

# BERN



Count on us.

# Passive Rainwater Harvesting

NMSU Ready, Set, Grow Webinar

July 17, 2024

Kali Bronson & Megan Marsee

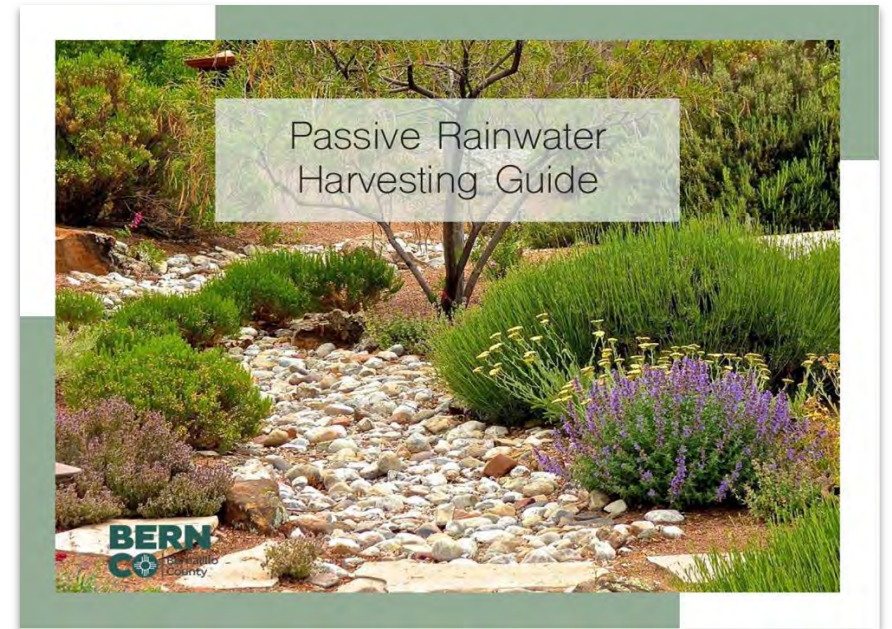
# Bernalillo County Natural Resource Services

*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



[bernco.gov/rainwater](http://bernco.gov/rainwater)

# Passive Rainwater Harvesting Presentation Outline

1

What is  
rainwater  
harvesting?

