



TREE CONSERVATION PLAN CHECKLIST

The tree survey, tree protection and/or tree replacement plan may be combined on a single sheet in a set of site development drawings submitted for review by the City of Hapeville. However, if the size of a proposed development site is large and an extensive amount of information needs to be conveyed, the tree plans may be submitted as separate drawings along with the Site Development Plans.

All tree conservation plan(s) submitted for review shall include the items listed below, as applicable. **The City of Hapeville reserves the right to revise this checklist periodically as needed. A copy of this annotated checklist must be presented along with submittal of final tree plans for permitting.** Additional information may be requested by City staff as required on a case-by-case basis. Additional review/comment may be necessary upon receipt of the information as indicated below.

General Requirements:

- _____ 1. Plans prepared, stamped and signed by a Georgia registered Landscape Architect
- _____ 2. Site area, plan scale, and magnetic north arrow.
- _____ 3. Boundary survey/Property lines with topographic information, building setbacks, street/road rights-of-way, all applicable utility locations, and easements.
- _____ 4. Name, address, and phone numbers of the owner/developer of the land, land surveyor, landscape architect, arborist, and/or civil engineer.
- _____ 5. 24-hour emergency contact name and phone number.
- _____ 6. Title block showing project name, Land Lot(s) and District locations.
- _____ 7. Site location map.
- _____ 8. Total site acreage, acreage of disturbed area, and limits of proposed land disturbance.
- _____ 9. Provide calculations showing compliance with the Density Factor using the following formula (See example below):

Acreage x 100 Inches = Required Inches per Acre

Example: 1.2 Acres x 100 Inches = 120 Inches Required

The density factor shall be achieved through any combination of the following:

- counting existing Trees (inches measured at DBH) to be preserved with no impact to CRZ
- planting new Trees (minimum 2" Caliper) for lots that do not have the required 100 inches per acre

- _____ 10. If applicable to this project, reference the zoning case number and date, and compliance with zoning stipulations/conditions as required by City Council. Stipulations related to tree plan must be listed on the plan.

_____ 11. The locations of any state waters - with associated buffers and the limits of any proposed disturbance

_____ 12. Other comments:

Tree Conservation Plan:

_____ 1. Surveyed locations of all landmark-sized trees and their critical root zones (CRZ) labeled; inventoried by size, genus & species; and numbered on chart to correspond to tree numbers shown on plan. Show chart on plan.

_____ 2. Plan must show all existing trees 6" dbh or greater that are to be counted toward meeting density requirements; inventoried by size and species.

_____ 3. Locations of all landmark trees or stands of trees, and an indication whether they are to be removed or preserved. Minimum Size Criteria:

- a. **27 Diameter at Breast Height (DBH)** - Oak, Beech, Ash, Blackgum, Sycamore, Hickory, Maple (does not include Silver Maple), Pecan, Walnut, Magnolia (does not include Bigleaf Magnolia), Persimmon, Sourwood, Cedar, Cypress or Redwood
- b. **30 Diameter at Breast Height (DBH)** - Tulip Poplar, Sweet Gum, River Birch, Silver Maple or Pine
- c. **10-inch Caliper at DBH** - American Holly, Dogwood, Redbud or other genus as determined by the City Arborist such as Bigleaf magnolia

_____ 6. Critical root zones (CRZs) of landmark trees are to be represented on the plan by a circle corresponding to the size of the CRZ, with a radius equal to 12x the diameter of the tree trunk.

_____ 7. No construction activity within the CRZs of preserved trees. CRZ must be free of any cut, fill, impervious cover or trenching activity.

_____ 8. Show all tree protection fence locations. Silt fence and other erosion control devices should not be located within tree save areas.

_____ 9. Show tree protection fence detail.

_____ 10. Note/graphically indicate the locations of staging areas for parking, materials storage, concrete washout, debris burn, tub grinding, and burial holes on the Tree Plan (i.e. outside of any tree save areas).

_____ 11. The locations of existing and proposed improvements on commercial sites that may affect tree preservation zones including, but not limited to, structures, driveways, paving, cut and fill areas, detention/stormwater quality ponds, buffers, utility lines/easements (underground and overhead), and easements (storm drainage and sanitary sewer).

_____ 12. Landmark tree report prepared by ISA Certified Arborist, or registered forester. Report must include and/or accompany a site plan with locations of landmark trees, accurate size, genus & species, description of tree's condition, photographs to illustrate defects. (Digital format acceptable.)

_____ 13. This plan does not meet the spirit and intent of the City's Tree Conservation Ordinance. Discuss design alternatives with staff. Subject to further review and comment.

_____ 14. Other comments:

Tree Replacement Plan:

_____ 1. Include chart for landmark-sized trees ***not in landmark condition*** that are removed with no recompense requirement. Trees numbered on chart must correspond to trees numbered in field.

_____ 2. Include chart for landmark-sized trees ***in landmark condition*** that are removed. Trees numbered on chart must correspond to trees numbered in field. ***Inch for inch replacement is required*** - use 4" cal. trees of comparable species at a rate equal to the inches (DBH) of the landmark tree removed.

Example: 32" DBH Oak / 4" = 8 (4" caliper) Oak Trees to be Planted

_____ 3. Show calculations for total inch for inch landmark tree replacements

_____ 4. Locations of all trees to be planted on site to meet density requirements.

_____ 5. Locations of all tree protection areas and tree protection fencing.

_____ 6. Replacement trees must be ecologically compatible with site. Replacement trees shall be of same or similar species as those trees removed when practical.

_____ 7. Trees proposed for replanting should be a species selected from the tree species list shown in Appendix A. Use of a species not shown on list is subject to approval by City staff.

_____ 8. Plant schedule/list showing the type of tree/plant material (common and botanical name), size, quantities, inch per tree, total inches, percent genus (not species), and the following planting notes:

- a. All deciduous trees (does not include multi-trunk trees) to have straight, single leader, Healthy, Good Form
- b. All deciduous trees (multi-trunk) to have a minimum of 3 equal size trunks, Healthy, Good Form
- c. All evergreen trees to be Full to Ground, Healthy, Good Form

_____ 9. Replacement tree planting within utility, storm drainage, sanitary sewer, or other types of easements is not acceptable. (Understory trees acceptable to Utility Company are allowed where there are existing overhead power (OHP) lines along road frontages)

_____ 10. Locations of all required undisturbed buffers, landscape strips, and landscape buffers. Permanent structures are not permitted in landscape strips/buffers (i.e. storm drainage structures, light fixtures, monument signs, etc.).

_____ 11. When **fewer than 10 trees** are proposed for replanting, **one species** may be specified.

_____ 12. When **10 to 50 trees** are proposed for replanting, a minimum of **3 species** of trees is required, with no one genus representing more than 30% of the total required replacement inches.

_____ 13. When **more than 50 trees** are proposed for replanting, a minimum of **5 species** of trees is required, with no one genus representing more than 30% of the total required replacement inches.

_____ 14. When 10 or more trees are to be planted, no single genus shall represent more than 30% of the required replacement inches. Show genus cap percentage on planting schedule.

_____ 15. Position parking lot trees to achieve maximum shading effect. Discuss the placement of trees to achieve greater energy conservation.

_____ 16. Show parking lot striping on the tree replacement plan.

_____ 17. Parking areas with 5 or more spaces require parking lot trees. Provide graphic representations/calculations for the following:

- a. A sufficient number of 3" Caliper (minimum) Trees must be planted in interior portions of parking lots so that no parking space is more than fifty (50) feet from a parking lot Tree. Show a fifty-foot radius dashed circle for each Parking Lot Tree on Tree Replacement Plan to verify graphically. (See Appendix B).
- b. Up to 20% of Parking Lot Trees may be planted along the perimeter of the parking lot.
- c. Landscaped islands shall terminate each row of parking and all landscaped islands planted with Trees shall provide a minimum of 200 sf per Tree.
- d. Light poles are not permitted in parking lot islands, peninsulas and medians unless they are a minimum of 20' from any planted Tree (See Appendix B).

_____ 19. Parking lot trees must be minimum 3" caliper and of a minimum height commensurate with species appropriate horticultural standards.

_____ 20. Parking lot lighting/light pole locations/underground electric lines should not be in conflict with tree planting areas. Light poles are not permitted in parking peninsulas, islands and medians where parking lot trees are proposed. Show light pole locations on tree replacement plan.

_____ 21. Minimum 50% of total replacement inches shall be overstory trees.

_____ 22. Show planting and staking details.

_____ 23. Note type of irrigation to be used.

- If hand-watering, show locations of hose bibs, water faucets, or quick couplers that will be used for this purpose.
- If an automatic irrigation system is proposed, provide note on plans.

_____ 24. This plan does not meet the spirit and intent of the City's Tree Conservation Ordinance. Discuss design alternatives with staff. Subject to further review and comment.

_____ 25. Other comments:

Tree Conservation Plan Notes:

- The inches per acre shown on the Tree Preservation and/or Replacement Plan(s) must be verified prior to the issuance of the Certificate of Occupancy. Contact the City of Hapeville at 404-669-2120 to arrange a Site Inspection.
- All Tree Protection Devices must be installed and inspected prior to start of any Land Disturbing activity and shall be maintained until final landscaping is installed and Certificate of Occupancy is issued. Contact the City of Hapeville for an inspection.
- The site contractor shall coordinate service routing of all gas, telephone, and electrical lines with the appropriate utility company. All construction must comply with each utility's standards and specifications and not interfere with tree planting sites or existing trees to be preserved.
- Tree protection and replacement shall be enforced according to the City of Hapeville standards. Any field adjustments to tree protection device types or locations or substitutions of plant materials shown on the approved plans are subject to the review and approval of the City.
- All buffers shall be replanted to buffer standards where sparsely vegetated or where disturbed. Replantings are subject to City of Hapeville approval.
- A Maintenance Inspection of Trees will be performed after one (1) full Growing Season from the date of the Final Construction Inspection. Project Owners at the time of the Maintenance Inspection are responsible for Ordinance Compliance.
- Label at least one tree of each variety with a securely attached water-proof tag bearing legible designation of Botanical and Common Name.



City of Hapeville

Tree Conservation Ordinance

November 15, 2019

Section 93-2-14 - TREE CONSERVATION ORDINANCE

GENERAL INFORMATION

The Mayor and Council of the City of Hapeville hereby finds that the protection and preservation of Trees, the planting of new Trees and other landscape material as part of the land development process is a public purpose and provides for the public health and general welfare. This Ordinance is intended to further the City's policy that all development sites where Trees are most commonly removed will achieve upon project completion, a uniform standard related to preserved Tree coverage, planted Tree coverage and Buffers.

A healthy urban forest will increase the fiscal and psychological value of property, reduce the urban heat island effect and contribute to the community's aesthetic quality. These benefits are crucial to the long-term health and welfare of Hapeville's citizens, businesses, workers, and visitors.

Section (1) - Purpose

The purpose of this Ordinance is to firmly establish the value of Trees to the community and to promote the health, safety, and general welfare of the public by recognizing the standards within this Article. Tree canopy preservation and Tree replacement will be promoted as an integral part of the land development and construction process in the City of Hapeville. Specific benefits to our citizens attributed to Trees include:

- Trees facilitate a harmonious community and help to conserve natural resources as well as provide wildlife habitats.
- Trees provide a more attractive place to live and enhance the aesthetic character of the community.
- Trees mitigate harmful vehicle emissions by reducing carbon dioxide levels.
- Trees are recognized for their importance in the production of oxygen, shading and cooling, noise and wind reduction, prevention of soil erosion, dust filtration and fostering improved air quality
- Trees contribute to the economic value of real property.
- Trees help reduce the glare of motor vehicle lights and enhance the appearance of open automobile parking areas and lands used for commercial, public/institutional, office, industrial, and residential purposes.
- Trees can enhance the natural functions of streams and related buffers.

Section (2) - Definitions.

All words in these standards have their customary dictionary definition except as specifically defined herein. The words "shall" and "must" are mandatory, and the words "may" and "should" are permissive.

Basal Area: A forestry industry standard used to describe the cross-sectional area of a Tree expressed in square inches, of a Tree measured at four and one-half (4.5) feet above the ground or diameter at breast height (DBH).

Berm: A mound of soil, either natural or man-made, used to screen one (1) site or property from the view of another.

Boundary Tree: Boundary tree means a tree 20 inches DBH or larger located on any part of a property adjacent to a permitting property with any portion of the root plate extending into the permitting property (see Root plate.) Boundary trees must be in good health as determined from the vantage point of the property to be developed (pre-construction digital photographs required). This provision shall not authorize the trespass on private property abutting the site.

The applicant shall notify the adjoining property owner of a Boundary Tree in writing that the Root Plate of a Boundary Tree is to be disturbed and if the tree should thereafter be damaged or die due to construction impacts, it will be handled as a civil matter between the Applicant and the Boundary Tree owner. The Applicant must provide a copy of any letter and the certificates of mailing prior to permit issuance.

Buffer: If not defined elsewhere in the code, a naturally existing area, a landscaped area or a combination of both designated for screening or around the perimeter of a parcel provided to soften the view of two (2) adjacent lots or parcels from one another.

Buildable Area: Portion of a parcel excluding the required setbacks, easements, planting areas, environmental (streams, wetlands) and areas within the future right-of-way.

Caliper (or Cal.): American Association of Nurseryman standard for trunk measurement of nursery stock. Caliper of the trunk shall be taken six (6) inches above the ground for up to and including four-inch Caliper size, and twelve (12) inches above the ground for larger sizes.

