

ARTICLE XIII

TREE REGULATIONS

1300. **Intent.** It is the intent of this section to encourage the protection and replacement of trees during and after development within certain zoning classifications. Benefits derived from tree protection and replacement include: improved control of soil erosion, moderation of storm water runoff, and minimization of the cost of construction and maintenance of drainage systems; improved water quality; interception of airborne particulate matter and the reduction of air pollutants; reduction of noise, heat and glare; enhancement of habitat for desirable wildlife; climate moderation; maintenance of aesthetic qualities provided by the natural environment and its scenic viewsheds; provision of protective physical and psychological barriers between pedestrians and vehicular traffic; energy and water conservation; and the enhancement of real estate property values.
1301. **Regulations Within Certain Zoning Districts.** The regulations contained in this Article are divided into two classifications: tree protection regulations and tree replacement regulations. Tree protection regulations shall apply to all zoned property in unincorporated Georgetown County. Tree replacement regulations shall apply to specific types of development in the following districts (*Amended Ord. 2009-22*):

<u>Zoning Districts</u>	<u>Land Uses Affected by Tree Replacement Regulations</u>
FA, NC, GC, FA/C, FA/R, RVC, VR10	Commercial, public buildings, schools and churches
GR, GRR, RC	Multi-family, commercial, public buildings, schools and churches
MD, OC	Commercial, public buildings, medical, and churches
RS, MHP, DP	All development
PD	As required by Staff

1302. **Tree Protection Regulations.** Within the area established as the minimum required setback area, as defined by Article VII of this Ordinance and illustrated in Appendix A; Figure 1, neither Significant nor Landmark trees (See Appendix A; Criteria for Significant and Landmark Trees) shall be removed, cut above ground or otherwise disturbed without a tree removal permit. Furthermore, within the area of the entire development site, no tree designated as a Landmark tree shall be removed, cut or otherwise disturbed unless the Zoning Administrator determines that the tree is hazardous, in decline, diseased, infectious; the removal of the tree is necessary to maintain the appearance, health or vigor of the remaining trees or no practical alternatives

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for reasonable use of the property exist. If a determination is made that certain healthy, Significant or Landmark trees may be removed, they shall be replaced in accordance with the requirements of Section 1303 of this Article.

1302.1 Tree removal permits. Tree removal permits shall be required for all zoned properties. The Zoning Administrator shall conduct a preliminary review of the site within two weeks and issue a determination in writing upon receipt of the application. An appeal of the Zoning Administrator’s decision may be filed in accordance with the procedures cited in Article XIII of this Zoning Ordinance.

1302.2 Tree protection areas. Significant trees or stands of trees designated to be saved shall be protected from the following damages, which may occur during all phases of land disturbance and construction processes:

1202.201 direct physical root damage;

1202.202 indirect root damage; and

1202.203 trunk and crown disturbances.

1302.3 Planning considerations. Tree space is the most critical factor in tree protection throughout the development process. The root system of trees can easily extend beyond the dripline of the tree canopy (Appendix A; Figure 3). The root system within the dripline region is generally considered to be the critical root zone. Disturbance within this zone can directly affect a tree’s chances for survival. To protect these critical root zones the following standards shall apply:

1302.301 Tree save islands and stands shall be used rather than the protection of small individual (non-significant) trees scattered throughout a site;

1302.302 The area of trees to be protected shall include no less than the total area beneath the tree(s) canopy as defined by the farthest canopy dripline of the tree(s);

1302.303 Layout of the project site utility and grading plans shall accommodate the required tree protection areas. Utilities should be placed along corridors between tree protection areas, whenever possible; and

1302.304 Construction site activities such as parking, material storage, concrete washout, burnhole placement, etc., shall be arranged so as to prevent disturbances within tree protection areas.

