

Beyond the Building:

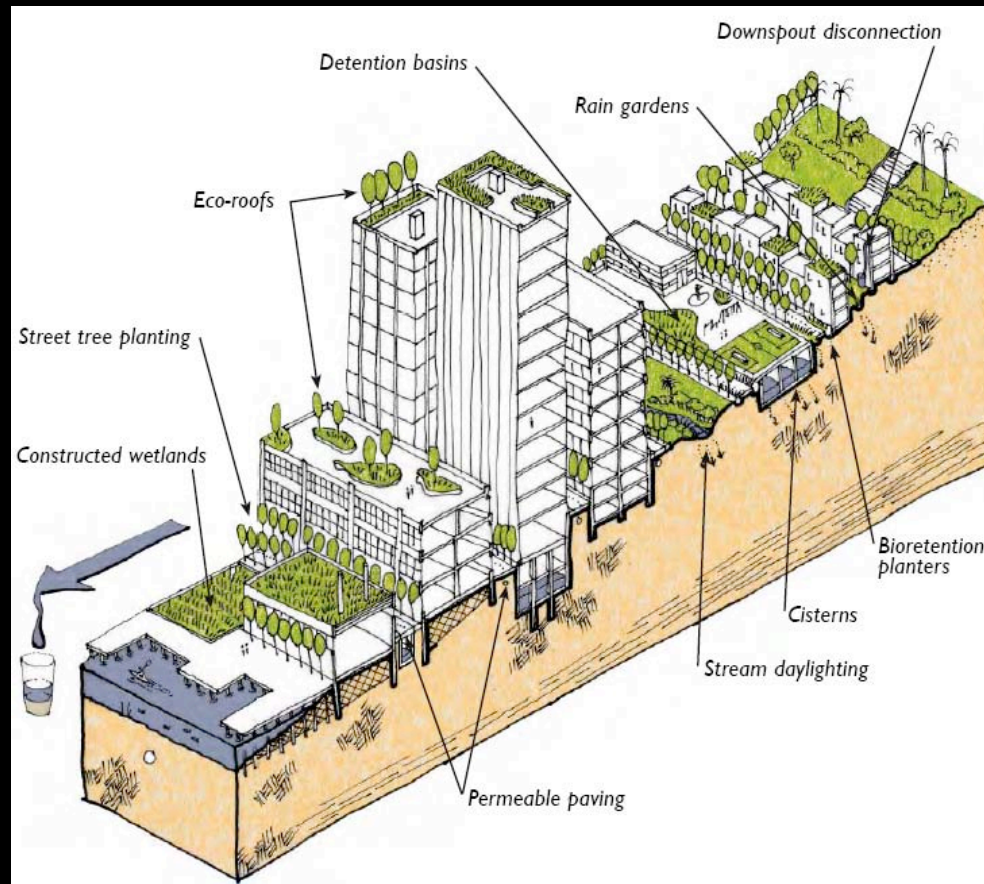
Creating Cost Effective and Responsible Landscapes and Neighborhoods

Ashley
Langworthy

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Regional Thinking

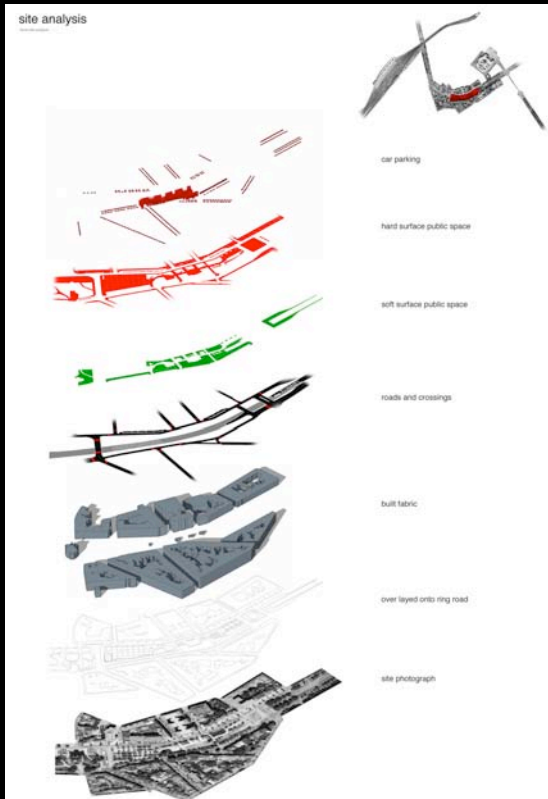
- Think big
- Think beyond your site
- Understand ecological systems and place within larger landscape
- Consider effects both on and off site



