Planning for Low-Impact Development in New Construction or Additions

If you're building a new house or an addition, you're in a wonderful position to explore and pursue many LID strategies! Consider these options:

- **Retain soils and native/mature vegetation:** The physician's oath, "First do no harm," should be your mantra when planning new construction. Avoid grading and clearing wherever possible. To the greatest extent you can, save large intact sections of mature vegetation and accompanying native soils (see box "Working with your contractors to save your trees").
- **Restore plants & soils:** Where soil must be disturbed for grading and construction, restore soil functions by breaking up compaction, stockpiling and replacing topsoil, or tillng in compost before replanting. If you clear areas with healthy native plants, you can dig some up and replant them in your landscape after construction.
- **Careful siting:** You have a golden opportunity to place your home, other structures, utilities, and driveway in the best location to lessen your impact. Some ideas include:
  - Place your house closer to the access road, to leave the back of your property undeveloped.
  - Share partial driveway access with a neighbor.
  - Place your home and utilities in areas that are already disturbed or have poor soils.
  - Carefully routing your driveway through tree stands to minimize cutting.
  - Consider setbacks in regulations as a minimum and place your structures even further away from sensitive habitats, such as marine shorelines, wetlands, or streams.
- **Early LID design:** Plan early to include LID techniques such as:
  - Small footprint.
  - Foundations that require minimal excavation.
  - Pervious paving systems, based on soils analysis for best infiltration.
  - Stockpiling and replacing topsoil or amending site soils with compost.
  - Rain gardens or other on-site stormwater-management systems, based on site evaluation information.
  - Grading impervious surfaces to flow to on-site stormwater-management systems.
  - Erosion-control and sediment-control systems that protect pervious-pavement systems from clogging.
  - Good engineering for green roofs.

### Start Permitting Early
LID is catching on in communities throughout Puget Sound. However, some counties and cities aren't familiar with many of the concepts of LID. If any of your projects will require a permit, it's a good idea to get local officials involved early in your project.

- Find out if your planning and permitting department staff members are knowledgeable about LID ideas, such as rain gardens instead of required dry wells. Setting up an early meeting to discuss your plans might save you extra time and disappointments later on.
- Some local governments offer incentives through their stormwater departments that can support your LID plans. Incentives can include financial support or technical help.
- Find out what codes or regulations might affect your plans, including design guidelines. If you're doing something unconventional, you might need extra time to get approval.

### Working with Contractors to Save Your Trees

Your trees will need your help to survive new construction! Long before ground is broken on your project, you must provide root-protection zones around all mature vegetation within the construction zone. More than 90 percent of a tree's fine feeder roots are in the top three feet of soil, and over half of them are in the top 12 inches! Depending on the type of soil and depth of the water table, larger diameter anchoring roots—critical to protecting the tree from windthrow—may extend to 15 feet deep. These anchoring roots may also be present as fairly shallow lateral roots in fine-grained or wet soils. Damage to both the feeder and anchoring roots can happen with a quick, accidental slip of a backhoe, or over a few days by compaction from construction vehicles driving over the roots, especially in wet weather. Even piling a few inches of extra soil on top of this sensitive zone can impair a tree's ability to function.
Here are some basics for saving your trees:

- **Initial assessment:** Hire a qualified tree specialist with International Society for Arboriculture Certification to evaluate your trees. Make sure the trees you want to save are all worth saving (some may be unhealthy already or be species that are known to be hazardous in developed landscapes).

- **Sizing root-protection zone:** Forest specialists advise using the tree's trunk diameter at breast height, or DBH (4.5 feet from the ground), as a guide for protecting your trees.
  - For every inch of DBH, protect a minimum of one-foot radius (for instance, a 10-inch DBH requires a minimum 10-foot radius of protection).
  - Shallow, compacted, or saturated soils might require up to twice as much room.
  - Deep, well-drained soils may only require two-thirds that distance.
  - Make the root-protection zone as big as you can.

- **Written plan:** Overlay your root-protection zones on your construction plans and go over details with the contractor and all subcontractors. Ensure that all contractors understand that they will be financially penalized for any damage to trees or their roots.

- **Fencing:** Protect this zone (and the trunk and branches) from damage by installing secure fencing around each zone. Make sure the fencing cannot be easily knocked down. Suggestions include temporary chain-link, securely anchored barbed-wire strands with bright flagging attached, or bright-orange plastic fencing attached to well-anchored fence posts. Check fences regularly during construction.

- **Contract penalties:** A mature tree is irreplaceable! Make tree protection part of your contract, with severe penalties for negligence. Prohibited practices within the root-protection zones should include:
  - Vehicular traffic or parking.
  - Storing materials.
  - Grading.
  - Dumping chemicals or other materials.
  - Piling extra soil, even for temporary storage. Never permit the soil level to change within the root zone.

- **Prior to construction**—especially if you can't protect them at the levels recommended above—prepare your trees by watering them deeply. Then apply two to four inches of mulch (such as wood chips or "hog fuel") around any unprotected impact zone. Ensure that utilities are bored rather than trenched through the root zone.

- **Repair** any injuries to broken branches or torn roots by cutting them cleanly with pruning saws. Monitor trees for signs of stress or damage and have them inspected by a qualified arborist to ensure they do not become hazards.

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These guidelines were prepared by Erica Gutman, Native Plant Salvage Project, WSU Thurston County Extension, with support from the Puget Sound Action Team. Special thanks for the guidance of Elliott Menashe, Green Belt Consulting, and Curtis Hinman, WSU Pierce County Extension. For more information, please see [www.nativeplantsalvage.org](http://www.nativeplantsalvage.org) and [www.greenbeltconsulting.com](http://www.greenbeltconsulting.com).