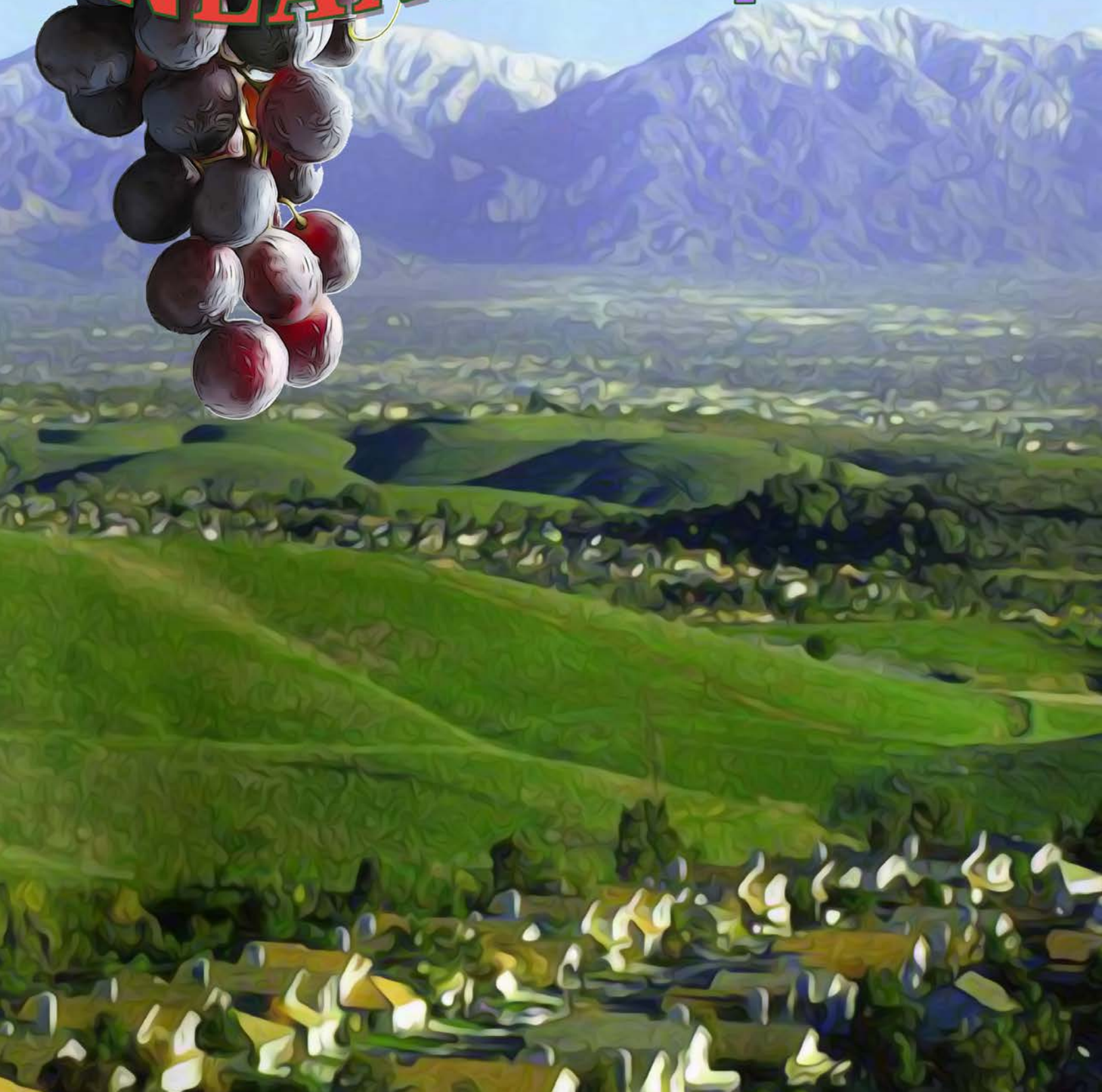




INLAND

EMPIRE

Landscape Guidebook



This Guidebook

provides more than 100 water-wise plants, landscape design and gardening how-to tips, nurseries and other resources for residents of the Inland Empire.

Development of these guidelines was a collaborative effort by the five agencies identified below:



This book written and designed by



The typefaces used in this book are Superclarendon, Baskerville and Minion Pro.

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Photo: Mailee Kuhlmann

A New way to Landscape

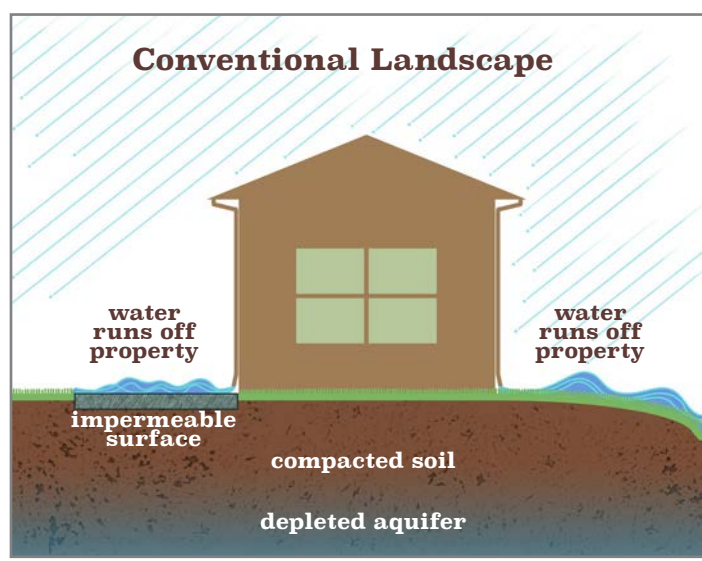
Beautiful gardens...

that require less water don't have to look like a desert; they can be attractive, lush and evergreen if we use the watershed approach to landscaping covered in this book.

Conventional landscapes allow water to run off the property and often waste water. In the pages that follow, you'll learn how to continue enjoying the Inland Empire's amazing climate and outdoor lifestyle, while reducing outdoor water use and creating a diverse habitat of plants and insects.

If we want landscapes that are truly resilient to changes in climate and water resources, we need to go beyond sustainable and water wise principles to begin managing each property as though it were a mini-watershed. By paying attention to the design of the garden, building soil and keeping rain on our properties, selecting climate-appropriate plants and managing our supplemental irrigation, we transform our landscapes into low-maintenance, abundant watershed wise enhancements to our properties.

Now dig in!



Three Easy Steps

Healthy Living Soil captures Rainwater.



Healthy living soil is made by adding compost to your soil, covering your garden with mulch, and by avoiding soil disturbance as much as possible. Compost boosts soil organisms that reduce diseases and pests. There's no need for adding fertilizers or pesticides on watershed wise gardens.

Maintaining 3" - 5" of organic mulch on top of every open space in the landscape keeps the garden looking clean while slowly building the soil. The mulch holds in water, so less irrigation is required (*see p. 15*).

When downspouts are directed to these landscapes, living soil becomes a giant sponge that helps keep plants healthy and happy, whether it's raining or we're in a drought (*see p. 38*).

Climate-appropriate Plants Reduce Irrigation needs.



Selecting climate-appropriate plants like those from Mediterranean climates and, even better, from our own local natives, makes your garden automatically adapted to the Inland Empire's seasonal summer drought and wet winter months. Many plants from the five Mediterranean climates, (South Africa, area around the Mediterranean Sea, Chile, Australia, and California) are appropriate for California gardens. However, California is the driest of the Mediterranean climates.

Local native plants benefit the local native birds and insect species by providing food and nesting materials! There are many dry-adapted evergreen and long-flowering California native plants. When you use them in your garden, you get year-long interest and a garden filled with life, on reduced summer irrigation (*see p. 24*).

Efficient Irrigation supplements rain.



There may be years when there isn't enough winter rain, or you may have plants you love that struggle to thrive in the long, hot, dry summers. In those cases, you want to apply supplemental water through an efficient irrigation system.

Efficient irrigation makes sure every drop of water applied to the landscape stays there for the benefit of the plants. By using soil moisture sensors and/or weather-based smart irrigation controllers, rotating nozzles, and drip irrigation, you can keep your landscape healthy without wasting water (*see p. 42*).



Front Lawn Before

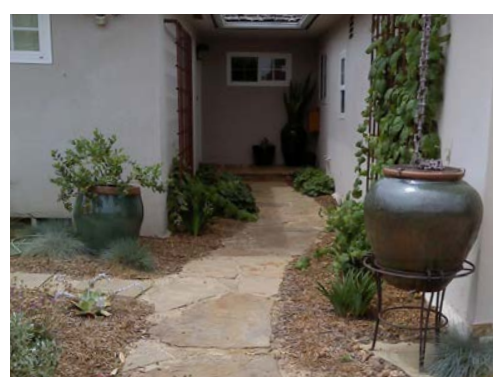
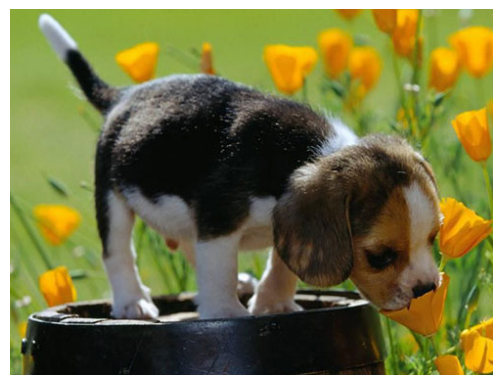


Start with a Big Idea

Envision your new garden.

Our Homeowner wants to remove his lawn and replace it with a low maintenance landscape that doesn't look like a desert. He wants to start spending more time in his front yard with his family and dog. Here are his **Big Ideas**:

- 1 Create a dog friendly garden -- no thorns or sticky grass seed heads!
- 2 Make a small patio near the house so there is room for a bench or cafe table
- 3 Remove the grass without using chemicals
- 4 Use a lot less water
- 5 Plant some fruit trees or edible vines and shrubs
- 6 Place an art piece or an interesting pot near the entrance
- 7 Plant mostly local California native plants that will attract birds, butterflies and bees for pollination
- 8 Make the driveway and pathways more permeable
- 9 Capture all the rainwater from the roof, even though one downspout puts the water right on the driveway
- 10 Keep water from running off the property when irrigating
- 11 Build healthy Living Soil that will act like a sponge, even if it rains a lot
- 12 Convert the existing spray irrigation to drip irrigation



Think About Your Big Idea.

What is most important to you? Jot down a few ideas that will help you determine the next steps.

Use this guidebook

Plan Before you dig.

Create a landscape plan for yourself by using the resources and templates contained within this guidebook. If you prefer, you can hire a professional to create a plan or to complete other specific tasks.

Don't Be Overwhelmed

If your budget is limited, you can phase your project over time, but plan to tackle it all eventually. Pick one section of your garden that you can completely remodel, or start with small fixes. As you gain confidence, add new garden areas or tackle larger projects. Follow the Project Checklist (*see pp. 63-65*) to keep on track. For example, don't dig up your irrigation and then select new plants; irrigation design and installation always follow choices you've made in the planting design.

Clean Up

A clean slate will make it easier to see what's going on and help you envision the renovations to come. Decide which healthy plants will remain in your new landscape, and remove everything else.

Get A Natural Lawn

Keep your existing lawn, but make it more climate-appropriate using organic techniques and overseeding with clover (*see p. 30*). Alternatively, you can remove your grass without chemicals and build healthy living soil for gorgeous new plants (*see pp. 18-19*).

Contour For Rain Capture

Make all your choices about moving soil and capturing rainfall before you start planting (*see pp. 38-39*).

Select Your Plants

Use the Plant List for selecting climate-appropriate plants that will thrive in your Inland Empire garden (*see pp. 60-62*). Once you've selected your plants, you'll want to group them by their water needs to save water (*see pp. 22-23*).

Water Wisely

Much of your irrigation system is below ground, so some planning is required before installing plants and finishing your garden. If you are installing a surface drip system, put plants in the ground before completing the irrigation. If you are adjusting/updating your existing spray sprinkler system, do any trenching and moving of sprinklers before you plant, and fine tune after (*see pp. 26-27*).

Tend With Love

Water, weed, prune and most importantly, spend some time in the garden observing it. Your new watershed wise landscape should require less care than a lawn. So, give your garden some love, remember to continue monitoring your water use, and avoid using fertilizers and sprays (*see p. 28*)!

Compost and Mulch

Add these secret ingredients for a healthy and resilient garden (*see p. 29*).

Garden like a pro.

Use these steps for success from gardening professionals in order to Design It Yourself.

Lay Out Your Garden

Start with a landscape plan, then gather your plants and lay them out before you start digging. It's easier on you, and the plants, if you tweak the layout before anything is put in the ground (*see pp. 54-55*).

Plant In Fall

Inland Empire climate-adapted plants, especially the natives, are much happier if you plant them in the cooler, wetter season between November and March. This gets them settled and watered by the rains before the summer heat convinces them to take a summer siesta.

Get Started!

Use the sample Design Inspirations, Landscape Elements, Plant Lists, and Guidelines to select the plants for your garden and figure out how many you'll need. Bring your shopping list to your local nursery, and ask them to order what they don't have in stock. Start a Garden Journal to keep track of what you are planting, where and when. Your investment will pay off (and your plants will thrive) if you follow these How-to guidelines (*see pp. 14-29*).

Wherever we have provided plant selections, we identify them by their water requirements by placing their identification numbers on a colored background. You can use this color coding to help you group plants by their water requirements in your new landscape, making it easier to irrigate them properly.

1

Blue for **MODERATE** water use,

2

Yellow for **LOW** water use, and

3

Red for **VERY LOW** water use.



The **Butterfly** icon indicates plants that support the life cycle of butterflies.

Need help getting the job done?

Professionals are standing by, eager to help you. Landscape designers, landscape architects, landscape contractors and irrigation specialists can help redesign your garden, coach you through the process, or actually do the installation. If you work with a gardener, make sure they understand what you're doing and why. Hire a certified landscaper familiar with watershed wise, sustainable landscapes (*see p. 59*).

photo: Alex Stevens



On the Go Garden

Clean Architectural Plants



- 1 *Brahea armata*
Blue Hesper Palm
- 2 *Leymus condensatus* 'Canyon Prince'
Clumping Wild Rye
- 3 *Aloe arborescens*
Torch Aloe
- 4 *Arbutus unedo* 'Compacta'
Compact Strawberry Tree
- 5 *Sedum nussbaumerianum*
Orange Stonecrop

On the Go Style landscapes are beautiful and functional, so active homeowners can concentrate on making weekend memories and don't have to worry about their garden when they are away from home. The key to this style is to be minimal, but not barren. Instead of mixing lots of different plants in your palette, consider paring down the list to a few, easy-care plant groups surrounded by organic mulch or large swaths of groundcover.

Billowy meadows of native grasses and flowering perennials can both soften and contrast effectively with clean hardscape lines. Structural succulents, bold shrubs, and dramatic trees pull the look together for a stress-free environment.



photo: Alex Stevens

Lower Water Sedge Lawns



1 *Carex pansa*
California Meadow Sedge

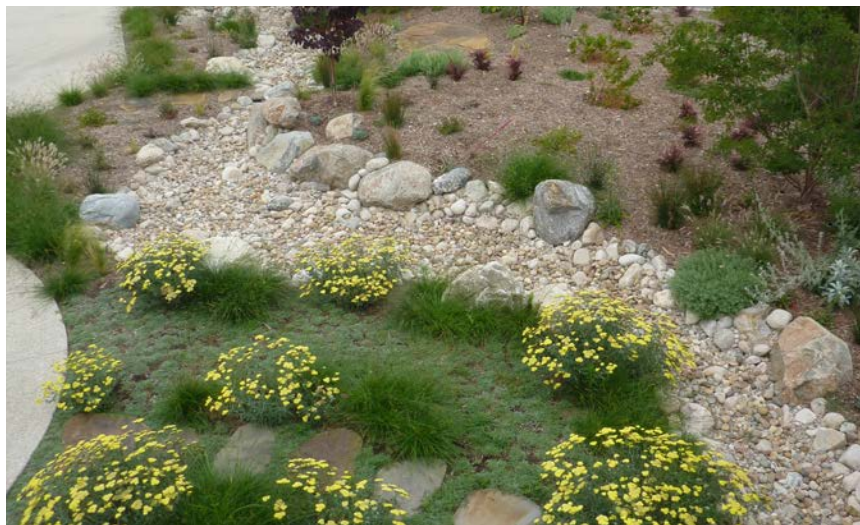


2 *Achillea millefolium*
Yarrow



3 *Zephyranthes*
Fairy Lily

Clean and contemporary hardscape surfaces are softened with gently wavy Sedge Lawns that include seasonally flowering bulbs. As with the Natural Lawn (*see p. 30*), evergreen Sedge Lawns can be mown regularly, or left wild and raked annually to freshen/de-thatch.



Leaving enough space between individual plants allows them to grow to their natural size. Fill the space between them with small woodchip mulch, and you are good to go!

Stunning Focal Point Succulents



1 *Agave victoriae-reginae*
Queen Victoria Agave



2 *Agave vilmoriniana*
Octopus Agave



3 *Kalanchoe beharensis*
Felt Plant

Sculptural plants look stunning year-round, alone or massed. Surround sculptural plants with smaller succulent varieties and evergreen or flowering ground covers. Dramatic succulent and sculptural plants add form and color to minimal styles. Plant single plant species in a beautiful container, then group pots or use alone as focal points.

Tips For On the Go Style Gardens

1. **Weather-Based Irrigation Control** is essential for managing irrigation efficiently even when you're only using the garden 2 days a week (*see p. 43*).
2. **Simple Permeable Hardscape** creates strong lines in the garden and is easy to maintain and keep clean (*see p. 21*).
3. **Raised Beds and Containers** allow you to highlight seasonal or showy plants while keeping digging to a minimum. These also allow for some seasonal food growing.
4. **Easy-Care Plant Groups** of three to seven or more odd numbered plants keep the eye moving around the garden and adds to the "organized" feel that relieves stress (*see p. 55*).
5. **Try Succulents** for clean and colorful groundcovers or bold architectural structure. These relatively low maintenance plants work well in the ground or in containers and compliment almost any architectural building style.
6. **Try Grasses** to soften the lines of hardscape or buildings. Be sure to mass plant these, creating the sense of a meadow or open space. Alternatively, larger grasses can be used along with succulents as architectural elements.
7. **Edible Perennials and Trees** provide food and work in containers or in the ground. Perennials don't need to be replaced every season like most vegetables. (*see p. 36*).
8. **Mulch** keeps weeds down, soil moist, and builds a soil sponge that boosts your garden's immune system (*see p. 29*).
9. **Support Structures** keep things climbing so they are easy to see and even easier to clean up for entertaining guests.





Low and Easy Maintenance

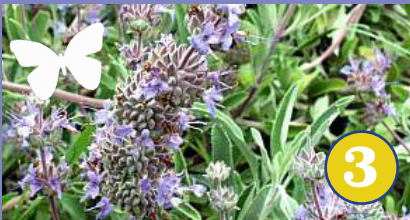
Natural Form Winners



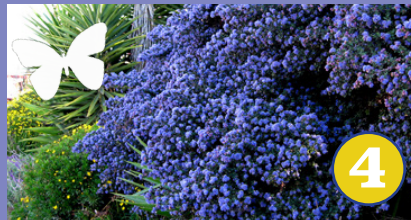
1



2



3



4



5

1 Callistemon 'Little John'
Dwarf Bottlebrush

2 Rhamnus californica 'Eve Case'
Eve Case Coffeeberry

3 Salvia 'Bee's Bliss'
Bee's Bliss Sage

4 Ceanothus (various)
California Lilac

5 Heuchera 'Santa Ana Cardinal'
Santa Ana Coral Bells

Low and Easy Style landscapes compliment many different architectural styles. These gardens predominantly feature large groupings of mostly local native plants surrounded by deep organic wood chip mulch.

Selecting plants for their natural forms, and choosing evergreen and variegated plants as the garden backbone helps to make maintenance an annual or semi-annual event rather than a weekly repetitive chore. Add in naturally long flowering perennial shrubs in large swaths for a sharper look.

Wide, permeable pathways make it easy to walk through the garden and spot weeds or plants that need special care.



Evergreen Options



1

1 *Rhamphiolepis indica*
India Hawthorn



2

2 *Nandina domestica*
Heavenly Bamboo



3

3 *Westringia fruticosa*
'Morning Light'
Coast Rosemary

Select evergreen shrubs (shrubs that don't lose their leaves) to provide year-round interest and provide the backdrop for flowering perennials.



Reduce your ongoing maintenance and keep your garden "under control" by leaving enough space between plants so they can grow into their proper sizes. Select plants for their foliage color, leaf shape, or natural form. Planting smaller plants and giving them room to grow makes for healthier roots, so you don't need to add fertilizers and other inputs.

Long Flowering Plants



1

1 *Salvia leucantha*
Mexican Bush Sage



2

2 *Grewia occidentalis*
Lavender Starflower



3

3 *Sphaeralcea ambigua*
Desert Mallow

Select long flowering plants and shrubs to reduce deadheading duty and keep the garden looking tidy with just one or two big clean ups a year.

Tips For Low and Easy Maintenance Style Gardens

1. **Mulch** builds healthy living soil, which is the key to improving soil moisture retention and boosting the immune system of plants so they can make it through a long, dry period without additional attention (*see p. 29*).

2. **Plants With Natural Forms** do not require staking or clipping to maintain their shape. Maintenance is reduced because you don't have to spend time shaping them.

3. **Native Drought Adapted Plants** are adapted to the Inland Empire climate and do not require special attention or maintenance (*see p. 24*).

4. **Big Beds and Swaths** of the same kind of plant are easier to maintain than a jumble of many different kinds of plants in small spaces. Remember to plant in odd numbered multiples for the best effect (*see p. 55*).

5. **Natural Meadow and Lawn** is significantly easier to maintain than a conventional turf lawn because it requires less water and no additional inputs if maintained organically. Natural Lawn is cut less frequently, and the grass clippings are best left on the lawn itself as organic matter to build the soil (*see p. 30*).

6. **Low Growing Groundcovers** fill gaps and keep weeds in check, thus reducing maintenance. Groundcovers also shade the surface of the soil, helping keep the moisture in.

7. **Wide Permeable Paths** rather than narrow winding walkways are easier for bringing wheelbarrows and trash bins for those infrequent maintenance days.

8. **Avoid Rambling Climbers** that grow fast and large and require constant attention to keep in bounds.





Family Gathering Spot

photos: Merrill-Kullin/istock.com

Tough and Beautiful Mediterraneans



1



2



3



4



5

- 1 *Lavandula* (various)
Lavender
- 2 *Rosmarinus officinalis prostratus*
Creeping Rosemary
- 3 *Teucrium chamaedrys*
Germander
- 4 *Cistus skanbergii*
Pink Rockrose
- 5 *Prunus ilicifolia ssp ilicifolia*
Hollyleaf Cheery

Family Gathering Style landscapes take advantage of different garden “zones” that provide places for the entire family to eat, cook, play safely, or sit and enjoy the garden.

Brick, tile, gravel, decomposed granite or fine wood mulch carpet large outdoor patios and furnished garden rooms. Generous tree canopies provide cooling shade and places to rest within the garden.

Patios should be permeable wherever possible, to allow direct rainwater infiltration, or contoured to capture all runoff in adjacent swales (see p. 38).



photo: Laura Morton

Vines for Arbors



1

1 *Hardenbergia violacea*
Purple Vine Lilac



2

2 *Clytostoma callistegioides*
Lavender Trumpet Vine



3

3 *Rosa 'Climbing Cecile Brunner'*
Climbing Rose

Plant colorful, flowering vines on arbors, trellises, bare walls and fences to shade garden rooms, patios, and add privacy.



The centerpiece of the **Family Gathering Style** garden is an arbor-covered patio with enough space for dining tables and chairs. With sufficient tree cover, this gathering area provides a physical place within the garden for your family to congregate. Consider both the surrounding view and the view of the nearby garden beds, and make sure there is a clear wide pathway with minimal steps getting you there.

Edible Fruit Trees



1

1 *Punica granatum*
Pomegranate



2

2 *Acca sellowiana*
Pineapple Guava



3

3 *Prunus salicina*
'Santa Rosa'
Santa Rosa Plum

Many beautiful fruit trees thrive in the Inland Empire, creating bountiful orchards and singular patio trees.

Tips For Family Gathering Style Gardens

1. **Explore the Senses** with plants that have great color contrast, strong fragrance or are soft to the touch.

2. **Edibles and Perennial Herbs** can be planted right in the garden to provide garnishes and additions to meals year round, connecting everyone with the outdoors, even in the rainy season.

3. **Raised Beds, Accessible On All Sides** make it easy to get around the entire planter without bending over. Raising a bed to 48" (waist height) allows for standing gardening, and 18" - 24" (knee height) allows you to sit on the edge of the bed.

4. **Wide Paths, No Steps** allow everyone to enjoy the garden without worrying about tripping and falling.

5. **Covered Dining Area** should be located closer to the home, near any outdoor cooking areas. As is the case inside the house, the cooking/dining area of the garden will become the natural heart of the site.

6. **Kids' Safe Play Area** should be visible from the cooking/dining area so adults are able to watch over kids without having to wander throughout the garden.

7. **Trees or Shade Coverings** should be used throughout the garden to protect the family from weather extremes and to provide a sense of enclosure or protection.

8. **Vertical Growing Surfaces** such as trellises or arches make gathering of fruit and flowers accessible to everyone.

9. **Garden Resting Spots** provide vantage points for enjoying the garden while watching kids, and talking to neighbors. Spend some time in thrift stores looking for unusual chairs and benches to decorate the garden!

