



Office of Forestry

P. O. Box 1628

Baton Rouge, LA 70821

(225) 925-4500 - Fax: (225) 922-2356

## PROTECTING TREES DURING CONSTRUCTION

Most homeowners know and enjoy the shade and beauty trees provide, but many of us do not realize that trees also provide significant economic benefits. Shade trees can substantially reduce energy requirements for heating and cooling, and trees may add an average 5% to 10% to the real estate value of a home.

Trees and building developments can be compatible, but trees must be respected as living, breathing organisms if they are to survive and thrive during and after construction.

The number one, and most deadly, problem of shade trees is construction damage. Among construction damages that can mean injury and death to shade trees:

- Root and trunk damage occurring during lot-clearing operations.
- Smothered roots caused by soil compaction from heavy equipment and/or fill dirt.
- Severed roots resulting from concrete slabs and drive-ways.
- Roots severed in underground utility installations or grade changes.

It is surprising to many homeowners and builders that the majority of the vital feeder roots of trees are located in the top foot of soil and that they extend even beyond the drip line of trees' branches.

If you are building, there are several specific steps you must take if you want to ensure the health, or very life, of your trees.

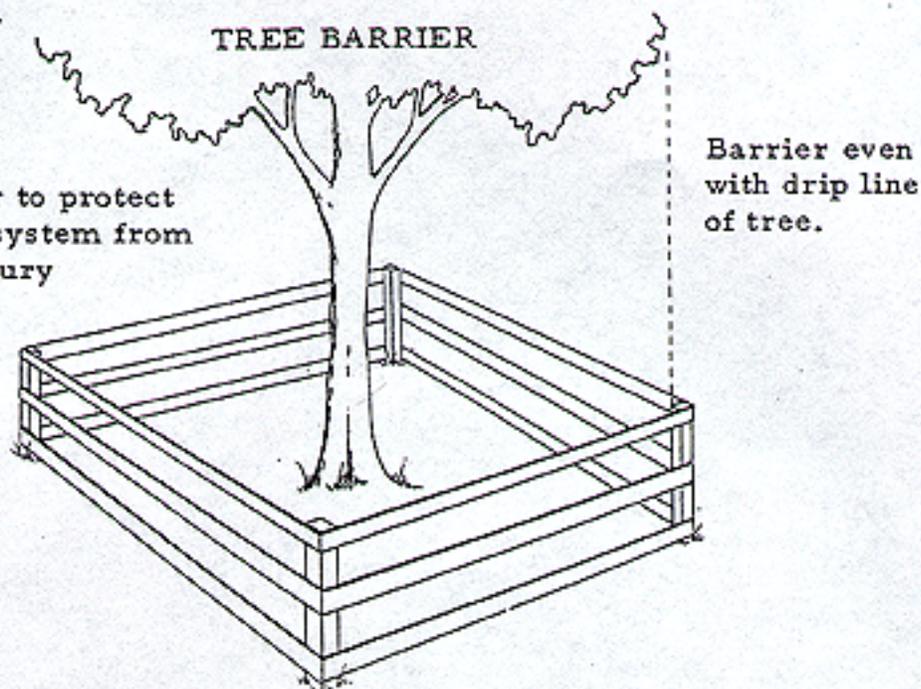
1. First, foremost and most difficult, you must be firm with your builders. Even then, supervise progress closely.

Note No. 5 (1/81)

- Insist on proper care during lot clearing. Construct barricades around valuable trees to prevent damage. It may be necessary to clear most of the lot by hand and use heavier equipment to clear only that portion that will be directly involved in the house site. (See Figure 1).

**FIGURE 1**

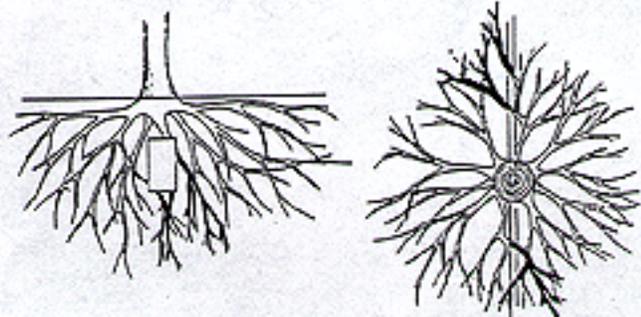
Simple barrier to protect tree and root system from mechanical injury



- Have the lot cleared during dry weather because heavy equipment does more damage to roots when soils are wet.
- Confine access to and from construction site through one well marked corridor, preferably the driveway location.
- Confine the location of underground utilities to areas away from the tree's roots. If it is necessary to pass close to a tree, insist that corridors be tunneled under major roots, rather than using trenches. Also put all utilities in one corridor if possible. (Figures 2 and 3).

**FIGURE 2**

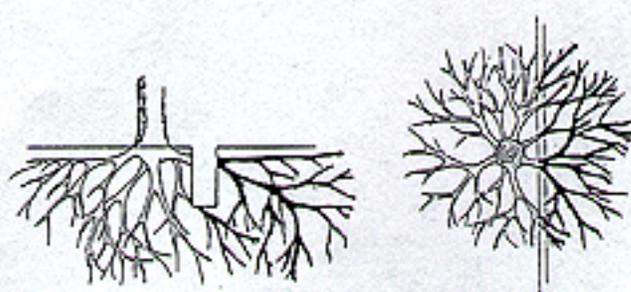
Right utility placement



Only a few roots are destroyed by tunneling under base of tree.

