"California Friendly" Landscape Design Basics

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

ACKNOWLEDGEMENTS

Originally developed for
The Metropolitan Water District of Southern California

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Updated by

WaterWise Consulting Inc.

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Getting Started

Site Inventory

The first thing you will need to do is take an inventory of your existing landscape. You should mark down everything you want to remain after you've completed your work. You should also note things that will affect and limit your design and installation, especially easements, septic tanks and underground utility lines or cables.

Some Things to Consider for the Inventory

Existing Plants to Keep	Water Connections – Meter Size
• Existing Water Lines	• Gas Meter and Lines
• Sidewalks	• Driveway
• Patios, barbecues, etc	• House and Windows
• View Zones	• Screening areas (noise, view)
• Wind direction	• Easements
• Soil Type (Soil Test?)	• Septic Tanks

Base Sheet

The base sheet is an overhead view of your property that is done to scale. This will be used for the landscape, irrigation and construction plans.

Measurements: Use a tape measure or wheel and measure the size and location of all the items included in your inventory list, including the house (include location of windows and entrances). Start with the property perimeter. If you have a non-rectangular property you will also need a compass to measure the angles.

Which way is north? In order to determine shade patterns and hot spots, you need to know the property direction. Use the compass if necessary to determine north, south, east and west. Many urban properties are located in areas where the streets run in a north-south and east-west grid. No compass is needed there.

Scale: The most common scales are 1 inch equals 4 feet or 1 inch equals 8 feet. Use 1/10 or 1/20 on larger properties. The scale you choose depends on the size of the property and the size of the base sheet you use. The larger the sheet the easier it is to read the plan. However, smaller sheets are easier to work with. If possible, don't use a scale that's greater than 1/8.

GETTING STARTED

Where will excess water flow? Determine the slope and drainage. It is important that excess water drains away from the house (a minimum of 1% grade). It's best if this grade falls continuously toward the street and adjacent properties. If the natural fall line goes toward the center of the yard, a drainage system may be required. If you have experience at surveying you'll know how to figure this out, or it may be obvious.

Budget

Installation: How much money and time can you afford? Patios, barbecues, carports and other hardscapes will cost more than plant material initially, but are cheaper than plants to maintain.

Water: Consider the cost of water when designing the plant scheme (see water cost worksheet).

Are you a gardener? How much time do you want to spend working in your garden? The types of plants and planting schemes should reflect your gardening time budget. An option is to pay a gardening service.

Design Program

Use the checklist included in this booklet to help you design a landscape that fits your lifestyle.

Design Style

What kind of plant schemes do you like?

Tropical	Japanese
Formal	Native
Native	Mediterranean
Desert	A mixture?

If you have no idea what you want don't panic. Fortunately, there are many books and magazines that can give you ideas. You can also drive around and see other people's yards. You'll break no plagiarism laws by copying somebody else's design.

Observe & Organize

Research

There are countless ways to design your landscape, and no one right way. In order for you to be satisfied with your design, some research will be needed. There is a large amount of information readily available. Take your time, be open-minded and have fun! Several landscape design aspects will need to be considered.

Style of patios, sidewalks, retaining walls and other hardscapes

- Many do-it-yourself books are available at bookstores and libraries
- Large hardware stores offer workshops on how to build things
- Many television shows offer lessons on construction

Overall shape, size and location of planter beds and turf areas

- Thousands of books show photos of different landscape schemes
- Tour your neighborhood by car or bicycle
- Botanical gardens are located throughout Southern California

Which plants are you going to use?

- Use the Sunset Western Garden Book
- Many other good books are available (make sure they are written for Southern California)
- Check out demonstration and botanical gardens
- Local retail nurseries
- Tour the neighborhood; see what you like and what's growing well

Organize your Thoughts

Cut out pictures from magazines. Take photos of good design styles and specific plants. Use a loose-leaf binder to organize photos and other information. Computer savvy people with scanners can put them to good use.

