

# TREE MANUAL

City of Wildwood, Missouri  
January 1996

STANDARDS AND SPECIFICATIONS  
FOR TREE PRESERVATION  
AND LANDSCAPING

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# INTRODUCTION

The purpose of this manual is to provide a detailed but flexible guide to tree preservation and landscaping requirements in Wildwood. It is designed to assist developers in creating future development that not only preserves the City's existing trees, but includes new landscapes that will adequately offset the negative impacts of urbanization.

This manual is to be used in conjunction with the Tree Preservation Code, the Grading Code, and other development regulations by civil engineers, landscape architects, landscape contractors, urban foresters, natural resource specialists and planners during preparation of plans required to be submitted as part of the City of Wildwood's grading ordinance and tree ordinance. The process outlining plan preparation and submittal is shown as a flow chart on page 7. It can be used by developers and their contractors in estimating costs associated with proposed development as well as during the actual construction of a development. It is hoped the manual will also be used as a guide to plan thoughtful developments that seek to use the existing natural features on a site without unnecessary damage. The Director of Planning may waive or modify specific guidelines or standards where the objective and requirements of the Tree Preservation Code may otherwise be fulfilled.

Any questions relating to this manual should be forwarded to the City of Wildwood Director of Planning at (314) 458-0440.

## DEFINITIONS

|                      |  |
|----------------------|--|
| Access Street        | A street for local traffic only, located completely within a subdivision, and generally taking subdivision traffic only.   |
| Arterial Street      | A major roadway listed as listed by the City of Wildwood.  |
| Bufferyard           | A unit of land, together with a specified type and amount of planting thereon, and any structure which may be required between land uses to eliminate or minimize conflicts between them.  |
| Collector Street     | A street not located within a single subdivision, connecting local residential areas with major streets or with commercial areas, excluding arterial streets and access streets.   |
| DBH                  | See Caliper.   |
| Director             | The Director of Planning for the City of Wildwood, or the Director's designee.   |
| Forester             | A person with a degree in forestry from a university accredited by the Society of American Foresters and at least five years of experience in the field.   |
| Limit of Disturbance | A line as shown on the site plan and Tree Preservation Plan that identifies the limit of construction activity of any kind.  |
| Owner                | The person, persons, or entity having legal title to, beneficial interest in, or a contractual right to purchase a property.   |
| Public Tree          | Any tree located on city owned or controlled property including parks, street right-of-ways, parkways, etc.  |
| Grand Tree Stands    | A contiguous grouping of grand trees which has been determined to be of exceptional value. Determination is based on the following criteria: A relatively mature even aged stand, a stand with a purity of species composition or of a rare or unusual nature, a stand of historical significance, a stand with exceptional aesthetic quality. |
| Street Tree          | A tree that is currently located or proposed for planting along streets and highways. The tree can be located on private property or on publicly held land. Street trees are typically planted in a linear fashion and provide spatial enclosure as well as other technical and aesthetic benefits.  |

All other definitions shall derive from the Tree Preservation Code or other ordinances of the City of Wildwood as they may apply to the Manual.