City Arborist: The City's designee responsible for administering the provisions of the Tree Conservation Ordinance on behalf of the City. The City Arborist shall not provide services to applicants (i.e. Applicants must engage a Qualified Professional to complete Tree Conservation Plans submitted to the City).

Critical Root Zone (CRZ): The minimum area beneath a Tree which must be left undisturbed in order to preserve a sufficient root mass to give a Tree a reasonable chance for survival. For the purpose of this Ordinance, the CRZ of any given Tree on the applicant's property shall be represented by a concentric circle with a radius equal to twelve (12) times the diameter of the Tree trunk. No inches will be given if these minimum criteria are not met.

Deciduous Tree: A Tree which sheds leaves annually.

Density Factor: A unit of measure used to prescribe the calculated Tree coverage on a site. The site density factor for areas within the corporate limits of the City of Hapeville is one hundred (100) inches per acre. Please note: Trees in the one-hundred-year floodplain, wetlands and 50' and 25' stream buffers shall be included in the acreage calculation and shall remain protected and undisturbed on-site during construction.

Diameter at Breast Height (DBH): Means the standard measure of a Tree size for those Trees existing on a site that have a Caliper of at least two (2) inches at a height of four and one half (4.5) feet above the ground. If a Tree has 2 or more trunks below four and one half (4.5) feet above the ground, measure the narrowest point below the split.

Genus Cap: A term used to describe a limit determined by this Ordinance in which the quantity of a particular genus cannot exceed thirty (30) percent of the total number of Replacement Trees on a site. This limit is put in place to prevent the creation of a Monoculture.

Land Disturbance Permit (LDP): A permit necessary to begin land-disturbing activity.

Landmark Tree: Any Tree as defined within *Preservation of Landmark trees - Section 3 (1)*.

Landscape Plan: A scaled plan that clearly delineates buildings, vehicular use areas, and displays and describes all proposed planting as required per zoning conditions and/or the Tree Conservation Ordinance.

Lot: A measured parcel of land having fixed boundaries and designated on a plot or survey.

Monoculture: A plant culture (i.e. vegetation) that results from growing only one (1) type of plant which creates the opposite condition of biodiversity and can sometimes be responsible for the spread of plant diseases.

Opaque Buffer: If not defined elsewhere in the code, a landscaped area planted in such a manner as to be impenetrable to view, or so obscuring to view that features, buildings, structures and uses become visually indistinguishable.

Open Space: Unoccupied portion of a lot or building site that is open to the sky and may contain outdoor structures or recreational facilities.

Overstory Tree: Means those Trees that compose the top layer or canopy of vegetation and will generally reach a mature height of greater than forty (40) feet.

Parking Lot Trees: Trees and shrubs required pursuant Requirements - General Plan Requirements Section 1 b.

Pervious Area: Area of a parcel or lot left over after Impervious Areas (see Chapter II definitions) are subtracted.

Replacement Planting: The planting of Trees on a site that before development had more Trees, and after development shall have fewer Trees per acre. (Please note: All properties applying for an LDP must meet the minimum 100 inches per acre whether a site had Trees prior to development).

Replacement Tree: A new Tree planted on a site outside of a Tree Protection Area that is used to meet the required 100 inches per acre.

Residential Lot: A lot shown on a subdivision plat as recorded in the records of Fulton County.

Root Barrier: For the purpose of this Ordinance, a mechanical guide (typically hard plastic) that redirects root down and away from sidewalk driveway or other built structures. Use of root barriers will be at the sole discretion of staff on a case by case basis.

Root Plate: The area of the root zone comprised of pedestal roots, the zone of rapid taper and roots under compression, the directional radius of which based upon the Tree trunk diameter at 4.5 feet above the ground. The root plate will typically be represented by a concentric circle centering on the Trees trunk with a radius equal in feet to one-half times the number of inches of the trunk diameter. (Failure of the Tree could result if roots in this area are damage or destroyed. Example: The root plate radius of a 20-inch diameter Tree is 10 feet.)

Screening: Solid fencing, walls, berms, or dense vegetation used to conceal a Lot or part thereof from view.

Sidewalk Landscape Area: The portion of a sidewalk area, adjacent to the street curb and reserved for the placement of Trees, groundcover, and street furniture including utility poles, waste receptacles, fire hydrants, traffic signs, traffic control boxes, Tree grates, newspaper boxes, bus shelters, bicycle racks

and similar elements in a manner that does not obstruct pedestrian access or motorist visibility. Note: The following may cross in a perpendicular manner but shall not be located within the Sidewalk Landscape Area: storm drain lines, sanitary sewer lines, water lines, electrical lines and any other utilities not specifically mentioned.

- If existing underground utilities are present, staff may allow alternative proposals on a case by case basis.
- In the event that existing overhead power lines prohibit the planting of required Overstory Trees, an appropriate Understory Tree species may be selected and approved for required inches according to accepted horticultural standards and as approved by the impacted utility (See Appendix A).

Site Plan: Site plan required by builder's representative for records/documentation at the time a development permit is applied for/purchased (Single Family, Multi-Family and Commercial).

Tree: Any living, self-supporting woody or fibrous plant which normally obtains a diameter breast height (DBH) of at least three (3) inches and typically has one (1) main stem or trunk and many branches and shall be on the approved City of Hapeville Street Tree List (See Appendix A)

Tree Bank: Fund established to purchase, install, and maintain Trees throughout the City's public areas, including parks, green spaces, right-of-way, and government building sites as directed by the Community Services Director.

Tree Save Area: Means a protected area designated for the purpose of meeting the 100 inches per acre requirements, saving/preserving trees in their natural state.

Tree Protection Fencing: A barrier installed at and around the perimeter of a Tree Protection Area to prevent intrusion of construction-related activities in which fencing is a minimum of four (4) feet in height and is at the CRZ.

Understory Tree: A Tree that, under normal forest conditions, may grow to maturity beneath overstory Trees and will generally reach a mature height of at least ten (10) feet but less than forty (40) feet.

Section (3) - Applicability

The regulations included in this Ordinance shall apply to all properties located within the City of Hapeville unless otherwise noted in this Section.

Single-Family Residential outside of Land Disturbance Permit activities

- The removal of five (5) or fewer Trees, other than Landmark Trees or Trees needed to meet the minimum 100" (inches) per acre, is allowed with a permit (no fee associated with this permit) on any Residential Lot within a single calendar year.
- Exemptions will be allowed to the 5 Tree per year limit by City staff if the property owner must remove Trees in order to build a newly permitted structure, or to build an addition to or to make improvements to an existing structure, or to improve the health of other Trees in the landscape. The property owner must ensure the minimum 100" per acre standard is achieved.

- Trees under 3" Caliper that were not planted to meet the minimum 100 inches per acre or a condition of zoning or the Architectural Design Standards can be removed without a permit.
- Regarding private property owners and/or Residential Lots not incidental to development, a Tree removal permit is required for Landmark Tree removal. A permit will be granted if the Landmark Tree is clearly dead, dying, diseased with no chance for recovery or presenting imminent danger to life, limb or property. The property owner shall be required to provide a letter stating such from a Certified Arborist.
- Unless a tree or portion of a tree threatens the right-of-way or is on public property, the City will not have any responsibility for requiring property owners to remove trees.

Non-Single-Family Residential Outside of LDP activities:

- Any new construction, renovation, or alteration of a building that results in an expansion or alteration of the total square footage of the building footprint shall invoke the requirements contained in the Tree Conservation Ordinance. The Tree Conservation Ordinance shall be enforced by the City, designated agent, and/or the Municipal Court of the City of Hapeville.
- Should a shared parking agreement be undertaken so that the parking requirements of a property are provided by a parking lot on a separate parcel, said parking lot must come into compliance with the requirements of the Tree Conservation Ordinance.
- If Landmark Tree removal is requested, refer to the standards set forth in the Tree Conservation Ordinance.
- Trees under 3" Caliper that were not required by Ordinance or conditions of zoning or the Architectural Design Standards can be removed without a permit.
- Trees 3" Caliper and greater that do not meet the Landmark Tree criteria require a tree removal permit. City staff shall determine whether portions of the Tree Conservation Ordinance apply on a case by case basis.
- Unless a tree or portion of a tree threatens the right-of-way or is on public property, the City will not have any responsibility for requiring property owners to remove trees.

REQUIREMENTS

Section 1 - General Plan Requirements

1. A Tree Conservation & Replacement Plan shall be submitted and approved as part of the pre-development site plans as required by the provisions of this Ordinance. **No plans shall be accepted by City staff unless Tree Protection and/or Tree Replacement Plans are included in the initial submittal.** All commercial parcels and Residential Lots (if applicable) under development shall comply with Street Tree, Parking Lot Tree and Buffer Tree requirements regardless of whether the 100" per acre has been met with existing trees. Street Tree requirements are subject to the Architectural Design Standards and the Zoning categories identified within the City of Hapeville Zoning Ordinance.

- (a) Any areas with Trees between the sidewalk and back of curb shall be designed so that required Street Trees are planted in a suitable soil volume. Planting environment shall provide an average soil depth greater than or equal to three (3) feet. Each Street Tree shall have a minimum area suitable for root growth of two hundred square feet provided.
 - In addition to or in conjunction with the Tree Protection Areas, each single-family residential lot 7,500 sf or greater shall contain a minimum of (2) two 2" Caliper overstory Trees, at least one of which must be located in the front yard. Staff may allow an understory tree in the front yard if there are unforeseen constraints such as overhead powerlines.
 - In addition to or in conjunction with the Tree Protection Areas, each single-family residential lot less than 7,500 sf shall contain a minimum of (2) two 2" Caliper Trees (1 overstory and 1 understory), at least one of which must be located in the front yard.
- (b) Parking Lot Trees shall be provided in landscape islands in parking areas proposing ten (10) or more spaces. Parking areas with fewer than 5 spaces and multi-level parking decks are exempt.
- (c) A sufficient number of (minimum) 3" Caliper Trees must be planted in interior portions of parking lots so that no parking space is more than fifty (50) feet from a parking lot Tree. Show a fifty-foot radius dashed circle for each Parking Lot Tree on Tree Replacement Plan to verify graphically. Up to 20% of Parking Lot Trees may be planted along the perimeter of the parking lot. Landscaped islands shall terminate each row of parking and all landscaped islands planted with Trees shall provide a minimum of 200 square feet per Tree. Light poles are not permitted in parking lot islands, peninsulas and medians unless they are a minimum of 20' from any planted Tree (See Appendix B for Typical Details).
- (d) All parking areas directly adjacent to public Rights of Way shall have a minimum of one (1) row of shrubs to create a visual screen. The shrubs shall be installed at 24" height minimum and shall be maintained between 30- 48" height. (See Appendix B for Typical Detail)
- (e) The Tree Replacement Plan shall be designed so that all Parking Lot Trees are planted in a suitable soil volume. Planting environment shall provide an average soil depth greater than or equal to three (3) feet. Each Parking Lot Tree shall have a minimum area suitable for root growth of two hundred (200) square feet provided; however, if this minimum square footage is not provided, subsurface soil cells shall be incorporated into the Tree Replacement Plan. All applicable details to show an industry standard subsurface soil cell design shall be attached as part of the Tree Replacement Plan. (See Appendix C)

TREE REPLACEMENT AND PROTECTION

Section 1 - Tree Density Requirements

The applicant shall provide a development plan demonstrating both responsible canopy preservation and Tree replacement inches on sites submitted for development. Any Trees saved (with undisturbed CRZ's) will receive appropriate inches. Please note: All properties applying for an LDP must meet the minimum 100 inches per acre whether or not a site had Trees prior to development.

All Trees designated for replacement shall be on an inch for inch basis. The density of 100 inches per acre may be achieved as follows:

- counting existing Trees (inches measured at DBH) to be preserved with no impact to CRZ

- planting new Trees (minimum 2" Caliper) for lots that do not have the required 100 inches per acre

Formula:

Acreage x 100 Inches = Required Inches per Acre

Example: 3.2 Acres x 100 Inches = 320 Inches Required

The minimum required inches per acre shall be calculated and established pursuant to the formula as shown above and calculations shall be in a prominent location on the Tree Preservation and Replacement Plan. All applicable sites brought in for land development must maintain a minimum of 100 inches per acre. Street Trees and/or parking lot Trees planted after the minimum required inches per acre for the site has been satisfied can be counted toward Landmark Tree recompense.

- For planted evergreen trees, the following conversions shall apply:

Evergreen Tree Inches:	Evergreen Tree Sold by Height:
2"	6' Minimum
3"	8' Minimum
4"	12' Minimum
5"	16' Minimum
6"	18' Minimum

- For multi trunk trees; measure the narrowest point below the split
- Tree form shrubs shall not be given credit.

Section 2 - Preservation of Existing Trees

An emphasis of this Ordinance is the preservation of as many existing Trees as possible. Thus, inch for inch credit will be given for preserving existing Trees. No credit will be allowed for shrubs or for Trees with impact to their CRZ. Please note: Administrative variances for encroachment into CRZ shall not be considered.

- All Trees to be counted toward meeting the required 100 inches per acre must be inventoried. Existing Tree inventory information (caliper at DBH and Genus) must be shown on the Tree Protection Plan and must be provided by an ISA certified arborist, forester, surveyor or landscape architect along with a statement that the provider conducted the inventory in the field. If the plan is unclear to City Staff, a Tree survey shall be required. Please note: Landmark Trees must have a surveyed location.

