Landscape Design

BMP Type			
Design			X
Installation			
Maintenance/Operations			
Green Industry Relevance			
ASLA	X	GCC	X
ALCC	X	ISA	X
CALCP	X	RMSGA	X
CGGA	X	WFC	
CNA	X		

Description

Plan and design landscapes comprehensively to conserve water and protect water quality.

Basic Practice Guidelines

Design Principles

1. Consider view, slope, exposure to natural (e.g., wind, sun) and man-made (e.g., pedestrian traffic) elements, soils, availability of natural precipitation and supplemental irrigation, and drainage when designing the overall landscape.

2. Base designs on sound landscaping practices. Consider and implement the seven basic principles of Xeriscape: planning and design, soil improvement, zoning of plants, practical turf areas, efficient irrigation, mulching and appropriate maintenance. *(See the Xeriscape BMP for more information.)*

Irrigation and Drainage

3. Design the site for efficient irrigation, including both state-of-the-practice irrigation technologies and management practices. Landscape plans should also include specific irrigation plans. *(See the Irrigation BMPs for more information.)*

4. Incorporate the concept of "water-wise irrigation zones" to develop planting lists for landscape components. For example, identify zones of high, moderate and low water usage and then identify water requirements and appropriate plants for each zone.

5. Design landscapes to harvest water to avoid losing runoff, especially around parking lots. This results in the greatest possible use of natural precipitation by landscape plants, while minimizing runoff into stormwater drainage systems.

6. Grade landscaped areas to maximize infiltration, while minimizing runoff and ponding.

7. Include decorative berms, grassy swales, and buffer zones to direct water flow to cultivated areas at locations where sediment movement into surface water or drainageways has been observed. Be careful not to create steep, hard-to-manage slopes when designing berms.

8. To the extent possible, design the site to blend with existing topography, following existing contours to preserve the overall natural major drainage patterns. (This should not be confused with localized site grading at the micro-drainage level that can provide water quality and water conservation benefits.)

9. Consider installing terraced gardens on slopes to allow heavy rains to soak in rather than to runoff and cause erosion.

10. Use porous paving materials (e.g., brick, gravel, flagstone) for patios and walkways to keep water in the garden rather than in the gutter.

Soils

11. Obtain at least one soil nutrient analysis prior to completing a project design. Obtain more tests for sites with variable conditions or where imported topsoil is used.

12. Provide appropriate specifications to ensure soils are properly prepared and amended during landscape installation. *(See the Soil Amendment/Ground Preparation BMP for more information.)*

Plant Selection and Placement

13. Group plants with like water needs together. Plants located within the drip line for large trees and shrubs should have similar water requirements as the trees and shrubs. *(See the Plant Selection and Placement BMP for more information.)*

14. Select plants that are well adapted to the climate, topographic and geologic conditions of the site. Native plants and plants with documented lower water requirements should be given priority in landscape design.

15. Where possible, retain significant native vegetation that is already adapted to the site.

16. Consider using groundcovers with lower water requirements for slopes and hard-to-mow locations.

17. When designing plant placement on slopes, place lower-water demand plants at the tops of slopes and higher-demand plants at the bottom.

18. Incorporate trees into the landscape to provide shade, reduce stormwater runoff, stabilize soil and protect against wind. A goal of at least 20 percent canopy coverage for Front Range communities is ideal.

19. When selecting turfgrass, consider the use, aesthetic and design goals of the site, estimated water use and maintenance budget. In areas where irrigation is not planned, a mix of mainly native bunch and sod-forming grasses can be used.

20. Avoid using turf in areas less than 10 feet wide and on slopes steeper than 4:1. (Although turf provides effective erosion-control, maintaining regularly mowed turf on a steep slope can be difficult and/or dangerous.)

21. Use weed barrier fabrics and organic or inorganic (e.g., gravel, rock) materials to reduce weeds while still allowing water and air to penetrate the soil. Do not use black plastic.

22. Landscape bare areas to reduce soil erosion. Landscaping practices can reduce stormwater runoff rates and volumes, sediment loads and pollutants. Turfgrass can be particularly effective in erosion-prone areas and can be used in buffer strips and grassy swales to filter out sediment. Consider installing grassy buffers in areas adjacent to, or contiguous to, open waterways or known recharge areas, to provide extra filtering of runoff.

Buffers and Wetlands

23. Maintain wide, undisturbed riparian (stream) corridors or consider installing wetland "edge" treatments. Check with local regulations for specific setbacks for streams—these may vary from 25 to 200 feet, depending on site conditions and local standards.

24. Protect existing wetlands and consult with the U.S. Army Corps of Engineers prior to dredging, filling or enhancing a wetland. It is illegal to dredge or fill a jurisdictional wetland under the federal Clean Water Act. It is necessary to obtain a 404 permit prior to modifying a wetland.

Water Features

25. When water features are part of designed landscapes, recirculating water should be used to prevent stagnant water and algae build-up. Other factors that should be carefully considered include lining the pond or water feature with impermeable materials, evaporation and addition of make-up water, management of water quality (e.g., nutrients) in the pond, algae control, periodic flushing and disposal of water.

Regional or Industry Considerations/Adaptations

1. Be aware that federal, regional, state and local water quality regulations may require integration of stormwater management facilities (e.g., detention ponds, constructed wetlands) into landscape design. Work closely with the general contractor, civil engineer and U.S. Army Corps of Engineers personnel when these facilities are necessary.

2. Large landscaped areas such as parks and golf courses have special design considerations. On large sites, written landscape plans that include specifications for soil preparation, plant materials, irrigation design, mulch, and maintenance instructions are particularly important. *(See the Parks, Golf Courses and Other Large Landscapes BMP for more information.)*

3. In some parts of Colorado (e.g., Western Slope, parts of the Arkansas River basin), landscaped areas may overlay soil and geologic formations high in salts and selenium where leaching of these constituents into groundwater is a concern. In these areas, practices such as unlined ponds and over-watering that may result in water infiltration into soil below the root zone should be avoided.

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