2

Design

3

Installation

4

Maintenance



1

# What is Passive Rainwater Harvesting?

Photo: M. Payton

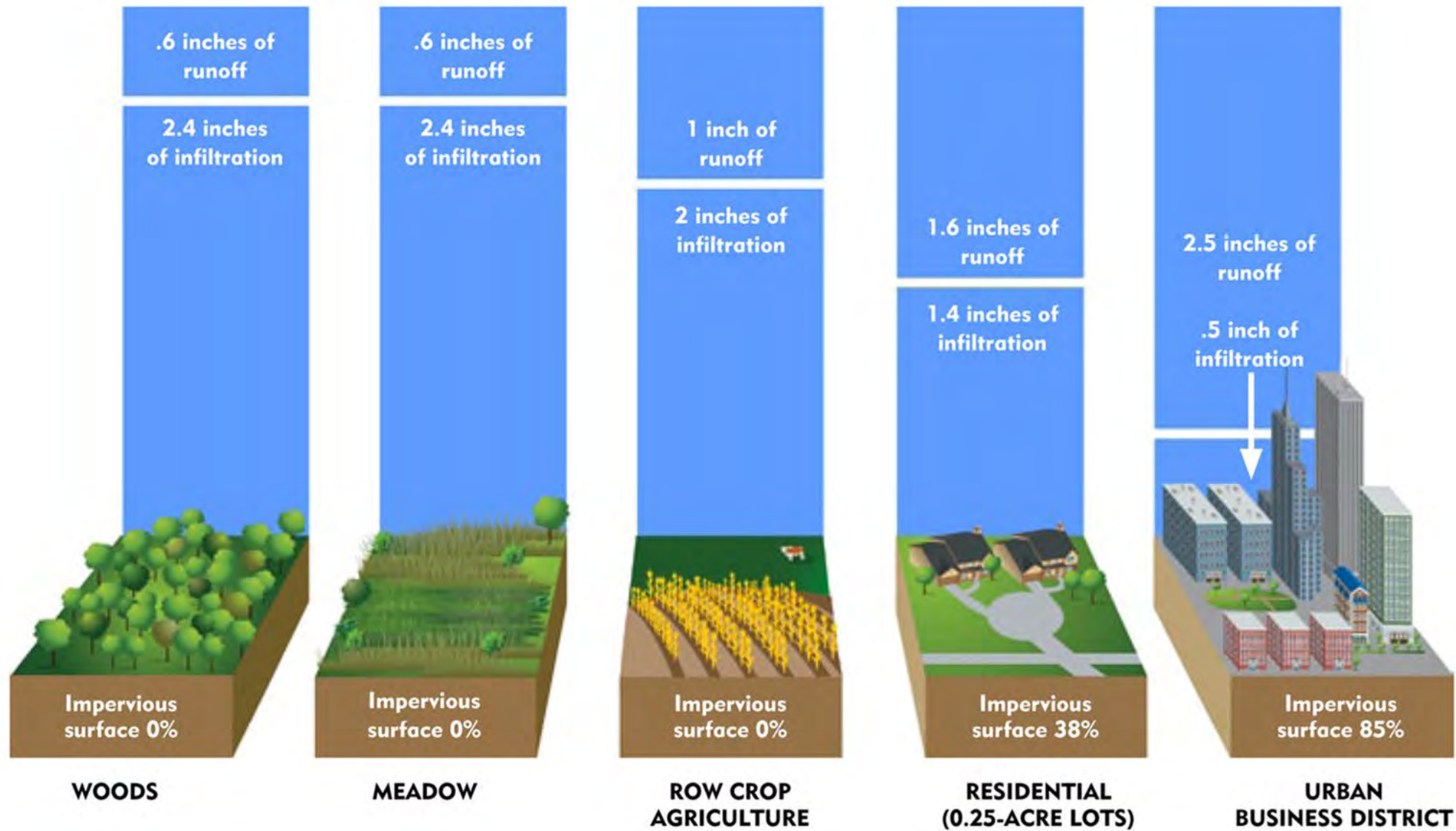


Design & Photo: H. Ten Broeck,  
WaterWise Landscapes



Design & Photo: M. Payton

