Calculate Catchment Area



Graphic: NM Office of the State Engineer

Entire roof drains to basin



Graphic: S. Hurteau, Integrated Biological Solutions

Roof drains to multiple downspouts

Sizing Your Basin – Using Google Maps

Using "Measure Distance" tool to calculate area of Gutierrez Hubbell House roof

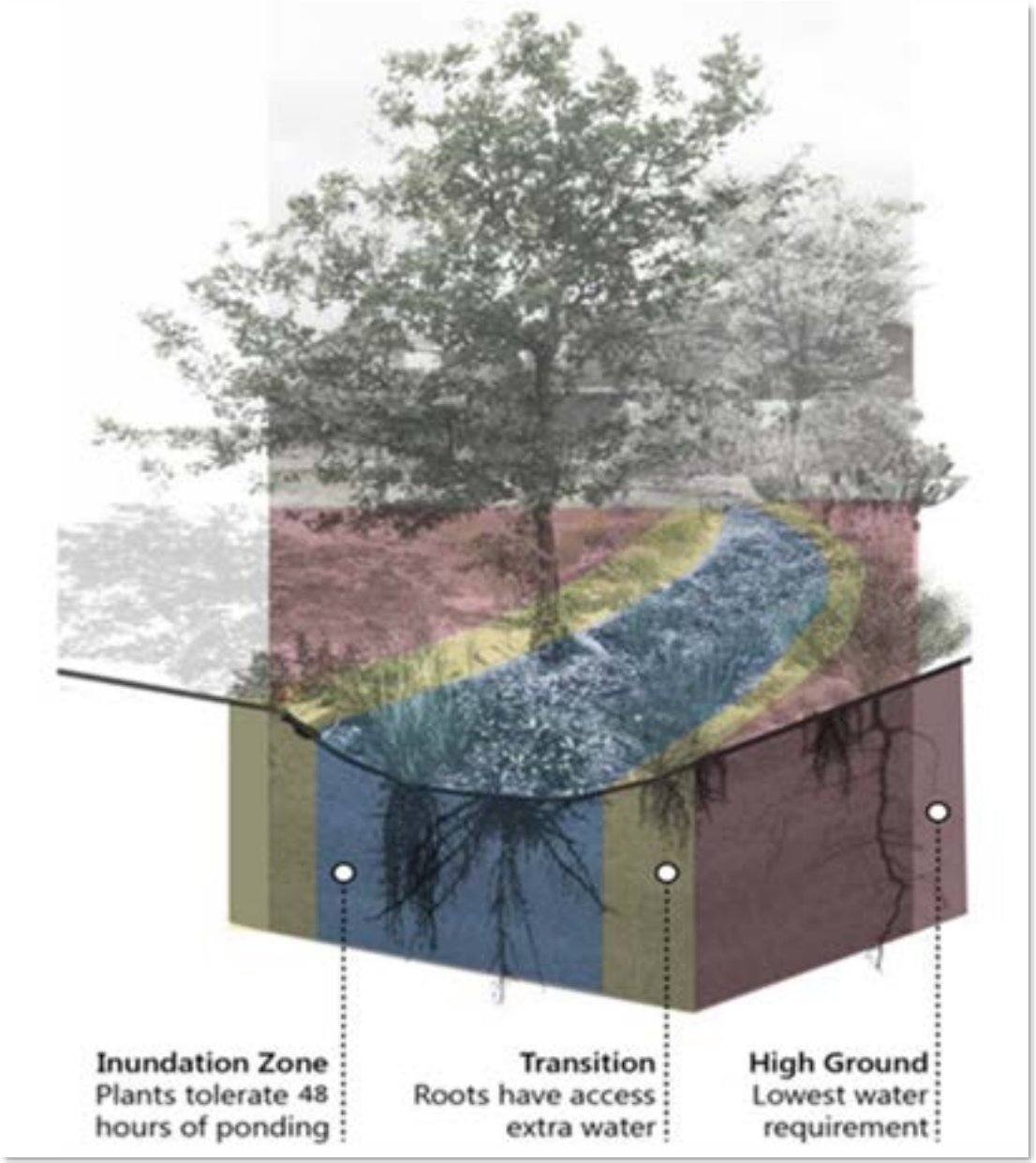
Sizing Your Basin: Calculate Basin Volume