**FIGURE 3**

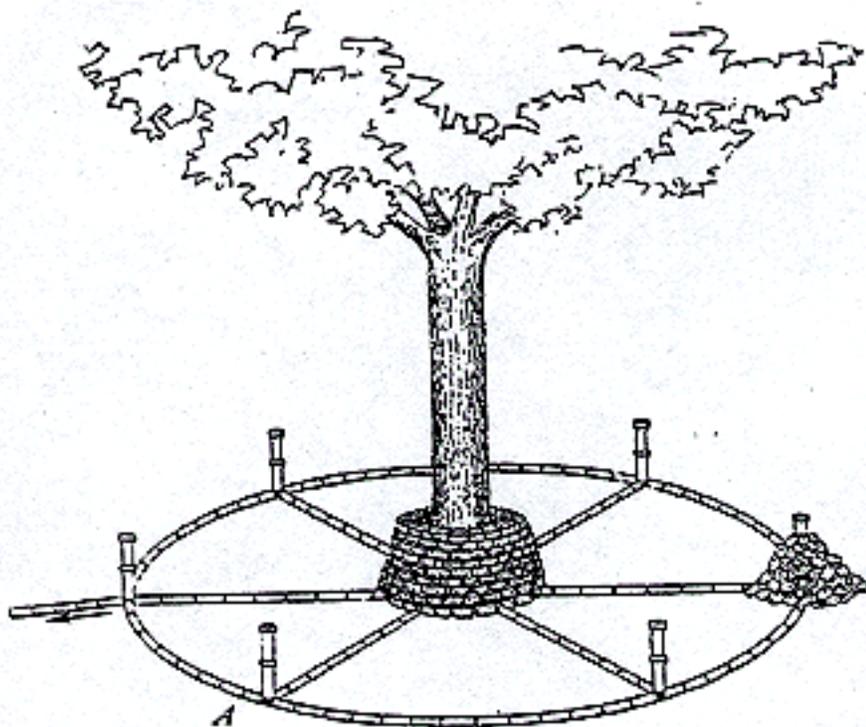
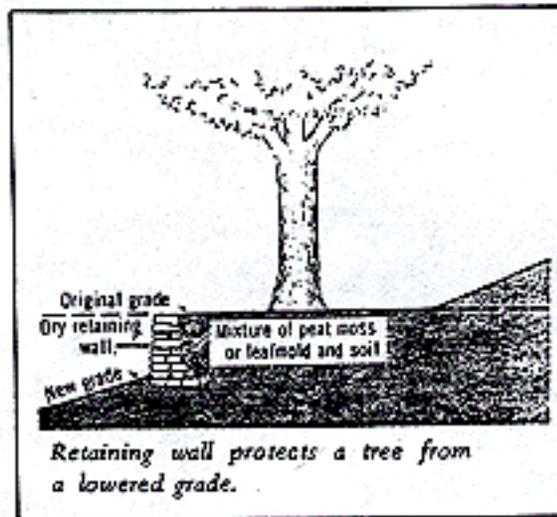
Wrong utility placement



Roots are severed, as indicated in solid color, by digging trenches close to tree trunk.

6. Plan to use natural grades and drainage patterns where possible. If grade changes or soil filling is necessary, use retaining walls and dry wells to protect valuable trees. (Figures 4, 5 and 6).

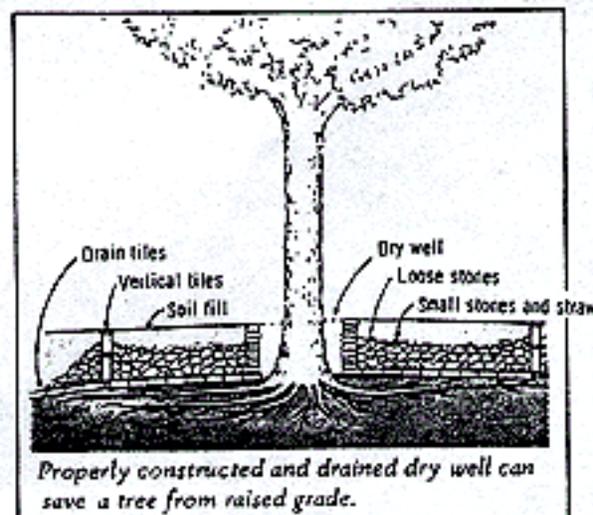
**FIGURE 4**



**FIGURE 5**

Preliminary steps in constructing a fill: Dry well around tree trunk to permit air and water circulation. Tiles on ground sloped so as to drain away from trunk and off roots, as indicated by arrow. (A) Vertical bell tiles connected with drain will permit additional air circulation and can be held erect by loose stones.

**FIGURE 6**



7. Consider the use of pervious manufactured materials such as Turfstone in the root zone of important trees when constructing driveways, walks, patios, etc. Natural materials, gravel, shell, etc., can also be used.

The MOST IMPORTANT consideration is to incorporate tree-saving methods into the planning stages of construction even before the lot is cleared. Some new home seekers buy "spec" houses which are completed or near completion and thus have no input into house planning. Many times, a year or two later, trees begin to die a gradual death and require a major expenditure for removal and, meantime, present a hazard. Additionally, you will have paid a higher initial price for the lot because it had the trees around it, and that portion of your investment is lost.

Look for symptoms of construction damages. Wounds to trunks, exposed or severed roots, and slabs too close to or completely surrounding trees are obvious clues to future problems. Thinning and yellowing of foliage and die-back beginning at the branch tips of trees are more subtle symptoms of construction damage to roots. Many trees can be saved after construction with proper and timely care. Fertilization, watering and aeration of compacted soils are all good medicine for trees suffering construction stress. Other activities such as wound repair, dead limb removal and pruning to compensate for root loss are also desirable.

For further information on protecting your trees during construction, contact your nearest Office of Forestry representative.

Other Urban Forestry Notes available include "Fertilization", "Pruning", "Tree Planting" and "Landscaping the Home for Energy Conservation".

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