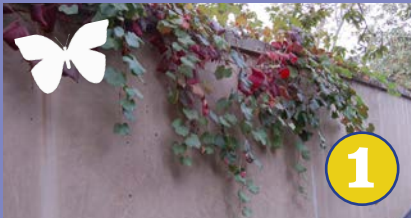




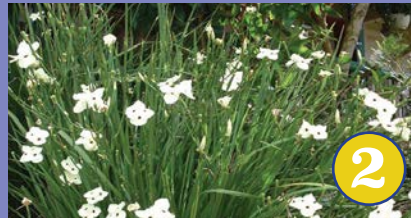
photo: Pamela Bersler

Kids, Pets, Fun and Friendly

Pet and Kid Friendly Plants



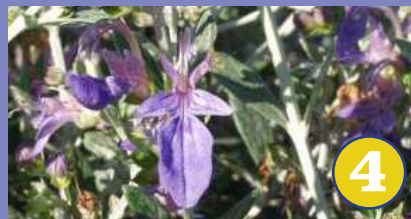
1



2



3



4



5

1 *Vitis 'Roger's Red'*
Roger's Red Grape

2 *Dietes bicolor*
Fortnight Lily

3 *Muhlenbergia rigens*
Deer Grass

4 *Teucrium fruticans 'Azureum'*
Azureum Bush Germander

5 *Asclepias fascicularis*
Narrow Leaf Milkweed

Kid and Pet Friendly Style

gardens have family areas with living boundaries created by groups of plants or low evergreen hedges. Kids get safe, special places where they can go for some creative playtime.

A small natural lawn or walkable groundcover area could create an open space that uses less water than a traditional cool season lawn (see p. 30). Raised beds provide an opportunity to grow seasonal vegetables such as tomatoes, corn, or pumpkins. Flowering perennials attract birds and butterflies, so be sure to make provisions to keep away outdoor cats.

Add to the adventure by incorporating a dry creek bed or permeable pathways wide enough for trikes and bikes.



photo: Pamela Bersler

Easy Perennial Containers



1

1 *Asparagus densiflorus* 'Myers'
Myers Asparagus Fern



2

2 *Grevillea lanigera* 'Prostrate'
Prostrate Woolly Grevillea



3

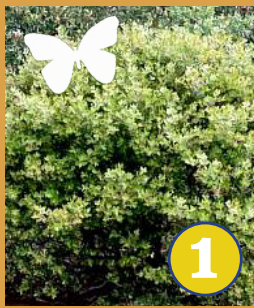
3 *Pelargonium sidoides*
Geranium

Blooming all summer, and repeatedly throughout the year, bushy perennial plants will bring flowers, butterflies, and hummingbirds to sunny patio containers with just weekly watering and a gentle annual haircut.



Secret areas and hideouts where kids or adults can gather and get away are essential for keeping people active in the garden. Consider growing a willow arbor, or installing a hut. Enclosing a hiding place, even if it is just with a low-growing hedge, is a good way to contain kids within the garden.

Low Growing Hedges



1

1 *Arctostaphylos* 'Sunset'
Sunset Manzanita



2

2 *Leucophyllum frutescens*
Texas Sage



3

3 *Abutilon palmeri*
Indian Mallow

Naturally low-growing hedges may be planted using a wide variety of drought-adapted shrubs that grow no taller than 3' - 4'. These can be used to screen seating areas or create kid-height enclosures with interiors easily seen from nearby patios and walkways.

Tips For Kid and Pet Friendly Style Gardens

1. **Organic Woodchip Mulch** throughout the planted and play areas provides soft landings and has the additional benefit of improving soil quality. Organic mulch is a preferred walking surface for dogs, and if contained by edging, makes a great running surface (*see p. 29*).

2. **Make A Small Natural Lawn** as a soft play surface, if your kids are into running around. Make sure to maintain it organically and manage your irrigation efficiently (*see pp. 30-31*).

3. **Raised Beds For Seasonal Edibles** grow fun annual things like squash, pumpkins, and sun flowers.

4. **Avoid Fragile or Thorny Plants** because they will not withstand the pounding of lost balls or games of hide and seek. Planting poisonous plants is never a good idea if there are young people and pets around the garden.

5. **Big Rock Creeksbeds** are better than piles of little stones that are easily picked up and thrown around. The additional benefit of big rocks is that they can be used as seating or for climbing.

6. **Natural Is OK** because it's easier to maintain, and provides more visual interest. Woody shrubs that are not cut back continually provide cover for nesting birds raising their young. Allow plants to hold on to their dried seed heads, and you will be rewarded by nature (*see p. 37*).

7. **Protect Special Plants** by adding some low fencing or by placing sticks vertically in garden beds. This is especially important in perennial beds that host the birds and butterflies you don't want disturbed by outdoor cats.

8. **Beware Of Burrs** from grasses that could get into pets' hair or become hurtful splinters for paws. Either cut grass seed heads regularly, or don't plant them at all.

9. **Keep Something Overgrown** or an area covered with leaves for your dog to forage in. They will thank you for remembering their wild side!





The living Soil Food Web

OWL (Oxygen, Water and Life) makes Living Soil.

Living Soil is alive. A teaspoon of good garden soil contains billions of invisible bacteria, several yards of equally invisible fungal hyphae, several thousand protozoa and a few dozen beneficial nematodes. Microbes bind soil together and, when OWL is balanced, these billions of microbes can transform brick-like dirt into a healthy, living soil sponge.

Oxygen is needed by healthy plant roots and soil organisms. Healthy soil has lots of tiny, little pockets of air.

When soils are eroded, graded, or disturbed, their structure becomes compacted. Compaction is caused when the tiny air and water bubbles are squeezed out of the soil and the microbes are killed. Microbes can be killed by fertilizer and pesticide use or even heavy traffic (foot or vehicular).

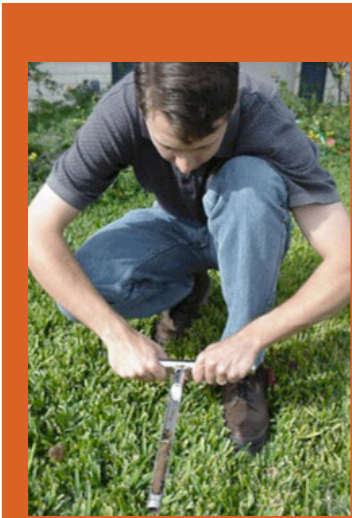
Water is needed by both plants and microbes. But too much water in the soil will displace the oxygen, saturating the soil and creating an anaerobic condition. Pathogenic microbes prefer anaerobic soil, and if this condition persists, diseases may develop, thus endangering the health of your garden.

Water is constantly moving through the soil. Any water in the soil

needs to be replenished as the plants use it, as it evaporates from the soil surface, and as gravity pulls it down past the root zone.

Life in the soil includes all of the bacteria, protozoa, nematodes, and fungi, the food they eat, the excretions they make, and the root systems they sustain. Adding good quality compost into the soil is the fastest method of incorporating living microbes.

Plants attract microbes to their roots by feeding them carbon. Bacteria and fungi hold the soil together with microscopic glues and binders. The microbes consume organic matter and are then consumed themselves by larger creatures (worms, ants, slugs, centipedes, insect larvae, etc.) In turn, these creatures are consumed by creatures further up the food chain. Carbon and other nutrients are cycled through these many life forms, creating healthy, living, well-structured soil, no matter what the soil type.



Use a Soil Probe

A soil probe allows you to determine a lot of information about your soil. It will come in handy when you are trying to figure out whether water is reaching the plant roots or even going too deep beyond the roots' reach.

Press the probe into the ground, twist and pull out to take a sample. Take multiple samples from around your garden. How deep are your plants' roots?

Use this kind of probe on a regular basis if you are maintaining lawn area. It is a quick tool for determining whether or not your irrigation schedule is providing enough water.

Purchase a soil probe online or at your local irrigation warehouse (*see pp. 66-67*).

Build a great soil **Sponge**

Try to avoid excessive disturbance of the soil. But, if it happens, make sure you add Oxygen, Water and Life in the form of really good compost as soon as possible to get the soil flora and fauna working again. Good organisms turn dirt into a great living soil **Sponge**.



Eliminate **Compaction** by loosening soil.

If you can press a pitchfork into the soil, then that is all you need to do to create air holes.

If the soil is heavy clay, then augering or tilling may be necessary. Immediately after augering heavily compacted areas, fill the holes with good compost or earthworm

castings. Then water the whole thing thoroughly to get the biology processes kickstarted. Remember that augering and tilling damage the web already existing in the soil, so they should be employed only when absolutely necessary. **If you have a lawn, aerating twice a year will help eliminate compaction.**

After decompacting, two essential practices for maintaining soil oxygen are:

- 1) Feed the soil organic matter.
- 2) Manage water so things don't get too saturated or too dry.



Water Wisely, first with rainwater.

Rainwater provides the perfect chemistry for both plants and microbes, and should be directed into landscapes.

Irrigate only to maintain the water balance in soil. Too much water saturates soil and results in the anaerobic conditions that promote disease.



Feed your soil.

Organic matter improves the water holding capacity of soil. You can get organic matter from a wide variety of sources, including compost and living mulch. Once you get things started, plants manufacture their own organic matter to build the soil.

Mulch, compost and compost tea can be applied to the surface of the soil and used as amendments during planting and soil preparation.

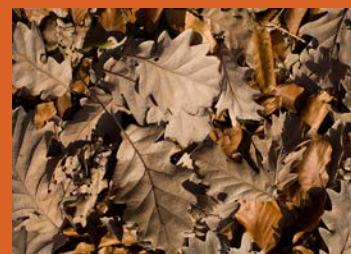
Ornamental plants usually do not need to be fed with fertilizers (even organic ones) if you maintain OWL.

No Weed Cloth!



It looks like weeds grow right through weed cloth. Weeds are actually encouraged because OWL is kept from happening when the organic matter from fallen leaves doesn't touch the soil.

Leaf It in Place



Keep leaf litter and grass clippings on the soil surface, under the plants from which they fall, instead of removing them during maintenance.

Be careful not to pile up leaves or mulch against the trunk of the plant. Try to keep them a minimum of 5" away from the trunk.

Tea for Two



Compost tea and worm castings offer a microbe jump start, providing many benefits of compost in an easily-digestible aerated liquid (compost tea) or dry form (worm castings), already teeming with life.

Cut It out or Cook It down?



Cool Season Grass

grows best in cooler periods of the year.

This grass will require water in the hot summer or it will die and you will have to replant or overseed.

Typically these grasses grow as bunch grasses and propagate by seed or weak stolons. Cool season grasses are smothered easily by sheet mulching.

Varieties include: Bent Grass (*Agrostis*), Fescue varieties (*Festuca* varieties), Kentucky Bluegrass (*Poa pratensis*), Perennial Ryegrass (*Lolium perenne*).

Cool season grass needs more water than warm season grass and is considered a HIGH water use plant.



Warm Season Grass

grows best in warmer periods of the year.

This grass hits its stride when temperatures exceed 80°F, but will go dormant (golden brown) in the winter time when rainy and cool.

Typically these grasses grow from sturdy rhizomes extending deep underground. Warm season grasses require physical removal and/or intensive sheet mulching using at least 6" - 12" of mulch.

Varieties include Bermuda Grass (*Cynodon dactylan*), Blue Grama (*Bouteloua gracilis*), Buffalo Grass (*Buchloe dactyloides*), St. Augustine Grass (*Stenotaphrum secundatum*), Zoysia, and Seashore Paspalum.

Warm season grass is a MODERATE water use plant.



Cook It

if you have cool season grass.

If your lawn is a cool season turf, you can leave it in place and sheet mulch following the Soil Lasagna Recipe (see pp. 18-19) to cook your grass away. This might take up to four months to complete. If you want to speed things up a bit, cut out the grass with a sod cutter and then sheet mulch.



Cut It

if you have warm season grass.

If you have any combination of the warm season grasses, you have a bigger project ahead of you. You'll need to remove the grass, as much of the roots as you can, and perhaps even the top few inches of soil as you try to get rid of the roots.

The best way to do this is with a sod cutter. A sod cutter, dumpster to remove the cut sod, and other equipment can be rented. Once you've cut it out and disposed of it properly, you can get cooking using the Soil Lasagna Recipe to build the healthy soil. If you cut out the sod, you can plant as soon as you finish sheet mulching!

Rent a Sod Cutter

Most large box stores or hardware stores have sod cutters available for rent.

Prepare for Success

If you are ready to transform your water-guzzling grass into healthy living soil, just follow along with the recipe for Sheet Mulching, a.k.a. "Soil Lasagna" (see pp. 18-19), and you will have delicious living soil in no time. Here are some things to consider as you plan your grass removal process.

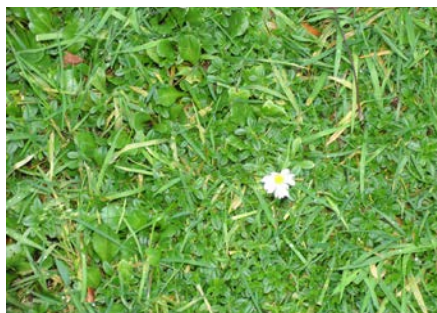


Consider Solarizing your garden.

Soil solarization is a process that uses the sunlight to kill unwanted grass, weeds, and microorganisms. Research shows that beneficial soil organisms quickly reestablish themselves in healthy organic soil following solarization. This process has the added

benefits of not using harsh and expensive chemical pesticides to eliminate your turf grass. There are two things to consider when solarizing your garden:

1. The broiling approach kills many living things in the soil, including some microbes, so add organic matter to bring back the good guys after you are finished.
2. This process uses plastic, so consider what you will do to recycle or reuse it when finished.



Keep grass Moist.

Grass should be living until you remove it. You want to be able to work with the microbes in the soil, and they need water to stay alive. Also, it will be easier to remove grass that is fresh and moist than it will be to try to find the weeds you missed in a clump of dry dead grass.

Keep the irrigation on until the day before you are ready to sod cut or sheet mulch the grass away.



Get Together your materials.

Use a Site Plan to figure out how much area of grass you are removing. Now you will have to do the calculations for compost, paper and mulch (see p. 52).

If you are going to do the Sheet Mulching process, you will need the following (see pp. 18-19):

1. 1" of compost OR enough compost tea to cover the area

RULE OF THUMB: 5 gal. undiluted compost tea covers about 1,000 sq. ft. garden.

2. 4" – 6" of mulch over the whole area
3. Rolls of painters' paper or cardboard with 6" overlaps

RULE OF THUMB: Multiply the Square Footage of the area by 1.25 to determine the total amount of paper you will need. This multiplier allows you to overlap the paper by at least 6" on all sides to make sure that no sunlight gets in.

Compaction Kills Plants



The bigger the equipment for removing the turf, the more the soil beneath is compacted. Try to only use hand powered or walk-behind equipment rather than a bobcat or other scraper.

Call Dig Alert (811)



Hitting a gas line or water main is no laughing matter! Call at least two days before digging so marks can be made to avoid underground cables, water lines, gas lines and sewer pipes. Be careful when digging around irrigation lines; they can be as shallow as 4" below the surface. Have some irrigation repair materials on hand to be able to fix a leak if you break one.

Till Can Kill



Tilling soil breaks up and kills soil microbes so you are pretty much guaranteed to have weeds pop up afterward. If you have to till, follow up right away with compost or sheet mulching.



Lose your lawn Without Killing your soil

photo: Marilee Kuhlmann

Sheet Mulching makes Soil Lasagna.

We call this lawn removal process Sheet Mulching, or **Soil Lasagna**, because living soil organisms break down any organic matter. Once you've made the Soil Lasagna, all you need to do is keep the system moist so the microbes can stay awake and cooking. How long this will take depends on the kind of grass you have (*see p. 16*). If you have warm season grass, you will have to cut it out, but you can plant right away. If you have cool season grass, you can leave it in place, but it will be a while before it's ready for you to plant into the yummy soil you are creating.



You Will Need:

- Shovels and Rakes
- Bins for removed grass and soil
- Landscape flags
- Compost, Worm Castings, or Compost Tea

- Wheelbarrow(s)
- Mulch
- Painters' Paper or big sheets of Cardboard
- Hose with shut off nozzle at end
- Water (LOTS!)

Secure Your Permits
Call DIG ALERT (8-1-1) two days in advance, and check with your local water agency for any water use restrictions.

Rent a Dumpster
For every 1,000 sq. ft. of turf removed you will need 1 low-boy (10 yard capacity) dumpster.

- 1** After you have checked for permits and any local water use restrictions, deal with the lawn you have. If it's cool season, mow it to about 1/2" height, say goodbye and soak it thoroughly with water. Then go to #3. If you want to cut out cool season grass, go to #2.
- 2** If you have warm season grass, rent a sod cutter and remove the grass and 2-3" of roots beneath. The result is that you will be removing about 6" of grass and soil. Unfortunately, this must be hauled away, so you will need to rent a dumpster.



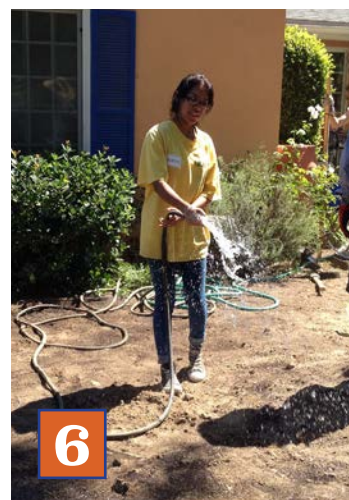
3



4



5



6

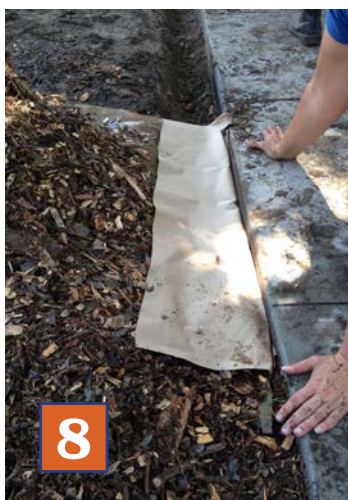
- 3** Dig a trench 8-12" deep (about 1 shovel depth) and at least 12-24" wide around all hard surfaces and building foundations (less deep here). **Before moving on, complete your contouring for rainwater absorption and retention and any landscape adjustments such as paths, patios, or other features** (see pp. 38-39).

- 4** Flag your sprinkler heads so you can find and adjust them later.

- 5** Add a (1/2" to 1" deep) layer of compost on top of the graded soil. Alternatively, use humates, a sort of freeze-dried compost available at some landscape supply stores, or spray with compost or worm tea. You are adding good instant food and some microbes to the soil!



7



8



9



10

- 6** Water everything well. Wake up microbes! Let's get the party started!

- 7** Roll out painters' paper, cardboard or other paper. Overlap at the seams by at least 6". No naked soil!

- 8** On the hardscape edges, make a "burrito" of rolled paper and mulch to keep grass from resprouting immediately.

- 9** Water the paper again and add another layer of compost here, if you'd like. Rake a thick blanket 4-6" deep of mulch over the paper or compost.

- 10** Water the mulch thoroughly. This mulch layer will absorb more water than you ever thought possible to become soaked through. Don't despair; just keep watering!

- 11** Plant right through the layers (see p. 25). The longer you wait to plant, the tastier the lasagna will be for the new plants, but you can plant right away if you removed the grass. **If you kept your cool season grass in place, count on waiting 3-4 months before planting. Make sure your HOA is ok with the time frame.**

- 12** Step back and admire your work!



Slow, Spread, Sink and Store

photo: Paul Herzog



photo: Alex Stevens

Slow It! Replace downspouts with rainchains to slow down the water, so it is more easily absorbed when it reaches landscaped areas. Add a rain barrel or cistern at the bottom of the downspout or rainchain and allow it to overflow into the garden.

Don't Have Gutters? Cover areas under eaves with permeable groundcover such as pea gravel, mulch, or rock to reduce the compacting force of water falling on bare soil. Spreading fresh leaf and wood chip mulch throughout the garden will slow down water. Healthy soil, bound together by the structures its life creates, can withstand even the strongest rains.

Spread It! Water needs to be spread around to spend some time in your landscape. For new construction, always specify permeable hardscape. Consider breaking or cutting up impervious surfaces like patios and walkways and rearranging the concrete with gaps between the concrete or puncturing it to create planting areas. Paved area drains also can be redirected from storm drains into the garden.

Sink It! Trust the soil sponge to do its job. Existing impermeable surfaces that cannot be transformed should be treated as water capture areas, where water is collected before it is guided to the garden. If you are not able to capture and hold the water on site, then concentrate on making sure that it passes through as much of the natural landscape as possible before it moves off your yard and becomes runoff.

Store It! Rainwater also can be directly harvested and stored. Storage vessels include rain barrels and cisterns directly connected to downspouts. Stored water gradually can be released into the landscape between winter rains. Properly sited trees are an excellent landscape feature for holding rain and allowing it to be released slowly over time. Check with your local water agency for available rebates.



photo: Building Green Features 2015

Rainwater is a Resource



Photo: Alex Stronach

Five Great Permeable Surfaces



- 1 Sand set pavers
- 2 Porous concrete paving
- 3 Interlocking pavers
- 4 Gravel
- 5 Grooves cut into brick path

photos 1,3,5: Pamela Bersler

Rain can be used Before irrigation.

During the rainy season, run off from hard surfaces (roofs and patios) can be directed to the landscape. By capturing rainwater in soil you may be able to build an ecosystem that can go through the dry summer months with minimal or no additional water. This whole environment can be transformed into a living sponge and a giant rain barrel. Or, if there's more rainwater than can be absorbed, or the soil is particularly impermeable, then you can allow it to flow-through the garden, removing pollution before sending it along its way.

In order to capture rainwater you will have to take a serious look at your roof, do some basic math (*see pp. 52-53*), make choices about when and where to hold the water, and contour the garden so the garden makes the grade (*see pp. 50-51*). Also, you can figure out whether or not the soil needs help to be a better sponge (*see p. 47*).

Some Rainwater Capture Rules

- Always check with local building regulations before altering your drainage.
- Redirect downspouts from hard surfaces into landscaped areas or other permeable surfaces.
- Use rain barrels or cisterns and direct the overflow into landscaped or permeable areas.
- Choose permeable hardscape for new patios, walkways and driveways.
- Break up impermeable surfaces like walkways and patios or cut 4" gaps in driveways.
- Keep all soil on the property and use it for creating contours throughout the landscape.
- Make sure you have turned your soil into a sponge by adding organic matter or Sheet Mulching.

Determine your Water Needs

Evapotranspiration (ET) is the key to watering plants.

Evapotranspiration (ET) is the process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants. ET is a quick way for plant people to explain environmental conditions, especially solar radiation (sunshine or cloud cover). The stronger the sunshine, the higher the ET and the more water a plant needs.

Plant leaves are like giant solar panels, gathering energy to enable the plant to transform water and carbon dioxide from the air

into oxygen and sugars for building their bodies and feeding soil microbes. Transpiration is like plant sweat. It cools down the solar panel leaves.

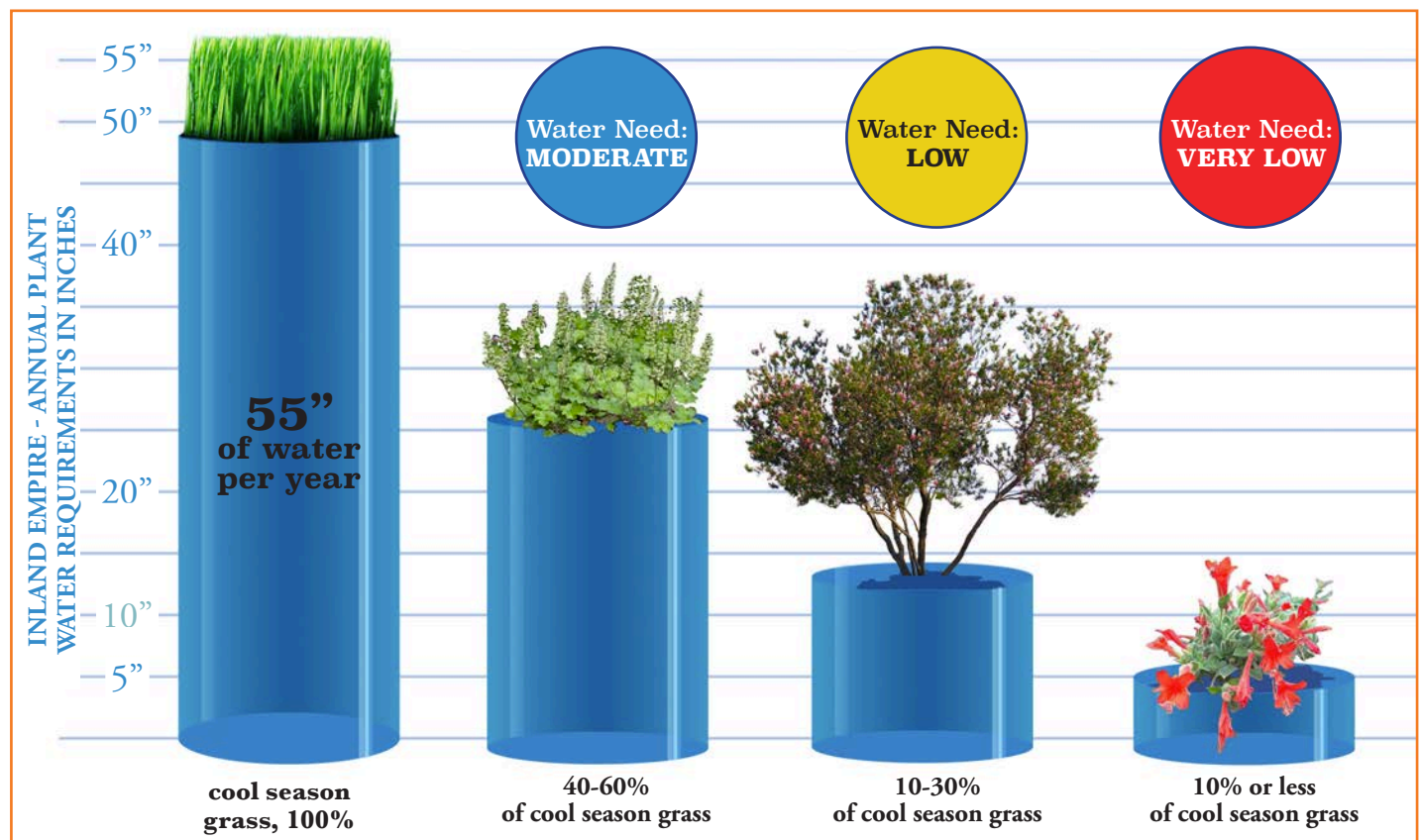
ET therefore, explains how much water plants really need and when they need it. It is helpful to understand water loss in terms of evapotranspiration when selecting plants for the lowest landscape water needs and maximum savings, planning irrigation and managing the **Soil Moisture Account** (see p. 26).