2,100 sq ft x 0.9 x 0.0833 ft = 157 cu ft

Membrane & metal roof

Plant Selection

- Rainwater harvesting plant list: www.bernco.gov/plantlist
- Plants that can survive without irrigation in a rainwater harvesting basin after establishment
- Considers elevation, biome, and infiltration zone
- Includes trees, shrubs, perennials, and grasses



Graphic: T. Houle, Pland Collaborative

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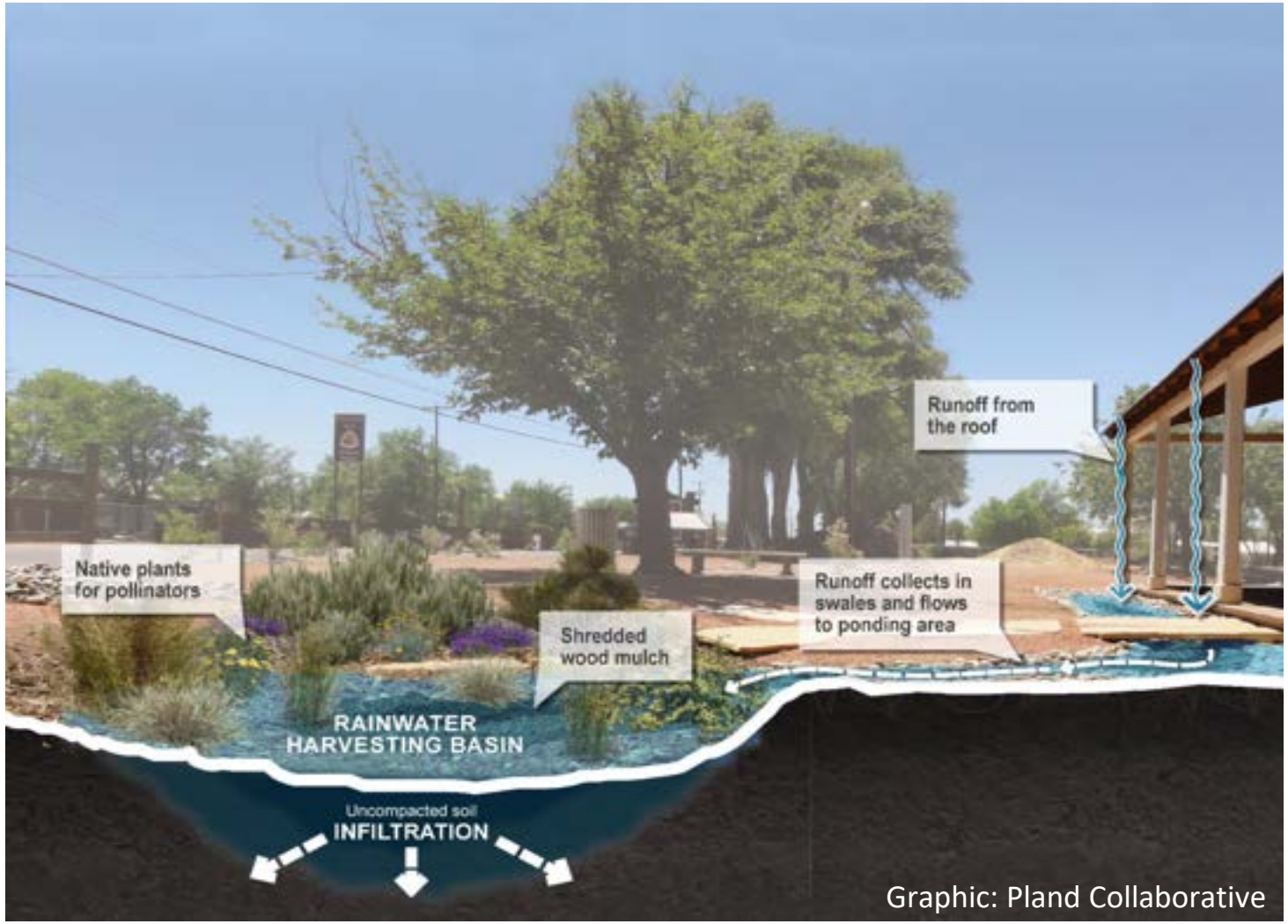
Installation