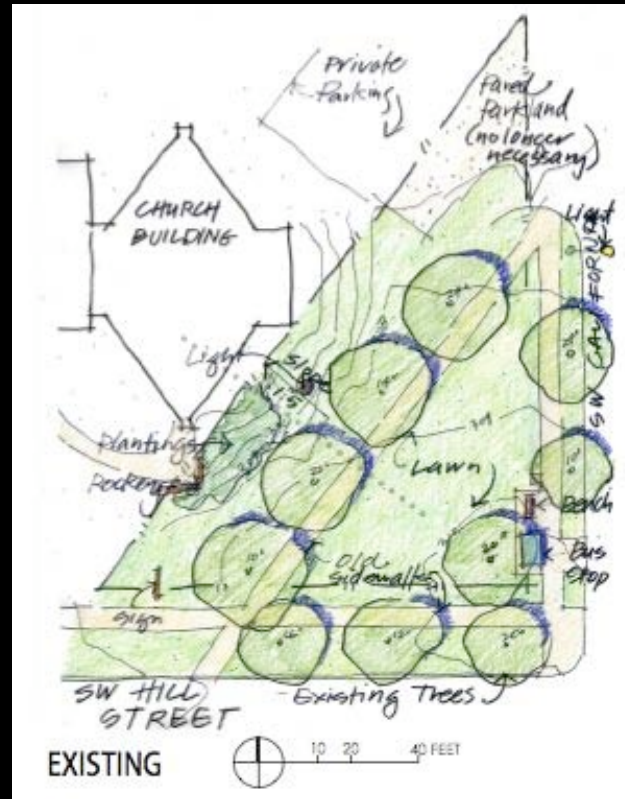
Example: City system of hydrology

Inventory of Site

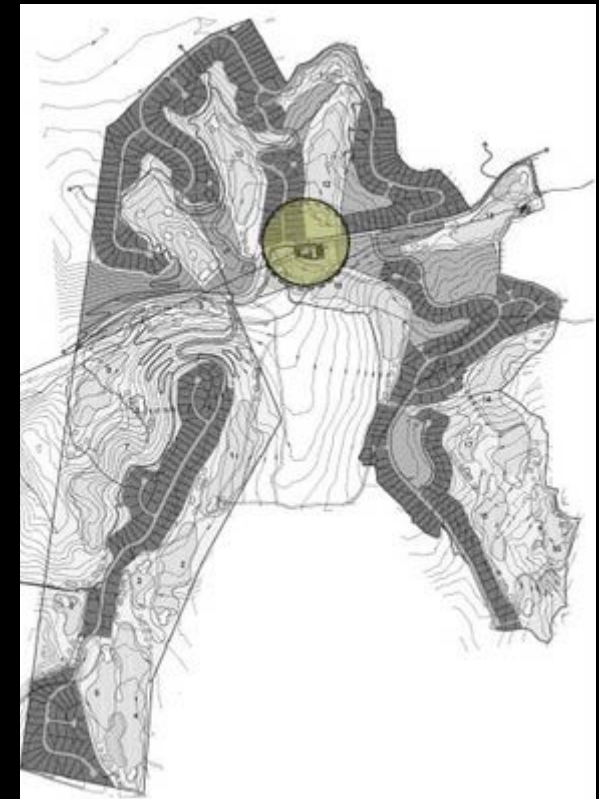
- Micro-climate: temperature, solar orientation, wind
- Geology/Hydrology: drainage, soil, existing contamination
- Vegetation: location and species of all significant trees and shrubs
- Topography



