



TEXAS A&M FOREST SERVICE

How do I Care for My Tree? **Protecting Tree Roots During Construction**

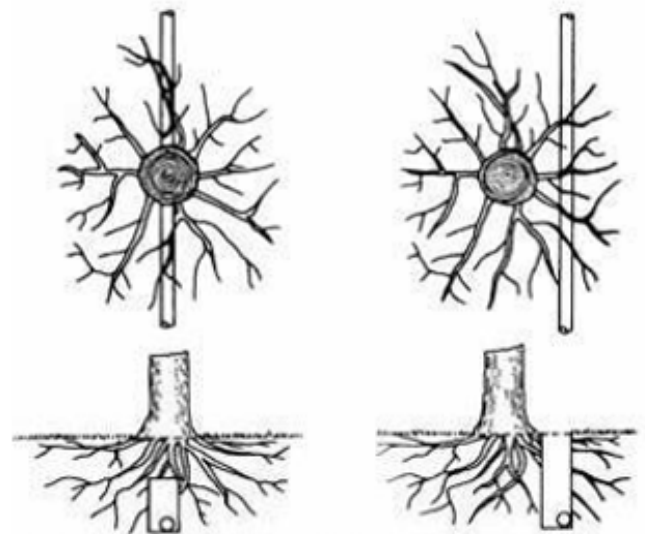
Trees add to value to residential and commercial properties. Existing trees are often one of the main features in the landscape design of new homes or businesses. Unfortunately, many times the trees that are left on site have difficulty surviving the construction activities. This can lead to unsafe or hazardous conditions and expensive post construction removal costs. With planning, communication and cooperation, existing healthy trees can be preserved with minimal effort and expense. Successful survival of trees both during development and in the years following construction is through the protection of roots during the construction process. Three main causes of tree death during and after construction that can be addressed by protection are soil compaction, grade changes and root severance.

The following steps should help you create a workable tree protection plan:

Planning. An ISA certified arborist should be involved in the beginning of the planning phase of the project. Small changes in the placement or design of a building, driveway or utilities can make a difference in whether or not an important tree will survive. Alternative construction methods should be considered when appropriate. If utilities cannot be re-routed away from trees, tunneling or hand dug trenches should be considered in order to minimize the damage to the trees root systems (Figure 1). Develop tree preservation specifications detailing what can and cannot be done around the trees to be preserved. Fines and penalties should be included in these specifications.

Inventory trees on site. Record and map the location, species, size, and health of each tree on the development site. Trees that probably shouldn't be selected for preserving are those with wilted leaves, broken or dead limbs, trunk rot, display poor form, lean heavily over future buildings, or have severe insect or disease problems. These should be removed prior to construction. Identify, map and mark trees to be preserved. Be sure to identify and prune trees that need additional clearance to make room for future structures and construction equipment.

Figure 1



Less damage is done to tree roots if utilities are tunneled under a tree (left, top and bottom) rather than across roots (right, top and bottom).

Root protection barriers. Erect sturdy fencing around each tree that is to be preserved. This will help to provide both above and below ground protection. The fence should be approximately one foot from the trunk for each inch of trunk diameter (Figures 2 & 3). Tree Protection Zone (TPZ) signs should be mounted to the fence and all construction personnel should be instructed to keep fencing intact. A three inch layer of mulch should be applied to the area within the TPZ. No trenching, digging or soil disturbance of any kind should be allowed in the TPZ. No building materials, waste materials, excess soil, paints or supplies should be stored within the TPZ.

Prepare for construction. A healthy tree is more likely to survive the construction process than one that's stressed. Proper irrigation of the trees, if rainfall is not adequate, is important. Prune branches that are dead, diseased, hazardous, or that will interfere construction equipment and machinery.

Monitor the site. Visit the site and inspect the trees on a regular basis. A tree manager's presence alerts workers that trees are important and their careful treatment is taken seriously. Should damage occur, begin repairs as soon as possible. Immediately inform the builder/contractor of any violations in the tree preservation specifications and photograph the damage. Insist that protective fences remain in place until all construction workers have left the site.

Minimize soil compaction. Construction equipment and vehicles are a common cause of soil compaction. Limit access and designate access routes on and off of the property. Remember the fewer, the better. Designate areas for parking, storage of equipment, construction materials, excess soil, etc.

Grade changes. Grade changes not only directly affect the roots of a tree either by removing roots, if lowering the grade or suffocating the roots, if raising the grade. It can also change the drainage of site, leading too much water in some areas and very little in others. Except where absolutely necessary, avoid disruptions to the natural contour of the site or shift them well outside the TPZ. Adding fill to the root zone limits the amount of oxygen and moisture available to the roots. If raising the grade is necessary, it is recommended that not more than two inches of fill should be added in a given year. Lowering the grade removes vital roots and nutrient rich topsoil. If a lowering of the grade is necessary, root prune at least four to six months prior to construction activity and institute a regular irrigation schedule before during and after root pruning.

Post construction. It may take several years for trees to overcome and adjust to the injury and site changes that occur during construction. Trees that are stressed are more prone to insect and disease infestations than healthy trees. It is important to establish a long term maintenance program to monitor and maintain the trees. Consult an ISA certified arborist to help develop a multi-year maintenance plan.

Figure 2

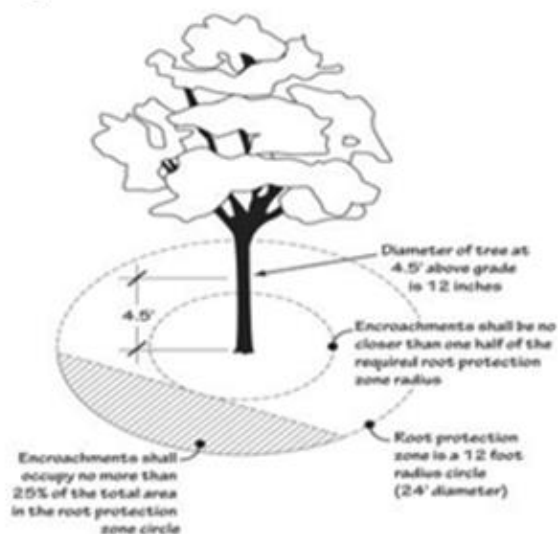


Figure 3