- Swale installation
- Basin installation
- Planting techniques
- Mulch

Swale & Basin Installation

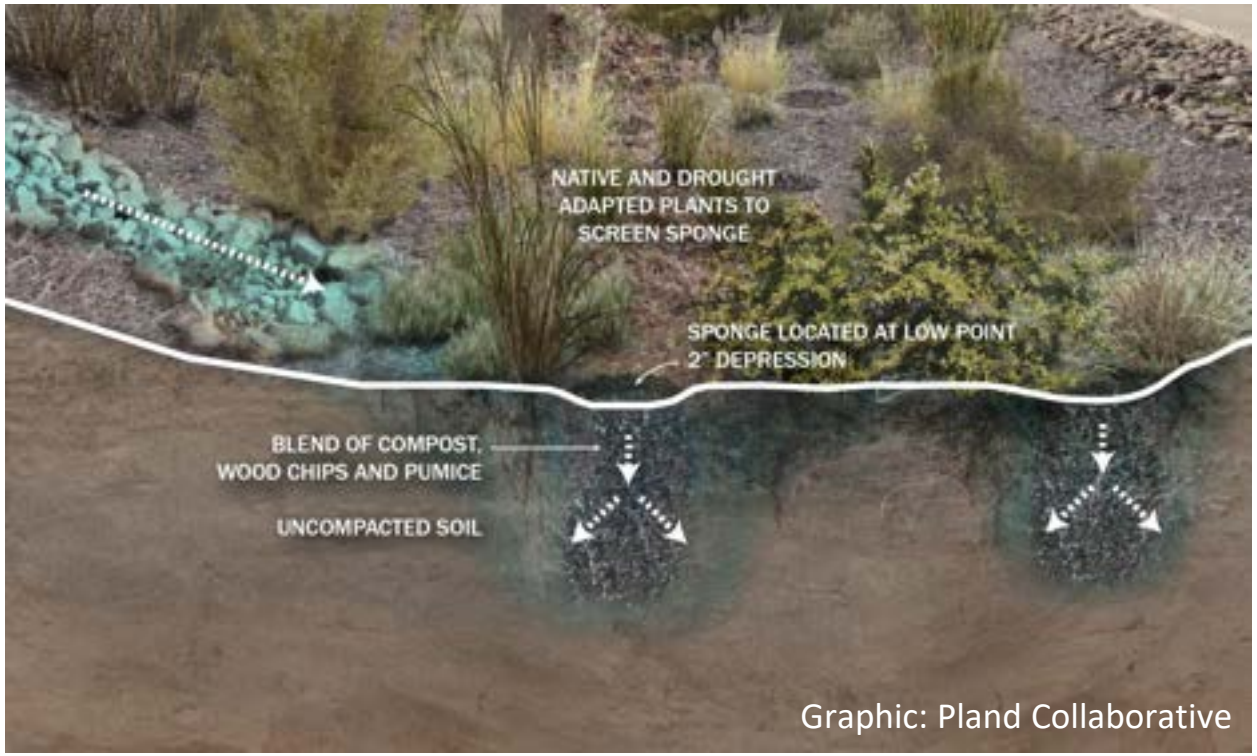
- **Swale** intercepts rainwater from your downspout or other source and conveys it to your basin.
- **Basin** captures and slowly infiltrates rainwater, making it available to plants.



Graphic: Pland Collaborative

Soil Sponges

- Soil sponges can be used to increase infiltration and inoculate the soil with beneficial microorganisms.
- Installing a soil sponge:
  - Dig a hole about 12” diameter and 12” deep
  - Fill with a mix of compost, aged woody mulch, pumice, or a similar combination of materials



Graphic: Pland Collaborative

Planting Techniques

- Right plant, right place
- Water and light zones
- Think about size at maturity
- Native plants may not need soil amendments in native soils
- Water deeply after planting

Photos: A. Brown, Groundwork Productions

Mulch

- Organic
  - Shredded wood, partially composted ideal
  - Suppresses weeds, filters pollutants, retains moisture, promotes healthy soil and plants
  - 3-4” depth
  - Refresh mulch every 3-4 years
- Inorganic
  - Cobble, gravel, crushed rock
  - Suppresses weeds (sometimes)
  - Erosion control
  - Retains heat
  - Limited soil benefits

Photo: Soilutions, Inc.