2. Tree Protection Fencing is required to be placed at the CRZ for all Trees to be saved and locations shall be clearly delineated on the Tree Protection Plan. All Tree Protection Fencing shall be installed prior to and maintained throughout the land disturbing and construction process and should not be removed until final landscaping is installed, inspected and final approval granted by the City.
3. Credit inches will be given for Trees preserved in mandatory stream buffers (City and State as applicable). Stream Buffers shall remain undisturbed. The area (measured in acres) of the undisturbed stream buffers shall be included in the total site acreage when calculating required inches per acre.
4. To aid preservation efforts, landowners shall have the option of moving existing Trees to prevent their damage or destruction by development activities. To receive credit for transplanted Trees, the following standards must be adhered to:
 - (a) Trees must be less than ten (10) inches Caliper measured six (6) inches above grade;
 - (b) Trees must remain within the planting areas of the parcel;
 - (c) Trees shall not be moved to or from stream buffers or wetlands
5. Tree Protection Areas for subdivisions should be located in common areas, or in buffers required to be undisturbed by zoning or other regulations, or within building setbacks. If Tree Protection Areas must be located on individual lots, the lots must be of sufficient size to reasonably expect the Trees to be preserved at the completion of the building process. *Please Note: Staff shall have sole discretion over whether the lot is of sufficient size.*
6. With regard to subdivision developments, the City shall require that improvements be located so as to result in minimal disturbance to the natural topography of the lots and the protection of a maximum number of mature Trees on the lot. Damage to mature Trees located within setback and required yard areas be minimized as much as possible under the particular circumstances, as determined by City staff.
7. Every lot in a subdivision shall have Trees, either preserved or planted for which an LDP is obtained after the adoption of this Ordinance. These Trees can be counted as part of the required 100 inches per acre for the development. All planted Trees must be a minimum of two-inch Caliper and must be shown on the required Site Plan. This requirement shall apply to the developer or homebuilder, whoever is the responsible party at the issuance of the Certificate of Occupancy for the individual lot.

Section 3 - Preservation, Replacement and Removal of Landmark Trees

A Landmark Tree is any Tree which qualifies for special consideration for preservation due to its size, type and condition. The following criteria are used by the City to identify Landmark Trees. Both the size and condition criteria must be met for a Tree to qualify.

1. Minimum Size Criteria:

- a. 27-inch Caliper at DBH - Oak, Beech, Ash, Blackgum, Sycamore, Hickory, Maple (does not include Silver Maple), Pecan, Walnut, Magnolia (does not include Bigleaf Magnolia), Persimmon, Sourwood, Cedar, Cypress or Redwood

b. 30-inch Caliper at DBH - Tulip Poplar, Sweet Gum, River Birch, Silver Maple or Pine

c. 10-inch Caliper at DBH- American Holly, Dogwood, Redbud or another genus as determined by the City Arborist such as Bigleaf magnolia

2. Condition Criteria:

a. Life expectancy greater than 15 years;

b. Relatively sound and solid trunk with no extensive decay or significant structural deficiencies;

c. No more than two major and several minor dead limbs (excluding pine for minor limbs); and

d. A radial trunk dieback of no more than 20% or a canopy dieback of no more than 30%.

3. Small Trees can be classified as Landmark if of a rare or unusual species, of exceptional quality, or socio-historical significance. Small Trees may also qualify as Landmark if used in a landscape as a focal point of the design. In order to claim this credit, the applicant must submit a letter from a certified Arborist stating that the Tree(s) meet these qualifications (See #5 this Section).

4. An Arborist report for each Landmark Tree that is shown to be impacted by a proposed development requiring an LDP must be submitted to the City to determine whether that Tree meets the condition criteria for Landmark status. The report must be prepared and signed by a Certified Arborist or a registered forester. The report must contain the following information:

- Site plan showing an accurate surveyed location of the Tree;
- Identification/verification of the Tree's size, genus and species;
- Description of the surrounding site conditions;
- Detailed description of the Tree's condition; and
- Digital photographs to illustrate any defects which would disqualify the Tree from Landmark status.

The final determination of Landmark Tree status will be made by City staff after reviewing the report.

(a) If a Landmark Tree is proposed for removal without an associated LDP either by a single-family homeowner or a business, a plan or written documentation indicating the reason for removal must be submitted to the City. The final approval for removal will be made by City staff on a case by case basis.

(b) The removal of any Landmark Tree impacted by a proposed development must be mitigated by replacing the removed Landmark Tree with minimum four-inch Caliper Trees of comparable species on an inch for inch replacement basis

Example: 32" Oak would require replanting six (8) 4" Caliper Trees $[32 / 4 = 8]$. These recompense Trees are in addition to the minimum 100 inches per acre for a particular site.

(c) Any person who removes a Landmark Tree in violation of this Ordinance shall be assessed a fine (See Section #5). Regarding Landmark Trees removed after being designated for preservation on an approved plan, the removed Tree must also be replaced on an inch-for-inch basis x 2 with Tree species with potential for comparable size and quality, regardless

of the 100 inches per acre requirement. If a Tree is removed without approval and there is no evidence of its condition, size alone will be the determining factor for replacement. Regarding Landmark Trees removed on a Residential Lot that is not currently being developed, the fine shall be paid as referenced, however there shall be no requirement for replacement of the Landmark Tree.

5. In order to encourage the preservation of Landmark Trees and the incorporation of these Trees into the design of new development projects, the following incentive is offered.
 - (a) Preserved Landmark Trees with undisturbed CRZ will receive 1.5 x inches DBH. (30" oak x 1.5 = 45" Inches)

Under no circumstance will this incentive allow the requirements of the Tree Conservation Ordinance to be reduced administratively.

Section 4 - Tree Protection Standards.

Allowing enough space for a Tree's root system is a critical factor in Tree protection throughout the development process. Disturbance within this critical root zone (CRZ) can directly affect a Tree's chances for survival. In order to protect Trees, the following standards shall apply:

1. The CRZ for each Tree or group of Trees shall be represented on the plan by a circle the size of the CRZ (see definition Critical Root Zone).
2. Site layout should be designed to accommodate Tree Protection Areas.
3. Construction activities shall be arranged to prevent encroachment into Tree Protection Areas.
4. No disturbance whatsoever shall occur within Tree Protection Areas without prior written approval by the City. Disturbance permitted with approval from the City shall be limited to general maintenance (i.e.: removal of dead Trees and/or cleaning of underbrush by hand). Use of machinery shall not be allowed within the Tree Protection Area.
5. Active protective Tree fencing shall be installed along the outer edge of and surrounding the CRZs of all Landmark Trees or stands of Trees designated for preservation prior to land disturbance.
6. Tree Protection Fencing shall be minimum four (4) feet high and made of orange laminated plastic netting with wooden posts and rail fencing or other equivalent material as approved by the City.
8. All protection zones should include signage in English and Spanish that identifies the areas as Tree protection and preservation zones and include the name and phone number of the developer or designated agent.
9. All Tree save fencing must be installed prior to any clearing, grubbing, or grading and must be maintained in functioning condition throughout all phases of development and construction.
10. Once Tree Protection Areas are established and approved, any changes are subject to review and approval by the City.
11. Developer shall notify any adjacent property owner a minimum of 14 days prior to construction dates (copy of notification to be provided to City for permit file) if visual assessment identifies

boundary tree root plates are potentially within the proposed limits of disturbance (See root plate definition). Any and all subsequent tree matters shall be a civil matter between the property owner and the developer.

Section 5 - Tree Replacement Standards.

1. The replacement of Trees shall occur within the required yards, Buffers, Open Space, parking lots, and landscape areas, as specified in the Zoning Ordinance and Tree Conservation Ordinance. The following standards for replacement will be used to evaluate proposed Tree planting plans:
 - Existing Tree coverage, size, and type;
 - Number of Trees to be removed from the lot or parcel;
 - Area to be covered with structures, parking, and driveways;
 - Grading plan and drainage requirements;
 - Character of the site and its environs.
2. Replacement Trees shall be ecologically compatible with the intended growing site, contribute to the diversity of the urban forest, and add to the overall aesthetic quality of the City.
3. The spacing of Replacement Trees must be compatible with spatial site limitations with responsible consideration towards species sizes when mature. Typical spacing for Overstory / Street Trees is thirty (30) feet on center, with no overstory Tree being planted less than twenty-five (25) feet on center from any other Tree. Spacing of Understory Trees and/or Trees in parking lots shall be subject to approval of the City and within accepted horticultural standards.
4. If existing overhead power lines prohibit the planting of required Overstory Trees, an appropriate Understory Tree species may be selected and approved for required inches according to accepted horticultural standards and as approved by the impacted utility (See Appendix A).
5. Trees selected for planting may be a species from the recommended Tree species lists shown in the appendices. Use of a species not shown on these lists is subject to approval of the City, according to accepted horticultural standards (See Appendix A).
6. Replacement Trees shall be a minimum two-inch Caliper measured six (6) inches above grade and be protected by a twelve-month guaranteed maintenance surety. (110% of installed amount) beginning at the date of planting.
7. Planting of Replacement Trees within utility, storm drainage, or sanitary sewer easements is not acceptable and no credit will be allowed toward the required inches per acre. City Staff shall determine whether or not the applicant will be required to install Root Barriers to prevent future conflicts for trees planted directly adjacent to proposed easements or utility locations.
8. Trees and plants selected for planting must meet the minimum requirements as provided in the "American Standard for Nursery Stock" (ANSI Standards latest edition).
9. Tree planting may be delayed up to six (6) months in the case of unfavorable climate conditions (drought, flood, extreme heat or cold). Property owners must provide the City with a performance bond (See #6 this Section) that identifies a target date for when the required numbers, sizes, and species of Trees will be planted to meet the requirements of this Ordinance.

10. Each development site (parcel) should contain Trees of sufficient number, size, and type to achieve the minimum required 100 inches per acre, which is determined according to the size of the parcel and is intended to be consistent across uses and underlying zoning categories. Total replacement units should be gathered by using as diverse a palette of species of Trees as possible. However, a minimum of fifty (50) percent of the total replacement units required for any parcel must be achieved in the form of Overstory Trees. When fewer than ten (10) Trees are shown to be planted on a project, one (1) species may be specified. When ten (10) to fifty (50) Trees are shown, a minimum of three (3) species of Trees are required. When more than fifty (50) Trees are shown, a minimum of five (5) species of Trees are required.
11. When ten (10) or more Trees are to be planted, no single genus shall represent more than thirty (30) percent of the required inches per acre.
12. Buffer Planting Standards are as follows:

An Opaque Buffer is a designated area along a property line that is required to be planted for the purpose of Screening. Buffers may be required as a condition of zoning or in areas where incompatible land uses exist (i.e. commercial adjacent to residential).

The Opaque Buffer shall consist of evergreen plant materials that must form an eighty (80) percent visual barrier within two (2) years and a one hundred (100) percent visual barrier within five (5) years. Trees must be minimum six (6) feet height at installation, and shrubs must be minimum twenty-four-inch height at installation.

- Existing Buffer to remain undisturbed: Sparsely vegetated or previously disturbed portions of this undisturbed, existing buffer must be replanted to comply with the definition above;
- Buffer width twenty (20) feet or less: This buffer shall consist of a minimum of one (1) row of Evergreen Trees and one (1) row of evergreen shrubs (See Appendix B);
- Buffer width twenty-one (21) to thirty-five (35) feet: This buffer shall consist of a minimum of two (2) rows of Evergreen Trees and one (1) row of evergreen shrubs (See Appendix B);
- Buffer width +35': This buffer design shall be subject to approval by the City of Hapeville
Evergreen Trees planted within buffer areas may be counted for inches per acre credit

Section 6 - Tree Removal.

Tree removal should be considered a secondary option for meeting the requirements of this Ordinance and should be pursued only if all avenues to preservation have been exhausted.

1. The Tree is in the buildable area or street right-of-way of a parcel or lot on which improvement is to be made and the Tree unreasonably restricts the permitted use of the property;
2. The Tree is diseased, injured beyond restoration, in danger of falling, or interferes with utility services.
3. If a developer believes they have sufficient reason to remove any trees beyond the impacts of the limits of disturbance or the buildable area, the developer may request permission from the Planning Commission to remove said trees. If granted approval, the applicant shall pay a fee in to the tree bank based on the fee schedule in [Implementation, Enforcement and Penalties Section 2] for each caliper inch of tree removed. In addition, the applicant shall still be responsible for meeting the 100" caliper per acre requirement for the lot.

All commercial tree stumps shall be removed, and soil shall be replaced to match existing grade. Residential stumps visible from the public Right-of-Way shall be cut back to the surrounding existing grade or professionally ground.

Section 7 - Tree Species

A diversity of Tree species facilitates the long-term health of the urban forest. Lists of Tree species deemed acceptable by the City of Hapeville for use in meeting the requirements of this Ordinance are found in Appendix A (City of Hapeville Tree List)

IMPLEMENTATION, ENFORCEMENT AND PENALTIES

Section 1 - Public Trees

No person shall remove, destroy, break, cut, or deface any Tree or shrub growing in any public right-of-way, easement or city park under any circumstances. No person shall directly or indirectly place stone or cement or similar substances about any Tree growing in the public right-of-way which impedes the entrance of water and air to the roots of the Tree. No person shall attach or place any rope, wire, sign poster, handbill or any other thing on any Tree or shrub growing in any public right-of-way or city park. In the case of erection, demolition, or repair of any structure, the developer/ owner shall implement best management practices per accepted industry standards around all nearby Trees in a public right-of-way to prevent harm or injury.