1302.4 Protective Barriers. Prior to any land disturbance, suitable protective barriers shall be erected and maintained around all trees to be retained during development, so as to prevent damage. The Zoning Administrator shall be consulted regarding the specific type(s) of barrier(s) to be utilized and shall periodically visit the site during the construction stage to ensure compliance with all provisions of this Ordinance.

1302.401 Active protective tree fencing shall be installed along the outer edge of and completely surrounding the critical root zones of all trees to be protected, prior to any land disturbance. (See Appendix A; Figures 4 and 5.)

1302.4011 These fences shall be a minimum of 4 feet high, constructed in a post and rail configuration. A 2 inch x 4-inch post and a double 1-inch x 4-inch rail is recommended. Four-foot orange polyethylene laminar safety fencing is also acceptable (See Appendix A; See Figure 4).

1302.402 Passive forms of tree protection may be utilized in any area not subject to land disturbance.(See Appendix A; Figure 6.)

1302.4021 These areas shall be completely surrounded with continuous rope or flagging (heavy mill, minimum 4” wide).

1302.403 There shall be no grading or paving with any impervious material within five (5) feet of any trees retained (additional area may be specified by the Zoning Administrator if necessary to prevent injury to Significant and Landmark trees).

1302.404 All trees to be protected shall be protected from the sedimentation of erosion material.

1302.4041 Silt screening shall be placed along the outer uphill edge of tree protective zones at the land disturbance interface.

1302.4042 Silt screening shall be backed by 13-gauge 2 inch x 4-inch wire mesh fencing in areas of steep slope.

1302.405 All tree fencing and erosion control barriers shall be installed prior to and maintained throughout the land disturbance process and building construction, and shall not be removed until landscaping is installed.

- 1302.5 Encroachment. Most trees can tolerate only a small percentage of critical root zone loss. If encroachment is anticipated within the critical root zones of trees to be protected, the following preventive measures shall be employed, as required by the Zoning Administrator:
- 1302.501 Clearing activities: The removal of trees adjacent to tree protection areas can cause inadvertent damage to the roots of protected trees. Whenever possible, a minimum two (2') foot trench (e.g. with a "ditchwitch") shall be cut along the limits of land disturbance, rather than tear the roots.
- 1302.502 Soil compaction: Where compaction might occur due to traffic or materials storage, the tree protection area shall first be mulched with a minimum 4 inch layer of processed pine bark or wood chips, or a 6 inch layer of pine straw.
- 1302.503 Utility installation: The installation of utilities through a tree protection area shall occur by way of tunneling rather than trenching. (See Appendix A; Figures 7 and 8) If roots must be cut, proper root pruning procedures shall be employed as stated in Section 1302.601.
- 1302.504 Grade Changes: An increase in grade may be tolerated within a tree's critical root zone. This shall be accompanied with the installation of an aeration system as illustrated in Appendix A; Figures 9 and 10. A decrease in grade shall be accomplished with the use of retaining walls or through terracing as illustrated in Appendix A; Figure 11.
- 1302.504 Irreparable damage: Where the Zoning Administrator has determined that irreparable damage has occurred to trees within a tree protection area, removal or replacement of the trees may be required.
- 1302.6 Remedial procedures. The survival rate of trees damaged through construction activities can be improved with the implementation of remedial procedures. If encroachment is anticipated, the following preemptive measures to improve survival shall be applied where appropriate:
- 1302.601 Pruning. The pruning of a tree in anticipation of construction damage may provide compensation for potential root loss and promote recovery. Trees, which have not been affected by construction activities, can be pruned for maintenance of the tree's health, appearance, and safety. Pruning specifications as provided

by the National Arborist Association (N.A.A.) in “Pruning Standards for Shade Trees” shall apply.

1302.602 Fertilization. Fertilizer applications will enhance the vigor of trees stressed by site disturbances, thereby promoting root development. A complete fertilizer containing nitrogen, phosphorus and potassium is most commonly recommended. The following methods of fertilizer applications may be utilized.