Analysis



Existing Resources



Topography

Planting and Vegetation

- Protect existing vegetation
- Restore native vegetation
- Select trees and planting appropriate to region and habitat
- Foster biodiversity by using a diverse planting palette
- Choose plants that will require little or no fertilization

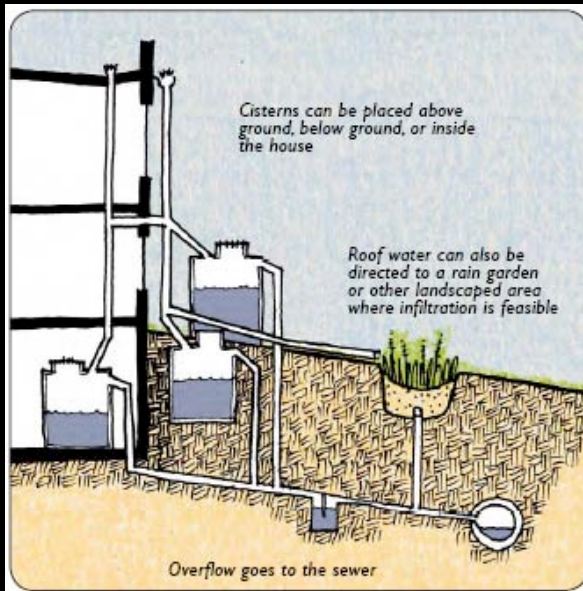


LEED Considerations

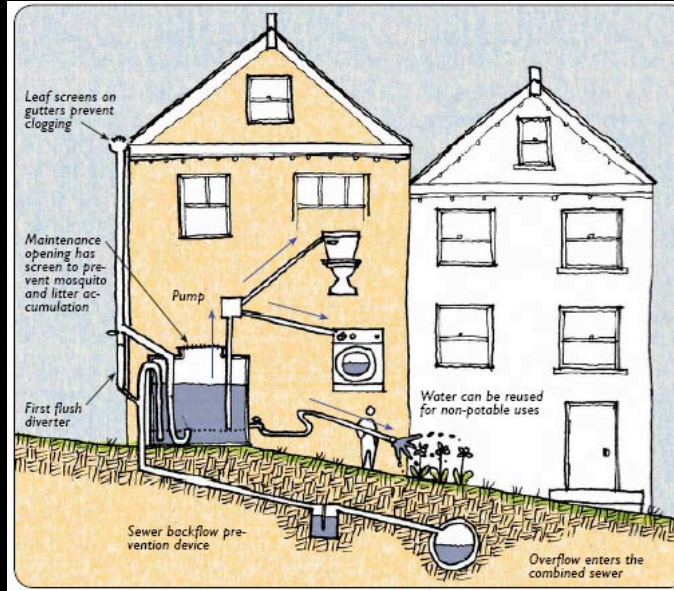
- SS 5.1: Site Development, Protect or Restore Habitat