Section 2 - Tree Preservation Trust Fund

This Ordinance hereby establishes the Hapeville Tree Bank. The Tree Bank will be used exclusively to purchase, install, and maintain Trees throughout the City's public areas, including parks, green spaces, right-of-way, and government building sites and, at the direction of the Community Services Director to improve the City's parks and/or green spaces.

1. Occasionally a project site does not have the capacity or will not bear the required 100" per acre of Trees. If a property owner or developer cannot meet the minimum site density requirement for Tree replacement and/or Landmark Tree recompense, and with Planning Commission approval, a mitigation fee for each Tree required by this Ordinance but not planted will be paid to the Tree Bank. A schedule of mitigation fees is presented below:

Replacement:	Mitigation Fee
Non-Recompense (Inches Per Acre)	\$150.00 per inch
Non-Recompense (Inches Per Acre) Outside the buildable area	\$175.00 per inch
Recompense (Landmark Tree Inches)	\$200.00 per inch

Example for Non-Recompense Mitigation Fee:

.5 Acres x 100 Inches = 50 Inches Required

45 Inches planted or preserved

5 Remaining inches Paid to Tree Bank

5 x \$150.00 = \$750.00 Paid to Tree Bank

Example for Landmark Tree Recompense Mitigation Fee:

(2) 30" Specimen Trees in Good Condition Removed (Assume Inches per Acre is met)

20 Inches - (5) 4" caliper Trees planted

10 remaining inches Paid to Tree Bank

10 x \$200.00 = \$2,000.00 Paid to Tree Bank

2. A fine for each protected tree or Landmark Tree removed without a permit issued by the City will be paid to the Tree Bank. Fine amounts will be based on the Fee Schedule shown above.
*From time to time the mitigation fees shown above may be updated based on market values.

Section 3 - Easements

The City is hereby authorized to enter into agreements with the owners of private property located within the City for the purpose of acquiring easements to plant Trees. Private property owners shall acquire ownership of Trees after planting provided agreement to maintain the Trees is reached and the City is absolved of any liability attributable to the planting or presence of the Trees. No agreement may be longer than two (2) years and all shall limit the City's interest to an area sufficient to allow planting of Trees.

Section 4 - Inspection

1. Every development within the City shall be required to undergo landscape inspection by the City's designated agent prior to the issuance of a certificate of occupancy. The inspection will determine whether the Tree preservation and/or replacement plan has been implemented as required by this Ordinance. At the time of inspection, the City shall collect an inspection fee not to exceed \$150.00 for single family residential development and \$350.00 for commercial or multi-family development. This fee will be determined by the City Council and will be used to cover the cost of labor and materials for performing Tree and/or landscape inspections.
2. Once completed, a written report will be prepared outlining the findings of the inspection and transmitted to the property owner or developer. If the inspection shows that Tree planting has been implemented according to plan, and all other departments have signed off on final inspections, a certificate of occupancy will be issued. If the inspection reveals deficiencies between the approved Tree protection and replacement plan and the condition of the development site, the property owner or developer will be notified of the nature and extent of the problems uncovered during inspection.

Upon issuance of the report, all deficiencies must be corrected before a certificate of occupancy can be issued.

Section 5 - Violation and Penalty.

It shall be unlawful for any person, firm, organization, or society to violate the provisions of this Ordinance. The removal or destruction of each Tree shall constitute a separate offense. Violation of this Ordinance shall constitute grounds for revoking or suspending any permit granted for the construction, demolition, or renovation of a structure on the lot or parcel. Upon revocation or suspension of Permit, no new Permit for construction, demolition, or renovation of any structure on the site shall be issued for a period of one (1) month; and a civil penalty of five hundred dollars (\$500.00) shall be levied for violating the requirements of this Ordinance.

Section 6 - Appeals

In the event an applicant disputes the decision of the City regarding Tree removal and/or replanting, applicant may file a written appeal with the Board of Zoning Appeals. The written appeal should detail the reasons why the decision of the City staff should be vacated. Upon receiving the written appeal, the Board of Zoning Appeals shall hear arguments and decide whether to uphold the administrative decision, modify the administrative decision, or negate the administrative decision. The decision of the Board of Zoning Appeals shall be final. A written copy of the findings and decision of the Board of Zoning Appeals shall be transmitted to the applicant and City.

Section 7 - Validity

Should any section of this provision of this Ordinance be declared by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of the Ordinance in whole or any part thereof other than the part so declared invalid.

Section 8 - Repeal of Conflicting Provision

The provisions of any part of Resolutions in conflict herewith are repealed.

Section 9 - Effective Date

This Ordinance shall become effective upon approval by the Mayor and Council of the City of Hapeville on date of adoption of this Ordinance.

City of Hapeville Tree Species List (As adapted from Athens Clark County)

SPECIES COMMON NAME		LATIN NAME	
Alder, Hazel (Tag)		Alnus serrulata	
Arborvitae, Eastern (Northern Whitecedar)		Thuja occidentalis	
Arborvitae, Giant (Western Redcedar)		Thuja plicata	
Ash, Green		Fraxinus pennsylvanica	
Ash, White		Fraxinus americana	
Baldcypress		Taxodium distichum	
Basswood, American (Linden)		Tilia americana	
Beech, American		Fagus grandifolia	
Birch, River		Betula nigra	
Birch, River 'Heritage'		Betula nigra 'Heritage'	
Blackgum (Tupelo)		Nyssa sylvatica	
Boxelder		Acer negundo	
Buckeye, Bottlebrush		Aesculus parviflora	
Buckeye, Painted		Aesculus sylvatica	
Buckeye, Red		Aesculus pavia	
Buckthorn, Carolina		Rhamnus caroliniana	
Buckthorn, Common		Rhamnus cathartica	
Buttonbush, Common		Cephalanthus occidentalis	
Catalpa, Southern		Catalpa bignonioides	
Cedar, Deodar		Cedrus deodara	
Cedar, Japanese		Cryptomeria japonica	
Chastetree (Vitex)		Vitex agnus-castus	
Cherry, Black		Prunus serotina	
Cherrylaurel, Carolina		Prunus caroliniana	
Cherry, Japanese Flowering		Prunus serrulata	
Cherry, Yoshino		Prunus x yedoensis	
Chestnut, American		Castanea dentata	
Chestnut, Chinese		Castanea mollissima	
Chinaberry		Melia azedarach	
Chinquapin, Allegheny		Castanea pumila	
Cottonwood, Eastern		Populus deltoides	
Crabapple, Japanese Flowering		Malus floribunda	
Crabapple, Southern		Malus angustifolia	
Crapemyrtle, Common		Lagerstroemia indica	
Cypress, Leyland		Cupressocyparis leylandii	
Devil's Walking Stick		Aralia spinosa	
Devilwood		Osmanthus americanus	
Dogwood, Flowering		Cornus florida	
Dogwood, Flowering Pink		Cornus florida var. rubra	
Dogwood, Kousa		Cornus kousa	
Dogwood, Swamp		Cornus stricta	
Elm, American		Ulmus americana	
Elm, Chinese (Lace Bark)		Ulmus parvifolia	
Elm, Siberian		Ulmus pumila	
Elm, Slippery		Ulmus rubra	
Elm, Winged		Ulmus alata	
Flametree, Chinese (Bougainvillea)		Koelreuteria bipinnata	
Fringetree (Grancy Gray Beard)		Chionanthus virginicus	
Fringetree, Chinese		Chionanthus retusus	
Ginkgo (Female)		Ginkgo biloba	
Ginkgo (Male)		Ginkgo biloba	
Goldenraintree		Koelreuteria paniculata	
Hackberry, Common		Celtis occidentalis	
Hackberry, Georgia		Celtis tenuifolia	
Hawthorne, Washington		Crataegus phaenopyrum	
Hemlock, Eastern		Tsuga canadensis	
Hickory, Bitternut		Carya cordiformis	
Hickory, Mockernut		Carya tomentosa	
Hickory, Pignut		Carya glabra	
Hickory, Sand		Carya pallida	
Hickory, Shagbark		Carya ovata	
Hickory, Southern Shagbark		Carya ovata var. australis	
Holly, American		Ilex opaca	
Holly, Deciduous (Possumhaw)		Ilex decidua	
Holly, Fosters		Ilex x attenuata 'Fosteri'	
Holly, Ornamental Variety		Ilex species	
Holly, Savannah		Ilex x attenuata `Savannah'	
Holly, Yaupon		Ilex vomitoria	
Honeylocust		Gleditsia triacanthos	
Hophornbeam, American		Ostrya virginiana	
Hornbeam, Am. (Ironwood, Blue Beech)		Carpinus caroliniana	
Hornbeam, European		Carpinus betulus	
Hornbeam, Japanese		Carpinus japonica	
Katsuratree		Cercidiphyllum japonicum	
Locust, Black		Robinia pseudoacacia	
Magnolia, Cucumber		Magnolia acuminata	
Magnolia, Japanese (Saucer)		Magnolia x soulangiana	
Magnolia, Southern		Magnolia grandiflora	
Magnolia, Southern 'Little Gem'		Magnolia grandiflora 'Little Gem'	
Magnolia, Star		Magnolia stellata	
Magnolia, Sweetbay		Magnolia virginiana	
Maple, Amur		Acer ginnala	
Maple, Chalk		Acer leucoderme	
Maple, Hedge		Acer campestre	
Maple, Japanese		Acer palmatum	

APPROPRIATE USES							
Large Landscape Areas	Road Frontages - Street	Road Frontages - Yard	Parking Lots	Plazas and Downtown Settings	Buffers	Riparian Zones and Drainage Areas	Utility Corridors
XX					x	XX	x
x	0	x	0		x		0
x	0	x	0		XX		0
XX	x	XX		x		x	
XX	x	XX		x		x	
x		XX			XX	XX	
x						x	
XX					0	x	
XX	x	XX	x	XX	XX	XX	0
XX	x	XX				x	
x						x	0
							x
x						x	x
							x
x	x	x				x	
							x
x		x				x	
	0	x	0	0	XX	0	
		x			x	XX	XX
		XX		XX	XX		XX
susceptible to chestnut blight							
x		x					
invasive							
susceptible to chestnut blight							
x					0	x	
	x	x		x	XX		XX
x	x	x			x		XX
only permitted in utility corridors							
x	0	x	x		x		0
	0	0	0	0	x	XX	
x		x					
XX	XX	XX	0	0	XX		XX
XX	XX	XX	0	0	XX		x
	x	x			x		x
x						x	x
x		x					
0	XX	XX	XX	XX	0	0	
pest susceptible; weed tree							
x	x	x				x	
XX	XX	XX	XX		0	0	
		x					
x	x	x			x		x
	x	x			x		x
x	0	x	0	0	0		
x	XX	XX	x	XX	0		
	x	x	x	x	x		
x		x				x	
	x	x		x			x
x			0	0		x	
x		x	0			x	
		x	0				x
XX		XX	0		XX		0
		x	0		x		XX
	x	x					x
XX		x			XX	XX	
	x	x					x
x	x	x	x		x		
	x	x	x		x		
0		x	0				x

ENVIRONMENTALCHARACTERISTICS AND TOLERANCES										
Native Tree to Metro Area	Growth Rate	Average Life Span	Net Effect on Air Quality	Soil Moisture	Drought Tolerance	Light Requirement	Construction Toleranc	Limitation		Urban Tolerant Tree
Y	F	S	n/a	W	M	FS	G/			X
N	S	M	n/a		M	M	FS	G/		X
N	M	M	n/a	H	M	FS	M/			X
Y	F	M	0.090	W	H	FS	G/			
Y	M	M	0.100	M	L	FS	M/IS			
N	M	L	0.032	M	H	FS	G/			X
Y	F	M	0.144	M	L	PS	P/A			
Y	S	L	0.160	M	L	FS	P/A			
Y	F	M	0.117	M	L	PS	G/			
Y	F	M	n/a	M	L	PS	n/a			
Y	S	M	-0.053	M	M	FS	G/			X
Y	F	S	0.036	W	M	FS	G/			
N	M	S	n/a	M	L	SH	n/a			
Y	M	S	n/a	M	L	SH	n/a			
N	M	S	n/a	M	L	PS	M/I			
Y	M	S	n/a	M	M	FS	M/IS			
N	M	S	n/a	M	H	FS	n/a			X
Y	M	S	n/a	W	L	FS	G/I			
Y	F	S	0.014	M	M	FS	G/			
N	M	L	-0.031	D	H	FS	g			
N	S	M	0.084	M	H	FS	n/a			X
N	M	S	n/a	D	H	FS	n/a			X
Y	F	M	0.083	M	M	FS	M/I			
N	M	M	n/a	M	H	FS	G/			X
N	F	S	0.013	M	L	FS	n/a			
N	F	S	n/a	M	L	FS	n/a			
Y										
N	S	L	n/a	D	M	FS	n/a			X
N										
Y	S	S	n/a	D	H	FS	P/P			
Y	F	M	-0.708	M	M	FS	G/			X
N	M	S	n/a	M	L	FS	n/a			
Y	M	S	n/a	M	L	FS	M/ICP			
N	F	M	0.004	M	H	FS	n/a			X
N	F	M	0.053	M	M	FS	g			
Y										
Y	M	M	n/a	M	M	PS	M/I			
Y	M	M	0.021	M	L	PS	M/IP			
Y	M	M	n/a	M	L	PS	n/a			
N	S	S	n/a	M	L	PS	n/a			
Y	S	S	n/a	W	L	PS	G/I			
Y	M	M	0.143	M	H	FS	M/P			
N	F	M	0.058	M	H	FS	n/a			X
N										
Y	F	M	0.086	M	M	FS	M/P			
Y	M	M	0.034	M	H	FS	G/			X
N	M	M	n/a	M	H	FS	n/a			X
Y	M	S	n/a	M	L	PS	M/IS			
N	S	S	n/a	M	M	PS	n/a			
N	S	L	0.108	M	H	FS	g			X
N	S	L	0.108	M	H	FS	g			X
N	M	M	-0.087	M	H	FS	n/a			
Y	M	M	0.060	M	H	FS	n/a			X
Y	S	M	n/a	D	H	FS	M/IS			
N	S	S	0.017	M	M	FS	g			
N										
Y	F	L	0.069	M	L	FS	P/S			
Y	S	L	0.059	D	H	FS	MP/S			
Y	S	L	0.058	M	H	FS	M/S			
Y	S	M	n/a	D	H	FS	M/			
Y	S	L	0.064	M	M	FS	P/S			
Y	S	L	n/a	M	M	FS	n/a			
Y	S	L	0.013	M	H	PS	G/			X
Y	M	S	n/a	W	H	PS	G/			
N	S	S	n/a	M	H	FS	n/a			X
N	S	S	n/a	M	H	FS	n/a			
N	M	S	n/a	M	H	FS	n/a			
Y	S	S	n/a	D	H	FS	G/			X
Y	F	S	0.009	M	H	FS	G/			X
Y	S	M	0.032	M	H	SH	M/S			X
Y	S	M	0.009	M	M	PS	M/SC			
N	S	M	0.037	M	H	PS	n/a			X
N	S	M	n/a	M	M	PS	n/a			
N	F	L	n/a	M	L	FS	pm			
Y	F	M	-0.123	M	H	FS	G/P			X
Y	F	M	n/a	M	L	PS	M/I			
N	M	S	0.009	M	L	FS	n/a			
Y	M	L	0.002	M	M	FS	M/I			
Y	S	M	n/a	M	L	FS	n/a			
N	S	S	n/a	M	M	PS	n/a			
Y	F	M	n/a	W	L	PS	G/			
N	M	M	0.008	M	M	FS	n/a			
Y	M	M	n/a	M	H	FS	P/A			X
N	S	S	0.017	M	H	FS	n/a			X
N	S	S	0.008	M	L	PS	n/a			