1302.6021 High-pressure soil injection of fertilizer solution: the nutrient solution is injected into the soil at the prescribed rate and frequency. Benefits of this method include its effectiveness in even distribution, improved soil aeration, and immediate availability of nutrients in the soil.

1302.6022 Surface applications of granular fertilizer: with this method, fertilizer is broadcast over the surface of the target area at the prescribed rate and frequency. The benefit of this method is the ease in application. A major disadvantage is the loss of fertilizer from runoff, particularly in areas with steep slope.

1302.6023 Soil incorporation of granular fertilizers: with this method of application, granular fertilizer is placed at the prescribed rate and frequency in holes drilled within the target area. Benefits of this method include increased soil aeration, with a reduced loss of fertilizer from runoff.

1302.6024 Fertilizer applications can be injected directly into the vascular system (the system which conducts and transports water and nutrients) of trees. These trunk microinjection products may be used on trees with root – spatial limitations, or for trees that have suffered substantial root damage from construction activities.

1302.603 Reclamation of growing site. A tree’s ability for adequate root development, and ultimately its chances for survival, is improved with reclamation of the growing site. Benefits of site reclamation include conservation of soil moisture, reduced rainfall runoff and erosion, reduced soil compaction from construction activities, reduced competition from grasses and weeds, increased soil fertility, improved soil structure and moderation of soil temperature, with a subsequent increase in root development

activity. The following methods of site reclamation may be utilized:

- 1302.6031 Bringing the soil back to its natural grade by removal of any unnecessary fill, erosion sedimentation, concrete washout, and construction debris.
- 1302.6032 The aeration of compacted soils within the critical root zones of trees.
- 1302.6033 Improvement of soil with mineral supplementation.
- 1302.6034 The spreading of mulch material, such as pine bark or wood chips spread a minimum of four (4”) inches deep, within the critical root zones of trees.
- 1302.6035 Monitoring of the availability and drainage of water. Appendix A; Table 1 provides general information useful in determining soil moisture for soils typical of the area.

1303. **Tree Replacement Regulations.** Prior to the issuance of a building or development permit, the applicant shall submit a tree plan showing the location, size and species of all Significant and Landmark trees. The plan shall indicate the retention of at least fifteen (15) square feet of tree basal area per acre, excluding pre-existing open water features and storm water retention/detention areas in the calculation. (See Appendix A; Procedures for Calculating Minimum Tree Requirements.) This plan shall take into consideration the general landscape characteristics of the site, defined by the density of plant material in the immediate and surrounding areas, and any distinctive grouping of trees or other landscaping features. It shall contain a strategy for retaining those characteristics.

If the applicant cannot retain or if there are less than fifteen (15) square feet of basal area per acre on the site, he shall re-establish at least three (3) replacement trees of two inch (2”) Diameter Breast Height (DBH) or larger per each square foot of basal area necessary. For sites located within Planned Developments, the plan shall be reviewed and approved in accordance with section 619.2 of this Ordinance. If the site is less than an acre in size, the fractional requirement (rounded up to the nearest whole number) shall prevail.

1303.1 The applicant, while planting trees, shall consider the following:

- 1303.101 The spacing of replacement trees shall take into consideration the eventual size at maturity of selected species;

- 1303.102 Species selected for replacement shall be quality specimens, in accordance with the standards for selection of quality replacement stock and for transplanting;
 - 1303.103 Significant trees and stands of trees shall be replaced by species with potential for comparable size and growth; and
 - 1303.104 Species selection and placement shall be subject to the approval of the Zoning Administrator.
- 1303.2 The following standards for selecting quality replacement stock shall be used:
- 1303.201 Trees selected for planting shall meet the minimum requirements as provided in the “American Standard for Nursery Stock”, (ANSI z60.1, 1980). Appendix A; Tables 2 through 6 provide a quick reference to some of the more frequently used ANSI standards;
 - 1303.202 Trees selected for planting shall be free from injury, pests, disease, or nutritional disorders; and
 - 1303.203 Trees selected for planting shall be of good vigor. The following criteria shall be used for the determination of vigor:
 - 1303.2031 Foliage. Should have a green or dark green color, large leaves and dense foliage.
 - 1303.2032 Shoot growth. At least ½ of the branches shall arise from points on the lower 2/3 of a trunk.
 - 1303.2033 Bark texture. Smooth or shiny bark on the trunk and branches.
 - 1303.2034 Trunk taper. Will generally have an increase in diameter with a decrease in height. Trees with reverse tapers or no taper shall be avoided.
 - 1303.2035 Root color. Young roots of most trees will be light in color.
 - 1303.204 Trees selected for planting shall be free of root defects.