Water Requirements categorize each plant's irrigation need.

The water requirement of each plant in your landscape can be determined by gathering information about that plant and then comparing it to the amount of water needed by cool season grass growing in your climate zone.

These water requirement categories, include: **VERY LOW**, **LOW**, **MODERATE** and **HIGH**.

Once we select our plants, we can figure out the water use of the entire irrigated landscaped area.



- **HIGH** Water Requirement plants need 70-100% of the water needed for grass lawn
- **MODERATE** Water Requirement plants need 40-60% of the water needed for grass lawn
- **LOW** Water Requirement plants need 10-30% of the water needed for grass lawn
- **VERY LOW** Water Requirement plants need 10% or less of the water needed for grass lawn



- 1 Moderate
- 2 Low
- 3 Very Low

Notice that wherever we have provided plant selections or lists in this book, we have identified the plants by their water needs by placing their identification numbers on a colored background (see pp. 60-62). You can use this color coding to help you group plants by their water requirements in your new landscape, so they may be irrigated more efficiently. The **Butterfly** icon indicates plants that support the life cycle of butterflies.

Group plants by **Hydrozones**



Hydrozone Rules

- Plants with similar cultural and water requirements should be planted together in order to irrigate them efficiently.
- Consider the soil, water needs, sun/shade and temperature requirements for each hydrozone.
- Each hydrozone should be watered by a separate irrigation valve.
- Do not mix plants with different water requirements in the same hydrozone.
- Do not mix different irrigation types in the same hydrozone.
- The irrigation of each hydrozone should have matched precipitation (every nozzle needs to emit the same gallons per minute or in drip systems, gallons per hour).

Five Sun Lovers With Moderate Water Needs



1 *Gaillardia x grandiflora*
Blanket Flower



2 *Agastache*
Hummingbird Mint



3 *Rosa floribunda*
'Iceberg'
Iceberg Shrub Rose



4 *Muhlenbergia lindheimeri*
Lindheimer's Muhly



5 *Pistacia chinensis*
Chinese Pistache

Five Sun Lovers With Low Water Needs



1 *Calliandra californica*
Fairy Duster



2 *Caesalpinia pulcherrima*
Red Bird of Paradise



3 *Eriogonum parvifolium*
Cliff Buckwheat



4 *Muhlenbergia capillaris*
'Regal Mist'
Pink Muhly



5 *Heteromeles arbutifolia*
Toyon, Christmas Berry

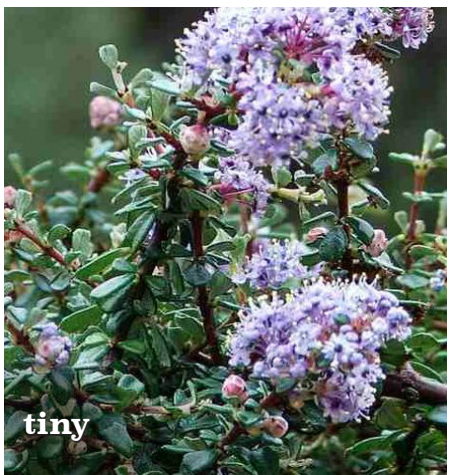


Use Climate-appropriate plants

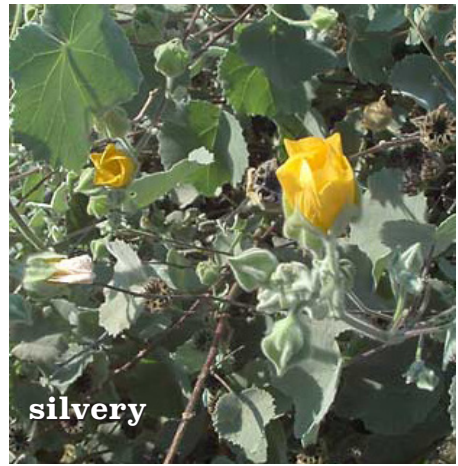
photo: Pamela Bersler



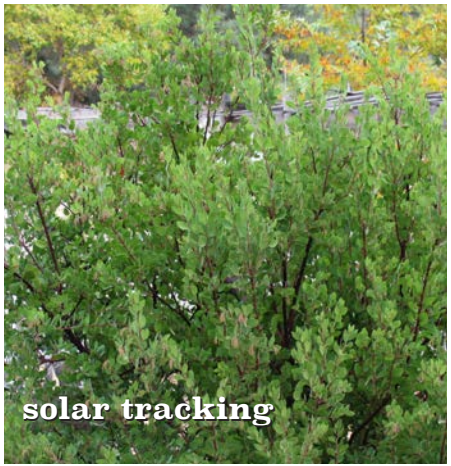
leathery



tiny



silvery



solar tracking

California native plants have evolved over time to thrive in our unique climate conditions. By learning to recognize their adaptation tricks, you can identify climate-appropriate plants wherever you are. These four characteristics will allow you to find climate-appropriate plants in a crowded nursery.

Stiff, Leathery

These leaves hold on to water and stay evergreen for most of the year.

Silver or Hairy

Light colored leaves reflect sunlight, cooling the plant. Hairy back sides of leaves hold moisture longer, cooling them off.

Tiny or Little

Small leaves are like tiny solar panels that are easier to keep cool than one large hot surface.

Solar Tracking

Leaves that appear to be standing at attention, straight up and down in the middle of the day, are solar tracking. As the day progresses, or if you see the same plant in the early morning, you will find that the leaves are more horizontally oriented. This plant is moving its solar panels to minimize the hottest sun exposure. Many of the California native manzanitas utilize this adaptation.

Plant with Confidence

Now you are ready to **Install** plants!

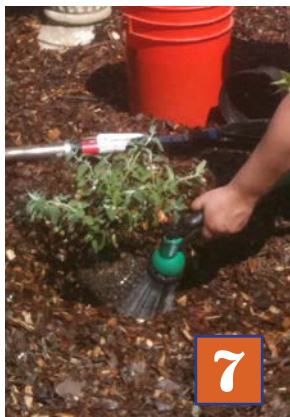
Follow these simple steps to achieve healthier roots and overall plant growth.

You Will Need:

- Tools: shovel, hand trowel, hose
- Plants
- Compost
- Mulch

Add these to your list for more advanced planting:

- Mycorrhizae (not for grasses)
- Fish Emulsion or Water Soluble Humates



What's with all the Water?

Drainage. If the water does not drain within an hour or so, it's probably not a good place to plant a climate-appropriate plant until you fix the compaction (*see p. 15*).

Kickstart OWL. By watering so thoroughly, you are getting soil organisms that might be in the surrounding soil ready to start supporting the plant.

Plant Shock. The major reason plants suffer from planting shock is that the dry soil around the new plants wicks water away from their rootball, sending the plant into shock from which they never recover. By watering the surrounding soil, you reduce the probability of plant shock.

Successful Planting In Ten Easy Steps

1. **Dig A Hole!** Don't dig it any deeper than the rootball of the plant. Do dig at least a little bit wider than the plant to loosen the surrounding soil. If you accidentally dig too deep, be sure to put the soil back in and tamp it down firmly before moving on, to give your plant a solid base.

2. **Throw In Some Compost** or worm castings no more than 1" deep - along the bottom of the hole. Never put mulch in a hole! And don't bother with fertilizers either (*see p. 29*).

3. **Fill The Hole With Water TWICE**, and allow it to drain completely each time. This will take a long time, unless your soil is really sandy. Start digging the next hole, or take a break.

4. **Submerge The Rootball** in a bucket of water until air bubbles stop bubbling up. Keep the plant in its container but ok if you take it out - just be careful with the delicate roots.

5. **Add Fish Emulsion** or soluble humate to the water (follow label directions). Dust the rootball with a mycorrhizae inoculant (only if the plants are woody, so don't bother with the grasses).

6. **Place Plant In Hole**, make sure the root collar (that's where the roots join the stem or trunk) is a bit (1/2" - 1") higher than the surrounding soil/ existing grade. This is super important because we don't want the plant to get choked by the surrounding soil.

7. **Fill The Hole With Water** one more time (this time with the plant in it) and let it drain completely.

8. **Now Fill The Hole With The Soil** you dug out (not with fancy potting soil!), making sure the soil slopes away from the root collar. Tamp the soil down (use your feet, but be gentle) so the plant doesn't move around.

9. **Don't Create A Bowl** around the plant. Really! Your plant doesn't need it and it might make a moat that would drown your climate-appropriate plant.

10. **Water The Soil All Around The Plant** one more time, and deeply. And have a drink yourself!



Water Wisely

photo Pamela Bersinger

Manage Water to keep OWL alive!

The objective of managing water wisely in the landscape is to keep just the right balance of oxygen and water so that plants look great, stay healthy, and the soil microbes are kept awake to cycle nutrients.

In the Inland Empire, over half of the water coming into an average household is usually used for irrigation. Additionally, according to USEPA experts, up to 50% of commercial and residential irrigation water used is lost due to evaporation, wind, improper system design, or overwatering. So, we always want to be sure to use water as efficiently as possible for our gardens.

Healthy soil, full of life, absorbs water like a sponge and shares it with plants as needed. It also releases any excess water once the sponge is saturated. During the traditionally wet Inland Empire winters, a healthy soil sponge can absorb a surprisingly large quantity of rainwater, to be released slowly to plants as they need it in the drier months. Shading the soil surface with plant material and mulch, protects soil water by slowing evaporation.

Balance Your Soil Moisture Account.

When oxygen and water are in balance within the soil, the amount of water that is lost through evapotranspiration (ET) is just like writing a check for water out of the soil bank account.

The water that enters the soil reservoir as rain or irrigation is just like making a deposit into a soil checking account. By keeping records of these transactions (water in and water out), it is possible to know how much water is available in the landscape soil reservoir at any given time for the plants to spend.

The initial soil bank balance is determined by direct observation or is assessed after a thorough wetting of the soil by irrigation or winter rains. Every day, plants take small amounts of water out of the soil through ET. The soil bank is filled up again when it rains or the landscape is irrigated. The trick is to make sure that you don't overdraft your account.

How do we tell when our account is depleted? Smart irrigation controllers and landscape professionals are able to calculate this OR you can rely on probing with your fingers or using a soil probe.



Wet or Dry?

Use "digital" technology! Soil may appear dry on the surface, stick your finger into the soil and make sure it's wet below. If it's wet up to your second knuckle, it doesn't need any more water, so wait another day or two. Alternatively, if you use a soil probe, you can feel the moisture in the soil and make a determination

yourself (*see p. 14*). You can look at plant health to determine water need, but sometimes overwatering and underwatering will produce similar results in plants.

Underwatering Symptoms

- Soil is bone dry
- Older leaves turn yellow or brown or drop
- Leaves are wilted
- Leaves curl and become brittle
- Stunted growth
- Plant is dead!

Overwatering Symptoms

- Soil is constantly saturated
- Leaves turn a lighter shade of green or turn yellow
- Young shoots are wilted
- Leaves are green yet brittle
- Algae and mushrooms are present
- Growth is excessive or stunted
- Plant is dead!

Wise irrigation Management

Keep Water on the landscape.

Observe the irrigation while running and check to make sure that sprinkler heads are not spraying water onto sidewalks, patios or structures. If the water is being applied too fast for the soil to absorb it, runoff will occur. Puddling and pooling also may be an indication that water is applied too fast or too often. Repairs to broken pipes and heads should be made immediately, or the system should be turned off until repairs can be made. The optimal time to water is in the late evening and very early morning. Check with your local water agency for any watering restrictions.

Cycle and Soak Programming eliminates water runoff. Observe how quickly runoff occurs when you are running your irrigation. This is the **MAXIMUM** run time for your irrigation controller in this hydrozone. So, to cycle and soak your irrigation, you divide up the total minutes required by the hydrozone into blocks of time no longer than the observed runoff time and allow a 30 minute rest period in between the irrigation cycles.

For example, if we need 12 minutes of water in a certain hydrozone, but we observe runoff after 4 minutes, we break down the 12 minute total into three 4 minute cycles with 30 minutes between each cycle.

Hand Watering is especially good for getting a garden established when you are going to want to spend more time looking at the plants to make sure nothing is amiss. During establishment you may need to water more frequently because roots are only 4" - 10" deep on a newly-planted one gallon plant. (That's why it's great to try to plant during the rainy season!)

Really look at your plants. Are they appearing droopy or sad? Is the soil very dry? If so, then give the plants a good drink and watch. Don't water more than two days in a row, and let the soil partially dry out completely before watering again. Remember the symptoms of overwatering and underwatering are very similar (*see p. 26*).

After the first year or two, once your plants are settled, your sustainable garden should not need water more than once or twice a month, if at all.

Observe Your Irrigation System

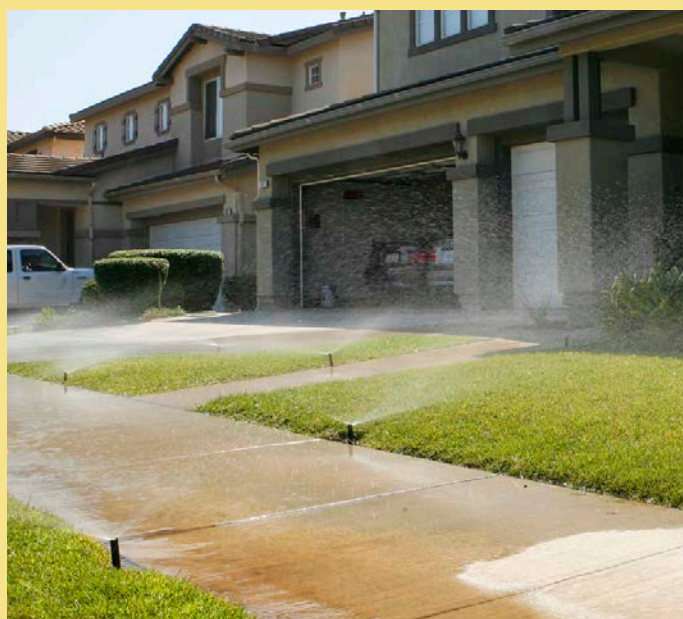
Turn on each valve of your irrigation system and observe how quickly water begins to run off the landscape. Note the time when the runoff occurs. For some systems this could be immediately, and others it may take as long as 5 minutes. Sandy soils with properly tuned irrigation may never see significant runoff.

Make sure that the spray irrigation is never running for longer than 8 minutes at one time.

Make notes on your irrigation plan and turn off your irrigation until you are able to fix these issues:

- Do you have broken sprinkler heads?
- Are there heads that are blocked by plants or objects (planters or lights)?
- When the system turns off, does water come out of the lowest heads in the landscape?
- Are heads in need of adjustment so they do not directly spray on to the hardscape?

The image below is an example of the overspray and runoff of an inefficient irrigation system.



Adjust Sprinklers to Eliminate Runoff

Several things can be done to minimize runoff due to irrigation. These include:

- 1** Convert planter area spray systems to drip irrigation with the lower precipitation rates, pressure regulation and a filter.
- 2** Tune up spray irrigation systems so there is no overspray on to hard surfaces.
- 3** Do not install spray irrigation in areas that are too narrow for spray (8' wide or narrower).
- 4** Move spray heads 24 inches from any buildings or hard and impermeable surfaces.
- 5** Cycle and Soak irrigation run times.
- 6** In lawn areas, be sure to follow the organic maintenance practices to keep your soil spongy (*see p. 28*).

photo: Marianne Simon

Tend your garden

Congratulations! Your beautiful new garden is now filled with low water-use plants and your healthy living soil is doing most of the work to feed and water them. You get to sit back, relax, and enjoy the view! But you're not quite done. Your garden is alive (more alive now than ever) and it will need some tending to thrive.

Add Organics. As mulch breaks down, add more! The easiest way to do this is to use falling leaves from your trees. A leaf-covered garden is a healthy garden! You can brush them off patios, walkways and stairs right onto the existing mulch. No falling leaves? You can get more mulch from your local composting facility, or order it from a local nursery or building supply yard.

Weed. You are going to have to weed, especially after the winter rains, and especially in the first year. Even with a thick layer of mulch, you may still have some weeds popping up. Be sure to weed them out regularly, as many of them are aggressive and thirsty imports that will quickly outcompete your new plants.

Water. Especially the first two years after planting, you need to give your plants a little extra water. Not too much! Remember, these plants (and your soil) will be healthier, live longer, and grow stronger if you give them just enough water.

Prune. Get a good pair of hand clippers, gently prune trees perennials and grasses as needed. Mow your meadow annually after it has self-seeded to keep it clean and walkable. Don't mow it too short - look up the grasses and/or sedges that you used and follow growers' directions.

Maintain For Rain. Check downspout connections and overflows annually to make sure they're working properly. If you don't have gutters and downspouts, make sure there are no areas of erosion around your house. Consider adding a rain chain and small bit of gutter if you need to direct water away from a highly eroded area. Loosen your soil if it's become compacted, remove and relocate extra soil or silt that's built up, and add mulch if needed.

Harvest. Fruits, vegetables, seeds and flowers - it's up to you to pick them when they're ready, before the birds and other creatures get them. If you have stiff competition in your neighborhood, invest in some bird netting or lightweight mesh bags and wrap your trees, vines, shrubs or the fruit itself a week or so before it's ready to harvest. Be sure to clean up fallen fruit to limit pests.

Integrated Pest Management (IPM). A few aphids or caterpillars will feed the birds, but a massive infestation requires immediate action on your part. Remove diseased plant material and don't put it in your compost pile. Wash off unwanted insects with your hose. If they come back try spraying them with a mixture of mild dish soap and water, or with compost tea. Snails and slugs shouldn't be a problem in the garden, but if you find too many, leave out coffee grounds, crumbled egg shells or a pan full of beer for them - they'll drown happy!

Go Out and Have Fun! By spending time relaxing and playing in your garden you will be more aware of how it's growing, how it changes, and what it needs.



Maintain Lawn Organically

If you decide to keep your grass, follow these guidelines to maintain it organically so that it will play nicely with the rest of your sustainable landscape.

- Topdress with 1/8" - 1/4" good compost annually
- Aerate and de-thatch annually
- Manage your irrigation
- Mow less frequently
- Maintain 3" - 4" height on cool season grass and 1-1/2" to 2" height on warm season grass
- Grass-cycle every time you mow or use a mulching mower
- Do not allow seed heads to form on the grass (remove if they do)
- Consider over-seeding with clover to turn it into a Natural Lawn (*see p. 30*)
- Eliminate chemical inputs

Compost and Mulch



Compost is a soil amendment.

Compost looks like soil. You cannot tell what it once was. That is because it is food scraps, landscape debris and/or manure from livestock, or biosolids (human manure) and other organic matter that already has been partially consumed and mostly decomposed by micro-organisms. Good compost brings oxygen, water and life in one package.

How to Use Compost. Compost can be store-bought or homemade. When compost looks like soil, it can be worked directly into the soil. The more coarse or visible the bits of the compost are, the more likely it is to be used as mulch on top of the soil rather than as an incorporated amendment.

Compost works its magic in several ways. First, the compost itself contains particles that improve soil structure. Next, as compost decomposes in soil it encourages the formation of healthy soil. These resulting aggregates are composed of existing soil particles and decomposed organic matter, which combine to create a more stable and better functioning soil structure.

Mulch is a soil topping.

Mulch may be organic or inorganic material that covers soil and looks like the recycled debris that it is. Mulch can be made from organic debris (grass clippings, leaf litter, and shredded wood trimmings) or inorganic materials such as gravel or decomposed granite.

Mulch protects soil and plant roots from temperature change, keeps moisture in by slowing evaporation from the surface of the soil and keeps weeds from sprouting by reducing sunlight penetration to the soil surface.

How to Use Mulch. Mulch always stays on top of the soil, and is never worked in. Recycled organic debris is the most effective type of mulch, because it builds soil structure over time and provides a durable, protective surface barrier. The smaller the debris and the more mixed leaves with wood chips, the faster it decomposes. When building soil, small and mixed is best. Don't bother with inorganic mulches like rubber, gravel, or decomposed granite. These are only applicable in pathways or gathering areas; they don't help build soil.

Need help buying amendment? www.buy-compost.com

MAKE IT

Less than 5 Cubic Feet



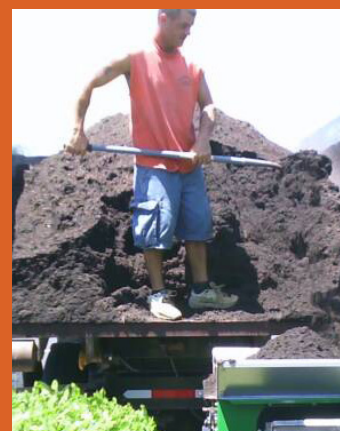
BUY IT IN BAGS

Between 5 and 25 Cubic Feet



BUY IT BULK

More than 25 Cubic Feet or 1 Cubic Yard





Groundcovers and lawn alternatives



Consider a Natural Lawn.

Grass lawns that are maintained organically and efficiently can offer a cool surface for both active recreation or just hanging out, but most lawns are maintained inefficiently. It's time to rethink using lawn as all purpose wall-to-wall groundcover carpet.

Your lawn can be turned into a water conserving **Natural Lawn** that needs up to 50% less water than contemporary fescue lawns. An eight minute shower every two weeks can be enough water to keep it lush, depending on the irrigation system and the specific landscape conditions. To make your lawn more natural, aerate and cast clover seed mixed with worm castings uniformly over the existing lawn area and water thoroughly. No fertilizers or herbicides are needed, as it will grow less vigorously if they are applied. Less frequent mowing every few weeks keeps the lawn at 3"- 4" height. Weeding is almost completely unnecessary; we're encouraging little flowers like English Daisies (*Bellis perennis*), Dutch Clover (*Trifolium repens*) and, in low damp spots, Plantain (*Plantago major*).

Walkable Groundcovers are a good alternative to lawn and can be introduced on the edges of lawn to transition to garden areas. If you don't need to walk on it, then groundcovers can be as high as 36" tall and still look like unified green open space.

Maintain Your Natural Lawn

Apply 1/4" deep layer of good compost or worm castings every fall (September through November). If the compost smells of manure do not use it! It will kill the lawn. Use only well-composted materials or worm castings. There should be no noticeable foul odor.

Resist cutting the lawn on a fixed schedule. Allowing the clover and other tiny flowers to grow, ripen and set seed will perpetuate the lawn without any additional over-seeding in the spring or fall. This is the way nature keeps the lawn evergreen and maintenance costs down – the lawn does all of the work. If you are mowing frequently, an application of new seed may be required every spring or fall to keep the appearance more uniform.

Ask your lawn care professional about their equipment and insist on a mulching mower, or purchase one to store and use exclusively on your property, keeping other's chemicals, weeds and pests away from your fabulous smart, healthy, and beautiful Natural Lawn.

Great Groundcovers



1 *Asteriscus maritimus*
Gold Coin Plant



2 *Lomandra longifolia*
'Breeze'
Dwarf Mat Rush



3 *Arctostaphylos edmundsii*
'Carmel Sur'
Creeping Manzanita



photo: Pamela Bersiter

Walkable Groundcovers



1 *Dymondia margaretae*
Silver Carpet



2 *Cerastium tomentosum*
Snow In Summer



3 *Bouteloua dactyloides*
Buffalo Grass



photo: Pamela Bersiter

Step Up Your Groundcover Game

1. **California Native Grasses** can be naturally drought-adapted and provide habitat (food and shelter) for important insect and bird species.

2. **Mow Less Frequently** or not at all to keep the grass from growing too quickly and using more water. Some ornamental grasses don't need to be mowed, and others like to be kept long so the old growth shades the new.

3. **Please Don't Pick The Daisies** nor apply any herbicide to them. English Daisies, Clover, Plantain, and even Dandelion reduce compaction, provide evergreen groundcover and have flowers that feed insects and birds. Whack them back only if they get too feisty.

Plants For Tough Spots:



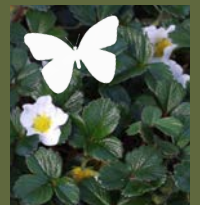
Festuca ovina
Sheep's Fescue



Festuca californica
California Fescue



Agrostis pallens
Bent Grass



Fragaria chiloensis
Strawberry



photo: Pamela Bersiter



photo: Marilee Kaufmann

More Trees, please!

Trees are Priceless.

While planting trees means improved water quality, resulting in less runoff and erosion, it's also good for the pocketbook. Because trees provide shade and actively cool the air beneath their canopy through evaporative cooling, properly placing trees around buildings can reduce air conditioning needs by 30%! Trees are living solar powered air conditioners. Healthy, mature trees can be individually worth tens of thousands of dollars, each. Protect your investment by hiring licensed arborists to keep your trees healthy and beautiful with annual assessments and pruning only when necessary.

Choose the Right Tree for your space and your needs. Trees are both slow-growing and long lived, so planting a tree is a big investment in both time and money. Consider the mature size of the tree when you plant it. At the nursery it's short

and cute, like a puppy, but a small tree can quickly grow into a 30 foot tall tree with a 30 foot wide canopy of branches, or bigger. If you've selected a large tree species, it can top 70 feet tall and wide at maturity. Select a tree that will best fill the space you have, not one that will need annual pruning to keep it small.

Consider litter and allergen issues - some people are particularly allergic to specific tree species, and some fruit (olives, persimmons, etc.) will stain patios and can make sidewalks slippery. And consider evergreen vs. deciduous species for different spaces. Hot summer patios are perfect places to add leafy deciduous shade trees. Deciduous trees will lose their leaves in winter, making them an even greater choice on cloudy, shorter winter days when the lighter tree canopy will allow more sunlight through. Evergreen trees and shrubs are better for privacy screening and year-round tidiness. When making your tree choices, also consider fruit, flowers and fall color.