Develop Your Landscape

Bubble Plan

Once the base plan is completed and you're satisfied with your research, it's time to start designing. Make several copies of your base plan, you'll need them. Now simply make circles or bubbles to designate where the landscaped and other areas will be located. Use your checklist and your ideas of design styles. The bubble plan should not include specific plants or any scaled drawings, just a general idea of the concept of your yard.

Final Concept

Now it's time to get serious. You need up to 3 separate plans (depending on whether your design includes any construction or irrigation). Use copies of the base plan or use tracing paper placed over the base plan. A pencil and an eraser (a large one) are essential. The concept plans will translate the bubble concepts into working plans to be used by whoever installs the materials. Those with computer expertise may find their skills very useful here.

Construction Plan

- Hardscape, patios, barbecues, retaining walls, etc.
- Grading
- Drainage
- Done to scale to calculate the amount of materials needed

Planting Plan

- Use circles for mature size (diameter) of plants
- Western Garden Book can tell you the size of plants once they have matured
- The plant selection (see next page)

Irrigation Plan

If you are going to have an automatic irrigation system, you'll need an irrigation plan. The "California Friendly" class on Efficient Irrigation Systems covers irrigation system design principles.

Plant Selection

Maintenance and Long Term Considerations

Mature size and proper spacing
Many plants are available in different varieties. These varieties often vary in mature size, flower color and leaf appearance.

Long or short life
Plants vary in there life span. People who love to work in the garden and enjoy change will prefer short-lived plants like perennials. Those who want a landscape that gets installed and then needs minimal care, need to consider this when choosing their plants.

Evergreen vs. deciduous
Most people want plants that don't lose their leaves (evergreens). However, there are certain advantages to deciduous trees. For example, maybe it's best that patio trees provide shade in the summer and allow the sun to heat things up in the winter. Be careful, some trees lose their leaves in the spring, not the winter (jacaranda and tipu tree for example). Once again, refer to the Western Garden Book or your local nurseryman.

Potential root damage
Be careful not to plant large trees too close to a sidewalk, driveway or the house. Plants vary in their potential to cause root damage.

Pests and diseases
It's not a good idea to plant something that has constant pest problems. This is something that changes frequently as foreign insect and disease invasions occur. Consult you nurseryman for the latest.

Weather conditions
You may see a beautiful plant at you friend's house, but they live in a totally different climate! Climate zones in Southern California can be restrictive and they change noticeably from one place to the next. Once again, the Western Garden Book has excellent climate references.

Soil conditions
Some places in Southern California have poor soil. Some plants don't care and others do. The one common soil deficiency that can be detrimental to plants is deep drainage. In order to check your soil's drainage, dig a hole 18 inches deep and fill it with water. If water is still there 4 hours later there's a problem. In this case it's best to not choose plants that require good drainage (and many plants need it). Another option is to build raised planter beds. This will accommodate smaller plants only.

DEVELOP YOU LANDSCAPE

What does well in your area?

If you have problem soil it's sometimes best to just tour the immediate area and see what's growing well. Choosing plants that won't like your yard is not a good idea, no matter how green your thumb is.

High or low maintenance

Do you like to spend time working in your garden or not? Turf needs weekly care. Many of the more beautiful plantings need regular care. Other plants can be ignored for long periods of time. Some need regular pruning. Make sure to consider this when choosing your plants.

Aesthetics

Plant Form

The overall outline or shape of an individual plant or plant mass varies by plant type. The branching habit of less dense plants and trees as well as the leaf shape of larger tropical plants also influence the plant form.

Texture

Mixing textures is very important in order to develop a diverse landscape design. Leaves dictate the overall texture of the plant.

Color

Flower color or leaf color.

Scale

Mature size of plants and trees should be relative to the size of the buildings and yard.

Other Uses

Plants can be used for erosion control, noise reduction, creating outdoor rooms, wildlife habitats, and fruit and vegetable gardens.

