

Vegetative Stabilization

PURPOSE: Permanent vegetation can prevent erosion by wind or water, and improves wildlife habitat and aesthetics. Vegetation reduces velocity and volume of runoff, and protects bare soil from the impact of rain.

Vegetative stabilization is the practice of preserving existing vegetation at a site during construction. Traditionally, sites are cleared of vegetation in preparation for construction activities. More vegetation is often removed than is necessary, which leads to a greater amount of exposed soil that is prone to erosion by wind and rain.

To prevent damage to the trees selected to remain during construction and their root systems, protective measures must be implemented. Following is a list of guidelines for assessing a site to determine the most effective implementation of this practice.

- **Design to protect vegetated areas** - consider protecting wooded areas, vegetated slopes, etc. as site development plans are prepared.
- **Mark construction zone boundaries** - on the site development plan, identify areas of disturbance, including the location of proposed buildings, pavement, material storage areas and paths used by construction equipment. Use stakes and string to mark boundaries at the site; clearly mark trees to be preserved.
- **Inventory tree health and select trees to be saved** - remove diseased trees; consider alternative site designs to maximize retention of healthy trees.
- **Designate areas that are off limits** - use bright colored polypropylene tape to mark a boundary around the area that is not to be disturbed, including room for root systems; photograph the area before construction begins.
- **Prepare trees for construction disturbance** - address water and nutrient deficiencies prior to construction to aid with tree survival after construction.
- **Protect soil for future tree planting** - apply a six-inch layer of wood chips on areas used for materials storage or equipment paths to alleviate soil compaction.
- **Monitor tree health during construction** - irrigate trees regularly and inspect for any damage to branches, trunks and roots.
- **Final site inspection** - remove protective tape/fencing after all work is complete; continue regular maintenance, i.e. watering, pruning, fertilization, etc.

General Design Considerations

- Vegetation is effective for stabilizing flow with a stream channel velocity of up to 5 feet per second
- May be used in conjunction with structural measures to provide effective erosion control
- Young, small trees tend to survive disturbance better than large trees
- Use erosion control measures around perimeter of preserved area to maintain adequate water flow and drainage conditions
- Disturb no more than 25% of roots within each tree's dripline
- Heavily wooded sites should be thinned over a period of time to prevent stress
- Avoid changes in soil pH
- Avoid disruptions to the site's natural contour
- Cut exposed roots cleanly to promote quick wound closure



Benefits and Uses

- Prevents erosion at construction site
- Applicable to all types of sites, including floodplains, wetlands and steep-sloped areas
- Enhances aesthetics of local landscape
- Provides habitat for wildlife
- Able to handle higher quantities of runoff than newly seeded areas
- Immediately effective
- Requires less maintenance than newly planted vegetation
- Provides noise buffer and screens construction activity

Additional Resources

PA Department of Environmental Protection
- www.dep.state.pa.us
- Pennsylvania Stormwater Best Management Practices Manual

US Environmental Protection Agency
www.epa.gov

Cahill Associates
www.thcahill.com - click on "Technologies" for project examples and general information

Low Impact Development Center
www.lowimpactdevelopment.org

University of Minnesota Extension Service
"Homeowner's Guide to Protecting Trees from Construction Damage" - www.extension.umn.edu/distribution/housingandclothing/DK6135.html

Stormwater Manager's Resource Center
www.stormwatercenter.net