Low Water Landscape Trees



1 *Chilopsis linearis*
Desert Willow



2 *Quercus agrifolia*
Coast Live Oak



3 *Prosopis chilensis*
Thornless Chilean Mesquite

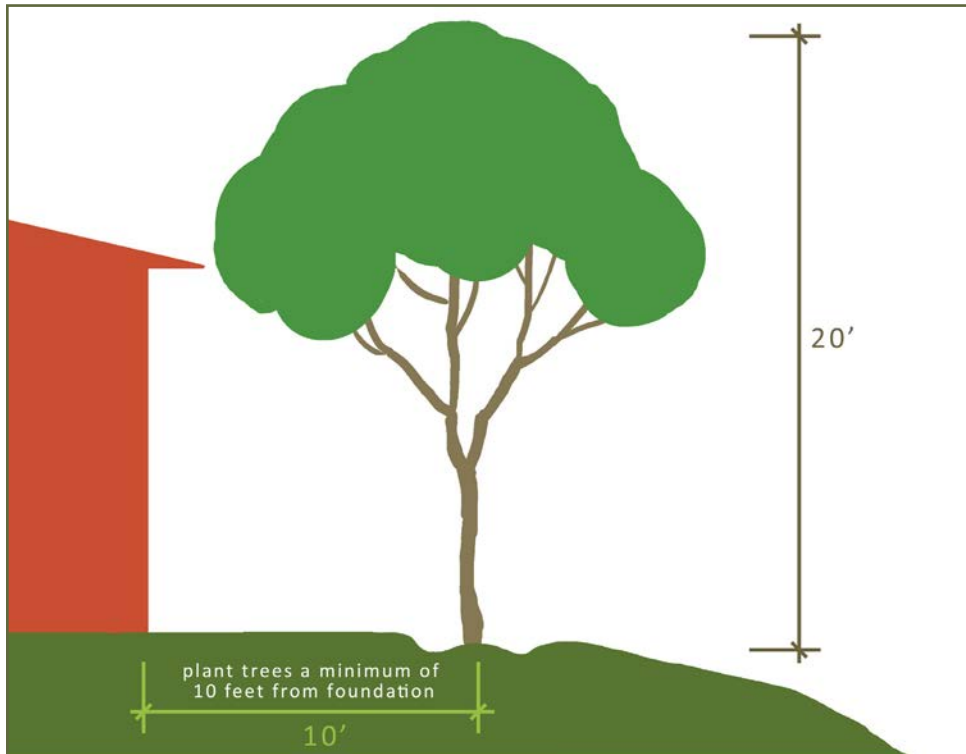


4 *Arbutus 'Marina'*
Strawberry Tree



5 *Lyonothamnus floribundus*
Catalina Iron Bark

Keep trees **Happy**



Right Tree, Right Place

Place your trees carefully. Make sure the placement of the tree is sufficiently far away from the house. Small trees (30' wide or less) should be no closer than 10 feet. And large trees (70' wide or more) should be planted no closer than 20 feet from the house. Also consider nearby trees, other structures (like power and phone lines), views and where shade will fall at different times of the day, in different seasons.

On the ground, pay attention to water, sewer, septic and other utilities, as well as patios, sidewalks and driveways. If you will be planting near any of these, choose trees with low root-damage potential. If you are in a windy area, near the top of a bluff or hillside for example, select trees with strong branches and small leaves, so wind will easily pass through their canopy and gusts won't topple trees or shear branches off.

Small trees are like living umbrellas, adding dappled shade, habitat and color to smaller planting areas without taking over.

Perfect Patio Trees



1 Parkinsonia 'Desert Museum'
Palo Verde



2 Xchitalpa linearis 'Pink Dawn'
Pink Chitalpa



3 Lagerstroemia indica 'Tuscarora'
Tuscarora Crape Myrtle



Protect Roots, Save Trees

Trees depend on their roots for survival. Roots anchor tree trunks and canopies against strong winds and earth movement. They absorb water and nutrients, and connect trees to the soil and plant communities that surround them. Landscape and construction projects easily can damage tree roots, killing trees, unless the roots are respected and protected.

Heavy construction equipment can break branches, compact the soil and damage tree roots, and should not be used near trunks or under tree canopies. Paints, solvents, cleaners and other chemicals can poison soil and kill roots, too.

When removing existing plant material, especially grass, minimize root shock by keeping the trees well-watered.

Many trees will go into shock when water is reduced, so water them regularly during construction and landscape renovation, especially for the first year after turf or other high-water plant material is removed, even if you remove surrounding irrigation. Weekly slow and deep watering under their canopy, by using tree bags or soaker hoses, is best.

Plan for trees to be on their own irrigation hydrozone in renovated landscapes (see p. 23).



Plan for Parkway

Parkway Plants



- 1 *Arctotis*
African Daisy
- 2 *Guara lindheimeri*
Butterfly Flower
- 3 *Lessingia flaginifolia*
var. *californica*
Silver Carpet
- 4 *Phyla nodiflora*
Lippia Repens
- 5 *Calylophus hartwegii*
Sundrops

Start Your Project at the Parkway strip.

While you don't own your **Parkway**, you are responsible for maintaining it, since it is public property maintained by private property owners. Parkway strips present some particular challenges, even though they're small.

Cars! Unless you live on a no-parking street, car doors will open onto the curb and into your parkway strip. People need some space to get out and walk around their cars. However you decide to plant your parkway strip, be sure to leave at least 18" (or more) as a step-out area that is clear from the edge of the curb for those doors to swing open and allow people to move. Consider placing bricks, pavers, gravel or decomposed granite in this area; or just spread mulch. Try not to plant in this step-out area. Keep your plants back from this edge to protect them from the damaging foot traffic.

Trees. If your parkway already has nice big street trees, then you also have nice big roots. Those roots may even be above ground, moving the concrete and otherwise causing trouble. Respect the roots – don't dig around them, cut them or otherwise bother them. Plant only in areas where the roots are not visible, and never closer than 24" from the trunk of the tree (*see p. 33*).

Utilities and Irrigation. Your water meter and other pipes and utilities are often found in the parkway. Be sure to CALL DIG ALERT (Dial 8-1-1) at least two days before you dig so marks can be made to avoid breaking or damaging underground cables and pipes.

Many parkways are mere strips. If the area is less than 10 feet wide, you should not be using spray irrigation because it is too difficult to keep water off the street or sidewalk when they are in use. Consider hand watering or connecting your parkway to the closest drip irrigation line in the front yard. If your front yard and parkway are sharing irrigation, make sure your plants in both sections have similar water and sun needs.

Low water Parkway



A parkway covered in uniform and low water-use *Festuca californica* (*California Fescue*).



Carpet-like *Dymondia margaretae* (*Silver Carpet*) makes a clean and walkable parkway surface.

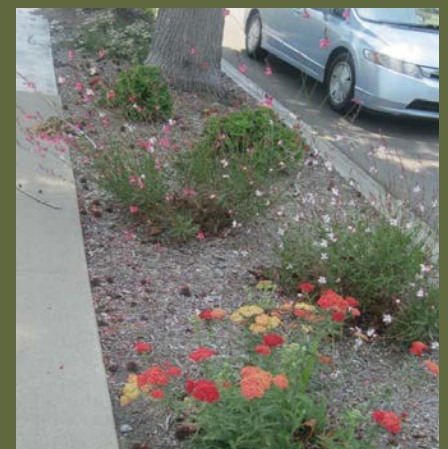


Ceanothus 'Yankee Point' (*California Lilac*) quickly covers this parkway, but is not walkable.

Planting A Parkway In Six Easy Steps

1. **Call Dig Alert (Dial 8-1-1)** to mark any utility lines, underground cables, and pipes.
2. **Protect Your Trees** by respecting, and protecting their roots
3. **Contour For Water Capture.** Gently contour the parkway area into a shallow bowl, capturing water that may run off of adjacent sidewalks and driveways.
4. **Select Plants** that can be maintained to allow both access to parked cars and better visibility to see oncoming traffic (both people and cars).
5. **Be Cautious!** Consider the parkway a high-traffic area and avoid unfriendly plants (like prickly cactus). Don't leave big holes open overnight, avoid creating tripping hazards, and help keep everyone safe!
6. **Gravel or Decomposed Granite** can be used in parkway areas, especially under mature street trees with surface roots, where digging holes to plant ground cover may damage the trees. Both materials should be contained by curbs, concrete sidewalks and/or landscape edging, and maintained at a finished height below the surrounding sidewalk and curb grade so they don't spread out over paved areas and become tripping hazards.

In the parkway below, *Achillea millefolium* (*Yarrow*) and *Guara lindheimeri* (*Butterfly Flower*) create long-lasting flowers with walkable mulch between.



Eat your yard



Group Edibles together for irrigation.

You don't have to become a farmer to enjoy edibles in the landscape because many native plants, vegetables and herbs have fruit and leaves you can harvest, and they can be mixed into any climate-appropriate planting scheme. Organic methods including sheet mulching (*see pp. 18-19*) and Integrated Pest Management (*see p. 28*) ensure the health of the soil, the crops and the people who eat them. Be sure to check your water agency's watering restrictions to confirm watering schedules.

Edible Perennials & Fruiting Shrubs



1 *Salvia elegans*
Pineapple Sage



2 *Ribes aureum*
Golden Currant



3 *Allium schoenoprasum*
Chives



4 *Pelargonium tomentosum*
Peppermint Geranium



5 *Aloysia citriodora*
Lemon Verbena

Five Great Fruit Trees



1 *Citrus 'Nagami'*
Dwarf Kumquat



2 *Ziziphus jujuba*
Jujube, Chinese Date



3 *Prunus armeniaca*
Apricot



4 *Morus nigra 'Persian'*
Persian Fruiting Mulberry



5 *Citrus 'Improved Meyer'*
Improved Meyer Lemon

Plant for Pollinators



Plant A Butterfly Garden

Look for the Butterfly icon on pictures of certain plants throughout this book. These are plants that support the life cycle of butterflies. Try to get several in your garden so you help the larvae and caterpillars as well as the full grown nectar-seeking showstoppers.



Gotta Get Bees

Not every bit of ground needs to be covered in mulch. Try designating a 5 - 10 square foot patch of open ground for solitary ground nesting bees and insects, especially if you have planted California native plants. Mason bees will show up if you hang some nesting boxes.

Plants and Bugs need each other to survive.

Nature provides checks and balances in a garden, and you can attract insects and creatures that will help you maintain your garden without pesticides. Flowering plant species rely on insects for pollination and thus reproduction. In turn, plants feed and house insects. Some bugs eat too much, destroy plants and spread diseases. Other bugs, beneficial insects, fight off the bad guys, eating them or disrupting their reproductive process. Birds, bats and lizards help out too, consuming pests both big and tiny.

We reduce the need for chemical inputs and attract good bugs and predators to our landscapes by actively cultivating a diversity of plants that flower at different times of the year. To attract more garden-helpers, like mason bees and lizards, create a habitat specifically for them. Consider getting a man-made nesting box for bees, leave a small rock pile for lizards, or put a large tree branch in the garden and let it decompose naturally.



Integrated Pest Management will reduce the ill effects of chemicals (see p. 28).

Consider getting a **National Wildlife Federation Habitat Garden** sign to tell our neighbors about the abundance in your landscape.

www.nwfw.org

Pollinator Attractors



1 *Asclepias subulata*
Desert Milkweed

2 *Heuchera maxima*
Island Alum Root

3 *Eriogonum grande* var. *rubescens*
San Miguel Island Buckwheat

4 *Verbena lilacina* 'De la Mina'
Cedros Island Verbena

5 *Galvezia speciosa* 'Firecracker'
Island Bush Snapdragon

photo: Paul Herzog



Contours for Rain Capture

Every garden can become a **Sponge**.

Many front yards are just yards, but this space could be a last chance to capture and filter our seasonal rain before it runs into the storm drain and right into creeks, rivers and eventually, the ocean! By contouring our land to hold on to at least the first inch of rain after a dry period (known as **First Flush**), we create landscapes that are far more interesting than flat expanses of lawn, and provide an opportunity to create conditions for some of the Inland Empire's most interesting native plants.

Meet your **Contour** (aka Swale!) Sounds fancy, but really, it's very simple. Your Contour is just a little soil basin to slow, spread, and sink the first inch of rain water from your roof into your front yard. Follow the simple instructions in the sidebar on the next page and direct your downspouts into the basin. Your soil and plants will be really happy that you did! It's all part of creating a truly watershed wise landscape. There are three main components: **Basins, Berms, and Boulders**.



photo: Pamela Bessler

Basins and Swales are shallow depressions, or channels no more than 12" – 24" deep, on gently sloped or nearly flat landscapes that move water around over short distances. The plants in and around the depressions capture and sink small volumes of surface water. Small, shallow depressions (6" - 12") are best used in clay soil areas, while sandy soils may accommodate the deeper (up to 24" deep) depressions. Channels can be planted (vegetated swales) and/or lined with rocks and small boulders to resemble natural creek beds.

Berms are mounds of raised soil, usually planted, that can border basins and swales or be used alone. Berms help contain and move water around, increasing the holding capacity of basins and swales.

Boulders may be used to retain small berms or edges of swales and to create interest in the landscape.



photo: Paul Herzog

Contours capture rain

Contour Your Garden In Six Easy Steps

Plants OK With Wet Feet (Basin Swale Plants)



1 *Mondarella villosa*
Coyote Mint



2 *Juncus patens*
California Gray Rush



3 *Iris douglasiana*
California Native Iris

Swale Plants Are Special. These basin plants like wet feet and can be completely submerged in rain water and still survive our hot dry summers without extra water. They're sort of plant Super Heroes that way!

Plants That Prefer Dry Feet (Berm Plants)



1 *Epilobium canum*
'Everett's Choice'
Everett's California Fuchsia



2 *Cistanthe grandiflora*
Rock Purslane



3 *Bouteloua gracilis*
'Blonde Ambition'
Blonde Ambition Blue Grama

Berm Plants Like It Dry. On the mounded side berms, choose plants that like their feet drier. Throughout the entire landscape, make sure to mulch at least 2-4" deep around all the plants (though not right up against the trunks), including those in the bottom of the swale.



1. **Make Your Site Plan** and note where rain falls and flows. Look for an open, mostly flat low spot to direct water towards in the front yard, or anywhere with the center at least 10' away from the house foundation and 3' away from the sidewalk.

2. **Lay Out Your Low Spots.** Spread out a garden hose to outline the shape. The area must be basically flat or slightly bowl-like, and not sloping back toward the house. Be careful around trees. Don't put your contours under a mature tree or disturb any big roots. Remove all plants (including grass) from the area and start digging.

Do not dig without calling DIG ALERT 8-1-1!

3. **Do A Percolation Test.** If you have compaction, try to break through it with a shovel or a pitchfork (*see p. 47*).

4. **Dig A Basin** that is between 6" and 12" deep at the center. Slope the sides gently to make a sloping bowl, not a cylinder. Mound extra soil around the bowl to increase capacity. At the bottom of the basin, put down at least an inch of high quality compost or worm castings to activate your soil.

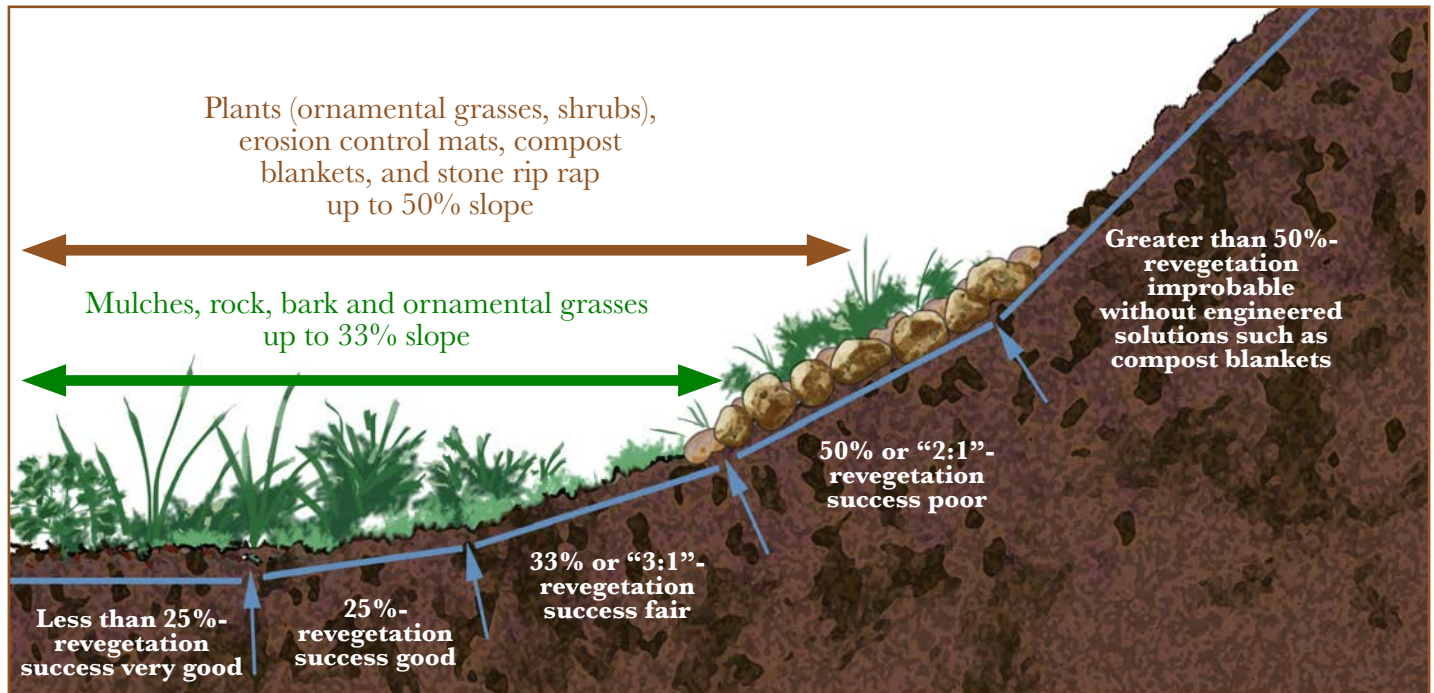
5. **Direct Downspouts Into The Basin** area, moving the rainwater through gravel lined ditches or above-ground drainage pipes. Also, make an overflow path so extra water has a direct channel to the street and not back towards your house.

6. **The Basin Will Fill Up** when it rains, creating a temporary pond until the water soaks into your soil. All the water should be gone in 24 hours.

TAKE ACTION if your basin is slow draining!

If water in your basin is not gone within 48 to 72 hours maximum, then auger the basin to eliminate compaction (*see p.15*). Add worm castings when it has drained. Whenever you disturb the soil, be sure to reapply compost.

Slopes and Hillside are special



Hardy Hillside Holders



- 1 *Simmondsia chinensis*
Jojoba, Goatnut
- 2 *Ceanothus* 'Yankee Point'
California Lilac
- 3 *Isomeris arborea*
Bladderpod
- 4 *Dalea frutescens*
Black Dalea
- 5 *Baccharis pilularis*
'Pigeon Point'
Coyote Bush

Whenever possible, do not disturb canyon hillsides. Low water use plants, trees, deep-rooted native plant species, and climate-appropriate plants with strong root structures, should be selected for disturbed or built slopes and hillsides, as these root systems can help hold soil together.

If your slope is gentle, 3:1 or less (33% grade) coarse compost and mulch can be applied directly to hillside and slope surfaces, providing surface protection from the force of falling rain and shading exposed soils. With occasional and gentle irrigation, mulch will "knit" together.

Compost blankets are a kind of erosion control mat applied to the soil surface to protect and preserve it, and can be used either alone or with coir mats or other organic engineered material with biodegradable grids for stabilization. Compost mats allow water to penetrate through to underlying soils while retaining loose soil and debris and preventing erosion. You can plant right through them or use pre-seeded products. Compost blankets can be found at specialized landscape products distributors.

Hillside Irrigation Considerations

When preparing a hillside for planting, determine how you are going to irrigate before doing any work. Low-volume rotating spray heads are ideal for sloped areas, if the space is large and the groundcover is uniform. Drip tubing also can be effective, especially for wider-spaced shrubs and trees.

Water can be applied in shorter durations, so that it can be fully absorbed between application times. Runoff, erosion and efficient deep watering are important issues to keep in mind always, but especially on hillsides (*see pp. 26-27*).

Please note that emitters on drip systems should be placed above the plant basin, and spray systems should have check valves in all lower heads to avoid low point runoff. Irrigation for the top of the slope and the bottom of the slope should be on separate valves.

Keep cool in a **Fire** zone



Use plants that **Resist Ignition.**

Plants with a high water, high salt, or low volatile oil content in their leaves, like succulents, are less likely to produce airborne burning embers if ignited. Agaves, aloes, crassulas and other succulents store extra water in their fleshy leaves.

Messy, oily trees and shrubs, like eucalyptus, and junipers, do the opposite – igniting quickly, burning hot and long, and releasing copious embers into the air, which may further spread the fire.

Preventative maintenance includes regularly removing dry grass, thatch, brush, weeds, litter, waste and dead and dying vegetation. Trees should be properly pruned. Shrubs and perennials should be kept thinned, with dead branches and leaves removed. Unwanted vegetation must be regularly mown, cut or grazed, while root structures must be left intact to avoid erosion. Dead leaves and branches are particularly flammable, especially on evergreen shrubs or vines like bougainvillea, and these must not be planted close to structures.

Many of the Inland Empire’s native plant communities, like chaparral, are able to survive and recover from infrequent fire. Some plants use fire to signal available space to grow and thus start the germination process. But when fires are too frequent, even the most well adapted plants’ ability to survive is disrupted. Invasive species have made fires more frequent, with longer duration and hotter intensity, so it is even more important to avoid invasive plants in fire-prone zones.

Fire Is A Real And Constant Threat

This is especially true in wild land interface areas. Plant selection, design and consistent maintenance all must be in accordance with fire safety guidelines.

Landscapes should resist ignition and provide 35 ft. of actively maintained defensible space around structures and access zones (Zone 1), maximizing fire prevention and also allowing for access by fire crews, if necessary.

Beyond Zone 1, the landscape should reduce the chance of potential airborne embers through careful thinning of native vegetation for another 65 ft. (Zone 2).

Avoid Invasive Plants.

Invasive non-native plants, especially grasses and groundcovers, contribute to fire risk by spreading the fire from woody plant to woody plant. Remove these plants from your garden.

The Fire Prone Four:



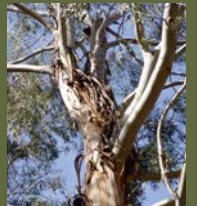
Pennisetum setaceum
African Fountain Grass



Nassella tenuissima
Mexican Feather Grass



Cytisus scoparius
Scotch Broom



Eucalyptus (various)

Three Fire Fighters



1 *Rhus integrifolia*
Lemonade Berry



2 *Bulbine frutescens*
'Hallmark'
Orange Bulbine



3 *Convolvulus sabiatus*
Ground Morning Glory

For guidance on lists of invasive plants to avoid that are causing problems throughout the state, check out:

Plant Right:
www.plantright.org

California Invasive Plant Council,
www.cal-ipc.org

Showers or Drips?



Spray Irrigation emits water in an overlapping (head-to-head) pattern.

This can be an efficient way to irrigate large landscapes with groundcover or uniform plant material like lawns or meadows.

Gallons Per Minute (GPM) Spray systems apply water in GPM, so if you know the application rate of each spray head, the distance between heads, and the pressure of your system, it is relatively easy to figure out how much water is applied every time you run your irrigation.

Challenges include irrigating very narrow areas surrounded by hardscape, or irregular patterns. Irregular patterns are particularly challenging because spray irrigation requires head-to-head coverage to be efficient and odd-shaped areas may be under or over watered. Replace high-volume spray heads that emit water at a much higher rate than the soil can absorb.

Positives include low volume spray heads that, when properly installed, apply water at about 1/3 the rate of conventional spray heads. The newer spray irrigation heads also have improved the spray itself, with heavier droplets that are more resistant to wind. Landscapes with grade changes using spray heads should have check valves installed to prevent water from flowing out of the low point heads.



Drip Irrigation delivers water directly to roots.

Since drip irrigation is covered with soil or mulch, this water does not evaporate as quickly as it might if it were applied at the surface by spray.

Gallons Per Hour (GPH) Drip systems apply water in GPH, so they need to run for longer periods of time than spray systems. However, the actual run time must always account for precipitation rate and runoff.

Challenges include the possibility that drip systems could apply water too quickly for the soil to absorb, so careful consideration is required especially when dripline grids are installed. Drip irrigation operates most efficiently at low pressure (between 15 and 30 psi). To achieve optimal performance and avoid breakage, use pressure regulation either at the valve or at the point where the dripline connects to the buried lateral lines. Also, it is essential to install some kind of filtering system to keep the emitters from becoming clogged.

Positives include the fact that installations of subsurface (or under at least 2 inches of mulch) systems may be the most efficient way to irrigate nearly every type of garden area. Since the tubing is flexible, it can be made to accommodate a wide variety of irregularly shaped areas or rectangular areas when laid in a grid pattern, and in rings that are easily expanded as trees or large shrubs grow.



What is a Tattle-Tale?

Screw a white cap (replacing the nozzle) on to the pop-up riser of one sprinkler head on each line when converting to drip.

When the drip irrigation is running below the mulch, the tattle-tale will pop up and let you know that the irrigation is on.

What is a Low Flow Valve?

Irrigation valves are designed to work within a certain pressure range (pounds per square inch or psi) and flow range (gallons per minute or GPM). If you redesign your system and use low flow irrigation, the flow through the valve may be so low that your existing valve will not operate effectively and may get stuck in the "open" position, wasting water.

If you have flow lower than 5 GPM per valve, check your valve specifications for flow range. Replace all valves that are not specified for low flow systems.

Irrigation System overview

Basic Components of Most Irrigation Systems



1 Shutoff valve (Ball valve)



2 Anti-siphon valve



3 PVC pipe



4 Sprinkler head



5 Irrigation controller

Conventional Irrigation Systems are notoriously inefficient.

This is due to a variety of factors, including poor design, inadequate maintenance, and improper management. Well-designed and operated systems can reliably deliver the necessary water to sustain our landscapes without waste or excess.

A **Shutoff Valve (Ball Valve)** can be manually operated to cut off the water supply in the event of a leak, malfunction, or major repair.

The **Anti-siphon Valve**, when activated by an **Irrigation Controller**, delivers water through a **PVC Pipe** lateral irrigation line, ultimately reaching the **Sprinkler Head**, which applies water to the landscape.