LANDSCAPE USE CHECKLIST

- ❑ **Pool**
- ❑ **Spa**
- ❑ **Patio Deck**
- ❑ **Enclosed Patio**
- ❑ **Barbecue**
- ❑ **Outdoor Fireplace**
- ❑ **Outdoor Heater**
- ❑ **Gas Connection**
- ❑ **Gazebo**
- ❑ **Fountain**
- ❑ **Waterfall**
- ❑ **Streambed**
- ❑ **Fish Pond**
- ❑ **Aquatic Plants**
- ❑ **Raised Planters**
- ❑ **Vegetable Garden**
- ❑ **Herb Garden**
- ❑ **Fruit Trees**
- ❑ **Rose Garden**
- ❑ **Playground**
- ❑ **Putting Green**
- ❑ **Basketball**
- ❑ **Volleyball**
- ❑ **Lawn for Play**
- ❑ **RV Parking**
- ❑ **Carport**
- ❑ **Dog Run**
- ❑ **Trash Can Storage**
- ❑ **Utility Room**
- ❑ **Garden Tool Storage**
- ❑ **Noise Screen**
- ❑ **Visual Screen**
- ❑ **Shade Trees**
- ❑ **Potted Plants**
- ❑ **Front Entry**
- ❑ **Lighting**
- ❑ _____
- ❑ _____
- ❑ _____
- ❑ _____

ESTIMATING ANNUAL WATER COST

Estimating the Annual Cost to Water Your Landscape

The following formula will help you determine the annual cost of the water your landscape needs. It's a good idea to figure out how much it will cost to water your landscape before you plant it. This formula works for a '**typical'** southern California landscape.

Typical Southern California Landscape
40% Turfgrass
60% Planter beds with shrubs and ground cover
With all areas watered by overhead sprinkler systems, not drip or bubbler

If you are thinking of having this type of landscape, simply measure the total number of square feet on your landscape plan and get the unit price of water from your water bill.

Formula to estimate annual water cost for a typical landscape

Interior Climate: (Number of Square Feet) x (Unit Price of Water) x 0.05

Coastal Climate: (Number of Square Feet) x (Unit Price of Water) x 0.04

Example: 7,500 square feet: $1.27 per unit of water: Interior Climate
7,500 x $1.27 x 0.05 = $476/year or $40/month average.

This is for a normal situation, several things can influence the actual water use such as the sprinkler system efficiency and whether the watering times are excessive. It's easy to run your sprinklers too long if you have an automatic system.

What if your landscape plan results in too much water?

OPTION 1: Instead of plants, have more hardscape area such as a patio or driveway. You won't have to water these.
OPTION 2: Design with plants that need less water.

Ideas:
1. Lower the amount of turf.
2. Use drip or bubbler irrigation with no ground cover in the planter beds.
3. Use natives or other low water use shrubs and trees.

Examples:

20% Turfgrass 40% Planters with ground cover and overhead sprinklers. 40% Planters with trees, shrubs and mulch with drip or bubbler irrigation.	20% Turfgrass 20% Planters with ground cover and overhead sprinklers. 60% Planters with trees, shrubs and mulch with drip or bubbler irrigation.
60% of the above amount or $285/year.	***30% of the above amount or 143/year***

NOTES

Landscape Design Basics

Metropolitan Water District

Landscaping

- Physical improvement of property to
  - Maximize the best use of space in the most attractive way
  - Shape land to make the most of the site's natural assets
  - Incorporate hardscape features such as fences, walls, patios and walkways

Getting started

- Site analysis
- Plot plan
  - Measure the area
  - Locate house and other permanent features
  - North
  - Scale
    - 1/8= 1" equals 8' (standard)
    - 1/10=1" equals 10' (large properties)
  - Existing plants to be saved

Plot Plan

- Legal description of property
- Tools
  - Measuring tape or wheel
  - Compass
  - Graph paper/computer
  - Computer
- Measuring
  - Locate house and other permanent features