Irrigation Efficiency

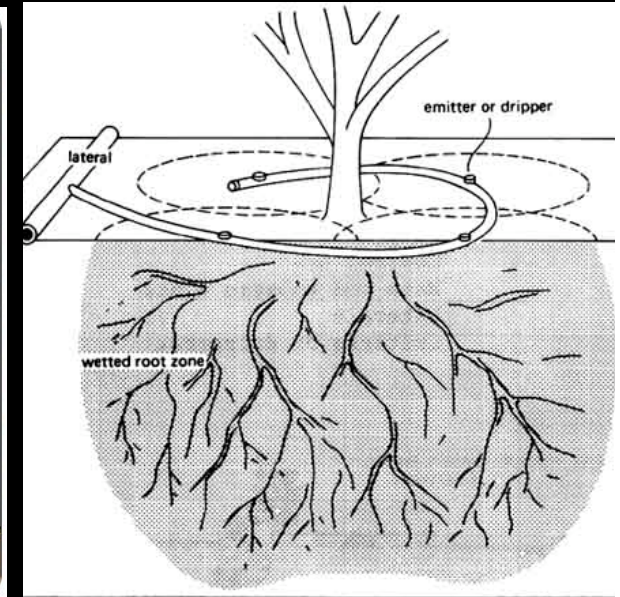
- Select low water use and drought tolerant plants
- Collect rainwater
- Re-use graywater from site
- Minimize and use efficient irrigation



Rainwater Collection



Graywater Re-use



Drip

Irrigation LEED Considerations

- WE 1.1: Water Efficient Landscaping
- WE 1.2: Water Efficient Landscaping

Soil Health

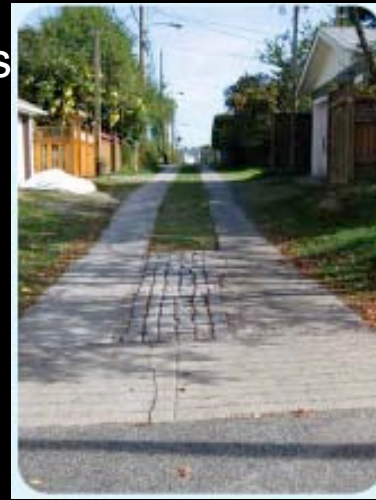
- Minimize soil compaction
- Minimize Grading and Earthwork
- Control Erosion



“\$10 tree in a \$50 hole”

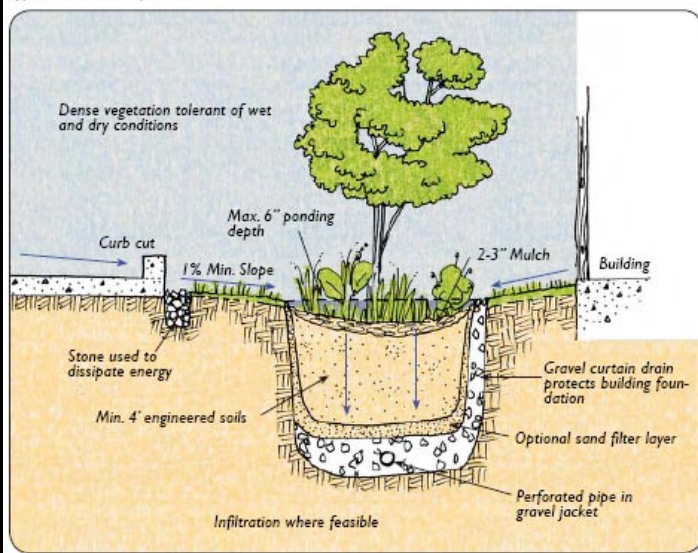
Stormwater Management

- Create surface drainage mechanisms (vegetated swales, bioretention, green roofs)
- Work with natural drainage patterns
- Minimize impervious surfaces
- Use permeable paving