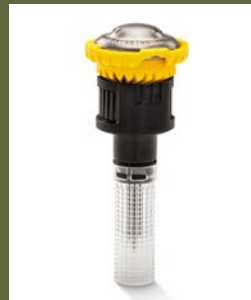
Key Components of A Watershed Wise Irrigation System



1 Pressure regulator



2 Submeter



3 Rotary nozzle



4 Drip irrigation



5 Smart controller

Wise Irrigation Systems operate efficiently.

These irrigation components are designed to operate at lower pressure levels, as specified by the product manufacturer. When devices operate with excess pressure, damage, and even failure can occur, not to mention water waste.

A **Pressure Regulator** will eliminate excess pressure.

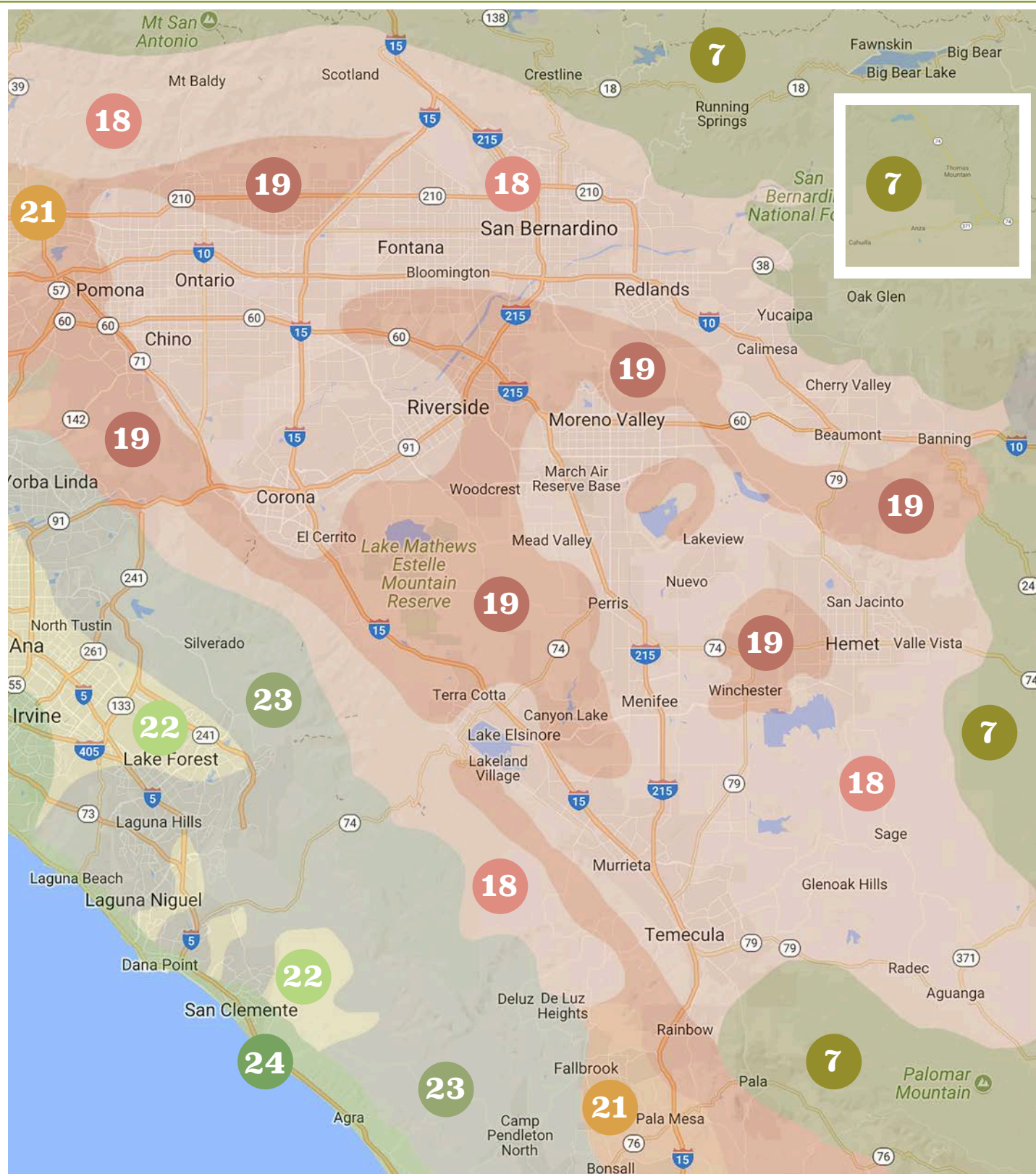
A **Submeter** is located where the irrigation system tees off of the mainline to the house and is a recommended option to keep track of the actual volume of water being applied to the landscape. Single family homes typically have a single meter that does not distinguish between indoor and outdoor water use.

Low-volume irrigation devices, like **Rotary Nozzles** and **Drip Irrigation** are designed to deliver water to the landscape at a slower rate that better approximates the infiltration rate of the soil. This reduces the likelihood of runoff.

Smart Controllers will automatically adjust irrigation schedules in response to changing site and/or weather conditions. These come in two varieties. ET controllers monitor weather conditions, while soil moisture sensors directly sample moisture in the ground. These devices also have features like “cycle-and-soak” functions that can help eliminate runoff. When selecting a controller, look for brands with the **EPA WaterSense®** label. Check your local water agency for rebates at www.socalwatersmart.com.



Inland Empire's Climate zones



Need help finding your climate zone?

Sunset Western Garden Book www.sunset.com/garden

This book provides lots of great information about climate zones throughout the Inland Empire and plants adapted to these climates, including information about their water use, their form and their estimated size at maturity.

Garden with your Local climate

The Inland Empire is dominated by two related climate zones (Zone 18 and Zone 19), both of which are considered interior climates. This means that the major influence on climate is the continental air mass, and the ocean has very little climate effect. Both of these zones are colder in winter and hotter in summer than the coastal areas. The farther inland you live, the stronger this continental influence.

High winds also become a major factor in open interior climate. This will affect plants, irrigation, and mulch. Each region presents unique challenges for plants and within each zone there can be a great deal of variation (a microclimate) in temperature, sun exposure, soil type, available water and wind exposure, even within one garden.

Sunset Zone 7: Mountain

Steep slopes, variations in sun and wind exposure, shallow soils and heavier rainfall affect plants in the mountain regions. Average annual rainfall is 30 inches here, and wet years may bring even more. Exposed mountainsides, sheltered canyons, shady stream and riverbanks host plant communities from Chaparral to Riparian.

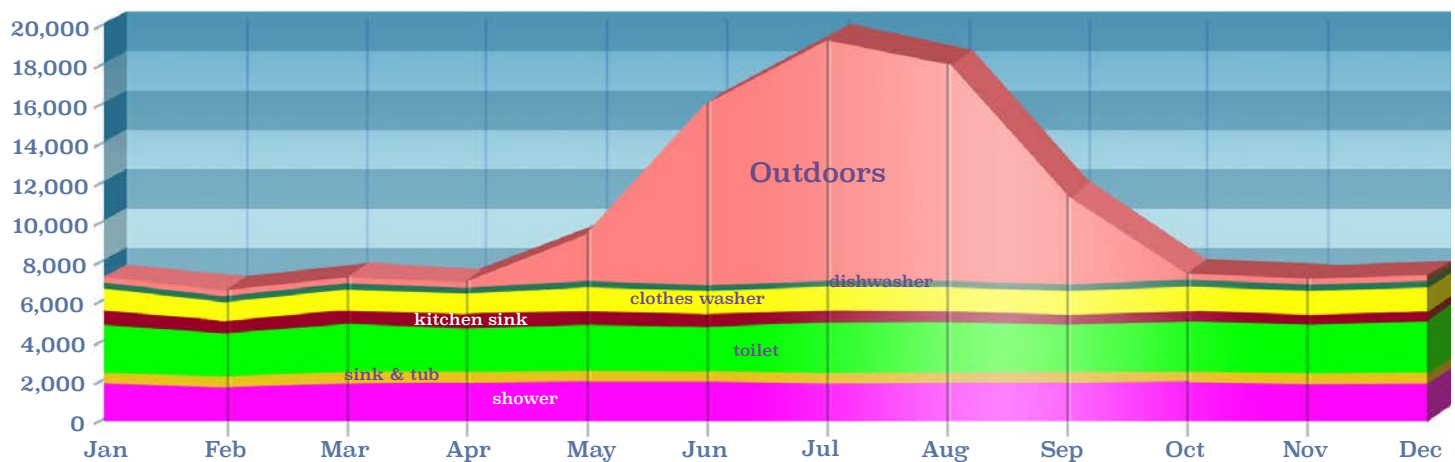
Sunset Zone 18: Upland Central Interior Valley

Hot dry summers make shade structures essential in this interior valley area, yet winters can be cold as cooled air settles in the valley floors. Plants that require winter chill, such as apricots, apples, and peaches, do well in this climate. Winter rains provide up to 13 inches, and some areas receive occasional snow flurries. Seasonal Santa Ana winds are channeled through mountain passes during autumn months, increasing the risk of wildfire in foothills, canyon and mountain communities.

Sunset Zone 19: Thermal Belt Around Interior Valley

This marine to desert transition area is more inland between the ocean-influenced areas and the dry desert areas. The zone has a combination of thermal belts and cold-air basins and hilltops with occasional marine influence. A wide variety of plants are supported in this area, and the climate influences within a garden can vary from high fog to dry Santa Ana wind conditions. This zone is an excellent citrus growing region, as overall it is milder than neighboring Zone 18.

Usage in Gallons per Month



If you are changing your landscape watering schedule at least once a month -- congratulations, you are at the head of the class. Most people water about the right amount in the summer, but continue using the same amount of water well into autumn. As the graph above illustrates, plants need less water beginning in September through May -- even if it's hot. This is because plants' water needs are driven primarily by the intensity and duration of sunlight, which drops off significantly following the autumnal equinox on September 22 (see p. 22). Weather-based "smart" irrigation controllers can help you follow this evapotranspiration curve and save water as a result (see p. 43).

CIMIS

California Irrigation Management Information System

www.cimis.water.ca.gov

This state-wide network of over 145 automated weather stations provides daily information about landscape water needs. The information may be used to help in water management, water budgeting, designing, planning and scheduling irrigation systems.

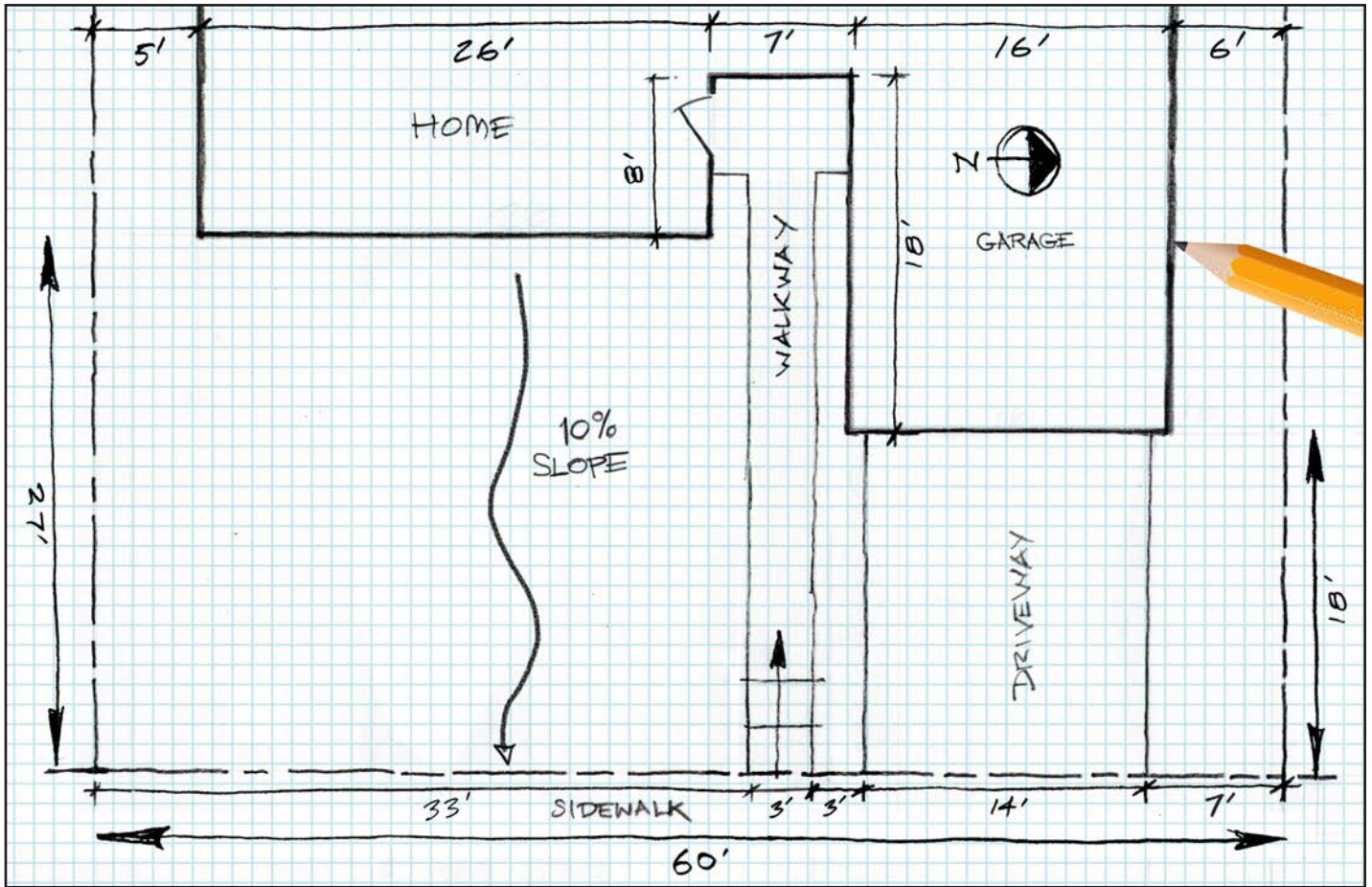
CNPS / CALSCAPE

California Native Plant Society

www.calscape.org

Find detailed information about plant communities that are native to your area. You can search by zip code to help develop specific lists of plants that will work together in your climate zone.

Start with a Site Plan



Measure to Make Your Site Plan

Measure your site. Once you've got the dimensions, trace the lines cleanly on a sheet of grid paper. Make at least 10 copies that are dark enough to still see the grid. You will use each of these sheets to evaluate and plan the changes for each aspect of your landscape.

Depending upon the size of your property, most projects can use a 1/4" = 1' scale. Try using 1 box = 1 foot.

Are there plants in the landscape that you are ready to get rid of?
 Are there any hard surfaces you'd like to change?
 Take some photos and mark where they are located on your site map.

Use your smartphone or a compass to find North and also mark it on the map.

Need help finding dimensions? maps.google.com

Look at Google Maps for help placing building and trees on your property. Just type in your address, zoom in, and use the Satellite view.

Tests worth taking

Is your soil a **Brick** or a **Sponge**?



If you have a brick you will need to take this into consideration when planning your contours. You will need to spend some time to turn the soil back into a sponge. If the soil does not drain well, you will need to take special care when you plant that you do not drown your new plants.

We want to have soil in our landscape that can capture water and allow it to soak into the soil within 24 - 48 hours. Building **Living Soil** therefore becomes important in our plan to capture rainwater and save it for a dry day, so you will need to follow the Soil Lasagna Recipe (*see pp. 18-19*).

Before we figure out how to build better soil, we need to figure out what kind of soil we have. Clay, Silt or Sand, are the basic soil types. The smallest particles create clay soil and the largest make sandy soil, with loam (an even blend of sand, silt and clay) considered the “just right” medium.

Percolation Test

1. Dig a hole about 12” deep and 12” wide (that’s a little larger than a 1 gal. plant container).
2. Fill the hole with water and wait. Note how long it takes to drain completely. This is necessary to completely saturate the soil.
3. Fill the hole all the way when all the water has drained out from first filling, and see how long it takes to drain out.
4. Lay a stick or the shovel handle across the hole and measure the distance from the top of the water to the stick each hour until it has drained completely.

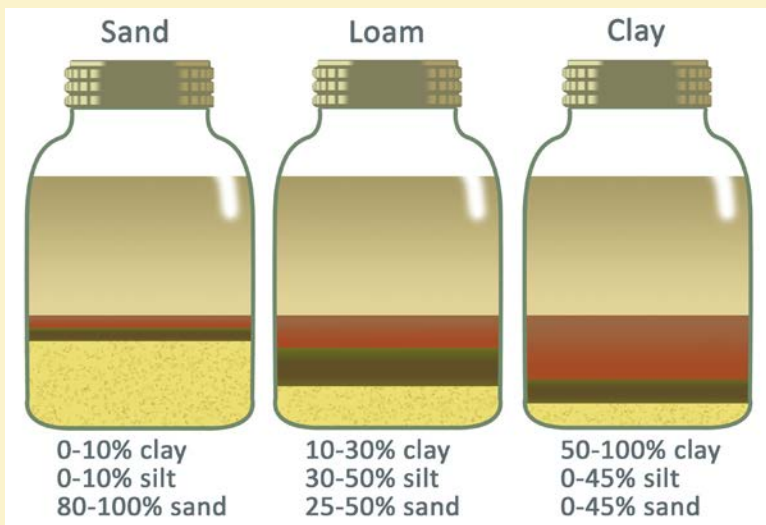
Verdict:

>4” per hour - You have sand and need to add organic matter to improve the soil (*see pp. 14-15*).

<1” per hour - **YOU HAVE A BRICK.** Your soil needs some extra help so try sheet mulching (*see pp. 18-19*).

1” - 4” per hour - Congratulations! Your soil drains well! **You have a sponge!**

You Will Need:



Which jar does your sample most look like?

For Example: If there are equal proportions of Sand and Silt, and very little Clay, then the proportions are something like 40% Sand and 40% Silt and 20% Clay.

Loam best describes the jar with 40% Sand, 40% Silt, and 20% Clay.
Your soil is Loam.

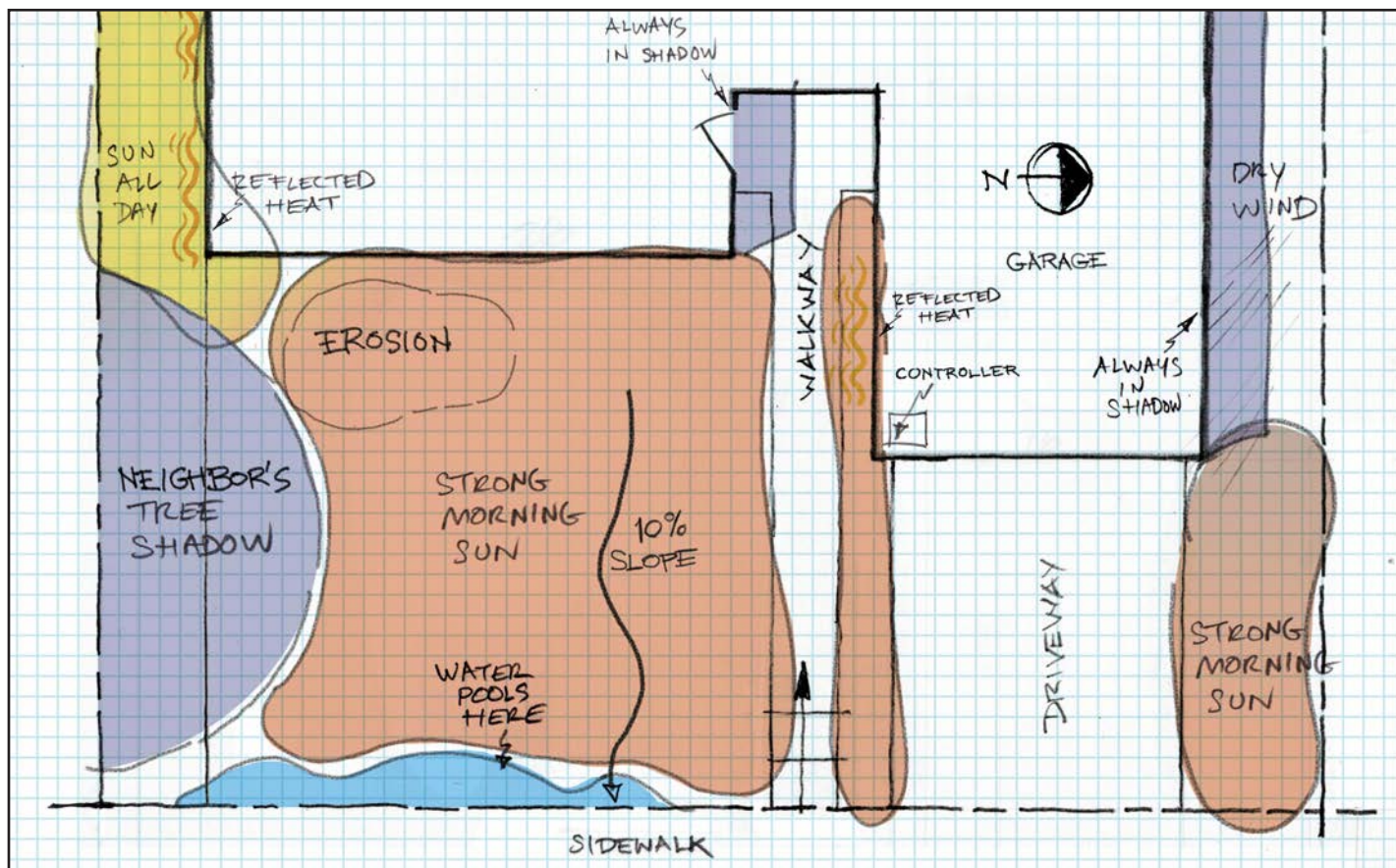
Determine Soil Type Using A Jar Test

(This is fun to do with kids!)

You Will Need:

- 1 Qt. size glass container
- 1 Cup of soil from the garden (Select one area per container, or take samples from several holes and blend them together.)
- 3 Cups of distilled water
1. **Add soil and water together** in the glass container and shake until all solids are suspended in water.
2. **Place container on a shelf** and wait 24 hours.
3. **Wait another 24 hours**, if the container is still cloudy. After 48 hours, the layers should be settled: **Sand** on the bottom, **Silt** in the middle, and **Clay** on top.
4. **Measure the layers** in proportion to each other.
5. **Use the graphic** to determine the Soil Type based on the proportions of Sand, Silt or Clay.

Map your Microclimates



Microclimates are climate factors **Particular** to your garden.

Every garden has areas where plants will grow well and others will die. Structures, walls, fences, and other plants all can affect the amount of sun and shade in a garden. And every garden is completely different, even if it is located in the same general climate zone. There will be hills and hollows in your front yard that may collect cold air or, because your property is sloped, you don't get frost when neighbors do.

Microclimates may differ significantly from the general climate of an area. You need to map these microclimates, and the first step is to walk around your property during the day and observe it more closely.

Note Sun and Shade

Mark the areas that receive sun all day and areas that are shaded all or part of the day. Also note which areas receive only partial sun, maybe just a few hours of direct morning sun, mid-day or in late afternoon.

When you start choosing your plants, make sure to select those that are appropriate to your garden's sunlight patterns. Plants marked as "full sun" will not be happy in full shade.

Are there other things you observe in your garden? Mark it on your map!

Which Plants Will You Keep?

Now is the time to decide which plants will work well in your new garden and which should be removed. Outline the canopy area of each plant you are keeping and note with the name, general size and health of the plant.

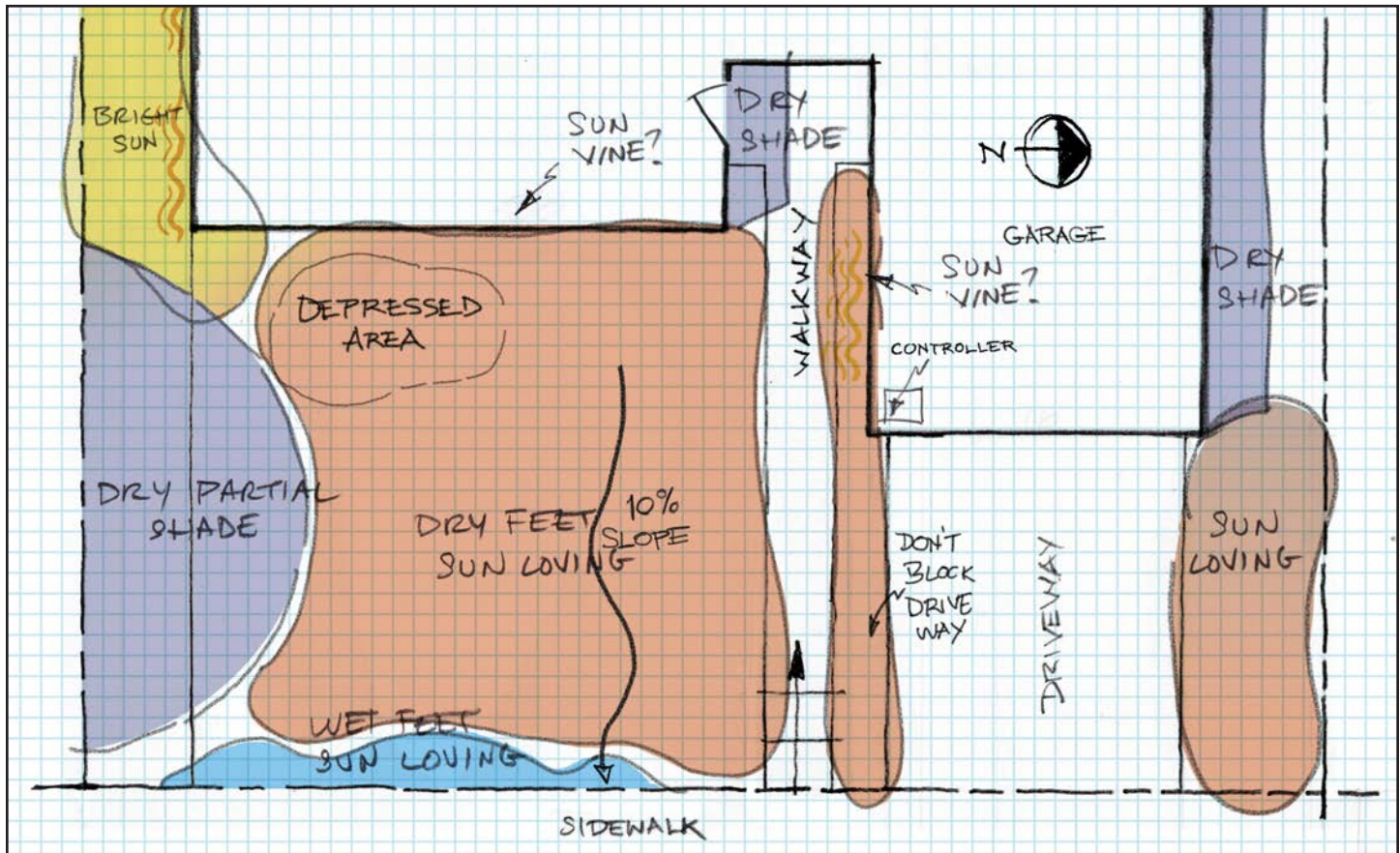
Which of these plants seem thirsty and which are not? Many plants can be unthirsty if they are well established, with deep healthy roots (old rose bushes or very large shade trees, for example).