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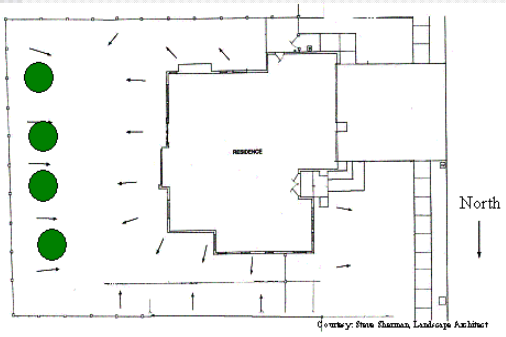
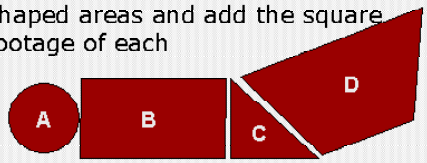
Plot Plan



Measuring Odd Shaped Areas

- Most landscapes are not perfectly shaped
- Break landscape into separate shaped areas and add the square footage of each



Soil Test

- Nursery or Lab
- Chemical analysis
- Make sure it includes recommendations

Soil Drainage Test

- Dig a hole 18" deep
- Fill with water
- If water remains after 8 hours drainage is considered poor

NOTES

Site Features

- Soil analysis
- Drainage
- Sunset Western Garden Climate Zone
- Utility lines
- Water meter
- Irrigation lines
- Plants to keep
- Window locations (*views to preserve*)
- Prevailing wind
- Necessary Shade
- Natural features
- Existing views
- Screens (noise and view)
- Locate downspouts
- Slopes

Needs Analysis

- Your needs
- Style
  - House
  - Patio's
  - Sidewalk/hardscapes
- Plant preferences
- Parking/access
- Outdoor living areas
- Special effects
  - Water features
  - Night lighting
- Maintenance plan
- Budget

Landscape Use Checklist

- Pool
- Spa
- Patio Deck
- Enclosed Patio
- Barbeque
- Outdoor Fireplace
- Outdoor Heater
- Gas Connection
- Gazebo
- Fountain
- Waterfall
- Streambed
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- Front Entry
- Lighting
- _____
- _____
- _____

Landscape Design Concepts

NOTES

Elements of Design

- Same basic principles used in art, architecture and interior design
- Landscape design
  - Three-dimensional
  - Living
  - Ever changing
- Placement of plants
- Ultimate size of plants
- Growth habit of plants

Design Concepts

- Landscape lines
  - Focal points
  - Control movement
  - Straight lines encourage movement
  - Interconnecting lines create intersections
  - Curved lines invite slower movement
  - Develop harmony between building and landscape

Selecting Plants

Selecting Plants

- Develop a list of potential plants
  - Visit gardens and nurseries
  - Use book resources
  - What is growing well in you neighborhood?
  - Use pictures or slides

NOTES

Plant Selection Criteria

- Climate
- Soil requirements
- Sun and shade requirements
- Growth rate
- Pest/disease
- Allergies
- Water requirements
- Flower/fruit production
- Scent/Odor
- Size
- Root problems
- Hardscapes
- Evergreen vs. deciduous
- Differences in varieties
- Potential toxins to pets

Considerations

- Erosion control
- Noise reduction
- Creating outdoor rooms
- Wildlife habitats (butterflies, hummingbirds, etc.)
- Fire retardants
  - www.lacofd.org
  - www.ocfa.org
  - www.firewise.org
  - www.fire.ca.gov
  - www.sdcounty.ca.gov

Other Considerations

- Color of house
  - Hard to soften bright colors
- Determine which is more important
  - Building
  - Landscape
- Architecture
  - Consistent
  - Building or landscape should be simple

Form

- Individual plants
- Horizontal form
- Vertical form
- Hedges
  - Group of vertical forms that give horizontal appearance
- Deciduous plants change form during seasonal changes
- Using all the same is monotonous
- Avoid using too many forms together

NOTES

Types of Plant Forms

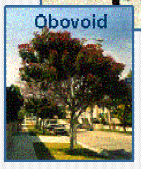
- Dome
- Broad dome
- Tall dome
- Columnar
- Cylindrical
- Conical
- Broadly conical
- Obconical
- Ovoid
- Obovoid
- Arching vase
- Mat
- Cushion
- Mound