Photo: M. Nuño-Whelan, Pland Collaborative

Photo: M. Marsee

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Care & Maintenance

- Watering
- Pruning
- Weeding

Watering

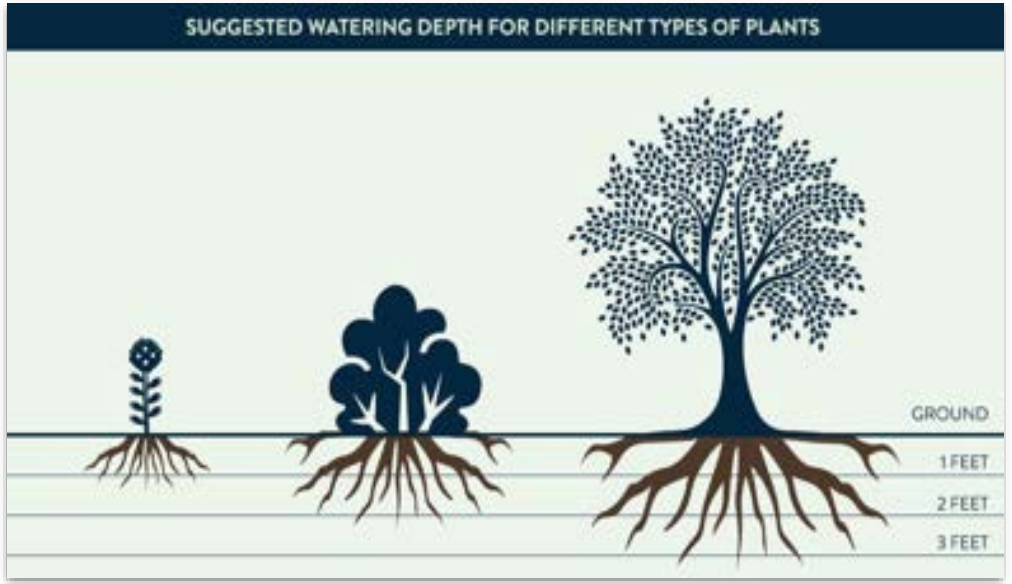
- If you select the right plants, rainwater harvesting basins require little to no irrigation.
- BUT watering will be required during plant establishment and droughts.

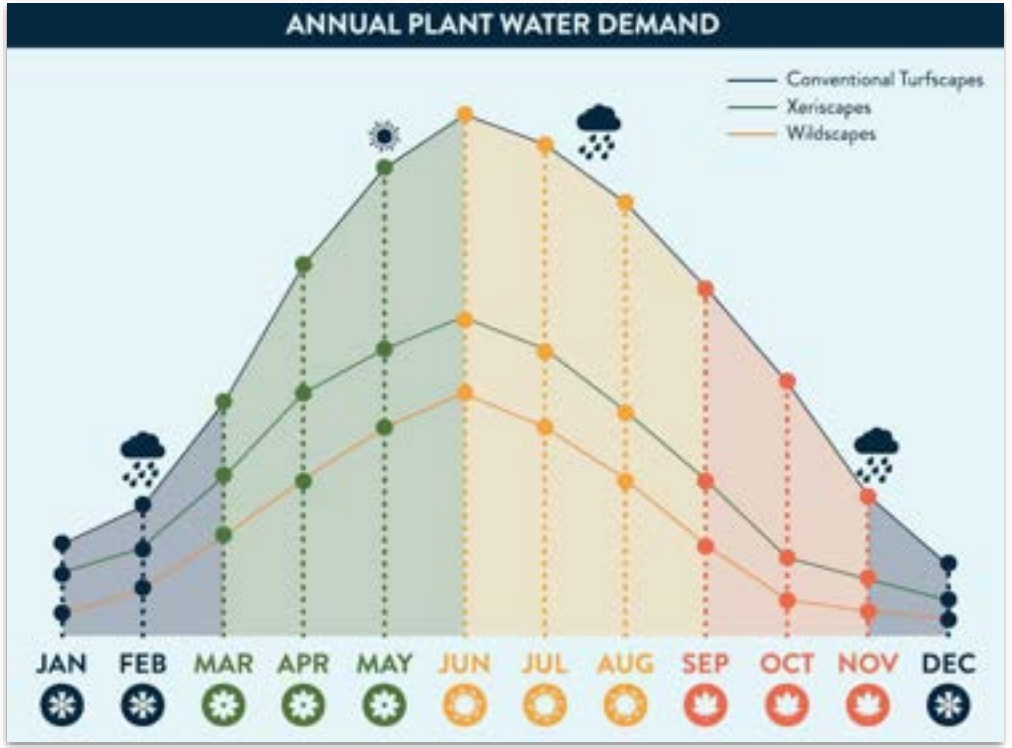
Establishment periods	
Perennials & grasses	2-3 years
Shrubs	3-5 years
Trees	10-15 years