Group Your Plants For Similar Needs: Sun/Shade and Water Use

Select plants with similar water needs and place them together. Do not place a high water need plant next to a low water need plant. For example, Some Sun Loving plants have MODERATE water needs and some are VERY LOW water needs. If we mixed these two types of plants together, one would always suffer if the watering regime worked for the other.

For your swales and berms, start making lists of plants with similar water needs that tolerate wet feet, and that require dry feet (*see p. 39*). Which wet feet plants have MODERATE water needs? Do any dry feet plants have MODERATE water needs?

Match plants to your microclimates



Arrange Plants based on their favorite microclimates.

Plants that need more water will be found grouped together at the base of a depression or near the banks of a stream. Plants that need fast draining soils will be found on slopes. Plants that love sun will not be growing in the shade of the oak tree, and plants that require deep shade will not be growing in the open field.

Our Site Has Three Microclimates

What types of plants will work in the main part of the front yard considering the Microclimate Map?

- (1) The front yard is in full sun for most of the day, so most of the plants need to be sun lovers.
- (2) There is a moist depressed area in full sun. We may want to emphasize that moist area for rain catchment. The hillside areas surrounding the depression are raised slightly and drain freely.
- (3) There is a slightly shady area under the canopy of the neighbor's tree and at the front entry.

We Have Three Plant Communities

When we select plants for this garden, we will need to find at least three different kinds:

- (1) Sun loving plants that prefer to have their feet dry and thrive in faster-draining soil (*see p. 39*),
- (2) Sun loving plants that can tolerate wet feet in winter and thrive in heavier soil (*see p. 39*), and
- (3) Plants that tolerate dry shade.

Remember, grouping plants together by water need is called **Hydrozoning**, and it is the key to irrigating your landscape effectively (*see p. 23*).

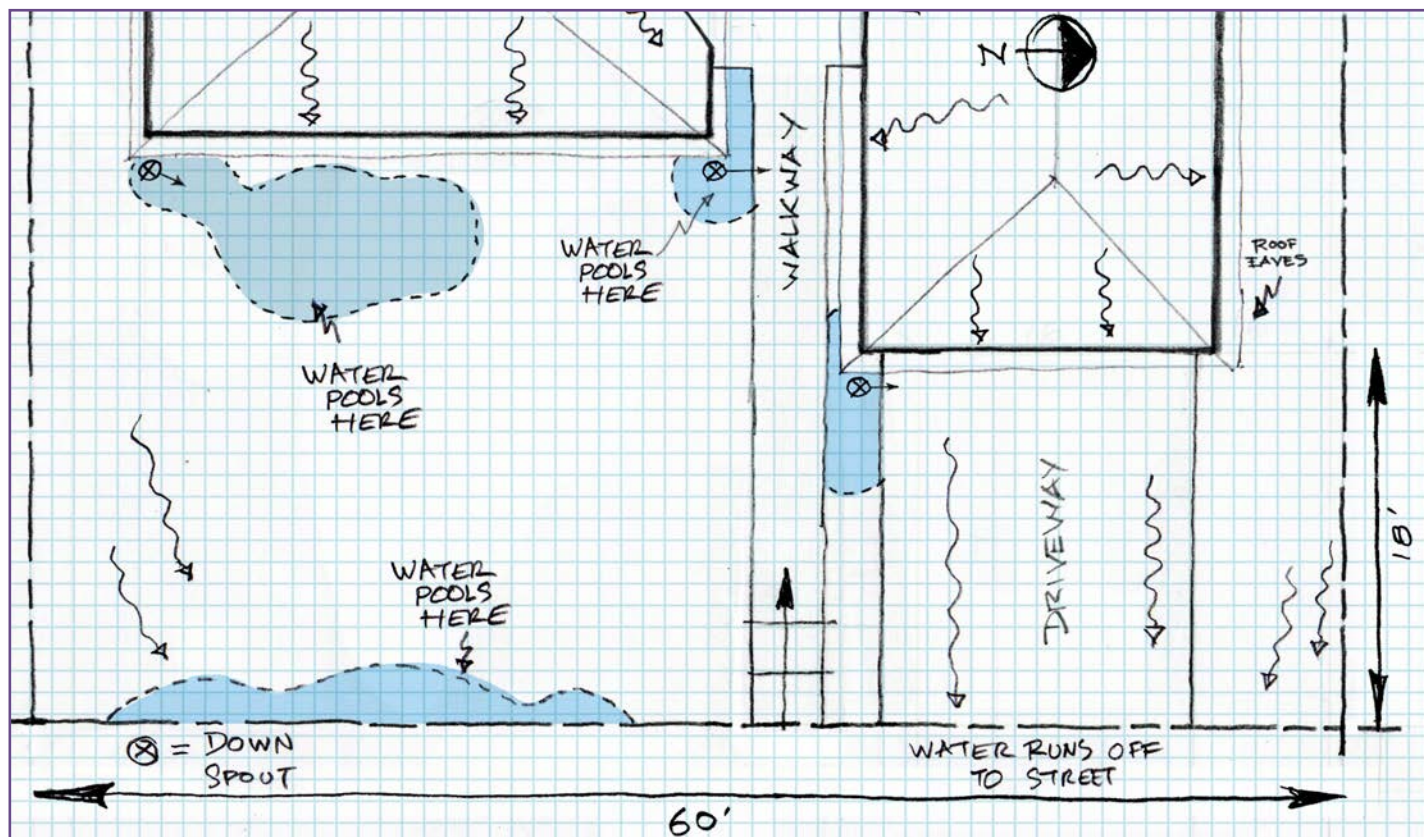
Deciduous or Evergreen?

You will see the note D/E/S on the Plant Lists in this book. D is Deciduous, or a plant that loses all of its leaves. E is Evergreen, or a plant that does not lose its leaves. S is Semi-Deciduous, or a plant that loses some leaves seasonally in certain conditions, such as drought.

Plants speak Latin

Did you know that many plants have the same common names? If you ask for plants by their common name, you might end up with something completely different than what you want. The best way to order plants is to use the Latin name; that way there is no miscommunication. The Plant List helps you learn the Latin names to plants in this guidebook (*see pp. 60-62*).

Think of your yard as a **Mini-Watershed**



Your Roof is The TOP of The Watershed

Make a copy of your Site Plan and label it Water Plan.

Watch what happens to water as it comes off the roof of your home and moves across your property. Your roof is the **Top** of your mini-watershed and where the water finally runs off your property is the **Bottom**. Think about how you can capture water in between the top and bottom of your landscape.

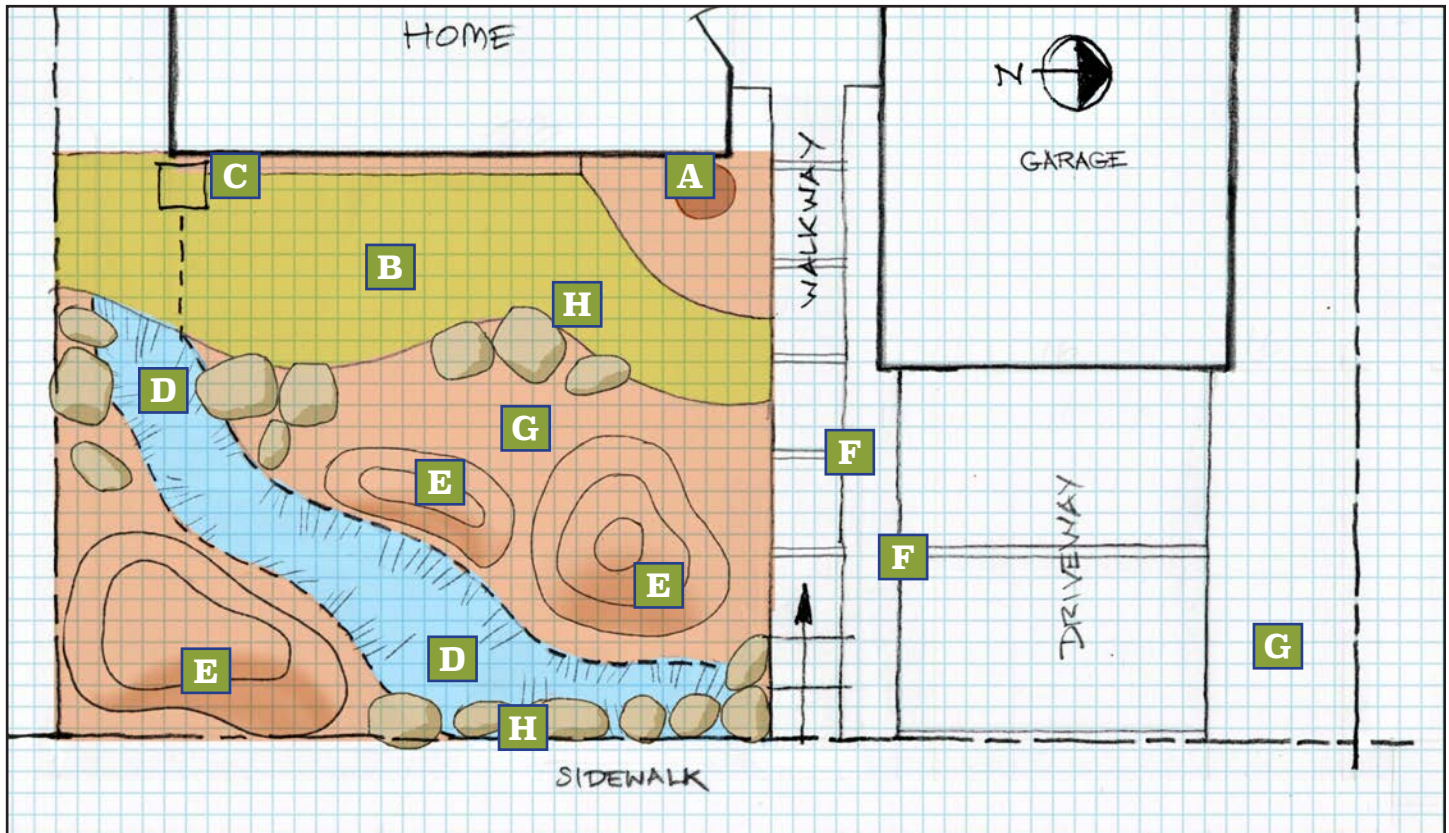
Begin to separate out each area that deposits water into a downspout. Mark the location of each of your roof gutters and downspouts.

Once you know the total area of the roof, you can figure out the amount of rainfall that it generates (*see p. 53*).

- Do you have low spots in which water pools?
- Does water run off the property anywhere?
- Does water run onto the property from a neighbor or street?
- Do any buildings or any hard surfaces appear to be water damaged? If so, does it appear to be a result of rain, irrigation, or both?
- Note the direction of water as it moves around the property.
- Turn on the irrigation for no more than 3 minutes and note whether there is pooling or runoff.
- What parts of the roof divert water into downspouts, and is the water being diverted into your landscape? Indicate the direction of the water with arrows as seen above.



Retain the rain



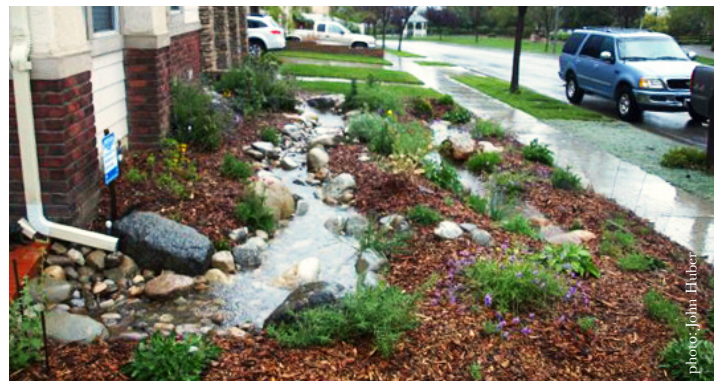
Use Multiple Strategies to hold on to the First Inch of rain.

- A Downspout Redirected** off walkway and into rainbarrel. Overflow from rainbarrel goes into landscaped area.
- B Permeable Patio** of gravel is installed.
- C Downspout Diverted** into a catch basin which is connected by perforated pipe into the swale area of the landscape. This should eliminate the pooling and erosion caused by the downspout.
- D A Slight Depression**, or swale, has been dug out in the dry shade area on the South side of the property and across the front yard into the low spot at the sidewalk that always is wet. This swale is only 12" deep in the middle (see p. 38).
- E Relocate Soil As Berms** when digging out the swale and the patio area. Relocated soil becomes raised or mounded areas (berms) on either side of the depressed area. The berms become places for plants that like fast drainage (see p. 38).
- F Horizontal 4" Cuts** have been made in the walkway and driveway and filled with 1/4" - 1/2" crushed gravel.
- G Living Soil** is being created with Sheet Mulching using 4" - 6" of mixed leaf and bark tree trimmings covering the whole yard (see p. 14).
- H Boulders**, typically no more than 12" - 18" in diameter, are used to retain both the slight slope, flattening the permeable patio area, and the edge of the swale next to the sidewalk and walkway where the overflow will occur (see p.38).

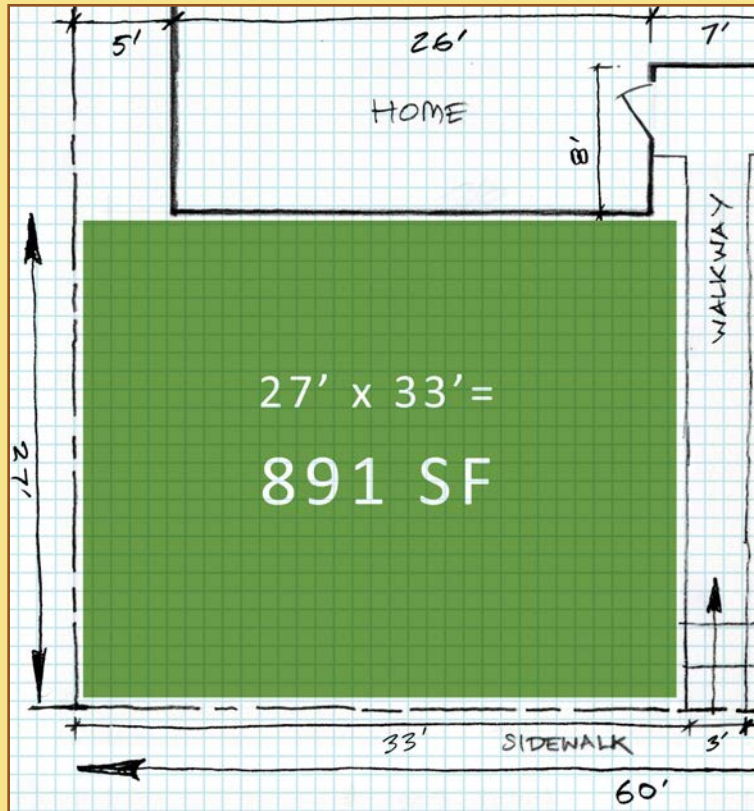
Mind The Foundation

Be sure to locate your berms and swales away from the foundation of the buildings and edges of the sidewalks. Always grade away from foundations.

A good rule is 5' - 10' from buildings and 3' from sidewalk edges. Where space is limited, make sure the low point of the basin fits these parameters. Overflow of excess water can go to the sidewalk or the street so long as you protect against erosion.



How mulch do you Need?



Add Organic Matter

Add 1-3" of compost to improve the water holding capacity of soil by 30%.

Place 4-6" of mulch on top of the soil to hold in moisture and keep down weeds when planting, and maintain 2-4" of mulch on beds at all times.

Keep mulch at least 1-6" away from the stems of plants.

Calculate the Material Requirement

Start with the **Square Footage (SF)** of space to be covered and figure out how much you will need for 1 inch of material.

SF x 1 inch ÷ 12" = Cubic Feet (CF) of material needed. (Dividing by 12" turns your inch of amendment into feet of amendment.)

If you need less than 20 CF of material, you can probably make it in a compost pile or purchase it in bags.

If you need more than 25 CF of material, you must convert your materials to Cubic Yards, because you are going to have to have it all delivered in bulk.

Cubic Yards (CY) are found by dividing CF by 27. So, $25 \text{ CF} \div 27 =$ about 1 CY of material needed.

Applied to Our Site:

$891 \text{ SF} \times 1 \div 12" = 74.25 \text{ CF}$ for 1" of mulch.

If you need 2", you multiply the amount needed for one inch by 2 and if you need 6", you multiply the one inch total by 6.

We need 4" of mulch = $74.25 \text{ CF} \times 4 = 297 \text{ CF}$

For our yard, that is $297 \text{ CF} \div 27 =$ about 11 CY of mulch. That sounds like a lot of material! It looks like we will have to buy it in bulk (see p. 29).

Avoid These Mulches Around Plants

While these mulches are commercially available, they don't decompose to feed the soil microbes. Although some are organic materials, they are not recommended. For example, dyed mulches are composed primarily of recycled wood materials such as treated or painted furniture or wood palettes.



dyed wood mulch



dyed wood mulch



gravel



rubber

Capture First Flush

First Flush is the **First Inch** of rain after a dry spell.

This is the most important water to capture in your landscape. The first rainfall washes away pollution that has gathered on hard surfaces during the dry spell, and it needs to be filtered by the landscape before it goes anywhere else.

Calculate How Much Water Comes Off Your Roof

The shape of your roof doesn't matter in the calculation of water. A pitched roof and a flat roof have the same footprint and the same amount of rain falls on the total roof area. Just measure the outside edges and calculate the square footage as you would any landscape area.

Area of a Rectangle = length of side A x length of side B

Some roofs are flat, and therefore easy to calculate. For complicated roofs, divide the area into squares and add up the area of each square.

Once you know the total area of the roof, you can figure out the amount of rainfall that it generates in gallons. 0.62 is a constant that converts square foot inches into gallons.

Rainfall (in inches) x Roof Area Square Feet x 0.62 = Gallons of Rain Water From Your Roof

You can use these calculations to determine how much water comes off any hard surface (patio, driveway, sidewalk, etc.).



How Much water per downspout?

First figure out how much water is coming from the whole roof, and then divide the roof into sections and calculate the particular amounts falling from each downspout:

Rainfall (in inches) x Roof Area Square Feet x 0.62 = Gallons of Rain Water From Your Roof

If your roof is 1,000 square feet (SF), here's how much water runs off it:

- 1" (rainfall) x 1,000 SF x 0.62 = 620 gallons
- 10" (typical coastal rainy season total rainfall) x 1,000 SF x 0.62 = 6,200 gallons

It adds up quickly, even in dry areas. Try to save as much as you can in your landscape sponge!

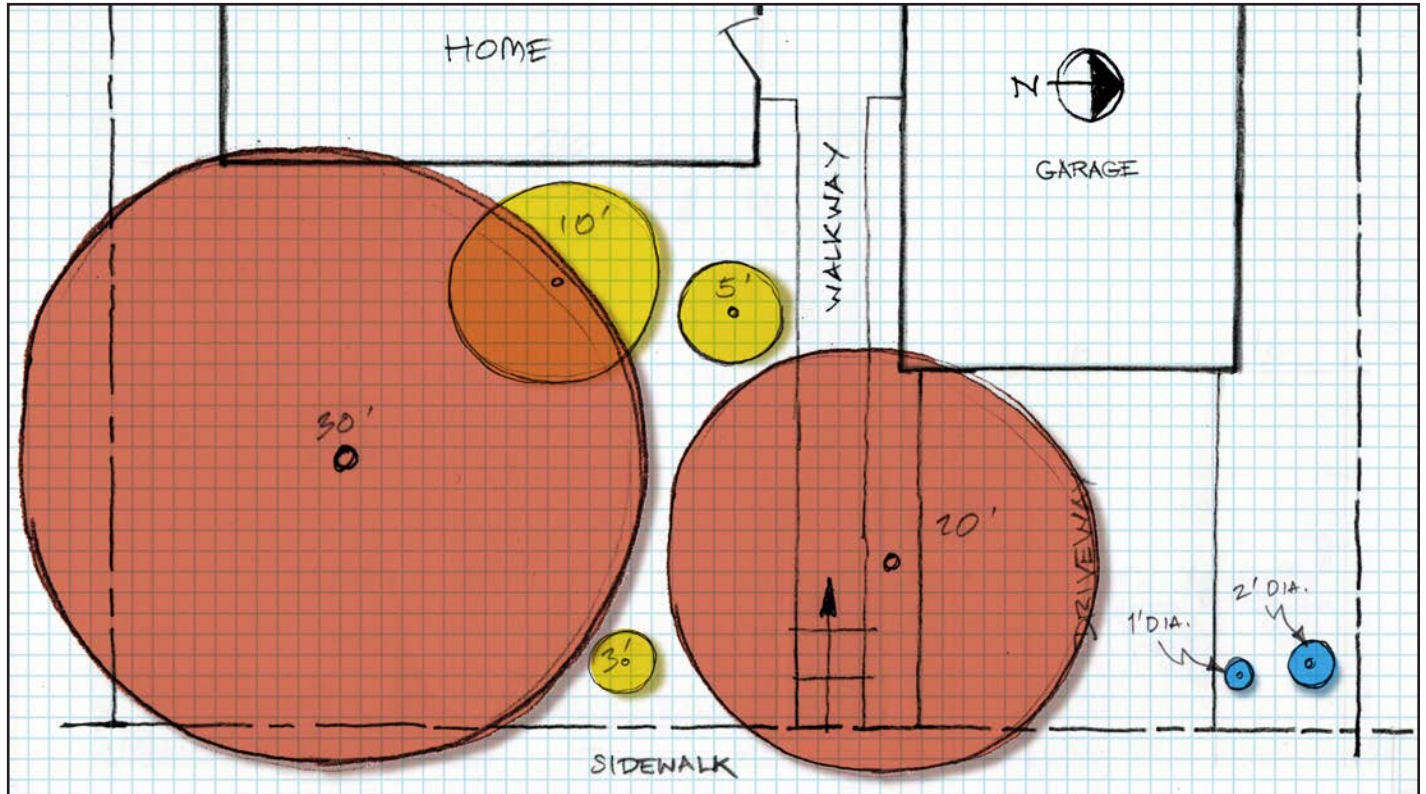
Imagine the water from your garage roof splits into two downspouts and Your Total Roof Area is 20' x 50' = 1,000 SF

If half of the water goes into each downspout, then the roof size for one downspout is: 1,000 SF ÷ 2 = 500 SF

Now calculate how much water that is in gallons from each inch of rain coming from one downspout:

1" x 500 SF x 0.62 = 310 gallons of water per inch of rain per downspout.

Give plants **Room** to grow



Note **Height** and **Width** of each plant at maturity.

This allows you to correctly space the plant in the landscape. Proper plant placement, taking into account mature plant size, should limit the need for future pruning and reduce the amount of maintenance required in the long run.

Natural forms are encouraged for habitat value, but fire prevention does require regular pruning and removal of dead plant material.

Use the inset spacing chart to help figure out how many plants you need per Square Foot of planted area based on the mature size of the plant.

Scale Your Plants for Maturity by making Plant Circles the size of the plant at maturity using a 1" = 4' scale.

Practice using colored paper to indicate the water needs of the plants; it will make it easier to lay out the planting plan in irrigation zones.

See on the plan how big the (VERY LOW water use) 20' and 30' wide canopy trees will be. Will this change the microclimates in the future? Think ahead if your tree will cover a whole yard that's now sunny.