Plant Form Examples

Plant Form Examples

Conical

Plant Form Examples



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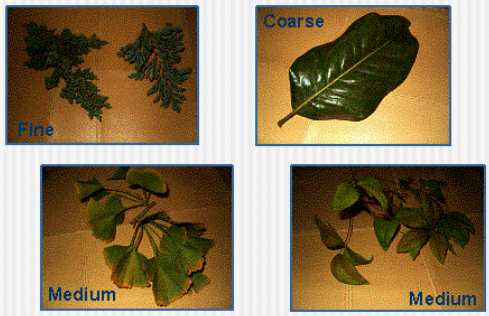
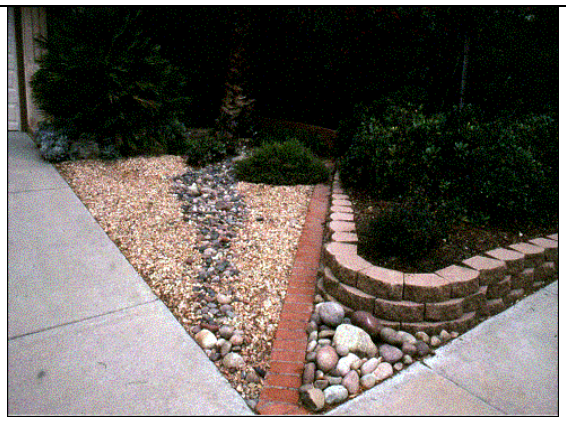
Plant Form Examples

Texture

- Surface quality of the plant
- Size of leaf
- Spacing of leaves
- Finer textures should be used in small areas
- Fine foliage will require proportionally larger number of plants

Examples of Textures





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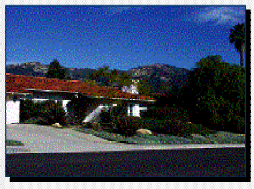
Color

- Greatest appeal
- Color results from light
- Each color has three dimensions
  - Hue
  - Value
  - Intensity
- Warm colors advance towards the viewer
- Cool colors recede and create a more relaxing atmosphere

Unity

- Arrangement of elements that conveys a quality of oneness
- Successful combination of simplicity, emphasis, balance, sequence and scale



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Simplicity

- Not necessary to use a wide variety of plants
- Eliminate details that don't significantly contribute to the composition
- Balance between repetition and constant change in color, texture and form
- Use the same plant variety with similar form and texture but different blooming seasons

Variety

- Diversity and contrast in the use of
  - Form
  - Texture
  - Color
- Fine line between repetition and variety
  - Too much repetition becomes boring
  - Too much variety leads to confusion
  - Too little variety causes monotony

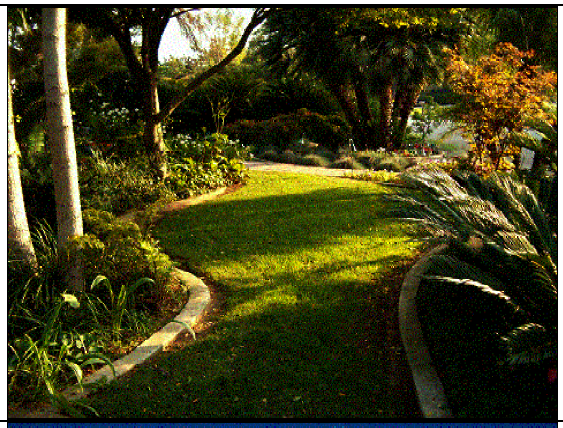
NOTES

Emphasis

- Differentiate the more important elements from the less important
- Viewer should be able to determine what is important and it should hold their attention
- Elements vary (house, building, unique tree or sculpture/fountain)