Top photo: 505Outside.com; Bottom photo: A. Brown, Groundwork Productions

Watering

- Can hand water or install drip irrigation
- Water deeply but infrequently
- Water in accordance with the seasons
- Consult the Water Authority's Irrigation Efficiency Guide for detailed guidance at 505Outside.com

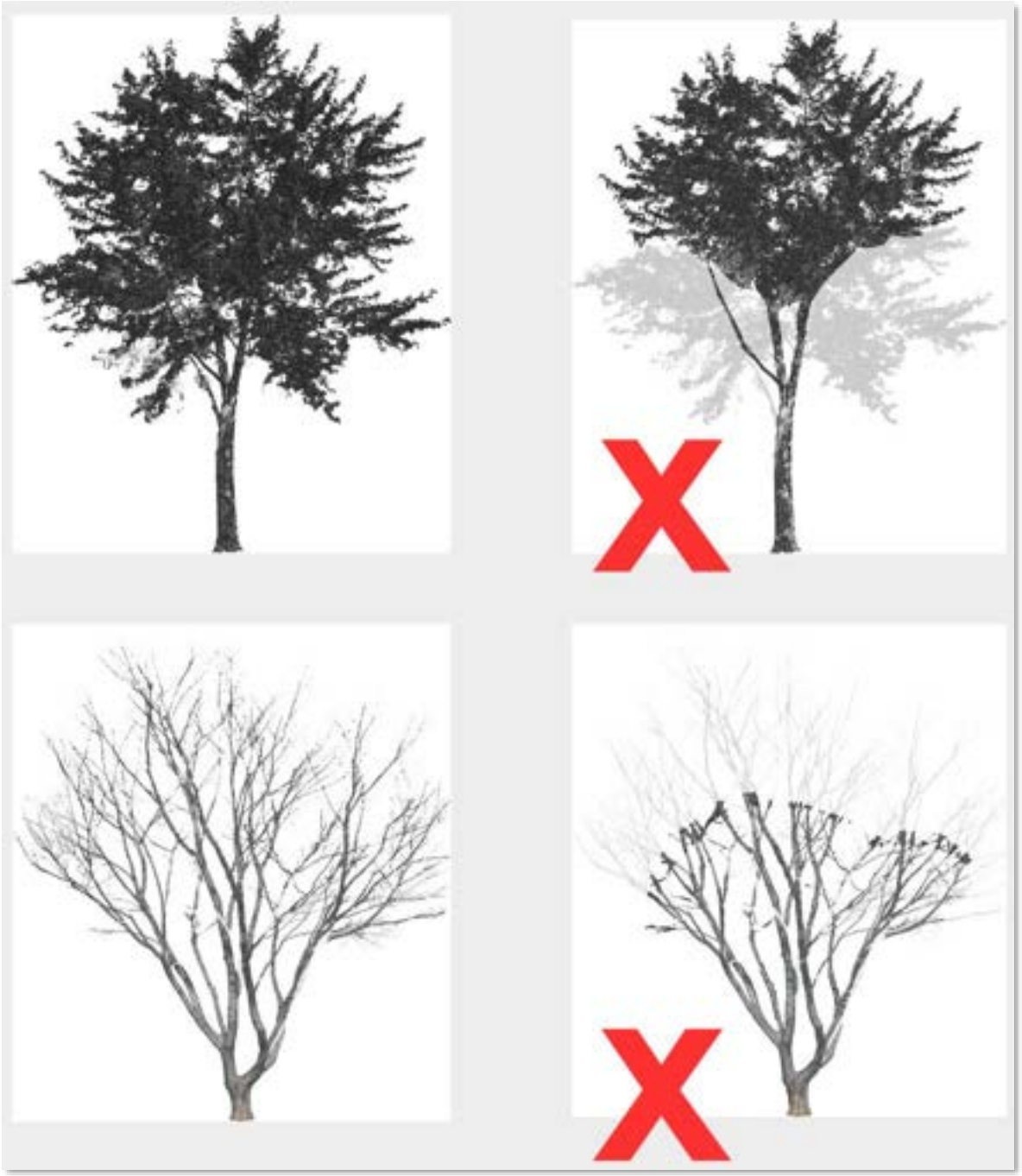




Graphics: Water Authority's Irrigation Efficiency Guide

Pruning

- Pruning needs will be minimal if you:
  - Respect the natural forms of native and xeric plants
  - Allow enough space for plants at maturity
- Basic principles of pruning by plant type



Graphic: Mario Nuño-Whelan, Pland Collaborative

Weeding

- What we consider a weed is subjective!
- Guidance on identifying and effectively removing weeds
  - Annual weeds: Remove before they set seed.
  - Perennial weeds: Hardest to manage. Completely remove by root if possible.
- 3”- 4” layer of mulch will limit weeds.