Desired Spacing Between Plants	Number of Plants Needed Per Sq. Ft. of Landscaped Area
4"	9
5"	5.76
6"	4
7"	2.94
8"	2.25
9"	1.78
10"	1.45
11"	1.19
12"	1
15"	0.64
18"	0.44
24"	0.25
30"	0.16
36"	0.11

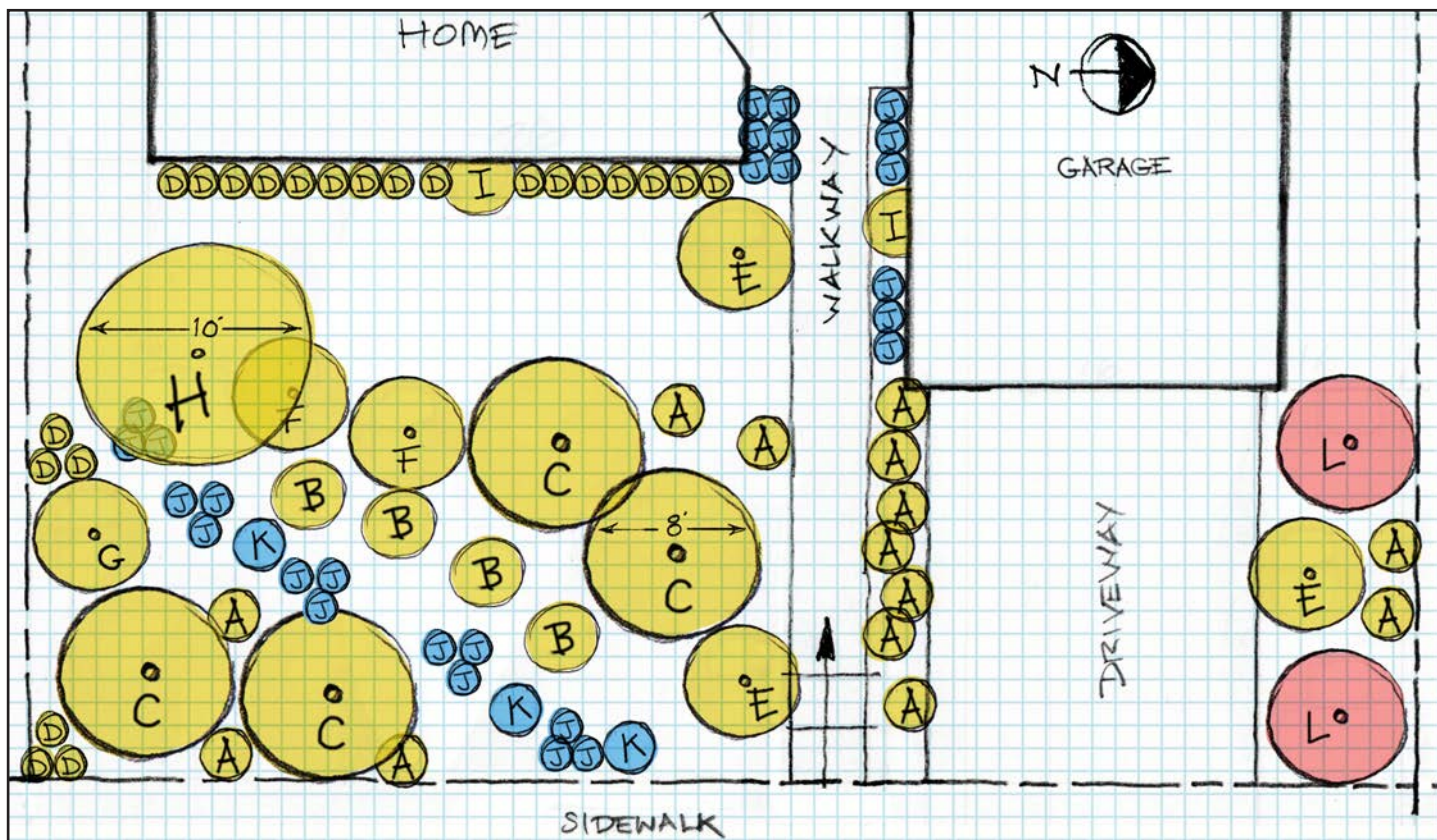
Root depth matters

Make notes about the root depth of the plants when you are placing them on your plan. Trees, with their deep roots, will be irrigated less frequently, but for a longer time. Groundcovers with shallower roots will require more frequent watering. Keep trees and groundcovers on separate hydrozones.

Small plants are mighty

Select the smallest healthiest plants you can find, especially when choosing natives. Once planted in a properly prepared bed, and watered wisely, the small plants establish themselves more vigorously than plants raised in larger containers. But just because you've selected small plants, doesn't mean you need to buy more than the space allows!

Make your Planting Plan

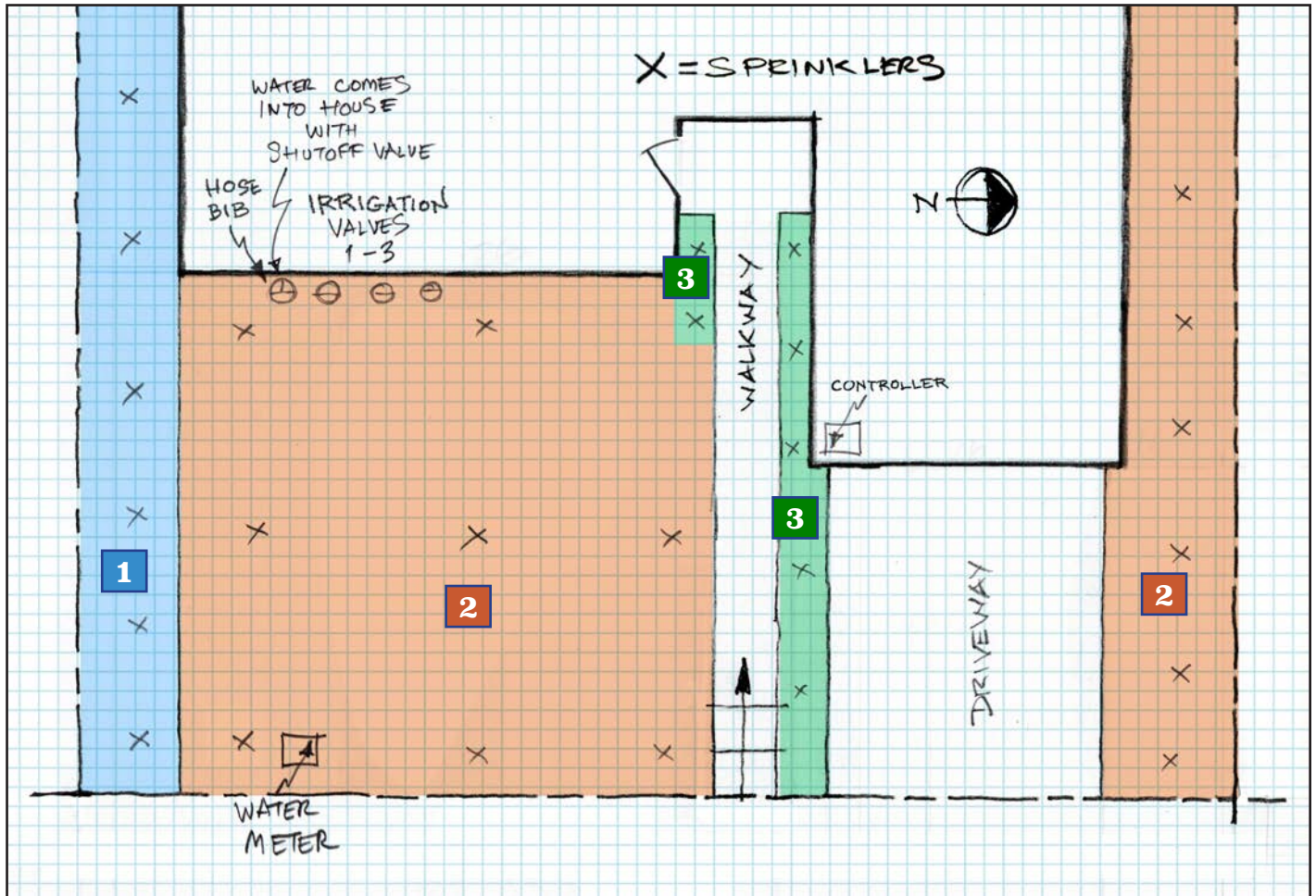


QTY	Symbol	Form	Botanical (Latin) Name	Common Name	Plant Factor	Sun	Dimension H' x W'	Flower Color	Notes
14	A	Grass	Bouteloua gracilis 'Blonde Ambition'	Blonde Ambition blue grama	L/VL	F	2' x 2'	wheat	Dry Feet
4	B	Perennial	Lavandula	Lavender varieties	L	F	3' x 3'	purple	Family Gathering
4	C	Perennial	Salvia 'Bee's Bliss'	Bee's Bliss sage	L	F	2' x 8'	blue/purple	Family Gathering
22	D	Perennial	Teucrium chamaedrys	Germander	L	F	3' x 1'	pink/purple	Family Gathering
3	E	Perennial	Verbena lilacina 'De la Mina'	Cedros Island verbena	L	F/PS	2' x 4'	purple	Pollinator
2	F	Shrub	Abutilon palmeri	Indian mallow	L	F	5' x 5'	gold	Kids, Pets, Fun
1	G	Shrub	Galvezia speciosa 'Firecracker'	Island bush snapdragon	L	F	4' x 5'	red	Pollinator
1	H	Tree/Shrub	Punica granatum	Pomegranate	L	F	10' x 10'	orange/red	Family Gathering
2	I	Vine	Vitis 'Rogers Red'	Roger's Red grape	L	PS/S	30'	white	Kids, Pets, Fun
27	J	Perennial	Heuchera maxima	Island alum root	M/L	PS/S	3' x 1'	white/pink	Low and Easy
3	K	Perennial	Juncus patens	CA gray rush	M	F/S	2' x 2'	brown	Swale Plants
2	L	Perennial	Epilobium canum var. latifolium 'Everett's Choice'	Everett's CA fuchsia	VL	F	0.5' x 5'	orange red	Berm Plants

Plan for Planting. Start with a copy of your **Microclimates Maps** (see p. 48). Begin the plant design process by selecting the right plant for the right place in your garden. Use the Plant List above to practice matching plants with the conditions, and represent the plants with circles the appropriate size and color reflecting water requirements. This is the foundation of your Plant Shopping List (see pp. 68-69). It's just a paper plan, so move things around! Experiment!

- 1 Take into consideration microclimates and select plants that need Full Sun, Part Shade or Shade as appropriate.
- 2 Consider Plant Factors - Low or Very Low plants on berms and Moderate plants in the swales.
- 3 Consider the height, width and root depth of each plant.
- 4 What form of plant do you desire - Grass or Groundcover, Vine, Shrub or Perennial or Tree?
- 5 Once you've drawn your plan, count up the number of plants you will need to order and mark them in the Quantity box.

Evaluate your Irrigation and Hydrozones



Make A Map of your irrigation system.

If you have an irrigation system installed, chances are that it is a spray sprinkler system with an automatic irrigation controller.

Locate all of the sprinkler heads on your property and mark their location on a copy of your site plan. Note the location of your controller, where the water comes on to your property from the street (the main line), and the location of every valve that controls the various irrigation zones. Color code the areas that spray with each valve so you easily can see the various zones you are dealing with for replacing plants and irrigation.

Also Mark These Following Elements:

- Water Meter or Irrigation Submeter and where the water comes from the street on to the property (the Main Line)
- Irrigation Controller
- Shut Off Valve for turning off the irrigation system
- Pressure Regulator (Does the irrigation system separate from the house? If your irrigation comes from a pipe that first serves the house, it may be located before it enters the house.)
- Irrigation Valves
- Hose Bibs
- Backflow Preventer (If you don't have one, your sprinkler valves probably do, so don't worry.)

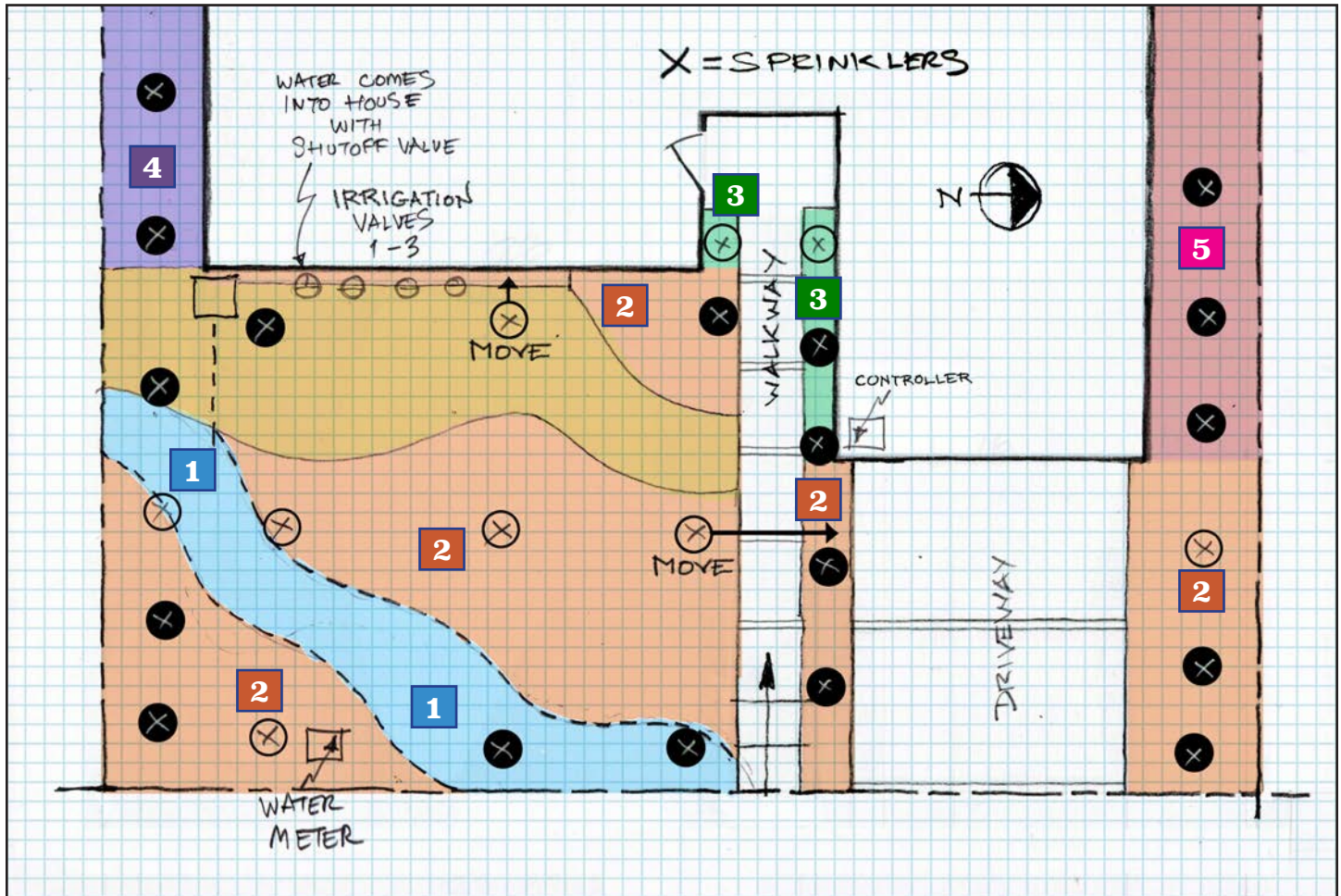
Our Sample Project has three existing irrigation zones indicated by different colors.

- 1** South side of the property - 6 Side-strip Conventional spray sprinklers
- 2** Front yard and North side of the property - 14 Conventional spray sprinklers (3 Quarters, 4 Halves, 1 Full in the front yard and 6 Side-strips on the North side) *Note that a pipe under the walkway and driveway connects the two areas.
- 3** Along walkway and front entry - 7 Side-strip Conventional spray sprinklers

The challenge is to use the parts of the existing irrigation system that can work with the new system, without abandoning everything and starting from scratch. It is especially difficult to match existing irrigation to new hydrozones (groupings of plants by their water needs).

Be aware, however, that if you are renovating most of your landscape, you may need to significantly alter the irrigation. If this is the case, starting from scratch may be the most cost and time-effective alternative.

Match Irrigation to new Hydrozones





Compare Valve Zones to Hydrozones.

Which sprinkler heads go on at the same time and what kind of plant material are they irrigating? Get ready to make changes to your irrigation system in order to accommodate both the new grading and the new plants you are introducing into your garden.

Match Valve Zones With New Hydrozones:

- 1** MODERATE water use plants in the low wet spots and swale - Cap all but 1 head and convert to drip
- 2** LOW water use plants in front yard dry berm areas and VERY LOW water use plants on North side of driveway - Move 1 head against house; Cap 2 heads in Front yard; Cap all but 1 head on North side; Run drip tubing through cut in walkway to access the planter between walkway and driveway; convert all uncapped heads to drip

- 3** MODERATE water use plants in dry shade of front entry - Cap 5 heads and convert 2 to drip (one on either side of walkway)
- 4** Make a new zone from back yard valve for South facing wall of house
- 5** Make new zone from back yard valve for North facing wall of garage
-  Capped spray sprinklers
-  Spray sprinklers converted to drip

Need help with irrigation? www.clca.org

If your irrigation system was installed by a licensed landscape contractor, you may be able to call on them to walk you through the system before you attempt any renovations. If your system is older, it may be very difficult to renovate without professional assistance. Also, check your valves and make sure they are not leaking. If valves are leaking, or if there are any elements about which you are unsure, make the investment in having a licensed landscape contractor renovate your system in accordance with your new sustainable landscape plan.

Consider these **Costs**



photo: Pamela Bestler

Landscape Retrofits are an investment.

When you invest in your landscaping, you are investing in the long-term value of your property. However, there is no such thing as a typical budget for landscape design and installation.

While a good **RULE OF THUMB** is to budget 5% - 10% of your home's current market value in a landscape renovation, every site is different, and the situations encountered on that site will dramatically influence the overall budget for the project. Location, expectations of the neighborhood and aesthetics must be combined with all of the functional requirements discussed in this book to inform the final budget for your landscape. When you include hardscape, covered structures, or other built amenities like outdoor kitchens, the prices rise exponentially.

Consider that the landscape is raw ground to be prepared, graded, etc. All of the typical building trades work on a landscape: plumbing, electrical, and if you are installing hardscape or covered structures, expect to include masonry, carpentry, fixtures and appliances. A hard-working, Do-It-Yourselfer (DIY) can remove turf, make grade changes and build soil through sheet mulching. Planting and converting an existing irrigation system

to drip also can be accomplished using the techniques outlined in these guidelines. The more you do yourself, work with what you have, or select low cost materials, the more affordable you will make your landscape changes.

A basic landscape renovation of a turf-covered front yard covering 1,000 square feet, adjusting an existing working spray irrigation system and not including hardscape or other built amenities, should cost approximately \$5 - \$10/square foot for a DIY renovation or \$12 - \$20/square foot for a professionally designed and installed landscape.

All-in Planting Costs = Plants + Installation Labor

An all-in price for planting that includes the labor costs for a professionally installed plant may be 2x - 3x the purchase price of the plant because the installer should provide a 30 - 90 day plant replacement guarantee.

Invest in soil



photo: Paul Herzog

Soil preparation is the single greatest investment you can make in the long term health and beauty of your garden. Buy your compost in bulk, and expect to spend at least 10% of your budget on building healthy Living Soil.

Invest in design



photo: Steve Williams

The more time you spend researching your options and planning your garden, the better prepared you will be during construction. Measure twice, dig once! Spend the time yourself, or expect to pay 10% - 20% of your budget on professional design assistance.

Invest in rain



photo: John Huber

Capturing and holding on to rainfall from adjacent hard surfaces, helps prepare your garden for the long, dry summer and reduces irrigation demand. Expect to spend up to 20% of your budget on labor for grading for rain and materials for drainage.

Projects need **People**



Assessment Organizations including site assessment and testing, various measuring services, surveyors, soil testing services and even Google Maps are available to help. Property measuring and surveying companies can develop more detailed plans with elevations, sighting of trees and landscape amenities, irrigation, etc. If you get out into the yard with a measuring tape and the Design-it Yourself section we've put into this book, you should be able to make a serviceable site map to scale.

Planning and Design professionals can help you develop a working plan and budget for your landscape. The plan should include drawings, a list of resources, and an outline of the techniques to be used to implement the plan. Licensed landscape architects and licensed landscape contractors can assist you in developing a plan and budget. Landscape designers also can help you create a conceptual design. Working with a licensed professional (architect, landscape architect, landscape contractor or civil engineer) is recommended if you have hillsides and slopes or complicated structures.

Landscape Installation and Construction professionals are licensed landscape contractors who specialize in building landscapes, and are able to work on all aspects of the sustainable landscape plan. If you are handy, and feel comfortable with the techniques outlined in this book, there is no reason why you cannot install your own garden, especially knowing that if you get stuck you can call upon the expertise of a landscape professional.

Certified Arborists are specialists trained in the art and science of planting, caring for, and maintaining individual trees. Arborists are knowledgeable about the needs of trees and are trained and equipped to provide proper care. Find tree consultants at the American Society of Consulting Arborists (ASCA).

Rainwater Catchment specialists include people certified by the American Rainwater Catchment Systems Association (ARCSA) to design and install rainwater capture systems. These professionals can bring a lot of specific expertise to your project, particularly if it involves the installation of an active capture system such as a cistern.

Green Plumbers can assist you on an as-needed basis if you are attempting a DIY renovation. Their expertise is usually limited to the point of connection of the irrigation system with the municipal or home supply, backflow prevention, pressure regulation, or graywater installation.

Irrigation Systems Consultants include people who have been certified by an EPA WaterSense® labeled certifying organization to provide irrigation system auditing, design, and maintenance. These professionals can bring specific expertise on improving the efficiency of irrigation systems.

Watershed Wise Landscape Professionals are people who are certified to provide site evaluation and consulting on using the watershed approach to landscaping in design, construction, and maintenance.

Plant Selection specialists include your local retail nursery and garden center, native plant societies, Master Gardeners, and professional gardeners. The best plant selector, however, is you! Do the homework to select plants that are both climate-appropriate and locally native to your place, and you will be rewarded with a better understanding and appreciation of your garden as it evolves over time. Plus, you can advise your friends on their plant selections!

Maintenance of sustainable landscapes requires an understanding of the watershed approach to landscaping and water management. While there will be less mowing of lawns and blowing of leaves, there will be more fine pruning, irrigation flushing and tuning, cleaning and checking rain barrels and other water retention devices and soil building. Maintenance people should demonstrate an ability to think critically, be open to the techniques and ideas outlined in these guidelines and understand how to implement IPM, mulching, basic irrigation tune-ups, and native plant husbandry.

Water Managers are a big part of ongoing sustainable landscape maintenance. Learning how to manage your own water is best, but if you are still using an irrigation system for your landscape, you may consider hiring a certified professional who has demonstrated expertise in water management.



Use this Project Plant List

Form	B	Botanical (Latin) Name	Common Name	Plant Factor	Sun	Dimension H' x W'	D/E/S	Flower Color	Notes	Page
Grass		Agrostis pallens	Bent grass	M/L	PS/S	1' x 1'	E	green	Groundcover	31
Grass		Bouteloua dactyloides	Buffalo grass	M/L	F	0.5' x 1'	D	wheat	Groundcover	31
Grass	x	Bouteloua gracilis 'Blonde Ambition'	Blonde Ambition blue grama	L/VL	F	2' x 2'	D	wheat	Berm Plants	39
Grass	x	Carex pansa	California meadow sedge	M	F/S	0.8' x 0.8'	E	wheat	On the Go	7
Grass		Festuca californica	California fescue	M/L	F/S	0.8' x 1'	E	wheat	Groundcover	31
Grass		Festuca ovina	Sheep's fescue	M	F/S	0.8' x 1'	E	wheat	Groundcover	31
Grass	x	Leymus condensatus 'Canyon Prince'	Clumping wild rye	L	F	3' x 4'	E	wheat	On the Go	6
Grass		Lomandra longifolia 'Breeze'	Dwarf mat rush	L	F/S	3' x 4'	E	yellow	Groundcover	31
Grass		Mulenbergia lindheimeri	Lindheimer's muhly	M	F	5' x 6'	S	cream	Sun Lover	23
Grass		Muhlenbergia capillaris 'Regal Mist'	Pink muhly	L	F	4' x 4'	E	pink	Sun Lover	23
Grass		Muhlenbergia rigens	Deer grass	M/L	F/PS	5' x 5'	D	wheat	Kids, Pets, Fun	12
Groundcover	x	Achillea millefolium	Yarrow	L	F	3' x 3'	S	various	On the Go	7
Groundcover	x	Arctostaphylos edmundsii 'Carmel Sur'	Carmel Sur creeping manzanita	M/L	F/PS	0.5' x 15'	E	pink/white	Groundcover	31
Groundcover		Arctotis	African daisy	M/L	F/PS	0.5' x 1.5'	E	various	Parkway	34
Groundcover	x	Asteriscus maritimus	Gold coin plant	L	F/PS	1' x 4'	E	yellow	Groundcover	31
Groundcover	x	Baccharis pilularis 'Pigeon Point'	Pigeon Point coyote bush	L/VL	F	1' x 8'	E	white	Hillside	40
Groundcover	x	Calylophus hartwegii	Sundrops	L	F	1' x 2'	E	yellow	Parkway	34
Groundcover	x	Ceanothus griseus horizontalis 'Yankee Point'	Carmel Mountain ceanothus	L	F	3' x 12'	E	blue	Hillside	40
Groundcover	x	Dalea frutescens	Black dalea	L	F	4' x 4'	S	deep purple	Hillside	40
Groundcover		Dymondia margaretae	Silver carpet	M	F/PS	0.25' x 2'	E	yellow	Groundcover	31
Groundcover	x	Eriogonium grande var reubescens	San Miguel Island buckwheat	L/VL	F	2' x 3'	E	pink	Pollinator	37
Groundcover	x	Fragaria chiloensis 'Chaval'	Chaval Beach Strawberry	M	S	0.25' x 1'	E	white	Groundcover	31
Groundcover		Grevillea lanigera 'Prostrate'	Prostrate woolly grevillea	L	F/S	2' x 4'	E	cream/pink	Kids, Pets, Fun	13
Groundcover		Pelargonium tomentosum	Peppermint geranium	M	F/PS	2' x 4'	E	white	Edibles	36
Groundcover		Phyla nodiflora (aka lippia repens)	Lippia	M/L	F	0.25' x 2'	E	pink	Parkway	34
Perennial		Allium schoenoprasum	Chives	M	F/PS	1.5' x 1.5'	E	pink	Edibles	36
Perennial	x	Asclepias fascicularis	Narrow leaf milkweed	M/L	F	3' x 1'	S	white	Kids, Pets, Fun	12
Perennial	x	Asclepias subulata	Desert milkweed	L	F/PS	3' x 3'	S	yellow/white	Pollinator	37
Perennial		Asparagus densiflorus 'Myers'	Myers asparagus fern	L	F/S	3' x 3'	E	white	Kids, Pets, Fun	13
Perennial		Cerastium tomentosum	Snow-in-summer	M	S	0.5' x 3'	E	white	Groundcover	31
Perennial	x	Convolvulus sabaiatus	Ground morning glory	M/L	F	1.5' x 3'	E	blue	Firefighter	41
Perennial		Dietsa bicolor	Fornight lily	L	F/S	3' x 3'	E	white/yellow	Kids, Pets, Fun	12
Perennial	x	Epilobium canum var. latifolium 'Everett's Choice'	Everett's California fuchsia	VL	F	0.5' x 5'	S	orange red	Berm Plants	39
Perennial	x	Eriogonum parvifolium	Cliff buckwheat	L	F	1.5' x 3'	E	white	Sun Lover	23
Perennial		Gaillardia x grandiflora	Blanket flower	M	F/PS	2' x 2'	E	red/yellow	Sun Lover	23
Perennial	x	Guara lindheimeri	Butterfly flower	M	F/PS	2' x 4'	E	various/pink	Parkway	34
Perennial	x	Heuchera 'Santa Ana Cardinal'	Santa Ana coral bells	M/L	PS/S	3' x 1'	E	red	Low and Easy	8