City of Hapeville Tree Species List (As adapted from Athens Clark County)

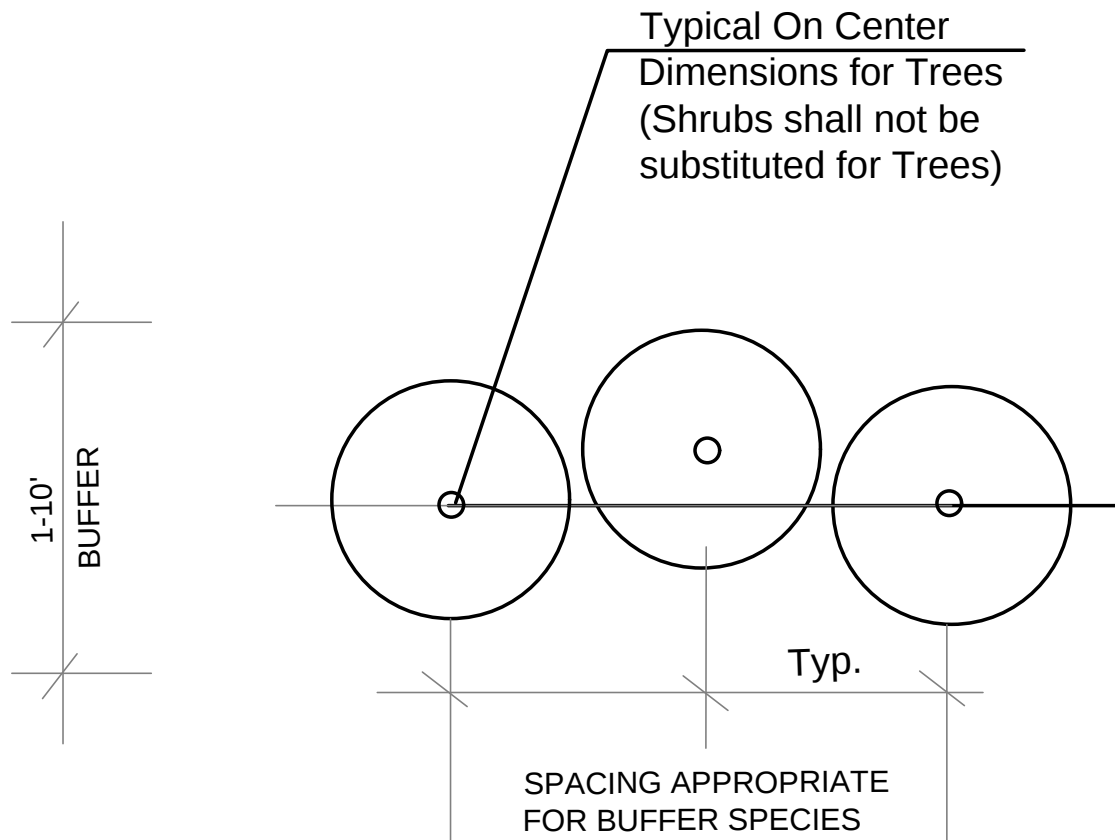
SPECIES COMMON NAME		LATIN NAME	
Maple, Norway		Acer platanoides	
Maple, Red		Acer rubrum	
Maple, Silver		Acer saccharinum	
Maple, Southern Sugar (Florida Sugar)		Acer barbatum	
Maple, Sugar		Acer saccharum	
Maple, Sugar 'Green Mountain'		Acer saccharum 'Green Mountain'	
Maple, Sugar 'Legacy'		Acer saccharum 'Legacy'	
Maple, Trident		Acer buergeranum	
Mimosa		Albizia julibrissin	
Mulberry, Red		Morus rubra	
Oak, Black		Quercus velutina	
Oak, Cherrybark		Quercus falcata var. pagodifolia	
Oak, Chestnut		Quercus prinus	
Oak, Diamond Leaf (Laurel)		Quercus laurifolia	
Oak, English		Quercus robur	
Oak, Georgia		Quercus georgiana	
Oak, Laurel		Quercus hemisphaerica	
Oak, Laurel 'Darlington'		Quercus hemisphaerica 'Darlington'	
Oak, Live		Quercus virginiana	
Oak, Northern Red		Quercus rubra	
Oak, Nuttall		Quercus nuttalli	
Oak, Oglethorpe		Quercus oglethorpensis	
Oak, Overcup		Quercus lyrata	
Oak, Pin		Quercus palustris	
Oak, Post		Quercus stellata	
Oak, Sawtooth		Quercus acutissima	
Oak, Scarlet		Quercus coccinea	
Oak, Shumard		Quercus shumardii	
Oak, Southern Red		Quercus falcata	
Oak, Swamp Chestnut		Quercus michauxii	
Oak, Swamp White		Quercus bicolor	
Oak, Water		Quercus nigra	
Oak, White		Quercus alba	
Oak, Willow		Quercus phellos	
Orange, Osage		Maclura pomifera	
Parrotia		Parrotia persica	
Pear, Callery		Pyrus calleryana	
Pear, Common		Pyrus communis	
Pecan		Carya illinoensis	
Persimmon, Common		Diospyros virginiana	
Pine, Eastern White		Pinus strobus	
Pine, Loblolly		Pinus taeda	
Pine, Longleaf		Pinus palustris	
Pine, Shortleaf		Pinus echinata	
Pine, Slash		Pinus elliotii	
Pine, Virginia		Pinus virginiana	
Pistache, Chinese		Pistacia chinensis	
Planetree, London		Platanus x acerifolia	
Plum, Chickasaw		Prunus angustifolia	
Plum, Purpleleaf		Prunus cerasifera	
Poplar, Lombardy		Populus nigra var. italica	
Poplar, White		Populus alba	
Poplar, Yellow (Tuliptree)		Liriodendron tulipifera	
Redbud, Eastern		Cercis canadensis	
Redbud, Eastern White		Cercis canadensis var. alba	
Redbud, 'Forest Pansy'		Cercis canadensis 'Forest Pansy'	
Redbud, 'Oklahoma'		Cercis reniformis 'Oklahoma'	
Redbud, 'Texas White'		Cercis reniformis 'Texas White'	
Redcedar, Eastern		Juniperus virginiana	
Redwood, Dawn		Metasequoia glyptostroboides	
Royal Paulownia (Princess-Tree)		Paulownia tomentosa	
Sassafras		Sassafras albidum	
Serviceberry, Downy		Amelanchier arborea	
Silverbell, Carolina		Halesia tetraptera	
Silverbell, Two-Winged		Halesia diptera	
Smoketree, American		Cotinus obovatus	
Smoketree, Common		Cotinus coggygria	
Sourwood		Oxydendrum arboreum	
Sparkleberry, Tree		Vaccinium arboreum	
Spruce Varieties		Picea species	
Sugarberry		Celtis laevigata	
Sweetgum		Liquidambar styraciflua	
Sycamore		Platanus occidentalis	
Tallowtree, Chinese		Sapium sebiferum	
Tree-of-Heaven (Ailanthus)		Ailanthus altissima	
Walnut, Black		Juglans nigra	
Waxmyrtle, Southern		Myrica cerifera	
Willow, Black		Salix nigra	
Willow, Weeping		Salix babylonica	
Winterberry, Common		Ilex verticillata	
Witchhazel, Common		Hamamelis virginiana	
Yellowwood, American		Cladrastis kentukea	
Zelkova, Japanese		Zelkova serrata	
* Do Not Plant			

APPROPRIATE USES							
Large Landscape Areas	Road Frontages - Street	Road Frontages - Yard	Parking Lots	Plazas and Downtown Settings	Buffers	Riparian Zones and Drainage Areas	Utility Corridors
pest susceptible							
XX	XX	XX	XX	XX	XX	XX	0
0		x	0	0			
XX	x	XX	x	XX	XX	x	
XX	XX	XX				x	0
XX	XX	XX					0
XX	XX	XX					0
0	XX	XX	XX	XX	XX		x
pest susceptible; weed tree							
x	0		0	0		x	
x		x				x	
x		x				x	
x	0	XX	0	0		0	
x	x	x					
	x	x					
x		x					
x	x	x					
x	XX	XX					
out of range							
XX	x	XX					
x	x	x					
x	x	x					
XX	XX	XX				x	
0	x	x	0	0		0	
x	x	XX					
0	0	x	0	0		0	
XX	XX	XX	x	x			
XX	XX	XX	XX	XX			
XX	x	XX				x	
x	0	x	0	0		x	
x	x	x				x	
XX	x	XX				XX	0
XX	x	XX					
XX	XX	XX	XX	XX	0	XX	0
x	0	x	0	0		0	
	x	x					x
defective branch structure							
x	0	x	0	0	0		0
x	0	x	0	0	0		
x	0	x	0	0		x	
not heat tolerant							
XX	x	x	XX		XX	x	0
		x	x		x	0	
XX	x	x	x		x	x	0
		x	x		x	0	
x		x	x		XX	x	
	x	XX	x	x	XX	0	
x	XX	XX	XX	x	x	0	
	XX	XX	x	XX			XX
	XX	XX	x	XX			XX
x		XX	x		XX	x	0
x		XX	x		XX		
	0	x	0	0		0	
x		x			x	x	
XX	XX	XX		XX	XX	x	x
XX	x	x				x	
XX	x	x				x	XX
		x					x
		x					x
XX		x					
		x				x	x
not heat tolerant							
x		x			0	x	
x	0	x	0	0		x	
x		x				x	0
invasive							
brittle wood; invasive							
x	0	x	0	0		x	
		x	x		x	0	x
x	0		0	0		x	0
x	0	x	0	0			0
x	x	x			x	x	x
x		x		x		x	x
x		x					
		x		x		0	0