# Why Passive Rainwater Harvesting?



# 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.

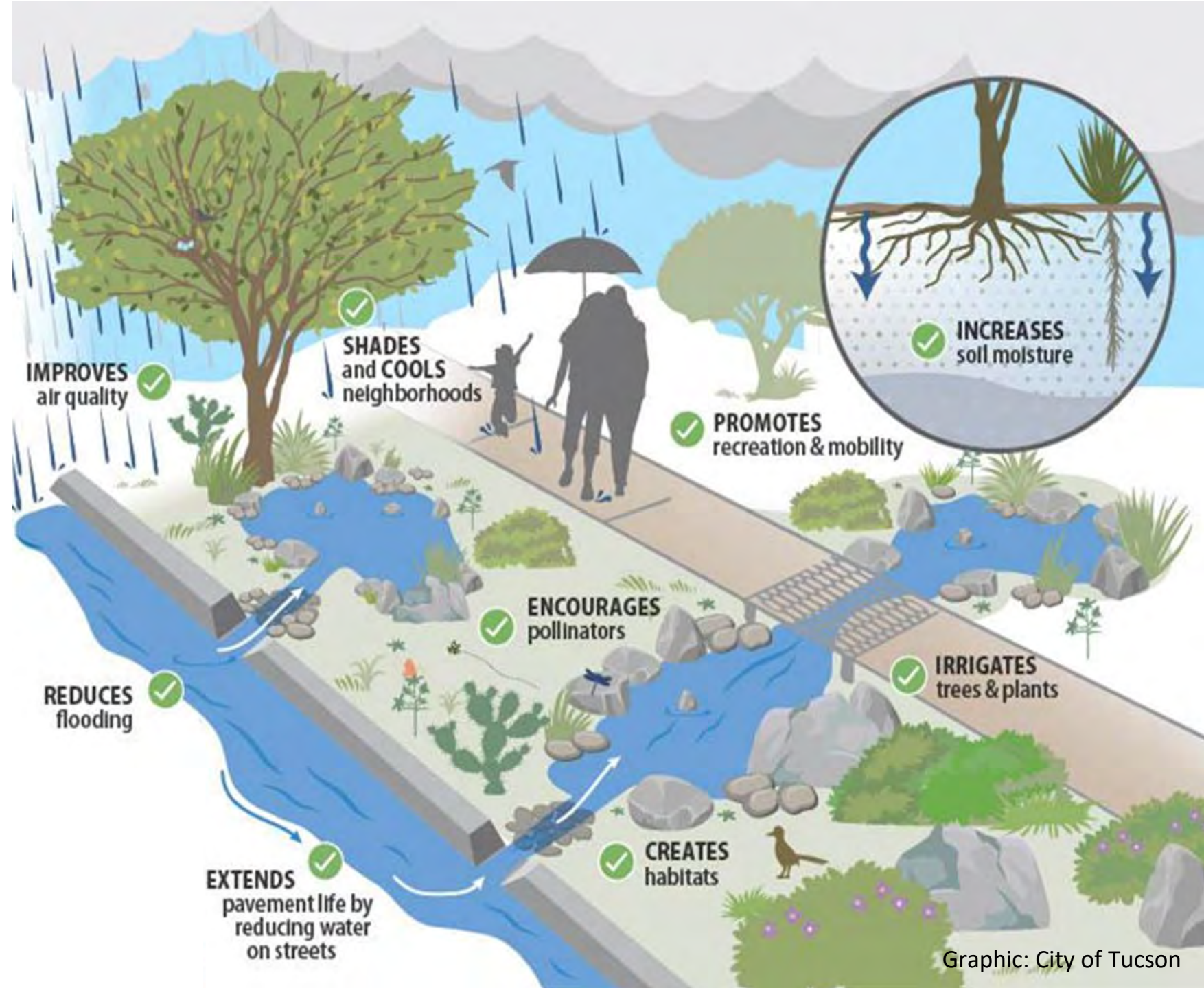


# To this...

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