- 1303.3 The following standards shall be used for transplanting trees:
 - 1303.301 The transplanting of new trees can result in major injury to their root system. If proper transplanting techniques are employed, conditions will be more favorable for tree recovery, and the rate of attrition for newly planted trees will be reduced.
 - 1303.302 Transplanting procedures shall follow standards established by the International Society of Arboricultural in the “Trees and Shrub Transplanting Manual.”
 - 1303.303 Planting procedures (See Appendix A; Figure 13.)
 - 1303.3031 Planting holes shall be no less than 1 foot wider than the root ball or bare roots of the tree being planted. A planting hole 2 times the width of the root system is recommended;
 - 1303.3032 Trees shall not be planted deeper than they were in their former location or container;
 - 1303.3033 Spade compacted bottom and sides of the planting hole shall be roughed or scarified to allow the penetration of developing roots;
 - 1303.3034 Good water drainage from the bottom of the planting hole is essential for root regeneration;
 - 1303.3035 Once the transplanted tree is set, the hole shall be backfilled with soil of good texture and structure;
 - 1303.3036 The backfill shall be gently tamped (but not compacted), and soaked for settling; and
 - 1303.3037 The soil shall be slightly mounded to allow for settling; a ridge or dike around the perimeter of the hole can facilitate watering.
 - 1303.304 Post-planting procedures.

1303.3041 Pruning is recommended during the first growing season if the tree is showing “transplant shock” or drought symptoms (wilting), or for the removal of weak, broken, or diseased branches. Standard pruning practices shall be followed.

1303.3042 Staking shall be used on newly planted trees only where determined necessary. Periodic follow-up inspections are required to prevent serious tree-staking problems. Staking shall be removed as soon as the tree is capable of providing its own anchorage and support. Recommended types and uses of staking are as follows:

1303.30421 Protective staking is used to provide a barrier from foot traffic, movers, vehicles, etc., for trees able to stand without support. (See Appendix A; Figure 13.)

1303.30422 Anchor staking is used to hold a root ball in place during the period of reestablishment, for trees with otherwise adequate support. (See Appendix A; Figure 14.)

1303.30423 Support staking is used for trees with weak trunks or oversized crowns, unable to stand without support or in wind. (See Appendix A; Figure 14)

1303.30424 Guying is recommended where necessary for large transplanted trees (4” DBH or greater) to provide both anchorage and support. (See Appendix A; Figure 15)

1303.3043 Newly planted trees shall be mulched with a minimum 4 inch layer of processed pine bark or wood chips, or a 6 inch layer of pine straw to reduce competition from weeds, and moderate soil moisture and temperature extremes.

1303.3044 Fertilizer application shall begin after the tree's first full growing season.

1303.3045 Water availability for the newly planted tree shall be monitored, and adjusted according to the species water requirements and the site conditions.

1303.4 Following development, the property owner shall be responsible for maintaining the trees that were saved and/or planted. (See Section 1302.6 for additional information on remedial tree care.) If any of the trees become diseased or damaged, the property owner shall be responsible for replacing the trees immediately after their removal.

1303.5 As the trees within a development grow and mature, the Zoning Administrator may authorize removal of certain trees, which lack vigor or are diseased, in order to maintain the appearance and health of the remaining trees. If site conditions are conducive to replacing the removed trees, the Zoning Administrator may require tree replacement.