Emphasis

- Achieve by
  - Limiting the number of focal plants
  - Stress differences in the size of the dominant elements
  - Introduce the unusual or unexpected
  - Use bold forms, intense color or dramatic texture contrasts
- Careful use of variety allows emphasis where desired



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Sequence (Transition)

- Arranging the units of composition
- Gradual changes in an orderly manner
- Rhythm
  - Slowly moving to the point of emphasis then away
- Arrangement of trees in groups should be done in odd numbers (3,5,...)
- Sequence by color change, form change or textural change

Scale

- Relative size of objects within the composition
- Initial plantings in scale eventually grow out of scale
- People relate to their own size
- Most homes are proportionally out of scale to their lots

NOTES

Types of Planting

- Focal points
- Accent plants
- Mass plantings
- Hedges
- Frame
- Foundation plants

Types of Plantings

Hedge

Foundation

Building Architecture Influences Landscape

Budgets and Plans

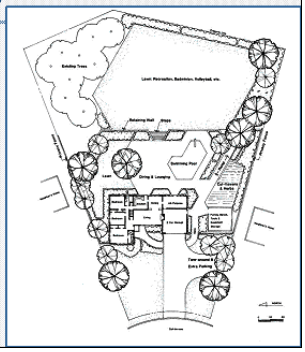
NOTES

Budget

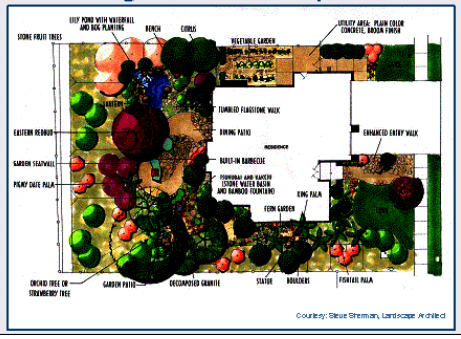
- Planting budget
  - Plants vs. hardscape
  - Size of plants
  - Turf vs. plants
    - How much turf do you need?
    - Seed or sod
- Maintenance budget
- Water budget

The Planting Plan

- Develop a list of potential plants
  - Visit gardens and nurseries
  - Use book resources
  - What is growing well in you neighborhood?
  - Use pictures or slides

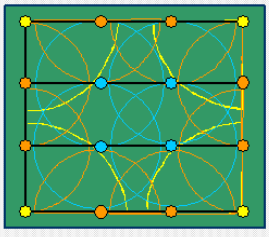


Planting Plan Example



Irrigation Plan

- Landscape is an investment
- Should include a properly designed and installed irrigation system
  - Hydrozoning
  - Drip, Bubbler or Overhead
  - Pipe Sizing
  - Valve Placement



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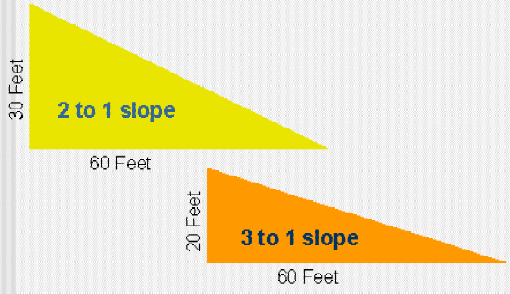
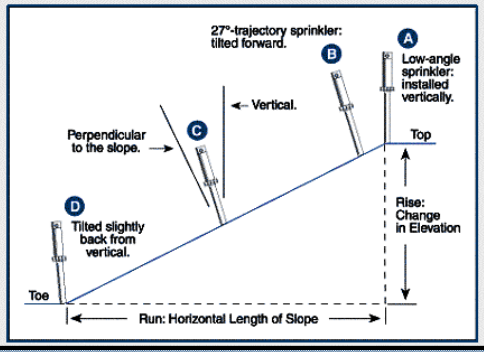
Drainage Plans

- Excess rain and irrigation water
- Grass slopes - no more than 3 to 1
- Ground cover slopes - no more than 2 to 1
- Retaining walls