# Passive Rainwater Harvesting Co-Benefits





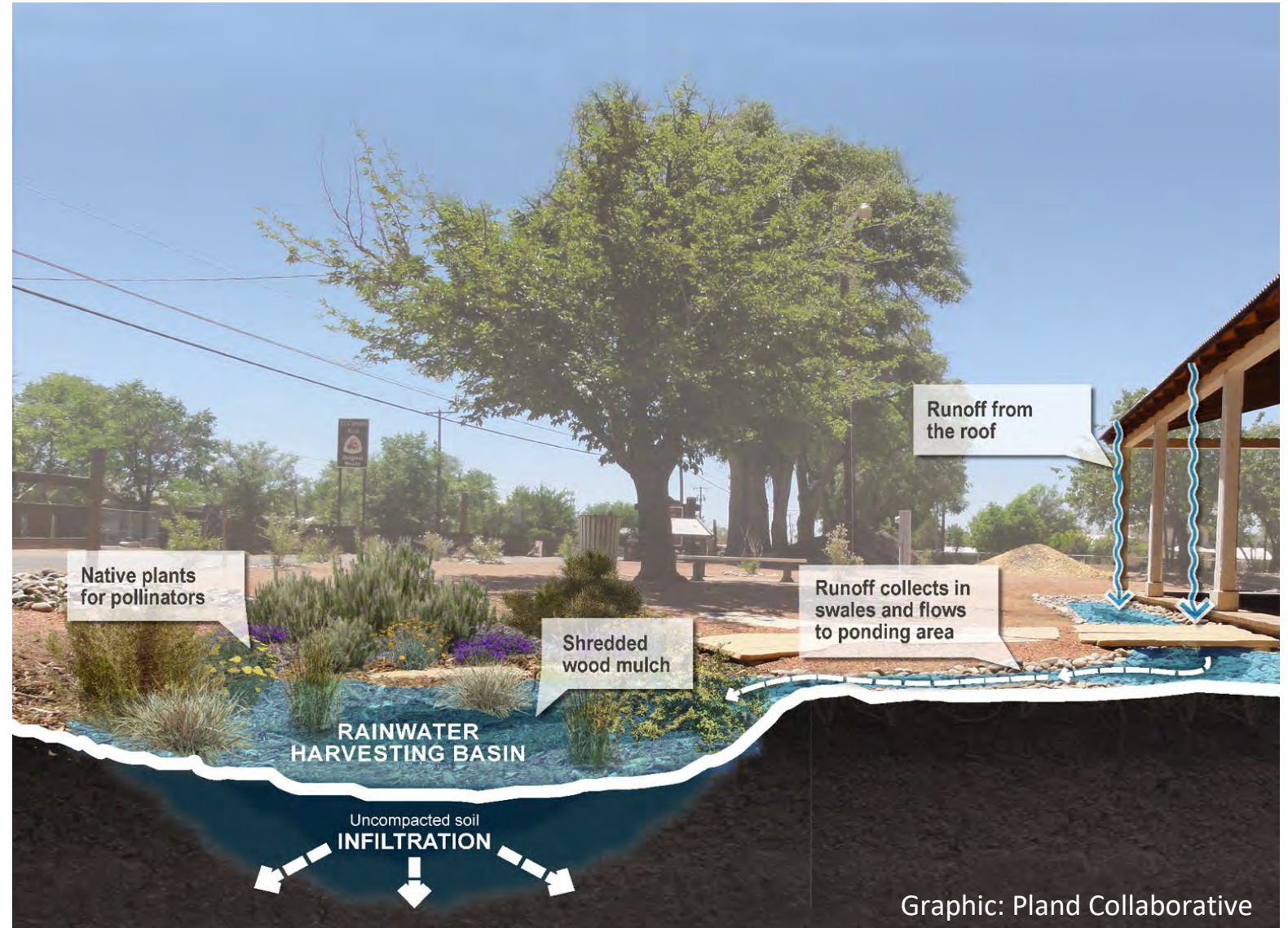
## 2

# Design

- Site assessment
- Sizing your basin
- Plant selection

# Swale & Basin

- **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.