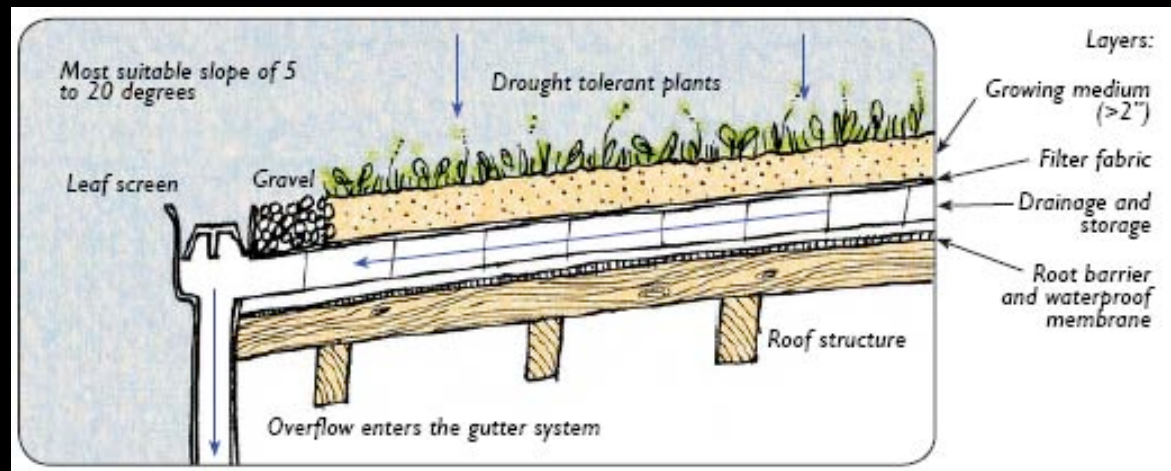


Permeable Pavers

Typical bioretention planter



Bioretention Planter



Green Roof

LEED Considerations

- SS 6.1: Stormwater Design, Quality Control

Site Disturbance

- Protect existing features during construction: trees, soil, water bodies
- Place buildings on previously developed areas
- Maximize density to maximize open space



LEED Considerations

- SS Prerequisite: Construction Activity Pollution Prevention
- SS 5.2: Site Development, Maximize Open Space

Energy Use and Thermal Comfort

- Employ landscape features to conserve building energy
- Shade building with trees
- Use deciduous trees on south side of building to allow for winter sun
- Site evergreens to block winter winds
- Choose local materials



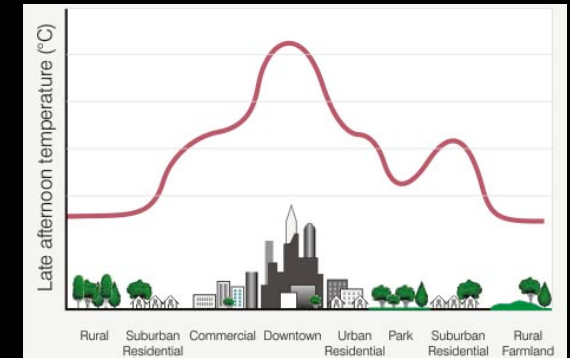
Right Short flowering trees don't clash with overhead utility lines. Large deciduous trees on the southeast, southwest, and west provide cooling shade in summer, and don't obstruct the low winter sun. An evergreen windbreak on the north blocks cold winter winds.

LEED Considerations

- MR 5.1 and 5.2: Regional Materials

Heat Island Effect

- Minimize paving
- Increase shade
- Green roofs



Food Production

- Start small
- Choose regional climate appropriate species
- Plant for diversity
- Make edible gardens a community building process



Management & Life Cycle

- Strategize for low maintenance solutions
- Choose fuel efficient mowers
- Use organic fertilizers and pest control (if needed)
- Efficient waste management – compost on site



Resources

American Bioenergy Association: www.biomass.org

American Rainwater Catchment Systems Association: www.arcsa-usa.org

Green Roofs for Healthy Cities: www.greenroofs.org

California Native Plant Society: www.cnps.org

East Bay Municipal Utility District: www.ebmud.com

Heat Island Group Lawrence Berkeley National Laboratory:
<http://eetd.lbl.gov/heatisland>

North American Native Plant Society: www.nanps.org

San Francisco Public Utilities Commission: www.sfwater.org

The Irrigation Association: www.irrigation.org

US Environmental Protection Association: www.epa.gov

US Green Building Council: www.usgbc.org