

SECTION 02100 - SITE DEMOLITION AND CLEARING

PART 1 - GENERAL

1. Choosing trees or shrubs to save shall be done by evaluating their desirability and the effort that will be required to save them. Decisions to save plant material will be made based on species, health, location, present and future size and how well the species can be expected to adapt to the changes that will take place. Construction contracts should clearly outline responsibilities for protecting trees and penalty clauses for noncompliance.

PART 2 - EXECUTION

1. Trees to remain that are growing in areas that will not be disturbed during construction shall be protected from mechanical and chemical injury by constructing fences around each tree or group of trees. Materials, equipment, fuels, or other items will not be placed within the dripline. The fence shall be placed at the dripline whenever possible. If conditions do not permit this the roots shall be protected by placing 4-6 inches of wood chips over whatever part of the dripline cannot be fenced off. Trees shall be examined at regular intervals during construction. Water excess and deficiency are common problems of trees on construction sites and they must be dealt with appropriately.
2. Utility trenching near trees can often be done with minimal damage to tree roots. whenever possible trenches should be dug around existing trees outside the dripline. If this is not possible trenching should stop when roots 2 inches in diameter or larger are encountered, at this point a power driven soil auger can be used to bore a hole under the majority of the root system until trenching can resume. Any roots that are cut or broken will be cut with a sharp tool at a 90 degree angle to the root.
3. Raising the soil level around trees can be done successfully if proper procedures are followed. If tree wells are to be constructed they must be done before roots are damaged by construction activities. Each tree must be evaluated individually but in general the well shall be constructed as far away from the trunk as possible. The inner wall of the dry well shall be a minimum of 3 feet from the trunk.
 - 1) The ground within the dripline shall be cleared of all plants, leaves, twigs, and debris. The top 10 inches of soil shall be checked for signs of compaction, slow water penetration, or layers of different soil textures. Any problems shall be corrected before filling and must be done in a manner that will minimize root damage. The area around the tree shall be graded so that no water drains toward the trunk. The soil on the surface shall be loosened but not deep enough to damage roots. Gravel aeration channels that radiate from the dry well shall be

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constructed with a 2 to 3 percent slope. A circular ring shall be constructed around the dripline of the tree.

- 2) The dry well wall shall extend the complete depth of the well and as a rule the deeper the fill the further away the wall shall be from the trunk. At each place where the radiating gravel channels intersect with the circular ring a 4 inch perforated PVC pipe shall be placed vertically and extend about 2 inches above the new grade. The pipe shall be filled with gravel once the grading is complete. A sandy loam fill would be the best fill for most situations but the main thing is that the fill be coarser than the original soil. The final grade shall slope away from the tree.
4. Lowering the soil level around trees can seriously damage roots and may even impair the stability of the tree. Since the root system of most trees is located within 3 feet of the surface and most feeder roots are in the upper 6 inches, lowering grades even slightly within the dripline of a tree can be devastating. Trees in isolated locations can have root systems that extend two to three times the radius of the dripline. If cuts can't be avoided each tree must be evaluated to determine the location of the major roots and the bulk of the feeder roots. The largest possible area shall be left at the original soil level.
 - 1) Lowering the soil line on one side of a tree may be possible with a healthy tree provided not more than 30% of shallow roots are cut. Living branches shall not be removed in order to keep the tree in "balance" and under no circumstances shall nitrogen fertilizers be used. In order to maintain the tree's stability and health do not cut support roots or "sinker" roots unless they are a considerable distance from the trunk. Horizontal roots may be cut closer to the trunk up to the point where their caliper increases noticeably. A sandy soil shall be used for back filling behind retaining walls. For at least two years following the cutting of tree roots additional irrigation will be required and dead branches will need to be pruned.
5. Excavation for buildings shall be done in a manner similar to the procedures for lowering soil level around trees. Since excavations for building foundations are likely to remain open for a long period of time a "root curtain" shall be constructed to help support the trees and retain soil moisture. The root curtain shall be installed immediately after each section of trench is completed and can be constructed by placing heavy wire fence over a layer of burlap and staking it with posts. The area shall be partially back filled providing a layer of soil covering the fence. Any broken or damaged roots shall be pruned immediately after excavation and just beyond the point of injury with a sharp saw or loppers. Roots must be watered immediately after excavating and kept moist during the entire operation. An organic biostimulant shall be applied in all situations where roots will be disturbed or stressed.

END OF SECTION