# Site Assessment

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



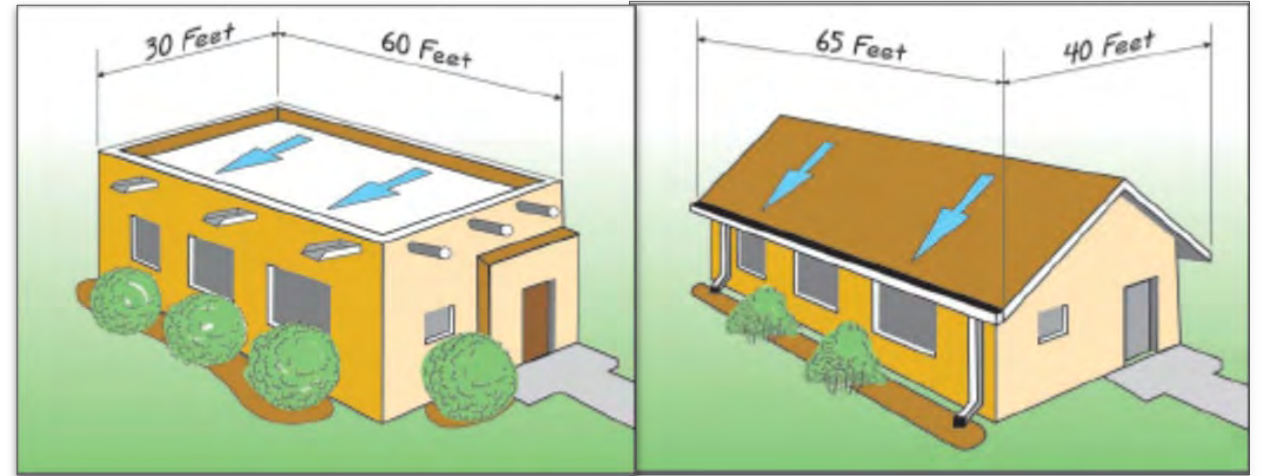
Photo: M. Payton



Photo: R. Mullin



# Sizing Your Basin



Graphic: NM Office of the State Engineer

## Estimating Runoff Volumes

1

Roof Area Targeted  
for Capture

2

Selecting the  
Runoff Coefficient

3

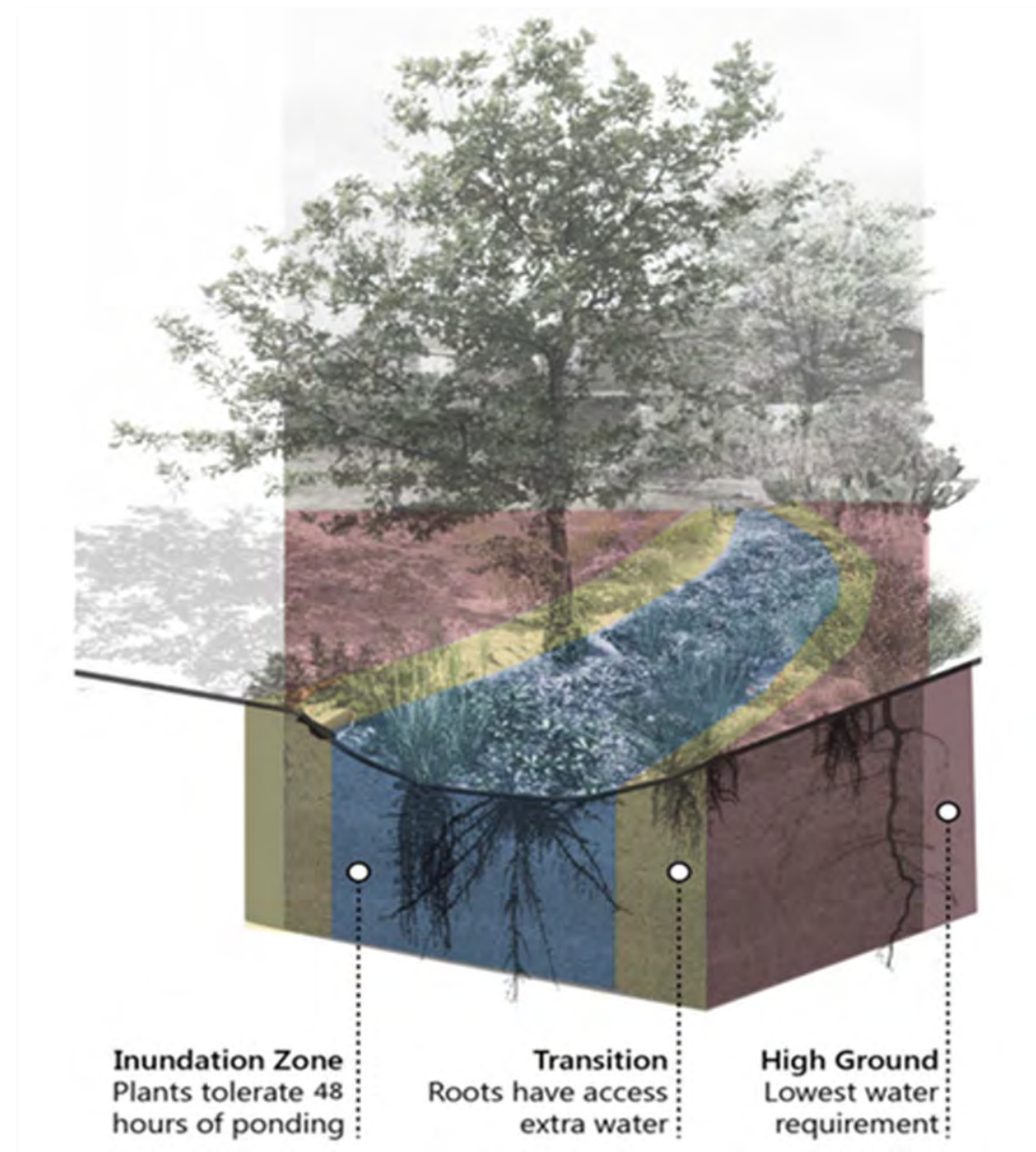
Selecting Rain  
Storm Size

4

Plug & Chug to  
Calculate Volume

# Plant Selection

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





3

## Installation

- Swale installation
- Basin installation
- Planting techniques
- Mulch

Photo: A. Splittek, Bernalillo County

# Swale Installation

- Gradually sloping channel that can be composed of rock or can include plants (bioswale)
- When adjacent to the house, should be set below the top of the foundation
- Bottom of swale should be 16"-18" wide if possible and forms a U shape
- Create a 2% slope between the top of the swale to the basin or other landscaping



# Basin Installation

- Dig out with the length, width, and depth from your design
- Shallow depression that can be flat on the bottom, or include a low water swale
- Gentle slope along the side to prevent erosion
- If soil is compacted, loosen with garden fork or shovel
- Make sure you know where your underground utilities are!



Photo: M. Marsee



# Soil Sponges

- Soil sponges can be used to help increase infiltration
- Installing a soil sponge:
  - Dig a hole about 12" diameter and 8" deep
  - Fill with a mix of soil, compost, mulch, pumice