1304. **Mitigation Policy.** Any tree removed without permit authorization must be replaced with three (3) trees, each of two (2") inch DBH, and of a species categorized as Significant. If the Zoning Administrator determines that an act of clear-cutting has occurred on site prior to issuance of a development permit, the property owner shall be required to replace the trees with Significant tree species, at a rate of one (1) tree of two (2") inch DBH tree per five hundred (500) square feet of open space, excluding the approved building area, any pre-existing open water features and storm water retention/detention areas.

If any property is sold, subsequent to the act of clear-cutting by the previous owner, the new owner shall assume responsibility for mitigation and it will be his responsibility, if he so chooses, to seek redress and recover costs from the previous owner under whom the act occurred.

1305. **Application For A Building Or Development Permit.** When an application for a building permit or development permit is submitted to the County, a tree plan for the development or alteration of any non-exempt parcel of land shall be submitted to the Zoning Administrator. No building or development permit shall be issued until the tree

plan has been reviewed and approved by the Zoning Administrator, who shall approve, approve conditionally or disapprove the plan. If the plan is disapproved or approved conditionally, the reasons for such action shall be stated in writing and signed by the Zoning Administrator. The Zoning Division shall retain a copy of the justification for these actions, and a copy shall be given to the applicant. On conditional approval, the Zoning Administrator may require the applicant to re-submit the plan with all recommended changes before granting final approval.

1305.1 Tree Plan Requirements. A tree plan shall include the following elements:

- 1305.101 location, DBH and species of all Significant and Landmark trees on site;
- 1305.102 designation of tree protection areas with identification of trees to be retained, and areas of tree replacement; notation of specifications for protection of trees to be retained during development; methods of tree protection for all tree protection areas, including tree fencing, erosion control, retaining walls, tunneling for utilities, aeration systems, transplanting and staking;
- 1305.103 indication of any Significant or Landmark trees to be removed;
- 1305.104 a tree replacement schedule showing the location, species and size of any replacement trees to be planted and existing trees or stands of trees used in the calculation;
- 1305.105 limits of clearing and land disturbance such as grading, trenching, etc., staging areas for parking, material storage, concrete washout, debris burn and burial holes;
- 1305.106 proposed location of all underground utilities should be indicated; if an irrigation system is utilized, the location of the lines and heads;
- 1305.107 specifications and provisions for maintenance and upkeep of trees upon completion of the project;
- 1305.108 the name, address and telephone number of the applicant and the following notes in large letters:

**CONTACT THE ZONING DIVISION AT (843) 545-3158 TO
ARRANGE A PRE-CONSTRUCTION CONFERENCE
WITH THE ZONING ADMINISTRATOR.**

**PRIOR TO ANY LAND DISTURBANCE.
ALL TREE PROTECTION MEASURES SHALL BE
INSTALLED PRIOR TO GRADING.**

1306. **Exceptions To These Regulations.** The following are exceptions:

- 1306.1 If any tree is determined by the Zoning Administrator to be diseased, injured or located in a manner that endangers the public health, safety or welfare, the Zoning Administrator may authorize immediate removal.
- 1306.2 Immediately after the event of a natural disaster such as a tornado, hurricane, storm, or flood, which results in catastrophic loss or damage to trees, lost or damaged trees may be removed without a permit. One tree of at least two (2”) inch DBH shall be replanted, within a one year period, for each tree removed. Only the Zoning Administrator shall determine catastrophic loss or damage.
- 1306.3 The operation of ongoing, managed timber production industries, and the ability of public utilities and electric suppliers to maintain safe clearances around utility lines shall be exempt from this Ordinance.
- 1306.4 The development and maintenance of golf courses, road rights-of-way, easements for utilities and drainage, wells, lift stations and water storage tanks shall be exempt from this Ordinance.