Slope



Slope



Hardscapes and Patios

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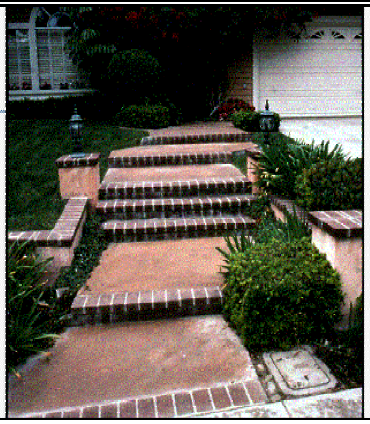
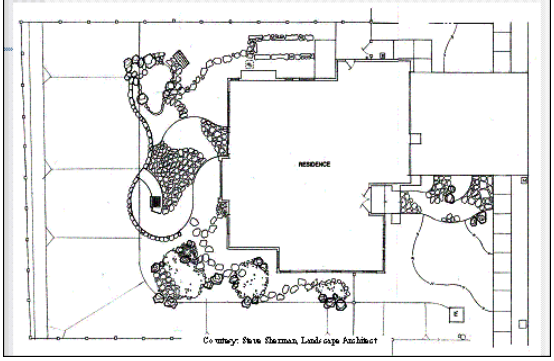
Hardscapes and Patios

- Enhances usefulness of landscape and property values
- Less maintenance than plants
- No water needed
- Endless variety available



Construction Plan



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Examples of Landscape Design Features

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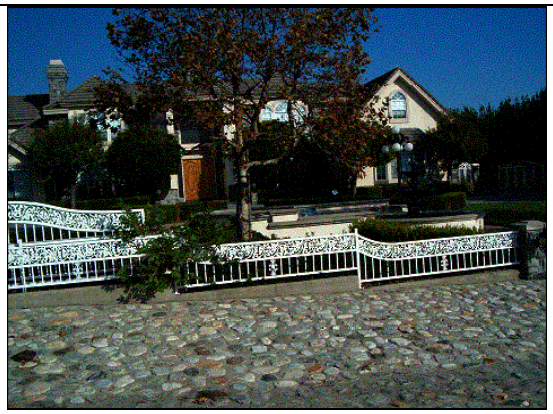

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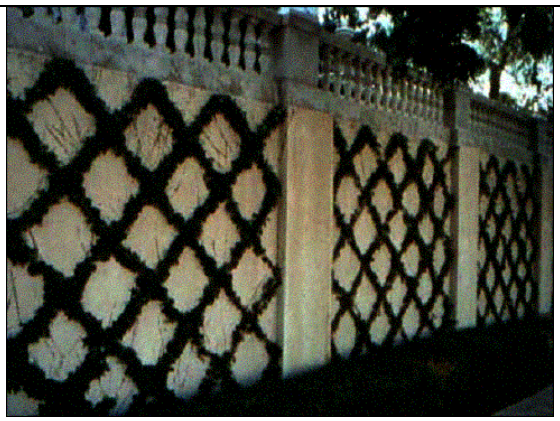

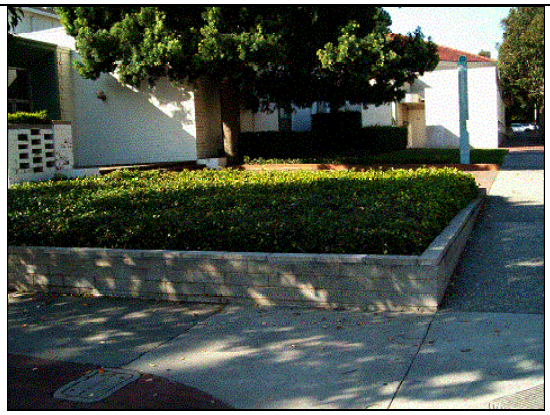

Summary

- Site analysis
- Basic plot plan
- Landscape needs and limitations
- Plant selection
- Water conserving design process
  - Budget
  - Landscape plan
  - Irrigation plan
- Resource - www.bewaterwise.com