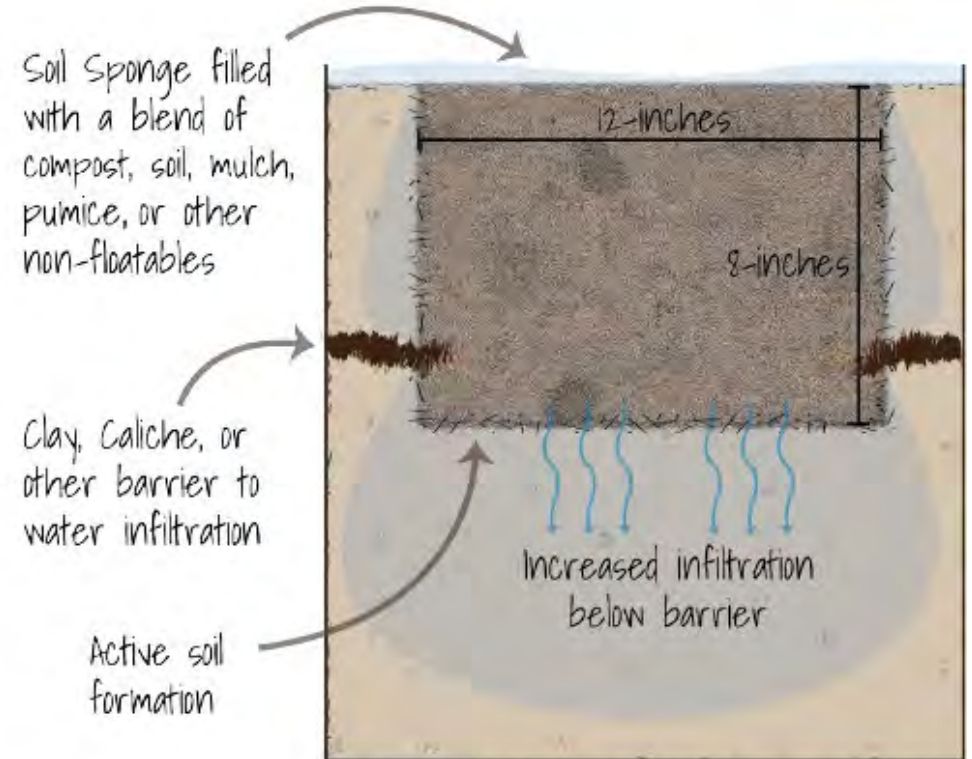


Image Credit: S. Hurteau, Integrated Biological Solutions

# Planting Techniques

- Right plant, right place
- Water and light zones
- Think about size at maturity
- Native plants don't need soil amendments
- Water deeply



# Mulch

- Organic
  - Shredded wood, partially composted ideal
  - Suppresses weeds, filters pollutants, retains moisture, promotes healthy soil and plants
  - 3-4" depth
  - Replace 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



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## Care & Maintenance

- Watering
- Pruning
- Weeding

# Watering

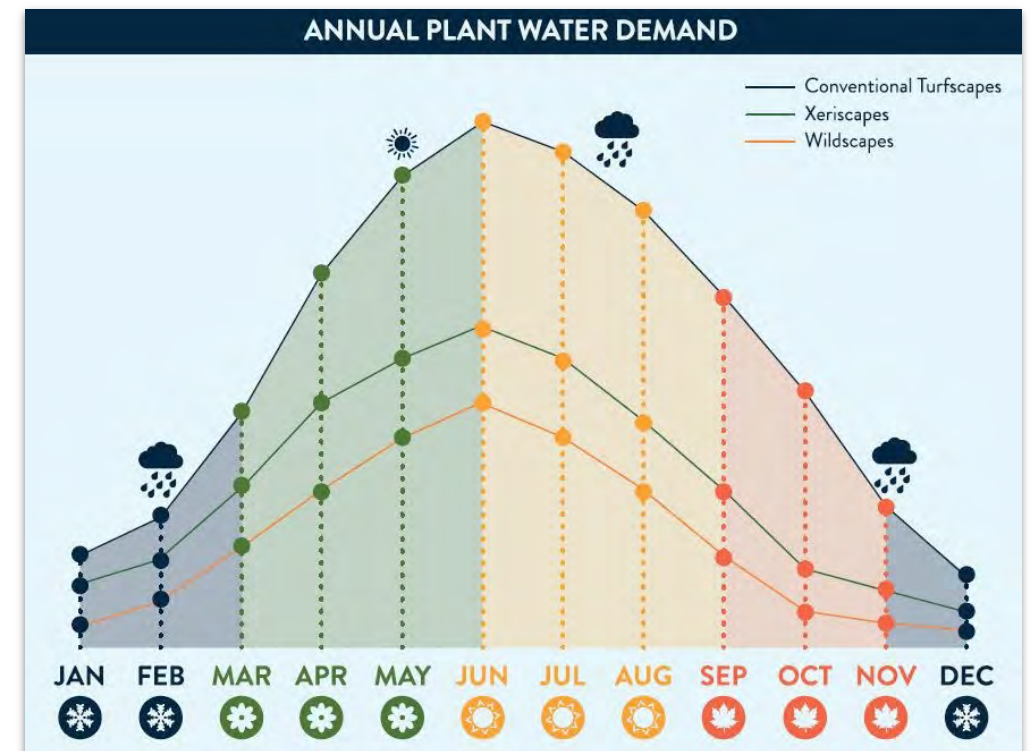
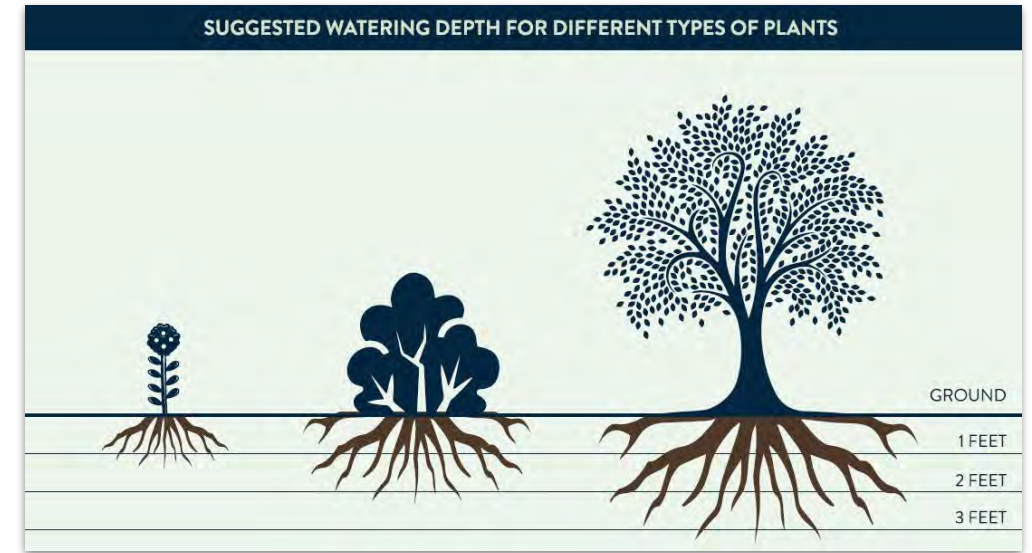
- If you select the right plants, rainwater harvesting basins require little to no irrigation.
- BUT watering will be required during plant establishment and droughts.