ENVIRONMENTALCHARACTERISTICS AND TOLERANCES									
Native Tree to Metro Area	Growth Rate	Average Life Span	Net Effect on Air Quality	Soil Moisture	Drought Tolerance	Light Requirement	Construction Tolerance	Limitation	Urban Tolerant Tree
N									
Y	F	L	0.084	M	L	FS	G/		
N	F	S	0.084	M	H	FS	P/A		
Y	M	M	n/a	M	H	FS	M/IS		X
Y	M	L	0.100	M	M	PS	pm		
Y	F	L	0.100	M	M	PS	n/a		
Y	F	L	0.100	M	M	PS	n/a		
N	F	M	n/a	M	M	FS	n/a		X
N									
Y	F	S	0.099	M	H	FS	G/		
Y	M	L	-0.253	D	H	FS	G/		
Y	M	L	n/a	M	H	FS	G/		
Y	S	L	-0.342	D	H	FS	GM/S		
N	M	L	n/a	M	M	FS	G/		
N	S	M	-0.275	M	M	FS	n/a		
Y	M	M	n/a	D	H	FS	n/a		
N	F	M	-0.314	D	H	FS	n/a		
N	F	M	n/a	D	H	FS	n/a		
N									
Y	F	L	-0.503	M	M	FS	GM/SC		
Y	M	L	n/a	M	M	FS	n/a		
Y	S	M	n/a	W	M	FS	n/a		
Y	M	L	-0.159	W	M	FS	G/		
N	M	M	-0.483	M	M	FS	mg		
Y	M	L	-0.327	D	H	FS	G/		
N	F	M	-0.159	M	H	FS	n/a		
Y	M	L	-0.592	D	H	FS	G/		
Y	F	L	-0.265	M	H	FS	G/		
Y	M	L	-0.576	M	H	FS	G/		
Y	M	L	-0.544	M	M	FS	G/		
Y	M	L	-0.457	M	M	FS	G/		
Y	F	M	-0.451	M	M	FS	G/		
Y	S	L	-0.348	M	M	FS	GM/S		
Y	F	L	-0.314	M	H	FS	GM/S		X
N	F	L	0.000	D	H	FS	n/a		X
N	F	S	n/a	M	M		n/a		
N									
N	F	M		M	L	FS	M/S		
N	S	M	0.088	M	L	FS	mg		
Y	M	S	0.058	M	H	FS	G/P		X
N									
Y	F	M	0.016	M	M	FS	G/		
N	M	L	0.010	M	H	FS	GM/C		
Y	M	L	0.008	M	H	PS	GM/P		
N	F	M	0.010	M	M	FS	G/		
Y	F	S	0.003	M	H	FS	G/		X
N	M	M	n/a	M	H	FS	n/a		X
N	F	M	-0.415	M	H	FS	pg		X
Y	M	S	n/a	M	H	FS	M/IS		
N	M	S	0.014	M	M	FS	mg		
N									
N	F	M	-0.417	M	H	FS	n/a		
Y	M	L	0.171	M	L	FS	P/IS		
Y	F	S	0.012	M	M	PS	M/S		
Y	F	S	n/a	M	M	PS	n/a		
Y	F	S	n/a	M	L	PS	n/a		
N	M	S	n/a	D	H	FS	n/a		X
N	M	S	n/a	D	H	FS	n/a		
Y	S	M	-0.010	M	H	FS	M/IS		
N	F	L	0.163	M	M	FS	n/a		X
N	F	S	0.022	M	M	FS	g		
Y	M	M	0.069	M	H	FS	G/		
Y	S	M	0.004	M	M	PS	M/IS		
Y	M	M	n/a	M	L	PS	M/ISC		
N	M	M	n/a	M	M	PS	M/SC		
Y	M	S	n/a	D	H	PS	n/a		X
N	M	S	n/a	D	H	FS	n/a		X
Y	M	S	0.018	M	M	FS	P/A		
Y	S	S	n/a	M	M	S	M/A		
N									
Y	M	M	0.118	M	M	FS	G/I		
Y	F	L	-0.488	M	L	FS	G/		
Y	F	M	-0.789	M	M	FS	G/		
N									
N									
Y	M	L	0.086	M	L	FS	P/IS		
N	M	S	n/a	M	M	FS	G/		
Y	F	S	-0.177	W	L	FS	G/		
N	F	M	-0.096	W	M	FS	mg		
Y	M	S	n/a	M	L	FS	G/		
Y	M	M	-0.009	M	M	PS	M/IS		
N	M	M	0.013	M	M	PS	P/A		
N	M	M	0.084	M	H	FS	n/a		X



Silva Cell 2 (Detail from Deep Root) or other Industry standard structural cell option



1. ROWS SHALL BE STRAIGHT, PARALLEL OR CURVED AS PER INTENT OF DESIGN
2. IF BUFFER PLANTING IS INTENDED TO ENHANCE EXISTING NATURAL BUFFER, NO HEALTHY EXISTING TREES TO BE REMOVED. DO NOT PLANT IN EXISTING TREE CRITICAL ROOT ZONES. SHOW GRAPHICALLY ON PLANS WITH TYPICAL DETAIL.



TYPICAL
BUFFER PLANTING
DETAILS

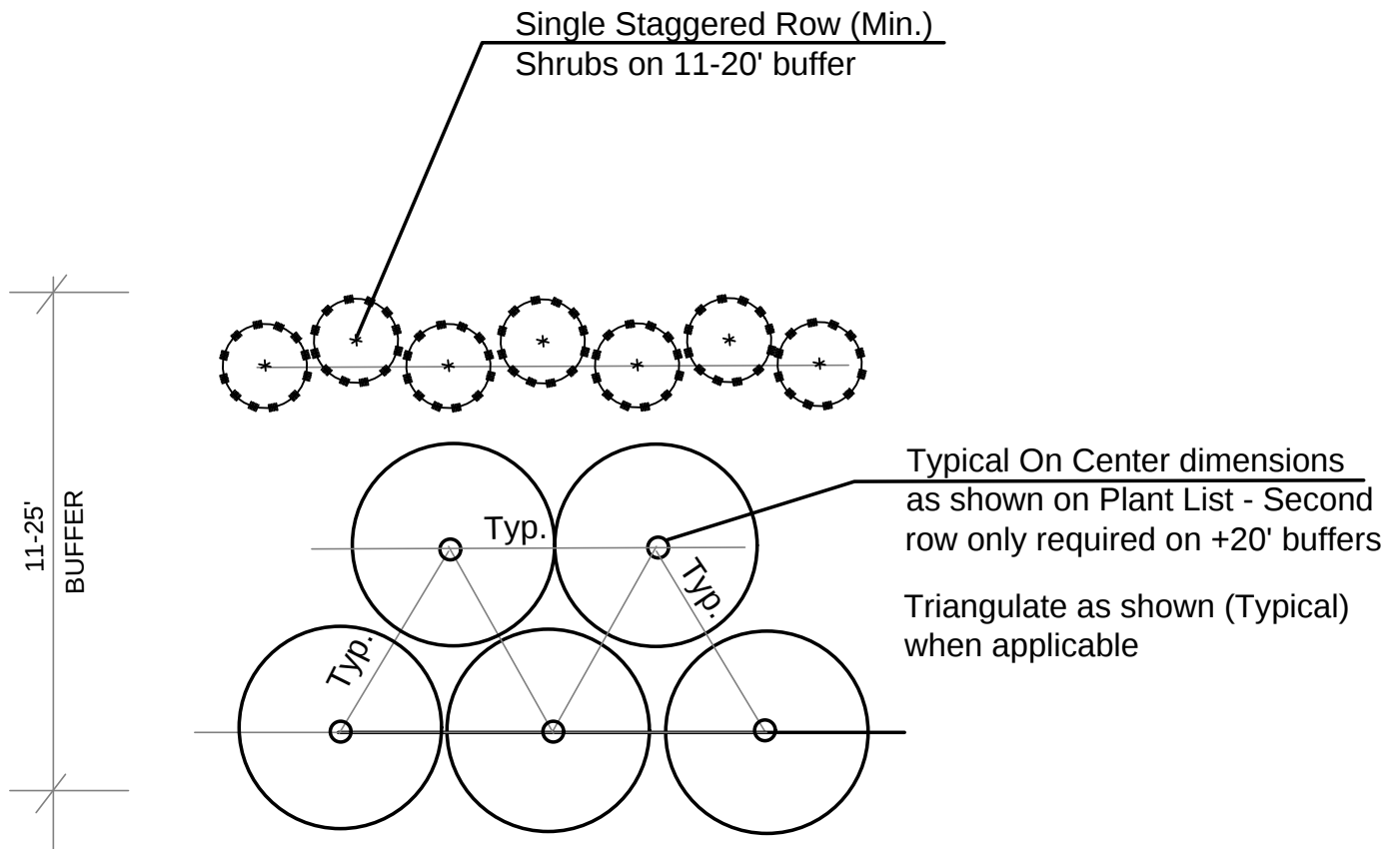
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FIGURE #1
BUFFER (1-10' DEPTH) - NTS



1. ROWS SHALL BE STRAIGHT, PARALLEL OR CURVED AS PER INTENT OF DESIGN
2. IF BUFFER PLANTING IS INTENDED TO ENHANCE EXISTING NATURAL BUFFER, NO HEALTHY EXISTING TREES TO BE REMOVED. DO NOT PLANT IN EXISTING TREE CRITICAL ROOT ZONES. SHOW GRAPHICALLY ON PLANS WITH TYPICAL DETAIL.

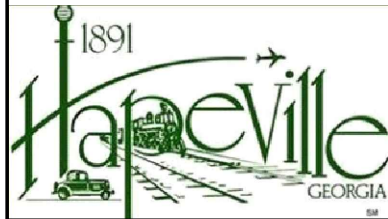
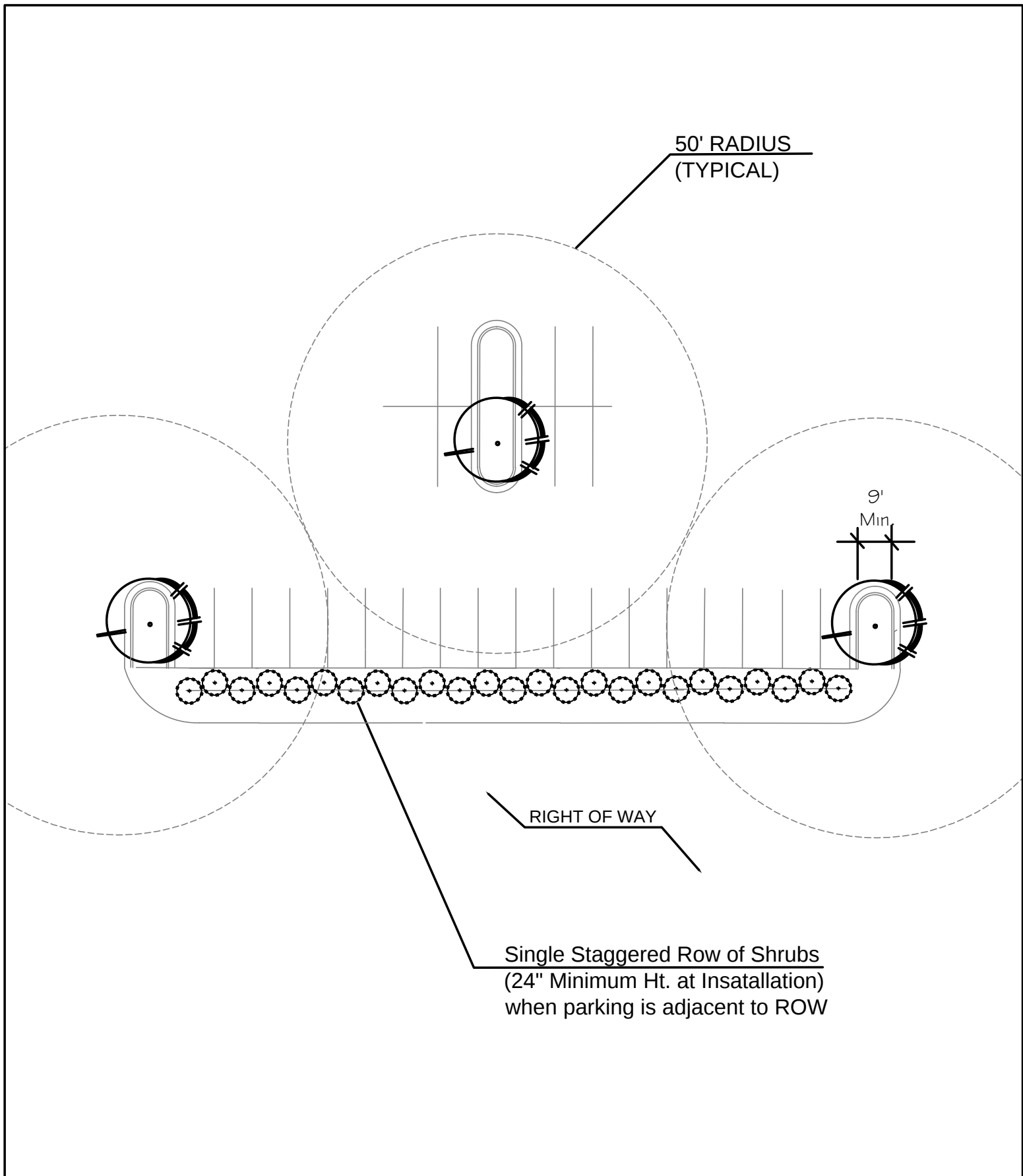


TYPICAL BUFFER PLANTING DETAILS

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FIGURE #2
BUFFER (11-25' DEPTH TYP.) - NTS