Use this Project Plant List

Form	B	Botanical (Latin) Name	Common Name	Plant Factor	Sun	Dimension H' x W'	D/E/S	Flower Color	Notes	Page
Perennial	x	Heuchera maxima	Island alum root	M/L	PS/S	3' x 1'	E	white/pink	Pollinator	37
Perennial	x	Iris douglasiana	California native iris	M	F/PS	3' x 3'	E	various	Wet Feet	39
Perennial		Juncus patens	California gray rush	M	F/S	2' x 2'	E	brown	Swale Plants	39
Perennial		Lavandula	Lavender varieties	L	F	3' x 3'	E	purple	Family Gathering	10
Perennial	x	Lessingia filaginifolia var californica (aka Corethrogyne)	Silver carpet	VL	F/S	0.5' x 8'	S	violet	Parkway	34
Perennial	x	Mondarella villosa	Coyote mint	M/L	F	1.5' x 3'	S	lavender	Swale Plants	39
Perennial		Pelargonium sidoides	Geranium	M	F/PS	1' x 1'	S	Burgandy	Groundcover	13
Perennial	x	Salvia elegans	Pineapple sage	M	F/PS	5' x 3'	E	red	Edibles	36
Perennial	x	Salvia leucantha	Mexican bush sage	M/L	F	4' x 4'	E	purple	Low and Easy	9
Perennial	x	Sphaeralcea ambigua	Desert mallow	L/VL	F	3' x 2'	E	apricot	Low and Easy	9
Perennial	x	Teucrium chamaedrys	Germander	L	F	3' x 1'	E	pink/purple	Family Gathering	10
Perennial	x	Verbena lilacina 'De la Mina'	Cedros Island verbena	L	F/PS	2' x 4'	E	purple	Pollinator	37
Perennial		Zephyranthes	Fairy lily	M	F/PS	0.5' x 1'	D	white	On the Go	7
Shrub	x	Abutilon palmeri	Indian mallow	L	F	5' x 5'	E	gold	Kids, Pets, Fun	13
Shrub	x	Agastache	Hummingbird mint	M	F	10' x 10'	E	various	Sun Lover	23
Shrub		Aloysia citrodora	Lemon verbena	L	F	10' x 15'	E	white	Edibles	36
Shrub	x	Arctostaphylos 'Sunset'	Sunset manzanita	L/VL	F	8' x 8'	E	pink/white	Kids, Pets, Fun	13
Shrub	x	Caesalpinia pulcherrima	Red bird of paradise	L	F	15' x 15'	D	red/yellow	Sun Lover	23
Shrub	x	Calliandra californica	Fairy duster	L	F	4' x 5'	E	red/pink	Sun Lover	23
Shrub	x	Callistemon 'Little John'	Dwarf bottlebrush	M/L	F/PS	4' x 5'	E	red	Low and Easy	8
Shrub		Cistus x skanbergii	Pink rockrose	L	F	3' x 3'	E	pink	Family Gathering	10
Shrub	x	Galvezia speciosa 'Firecracker'	Island bush snapdragon	L	F	4' x 5'	E	red	Pollinator	37
Shrub		Grewia occidentalis	Lavender starflower	M	F	12' x 8'	E	lavender	Low and Easy	9
Shrub	x	Isomeris arborea	Bladderpod	L	F	5' x 6'	E	yellow	Hillside	40
Shrub		Leucophyllum frutescens	Texas sage	L	F	8' x 8'	E	pink	Kids, Pets, Fun	13
Shrub		Nandina domestica	Heavenly bamboo	M	F/S	6' x 3'	E	white	Low and Easy	9
Shrub	x	Rhamnus californica 'Eve Case'	Eve Case coffeeberry	M	PS/S	5' x 5'	E	white	Low and Easy	8
Shrub		Rhaphiolepis indica	India hawthorn	M	F	5' x 8'	E	white/pink	Low and Easy	9
Shrub	x	Rhus integrifolia	Lemonade berry	VL	F/PS	6' x 20'	E	white/pink	Firefighter	41
Shrub	x	Ribes aureum	Golden currant	M	F/PS	6' x 3'	D	golden	Edible	36
Shrub		Rosa floribunda 'Iceberg'	Iceberg shrub rose	M	F/PS	6' x 6'	D	white/pink	Sun Lover	23
Shrub	x	Rosmarinus officinalis prostratus	Creeping rosemary	M/L	F	2' x 6'	E	blue	Family Gathering	10
Shrub	x	Salvia 'Bee's Bliss'	Bee's Bliss sage	L	F	2' x 8'	E	blue/purple	Low and Easy	8
Shrub	x	Simmondsia chinensis	Jojoba, Goatnut	L	F	10' x 12'	E	yellow	Hillside	40
Shrub		Teucrium fruticans 'Azureum'	Azureum bush germander	L	F	4' x 5'	E	dark blue	Kids, Pets, Fun	12
Shrub		Westringia fruticosa 'Morning Light'	Coast rosemary	M	F/PS	4' x 4'	E	white	Low and Easy	9

Use this Project Plant List

Form	B	Botanical (Latin) Name	Common Name	Plant Factor	Sun	Dimension H' x W'	D/E/S	Flower Color	Notes	Page
Succulent		Agave victoriae-reginae	Queen Victoria agave	L	F/S	2' x 2'	E	yellow	On the Go	7
Succulent		Agave vilmoriniana	Octopus agave	L	F/S	3' x 5'	E	yellow	On the Go	7
Succulent		Aloe arborescens	Torch aloe	L	F	12' x 12'	E	red	On the Go	6
Succulent		Bulbine frutescens 'Hallmark'	Orange bulbine	L	F/PS	1.5' x 8'	E	orange	Firefighter	41
Succulent	x	Cistanthe grandiflora (aka Calandrinia spectabilis)	Rock purslane	L	F/S	1' x 3'	E	purple	Berm Plants	39
Succulent		Kalanchoe beharensis	Felt plant	L/VL	PS/S	5' x 3'	E	white	On the Go	7
Succulent		Sedum nussbaumerianum	Orange stonecrop	L/VL	F/PS	1' x 1.5'	E	pink	On the Go	6

Tree		Arbutus 'Marina'	Hybrid strawberry tree	L	F	50' x 40'	E	pink	Tree	32
Tree		Arbutus unedo 'Compacta'	Hybrid strawberry tree	L	F	12' x 8'	E	pink/white	On the Go	6
Tree		Brahea armata	Blue hesper palm	L	F/PS	30' x 20'	E	yellow	On the Go	6
Tree	x	Chilopsis linearis	Desert willow	L	F	30' x 25'	D	purple	Tree	32
Tree	x	Lyonothamnus floribundus	Catalina ironwood	L/VL	F/PS	55' x 20'	E	white	Tree	32
Tree		Morus nigra 'Persian'	Persian fruiting mulberry	M	F	35' x 35'	D	yellow	Edibles	36
Tree		Pistacia chinensis	Chinese pistache	M	F	35' x 35'	D	berries/fall color	Sun Lover	23
Tree	x	Prosopis chilensis	Thornless Chilean mesquite	L	F	30' x 30'	S	yellow	Trees	32
Tree		Prunus armeniaca	Apricot	M	F	20' x 20'	D	pink	Edibles	36
Tree		Prunus salicina 'Santa Rosa'	Santa Rosa plum	M	F	30' x 20'	D	pink/purple	Family Gathering	11
Tree	x	Quercus agrifolia	Coast live oak	VL	F/PS	70' x 30'	E	yellow	Tree	32
Tree		Ziziphus jujuba	Jujube, Chinese date	L	F	40' x 10'	D	yellow/white	Edibles	36

Tree/Shrub	x	Acca sellowiana	Fejoa, Pineapple guava	L	F	20' x 15'	E	pink	Family Gathering	11
Tree/Shrub	x	Ceanothus species	California lilac (many varieties)	L	F/PS	various	E	blue	Low and Easy	8
Tree/Shrub		Citrus 'Improved Meyer'	Improved Meyer lemon	M	F	10' x 12'	E	white	Edibles	36
Tree/Shrub		Citrus 'Nagami'	Dwarf kumquat	M	F	6' x 6'	E	white	Edibles	36
Tree/Shrub	x	Heteromeles arbutifolia	Toyon, Christmas berry	L	F	10' x 6'	E	white/red	Sun Lover	23
Tree/Shrub		Lagerstroemia indica 'Tuscarora'	Tuscarora crape myrtle	M/L	F	15' x 15'	D	dark pink	Tree	33
Tree/Shrub	x	Parkinsonia 'Desert Museum'	Desert Museum palo verde	VL	F	20' x 20'	D	yellow	Tree	33
Tree/Shrub	x	Prunus ilicifolia ssp ilicifolia	Hollyleaf cherry	M/L	F/S	25' x 15'	E	white	Family Gathering	10
Tree/Shrub		Punica granatum	Pomegranate	L	F	10' x 10'	D	orange/red	Family Gathering	11
Tree/Shrub		Xchitalpa linearis 'Pink Dawn'	Pink chitalpa	L	F	30' x 30'	D	pink/white	Tree	33

Vine		Clytostoma callistegioides	Lavender trumpet vine	M	F	25' x 25'	E	lavender	Family Gathering	11
Vine		Hardenbergia violacea	Purple vine lilac	L	F/S	15' x 20'	E	purple	Family Gathering	11
Vine		Rosa 'Climbing Cecile Brunner'	Climbing rose	M/L	F	15' x 15'	E	pink	Family Gathering	11
Vine	x	Vitis 'Roger's Red'	Roger's Red grape	L	PS/S	30'	D	white	Kids, Pets, Fun	12

Plant List Key

Form:	Plant Factor:	Sun:	B:	D/E/S:	Notes:
Natural shape taken by the plant	M=Moderate L=Low VL = Very Low	F=Full PS=Part Shade S=Shade	Plant supports life cycle of butterflies	D=Deciduous, E=Evergreen, S=Semi-Deciduous	Section of the book where you can read more about this plant

Use this **Project Checklist**

Prepare to work

p.5

Notes

- Clean up Your Property
 - Remove trash and debris, weeds, dead plants
- Orient Yourself
 - Check with your local water agency for watering restrictions and rebates
 - Check with your city if permits are required, and secure them if needed
 - Find out if you are in a hillside grading area or special viewshed
 - Confirm fire regulations in your area
- Make a List of Things You Want In Your New Landscape
 - Think about how much maintenance you want to do
 - Consider how much rainwater you want to catch in barrels or cisterns
 - Determine how much of your property you want to change – and how much lawn to remove

Plan before digging

pp.44-61

Do you need design help?

Walk around and take photos (for BEFORE)

- Make a Site Map
 - Take measurements
 - Make a Microclimate Map
- Water Plan
 - Do roof area calculations
 - Note location of downspouts
 - Calculate water available from each downspout
- Grading Plan For Capturing Rainwater
 - Look at slope of the site
 - Plan for where to stockpile topsoil if project is large
 - Identify trees to be protected during construction
- Test Soil Type
 - Percolation Test – Brick or Sponge?
 - Jar Test - Sand, Silt or Clay?
- Make an Existing Irrigation System Plan
 - Run irrigation and make immediate adjustments
 - Fix broken heads or lines, move blocked heads
 - Adjust controller program time to eliminate runoff (cycle and soak)
- Draft a Hardscape Plan
 - Note existing hardscape that needs to become more permeable
 - Draw in new hardscape
- Do Some Shopping and Research
 - Source rain chains, rainbarrels and cisterns
 - Source mulch and compost
 - Identify permeable hardscape options
 - Go to nurseries for plants
 - Make appointments
 - Install gutters, if you want to harvest more water

Use this Project Checklist

Design for plants p.54-55

- What do you want in your yard?**
- Follow guidelines for hillside planting**
- Ask for help at a nursery**

- Make A Planting Plan**
 - Assign Plant Factors to existing material
 - Research native plant communities for your area
 - Consider butterflies and pollinators
 - Where are the swales and berms (wet and dry feet!)?
 - Add in edibles and fruit trees
 - Select one or two shade trees
 - Check www.plantright.org for the BAD GUYS
 - Scale plants for maturity
 - Hydrozone

Notes

Begin your project installation pp.14-29

Do you need construction/installation help?
CALL DIG ALERT 8-1-1 before beginning work

- Make Calls to Order Equipment, Material, Deliveries**
 - Rent a sod cutter and dumpster, if necessary
 - Order organic matter for the soil
 - Select boulders and gravel for creek beds
 - Order catch basins or piping for irrigation and drainage
 - Deliver rain barrels and cisterns
- Stockpile Soil and Protect Trees**
 - Protect trees from construction damage (limbs and roots)
 - Remove plants that are not wanted
- Change Existing Hardscape to Make It More Permeable**
- Remove Grass and Build Soil With Soil Lasagna**
 - Continue to water your lawn up to two days before removal
 - Remove your turf without chemicals through Sheet Mulching
- Contour Site For Rain**
 - Contour soil to hold onto First Flush (first inch of rain)
 - Remember not to remove soil; use it to create your contours
 - Add organic matter to the soil
 - Install catch basins, drainage pipe and sleeves under hardscape
- Repair Irrigation**
 - Set back spray irrigation 24" from hard surfaces
 - Identify or move future drip irrigation points of connection
 - Replace valves for low pressure valves
 - Install pressure regulator, flow meter or landscape sub meter
 - Install low-head check valves on slopes and grade changes
- Capture Rainwater**
 - Lay out plan using flour, chalk or spray paint
 - Install any new hardscape surfaces, draining to the landscape
 - Install boulders and materials for creek beds or swales
 - Install rain barrel or cisterns

Use this Project Checklist

Install new plants

p.25

Compare Planting Plan with Existing Irrigation Plan

Fall is the best time to get free rain irrigation!

Order plants and gather materials necessary for planting

- Lay Out Planting Plan
 - Lay out your Planting Plan using flour or chalk
 - Make your “in field” adjustments
 - Install your plants into the Soil Lasagna
 - Be sure to respect correct plant placement for mature size
 - If drainage is poor, auger holes and wait to complete
 - Thoroughly and completely water holes, plants, and surrounding soil

Notes

Upgrade and adjust new irrigation

p.57

Consider hand watering until landscape is established (1-2 dry seasons)

Adjust irrigation schedule using the Landscape Watering Calculator at www.Bewaterwise.com

- Accommodate the Planting Plan
 - Where sprayhead sprinklers are used, convert to low flow rotary nozzles
 - Convert spray head sprinklers to drip or install new drip lines
 - Cap all unused spray head sprinklers
 - Install tattle-tale flush assemblies
 - Install end caps on the drip zones
 - Create an “as built” drawing of the new irrigation layout
 - Install a weather-based irrigation controller

Establish and steward new landscape

p.28

- Complete Irrigation Installation
 - Irrigation for establishment is best used during fall, winter and spring months if rainfall is limited
 - Adjust irrigation to eliminate runoff
 - Regularly flush drip irrigation lines, especially during the first year
 - Seasonally adjust automatic irrigation schedule
 - Reduce in fall; turn it off in winter!
 - Move drip irrigation and add emitters as the tree grows in order to maintain the wetting zone at the outside edge of the tree’s canopy (dripline)
- Maintain Living Soil and Plants
 - Maintain 2” – 4” of living mulch and add more annually
 - Practice Integrated Pest Management
- Maintain Rainwater Capture Systems
 - Make sure gutters are not clogged
 - Clean rainbarrels/cisterns and clean out catch basins
 - Make sure mosquito screen is not ripped
 - Flush pipes
 - Remove debris from swales, especially at inlets/outlets

Use these Resources for **Success**

Botanical and Demonstration Gardens

EMWD Water Wise Demonstration Garden
2270 Trumble Road, Perris, CA 92570

Elsinore Eddie's Efficient Gardens at Chaney Street
31315 Chaney Street, Lake Elsinore, CA 92530

Elsinore Eddie's Efficient Gardens at the Storm Stadium
500 Diamond Drive, Lake Elsinore, CA 92530

Elsinore Eddie's Efficient Gardens at Cirrus Circle
27809 Cirrus Circle, Corona, CA 92883
www.elsinoreeddieefficientgardens.com/demonstration-gardens

Elsinore Eddie's Chaney Street Garden Plans
www.elsinoreeddieefficientgardens.com/wp-content/uploads/2015/05/EVMWD-Chaney-St.-Garden-Guide_P3.pdf

City of Perris's Garden Demonstration Center
<http://www.cityofperris.org/livewell/community-garden.html>

Rancho Santa Ana Botanic Garden
(909) 625-8767 ext. 404
1500 N. College Ave, Claremont, CA 91711 www.rsabg.org

Chino Basin Water Conservation District (909)626-2711
4594 San Bernardino St., Montclair, CA 91763
www.cbwcd.org/9/Water-Wise-Demonstration-Garden

Malooof Discovery Garden (909)980-0412
5131 Carnelian Street, Alta Loma, CA 91701

The Huntington Library, Art Collections, and Botanical Gardens
(626)405-2100
1151 Oxford Road, San Marino, CA 91108 www.huntington.org

Fire Protection Landscaping

Fire Resistive Plant List www.bewaterwise.com/fire02.html

Ready for Wildfire www.readyforwildfire.com

Sustainable and Fire-Safe Landscapes
www.ucanr.edu/sites/SAFElandscapes

Garden Magazines, Tours, Shows and Classes

Elsinore Workshops
www.emwd.com/about/departments/water_efficiency/landscape.asp

Water Saving Garden Friendly Workshops
www.watersavinggardenfriendly.com/events

Chino Basin Water Conservation Workshop Classes
www.cbwcd.org/150/Workshop-Descriptions

IEUA Workshops www.ieua.org/workshops

Rancho Workshops www.ranchowater.com/198/Workshops

California Native Plant Society www.lasmmcnps.org

Mediterranean Garden Society
www.mediterraneangardensociety.org

Pacific Horticulture www.pacifichorticulture.org

Sunset Magazine www.sunset.com/garden

Irrigation

EMWD How to Make Your Existing Lawn Water Efficient
www.emwd.org/use-water-wisely/water-wise-landscape-resources/how-to-make-your-existing-lawn-waterwise

RainDrip Irrigation System Manuals
www.raindrip.com/resources

EMWD's Suggested Irrigation Schedule
www.emwd.org/home/showdocument?id=14767

IEUA Irrigation Controllers
www.ieua.org/use-water-wisely/landscaping/irrigation-controllers

IEUA's Irrigation Schedule Guidelines
<http://bit.ly/IEUAirrigationscheduleguidelines>

Irrigation Calculator www.bewaterwise.com/Calculator.shtml
Adjust your Irrigation Schedule
www.cagardenweb.ucanr.edu/Drought_/Drought_Irrigation_Tips

How to Install Efficient Irrigation
www.h2ouse.org/tour/step-3.cfm

Irrigation Tutorials www.irrigationtutorials.com

Integrated Pest Management

www.ipm.ucdavis.edu/GENERAL/whatisipm.html

Invasive Plants

California Invasive Plants Council www.cal-ipc.org
Plant Right! Avoid Invasive Plants www.plantright.org

Mulch and Compost

Riverside County, Free Mulch
www.riversideca.gov/publicworks/trash/pdf/free-mulch-program.pdf

Robert A Nelson Transfer Station AND Agua Mansa MRF
(951) 786-0544
1830 Agua Mansa Rd, Riverside, CA 92509
Mulch (Yellow Pages)
www.yellowpages.com/riverside-ca/mulch

Nurseries and Garden Centers

Mockingbird Nursery (909) 780-3571
1670 Jackson St., Riverside, CA 92501
mockingbirdnursery.com/

WaterWise Yard Design & Décor (951)698-6767
41034 Elm Street, Murrieta, CA 92562

Lowes (951)253-6000
29335 Central Ave, Lake Elsinore, CA 92530 www.lowes.com

Quality Growers (951) 371-7193
19970 Grant St., Corona, CA 92881
www.qualitygrowersnursery.com

Greenbelt Growers (951) 688-4091
2005 Harrison Street, Riverside, CA 92503
www.greenbeltgrowers.com/

Tree of Life Nursery (949) 728-0685
33201 Ortega Highway, San Juan Capistrano, California 92675
californianativeplants.com/

Las Pilitas Nursery (805)438-5992
3232 Las Pilitas Rd, Santa Margarita, CA 93453
www.laspilitas.com/

Plant Choices

Water Use Classification of Landscape Species
ucanr.edu/sites/WUCOLS/

EMWD Grass Varieties 101
www.emwd.org/use-water-wisely/water-wise-landscape-resources/grass-varieties-101

Elsinore Eddie's Plant Library
www.elsinoreeddieefficientgardens.com/plant-library/

Use these Resources for Success

Calflora: Info. on Wild California Plants www.calflora.org/
California Native Plant Society www.cnps.org/
My Native Plants, Plant Library www.mynativeplants.com/site
Arboretum All-Stars arboretum.ucdavis.edu
California Native Plant Library www.theodorepayne.org
Monrovia Nursery Plant Finder www.monrovia.com
IEUA Plant Library www.ieua.org/use-water-wisely

Planning

EMWD Water Wise Landscape Resources
www.emwd.org/use-water-wisely/water-wise-landscape-resources
EMWD's Landscape Water Budget Spreadsheet
www.emwd.org/home/showdocument?id=6553
EMWD How to Remove Your Existing Lawn
www.emwd.org/use-water-wisely/water-wise-landscape-resources/how-to-remove-your-existing-lawn
Eddie Elsinore's Youtube Channel
www.youtube.com/user/ElsinoreEddie
Elsinore's Temescal Gardens Drip Irrigation Designs for Homeowners
www.elsinoreeddiesefficientgardens.com/wp-content/uploads/2015/05/Drip-Guide.pdf
DIG Alert Dial 8-1-1 www.digalert.org

Professional Help

Toro Irrigation Systems
www.toro.com/en/Irrigation/Homeowner
Ewing Irrigation (951) 506-9530
27562 Commerce Center, Temecula, CA 92590
Hydroscape Irrigation (951) 296-9898
41581 Enterprise Circle, Temecula, CA 92590
Lowes 951-253-6000
29335 Central Ave, Lake Elsinore, CA 92530 www.lowes.com
Joe's Hardware 951-244-4563
25341 Railroad Canyon Rd., Lake Elsinore, CA 92532
Temecula Valley Pipe & Supply (951) 676-5678
28074 Del Rio Rd, Temecula, CA 92590
APLD - Association of Professional Landscape Designers
www.apldca.org
ARCISA - American Rainwater Catchment Systems Association
www.arcsa.org
ASCA - American Society of Consulting Arborists
www.asca-consultants.org
ASLA - American Society of Landscape Architects
www.socal-asla.org
CLCA - California Landscape Contractors Association
www.clca.org/water-pro
IA - Irrigation Association www.irrigation.org
ISA - International Society of Arboriculture www.isa-arbor.com
WWLP - Certified Watershed Wise Landscape Professionals
www.greengardensgroup.com

Seeds

S&S Seeds (805) 684-0436 www.ssseeds.com

Stover Seed Company (213) 626-9668 www.stoverseed.com
Renee's Garden (888) 880-7228 www.reneesgarden.com
Swallowtail Garden Seeds (707) 538-3585
www.swallowtailgardenseeds.com

Trees

EMWD How to Help Trees Survive Droughts
www.emwd.org/use-water-wisely/water-wise-landscape-resources/how-to-help-trees-survive-droughts
USDA Plant Database plants.usda.gov
California Oaks www.californiaoaks.org/
Select the Right Tree www.selectree.calpoly.edu

Water Conservation

Check for Leaks
www.emwd.org/use-water-wisely/check-for-leaks
Be Water Wise (MWD) – Find links to rebates, watering calculators, watering restrictions and more garden tips.
www.bewaterwise.com
SoCal Water Smart – Apply for rebates.
www.socalwatersmart.com
Water Use it Wisely
www.wateruseitwisely.com
Report Water Waste
www.emwd.org/use-water-wisely/report-water-waste
Water Budgets & Tiered Rates
www.emwd.org/services/customer-service-billing/rates-and-fees
Water Budget Variances
www.emwd.org/use-water-wisely/water-budgets-tiered-rates/water-budget-variances
EMWD's Use Efficiency Requirements
www.emwd.org/use-water-wisely/water-use-efficiency-requirements
EMWD's Water Use Efficiency Guide
www.emwd.org/home/showdocument?id=3318
EMWD's Water Wise Tips
www.emwd.org/use-water-wisely/water-wise-landscape-resources/water-wise-tips
EVMWD Rebates and Incentives
www.evmwd.com/about/departments/water_efficiency/rebates_and_incentives/default.asp
H2OUSE www.h2ouse.org/
IEUA Water Saving Tips
www.ieua.org/use-water-wisely/water-saving-tips/
Water Use Calculator
www.home-water-works.org/

Water Quality

California Drinking Water
www.epa.gov/ground-water-and-drinking-water

You're ready to **Shop!**

My Shopping List

My Garden Microclimate Notes

My Supply Stores & Nurseries

item	quantity
compost	
mulch	
irrigation equipment	
rainwater capture materials	
boulders and gravel	
other materials for sheet mulching (paper, worm castings, hose, etc.)	
Notes:	

You're ready to **Shop!**

My Shopping List

My Garden Microclimate Notes

My Supply Stores & Nurseries

name	size	quantity
trees		
shrubs		
perennials		
grasses		
ground cover		
other plants		

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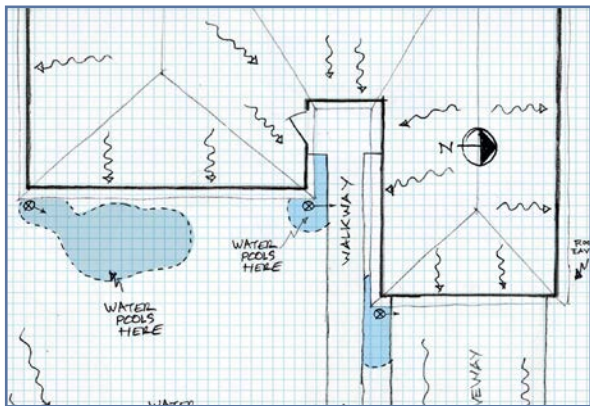
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photo: Amelia B. Lima



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