Annual Weeds

Tumbleweed

Mustard Weed

Perennial Weeds

Bindweed

Silverleaf nightshade

Photos: 505Outside.com

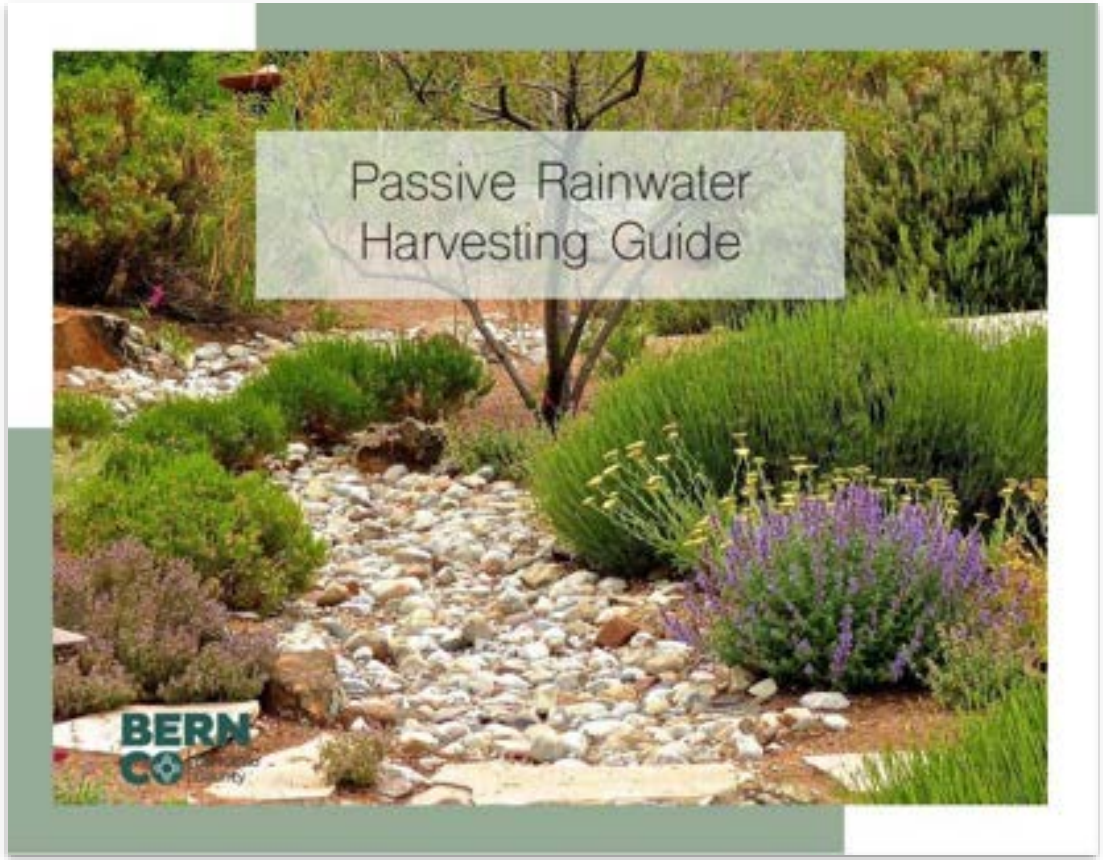
Example Projects

Rainwater harvesting basin that captures runoff from driveway

Example Projects

Swales and basins that capture roof runoff at International District residence. Installed by volunteers in March 2025 workshop.

Passive Rainwater Harvesting Resources



bernco.gov/rainwater

Partners: Bernalillo County; Ciudad Soil & Water Conservation District; arid LID – Low Impact Development in Arid Environments; BiS; Rocky Mountain Youth Corps

Rain Barrel Installation Tips

- Each workshop participant will receive a 55-gallon rain barrel.
- Rain barrel comes with screened lid, spigot, and 8 ft overflow tube.
- Direct overflow to your landscaping or rainwater harvesting basin!
- Drain and disconnect your rain barrel in winter to prevent cracking.

Contact information

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- Stormwater Quality Program
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