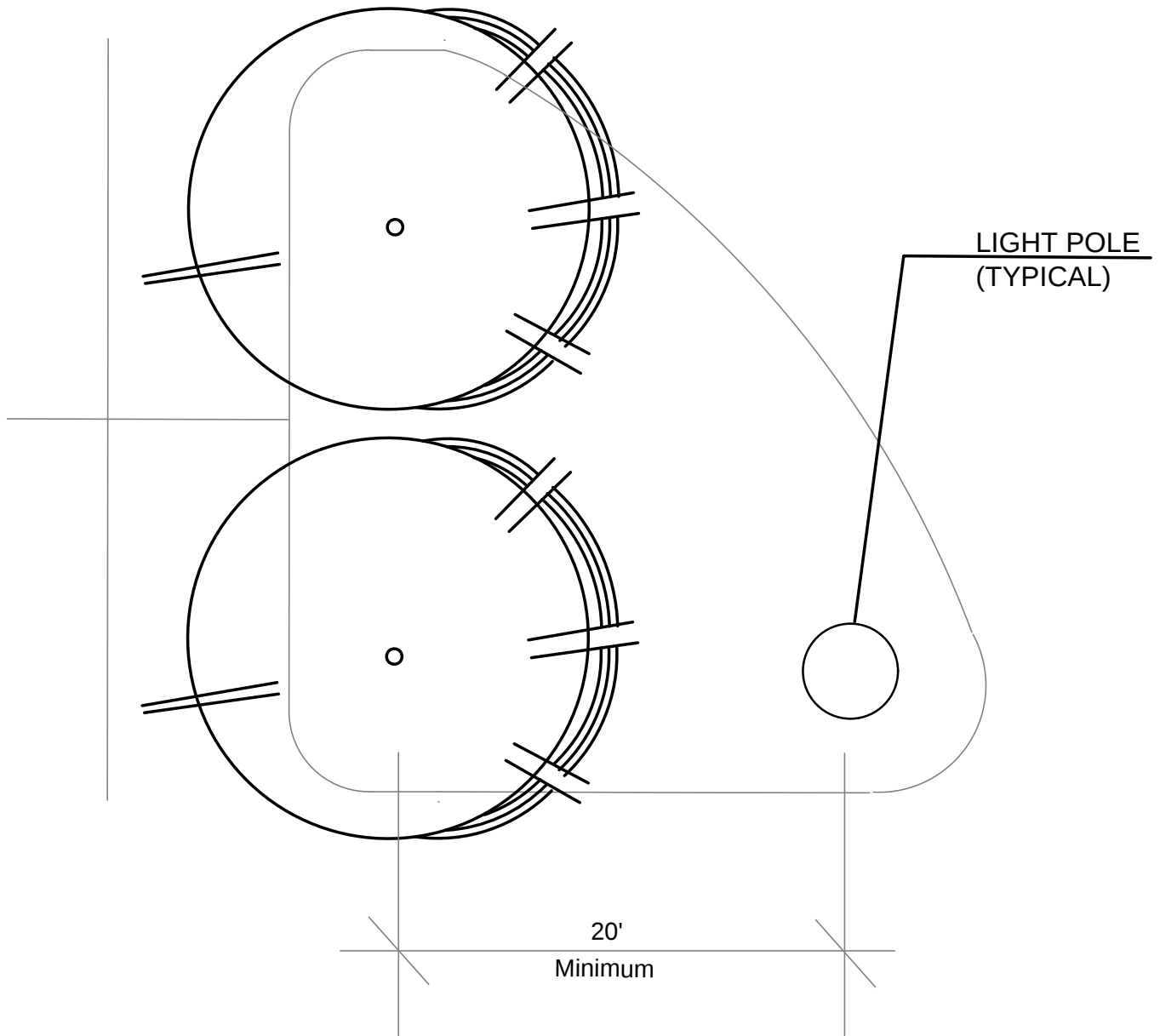


TYPICAL
PARKING LOT SHRUBS
ADJACENT TO ROW
DETAIL

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FIGURE #3
SHRUBS ADJACENT TO ROW - NTS



TYPICAL
LIGHT POLE WITH
PARKING LOT TREE
DETAIL

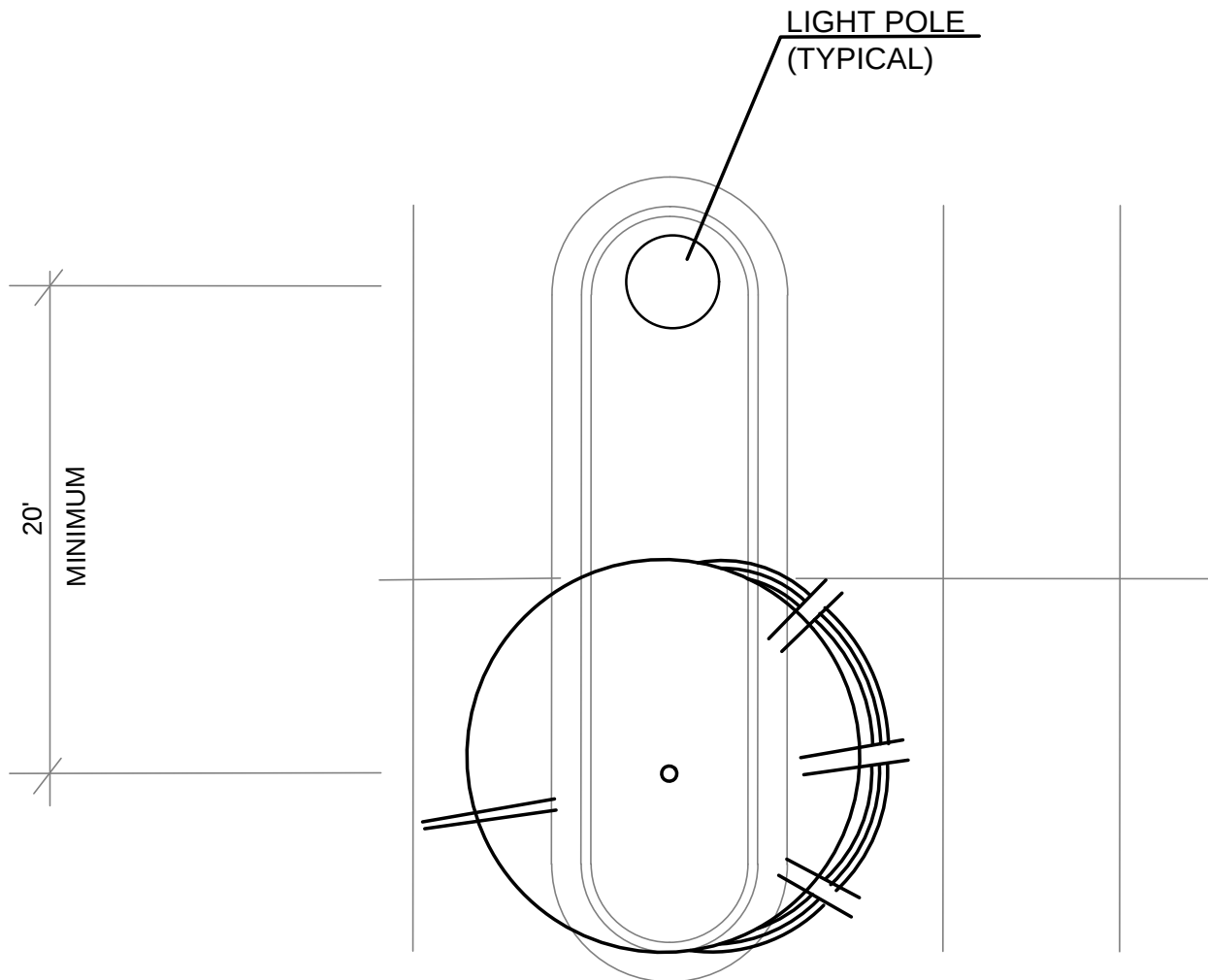
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FIGURE #4
LIGHT POLE 20' OPTION - NTS



TYPICAL
LIGHT POLE WITH
PARKING LOT TREE
DETAIL

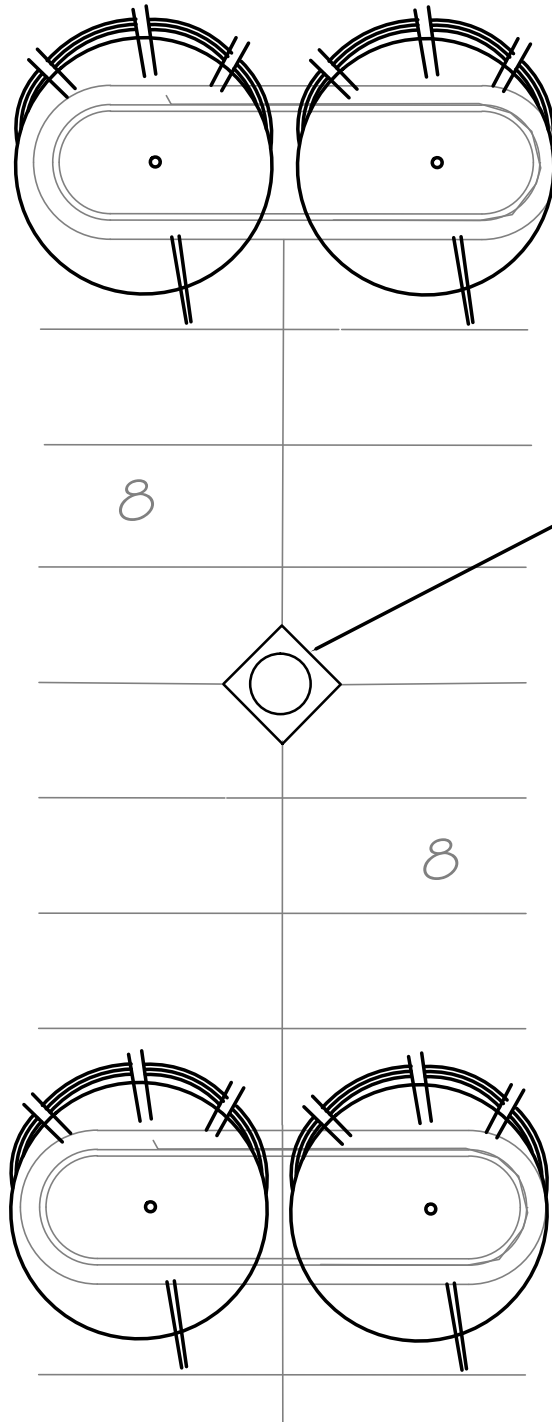
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FIGURE #5
LIGHT POLE 20' OPTION - NTS



LIGHT POLE
(TYPICAL)



TYPICAL
LIGHT POLE WITH
PARKING LOT TREE
DETAIL

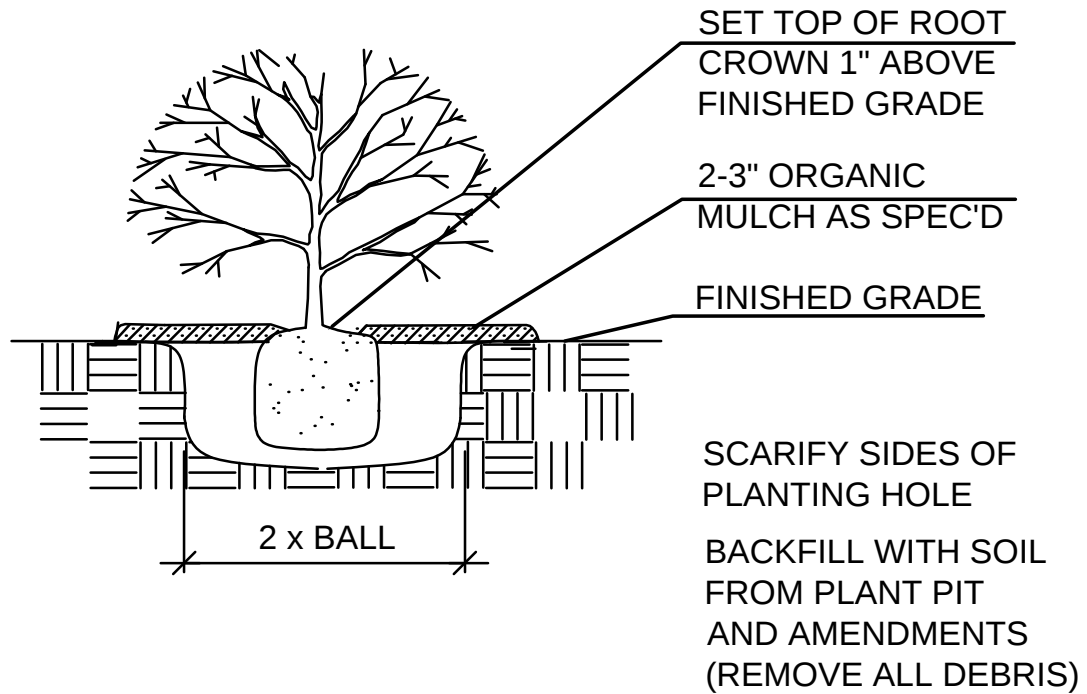
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FIGURE #6
LIGHT POLE 20' OPTION - NTS



GENERAL NOTES:

1. PRUNE ROOTS IF BALL IS ROOTBOUND. REMOVE ALL CONTAINERS AND NON-BIODEGRADABLE BURLAP.
2. WHEN BACKFILLING PLANT PIT, INCORPORATE SOIL IN WITH WATER TO REMOVE ALL AIR POCKETS AND FILL AS SHOWN.



TYPICAL SHRUB PLANTING DETAIL

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FIGURE #7 SHRUB PLANTING DETAIL - NTS

CROWN

SET AND MAINTAIN TREE IN A PLUMB VERTICAL POSITION. PRUNE ALL DEAD, DAMAGED OR CROSSING BRANCHES AS WELL AS WATERSPROUTS AND SUCKERS. DO NOT CUT CENTRAL LEADER OR OTHER BRANCH TIPS.

ORGANIC MULCH

2-4" DEEP TO LIMITS OF CULTIVATED AREA. KEEP MULCH 2-6" AWAY FROM TRUNK.