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



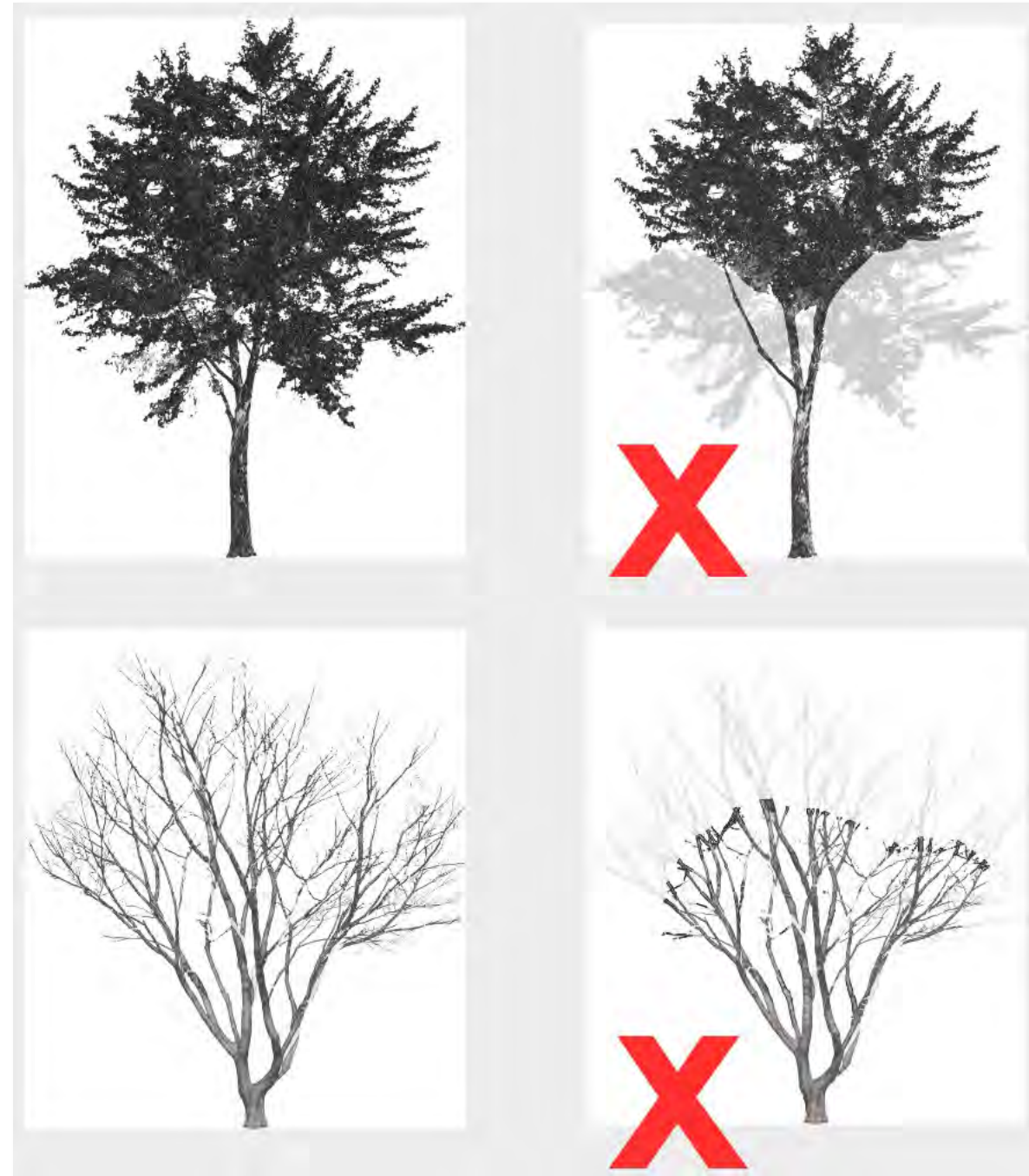
# Watering

- 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](http://505Outside.com)



# 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



# 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

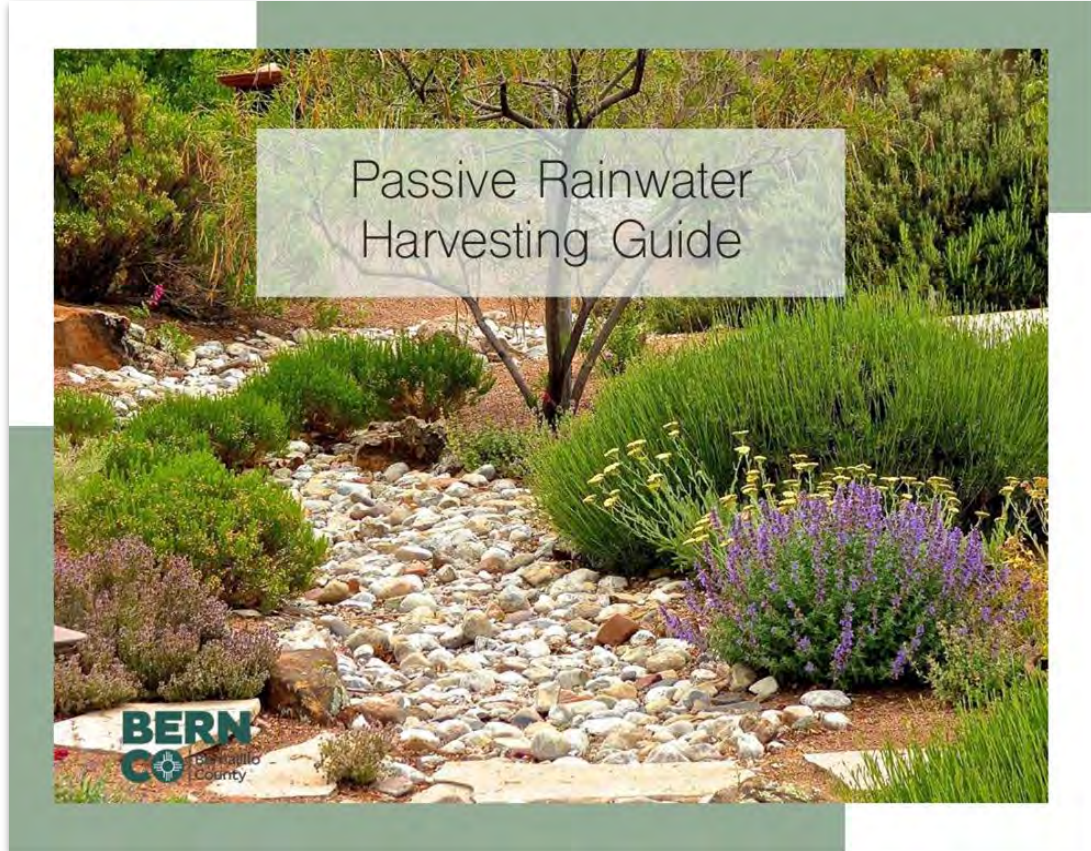


Bindweed



Silverleaf nightshade

# Passive Rainwater Harvesting Resources



[bernco.gov/rainwater](http://bernco.gov/rainwater)

Partners:



# Upcoming workshop

- Passive Rainwater Harvesting workshop
- Saturday, October 12 (10 am – 12 pm)
- Gutiérrez Hubbell Ag Center
- Free passive rainwater harvesting kits consisting of plants and mulch
- Register at:  
[bernco.gov/openspacesignup](https://bernco.gov/openspacesignup)



2024 BACKYARD FARMING SERIES

## Passive Rainwater Harvesting Workshop

Passive rainwater harvesting captures rainwater from your roof and directs it to your landscape, where it soaks into the soil and supports plants. This workshop will provide resources on designing, installing, and maintaining residential-scale passive rainwater harvesting features. Participants will receive a free passive rainwater harvesting kit that includes native plants and organic mulch.



Free Passive Rainwater Harvesting Kits for first 25 registrants

Saturday, October 12, 2024  
10 am - 12 pm  
Gutiérrez Hubbell Ag Center  
5945 Isleta Blvd SW  
Albuquerque, NM 87105



Register online @ [bernco.gov/openspacesignup](https://bernco.gov/openspacesignup)

# Gutiérrez Hubbell House Rainwater Harvesting Learning Landscape

- Visit the Rainwater Harvesting Learning Landscape at the Gutiérrez Hubbell House Open Space to see an example of arid-adapted rainwater harvesting



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