8' MULCH RING FOR EACH FREE STANDING TREE

ROOTBALL

REMOVE ALL STRAPPING. CUT AND REMOVE TOP 12" OF BURLAP AND WIRE BASKET. FOLD DOWN AND CUT ENCIRCLING ROOTS IF PRESENT

WATER RING

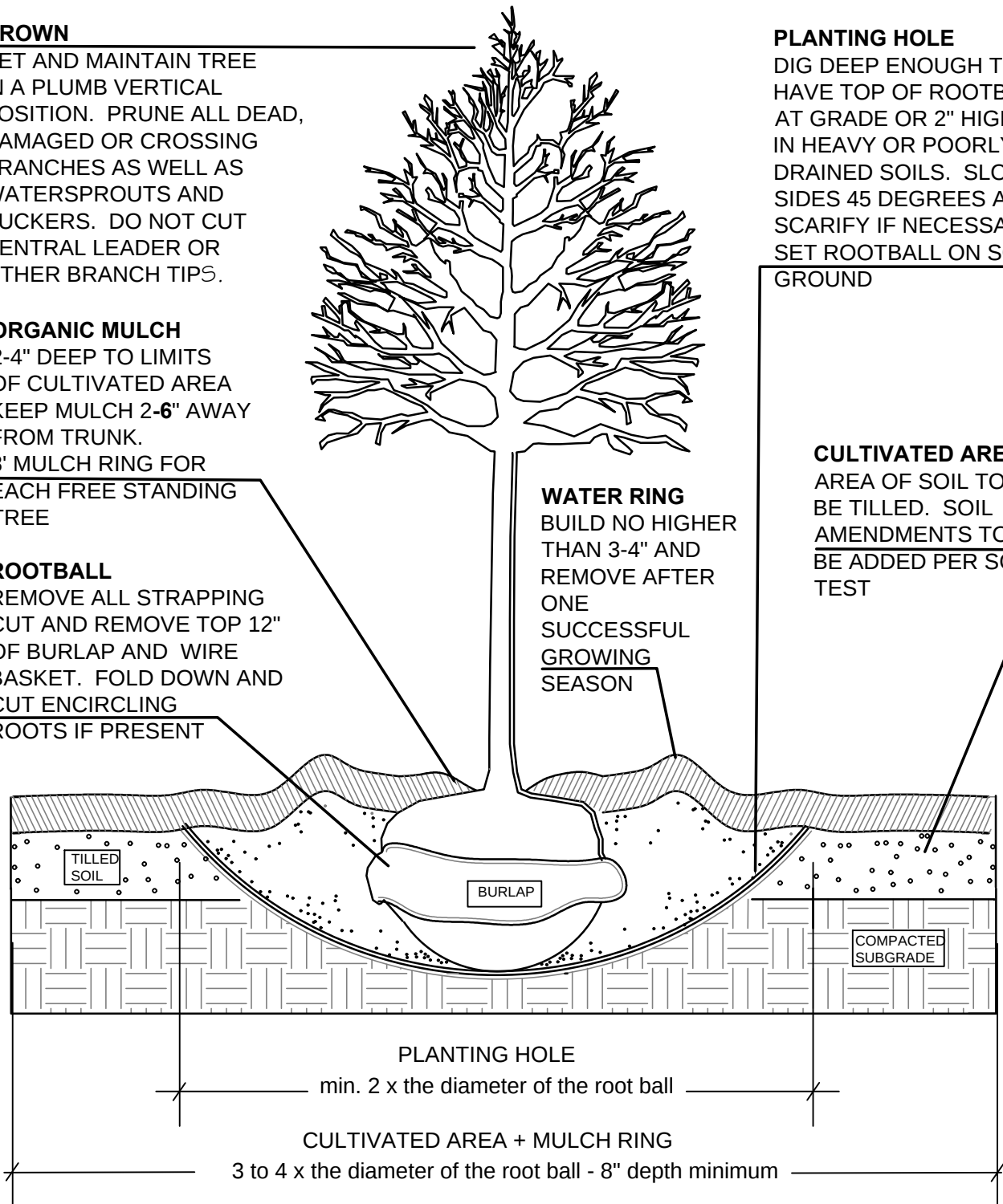
BUILD NO HIGHER THAN 3-4" AND REMOVE AFTER ONE SUCCESSFUL GROWING SEASON

PLANTING HOLE

DIG DEEP ENOUGH TO HAVE TOP OF ROOTBALL AT GRADE OR 2" HIGHER IN HEAVY OR POORLY DRAINED SOILS. SLOPE SIDES 45 DEGREES AND SCARIFY IF NECESSARY. SET ROOTBALL ON SOLID GROUND

CULTIVATED AREA

AREA OF SOIL TO BE TILLED. SOIL AMENDMENTS TO BE ADDED PER SOIL TEST



TYPICAL TREE PLANTING DETAIL

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**FIGURE #8
TREE PLANTING DETAIL - NTS**

STRAPS

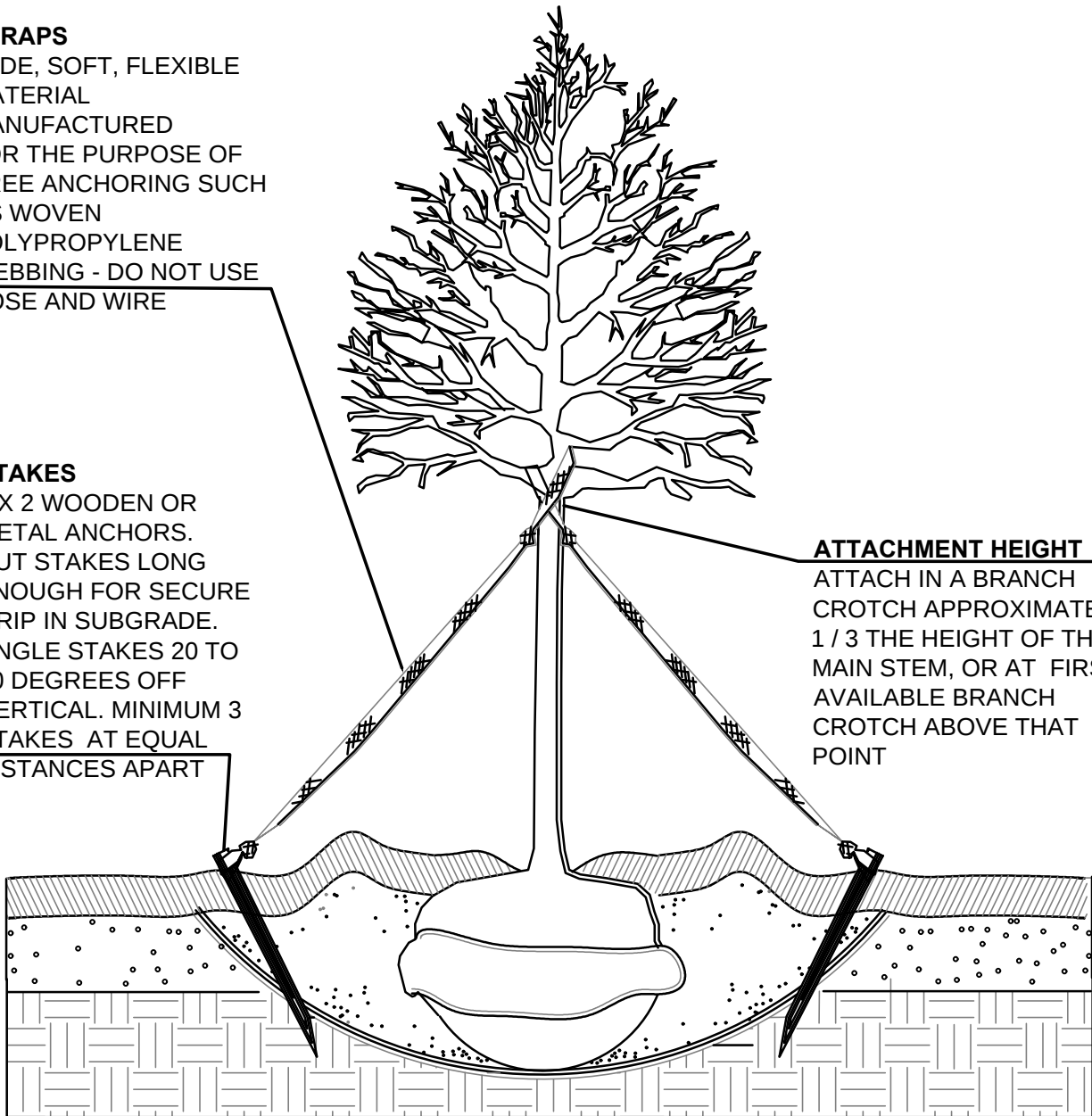
WIDE, SOFT, FLEXIBLE
MATERIAL
MANUFACTURED
FOR THE PURPOSE OF
TREE ANCHORING SUCH
AS WOVEN
POLYPROPYLENE
WEBBING - DO NOT USE
HOSE AND WIRE

STAKES

2 X 2 WOODEN OR
METAL ANCHORS.
CUT STAKES LONG
ENOUGH FOR SECURE
GRIP IN SUBGRADE.
ANGLE STAKES 20 TO
30 DEGREES OFF
VERTICAL. MINIMUM 3
STAKES AT EQUAL
DISTANCES APART

ATTACHMENT HEIGHT

ATTACH IN A BRANCH
CROTCH APPROXIMATELY
 $1/3$ THE HEIGHT OF THE
MAIN STEM, OR AT FIRST
AVAILABLE BRANCH
CROTCH ABOVE THAT
POINT



Use anchoring systems only where wind or soil conditions
make it necessary. REMOVE AFTER ONE YEAR.



TYPICAL
TREE STAKING
DETAIL

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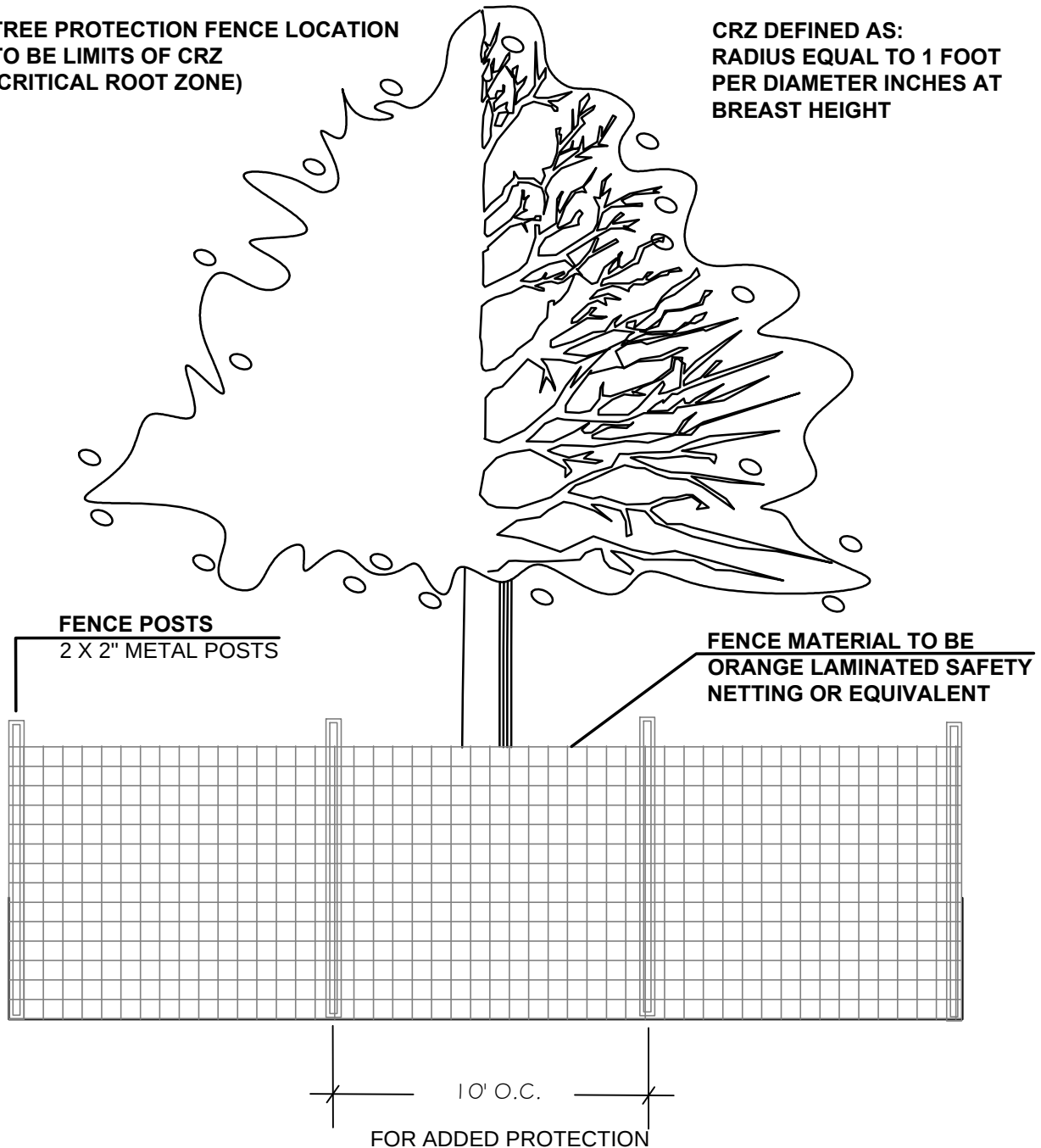
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FIGURE #9
TREE STAKING DETAIL - NTS

**TREE PROTECTION FENCE LOCATION
TO BE LIMITS OF CRZ
(CRITICAL ROOT ZONE)**

**CRZ DEFINED AS:
RADIUS EQUAL TO 1 FOOT
PER DIAMETER INCHES AT
BREAST HEIGHT**



- Provide 2" deep layer of mulch containing mycorrhizae fungi over CRZ
- Make clean cuts on roots exposed by grading and backfill immediately
- Provide temporary irrigation where practical and feasible



**TYPICAL
TREE PROTECTION
FENCE DETAIL**

DRAWN BY: THE

DATE DRAWN: 11.18.19

REVISIONS

REV. #	REVISION DATE	SHT. REVISED
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2		
3		

**FIGURE #10
TREE PROTECTION FENCE DETAIL - NTS**