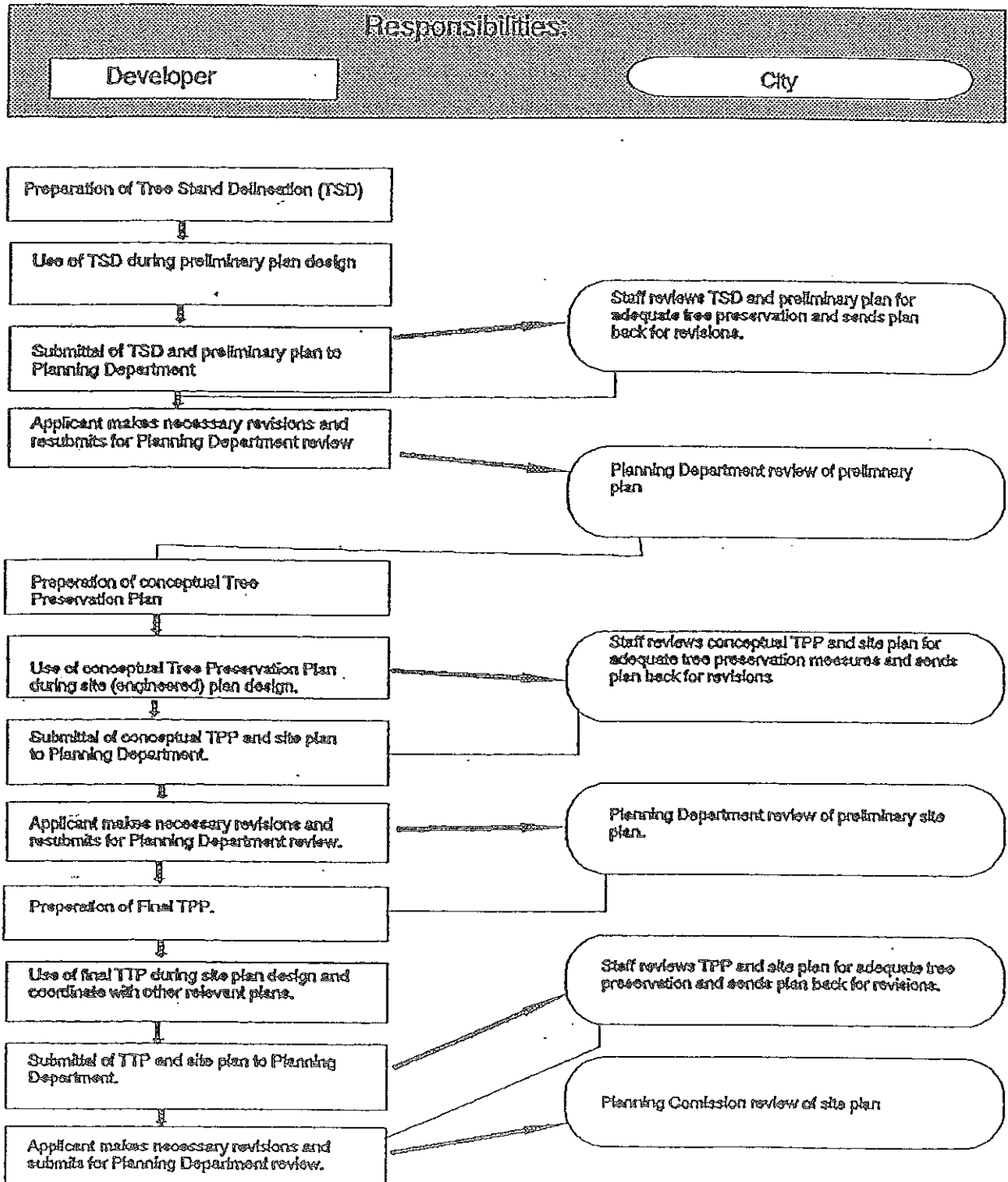
# TREE CANOPY REQUIREMENTS

This section of the Tree Manual combines some of the language found in the grading and Tree Preservation Code of the City of Wildwood and refers to the amount and type of disturbance that can take place on a site.

- 1) The preservation of existing trees must be shown on a Tree Preservation Plan. (See Page 13.) Except for development of a single-family residence upon a single lot or parcel, all applications for site plan or subdivision plan or building permit approval shall also contain a Tree Stand Delineation. (See Page 7.)
- 2) The Director may, when authorized, condition a land disturbance permit upon the restoration or relocation of trees or vegetation on the site in an amount or quality sufficient to offset or ameliorate the variance. The Director may also require replanting when provisions of this ordinance are violated and trees, vegetation, and/or topsoil are removed. The restoration will be equal in value to the value of the trees and vegetation illegally removed. The value of trees removed will be determined based on the International Society of Arboriculture's tree valuation formula.
  - a) Spacing of replacement trees will be compatible with spatial limitations, and with responsible considerations toward potential species size.
  - b) When restoration or relocation of trees or vegetation is required, Landscaping Plans must be submitted to the Director in conjunction with a proposed development or redevelopment (see Landscape Applications section). Plans will document and map locations, species (common and botanical names), and sizes of all trees to be planted and retained.
  - c) Restoration plantings must contain species native to the City of Wildwood. Introduced species and exotics are not permitted. Acceptable native species can be found on the enclosed list of "Native Trees of Wildwood". Native species other than those found on the list are acceptable at the discretion of the Director of Planning.
  - d) Street trees, bufferyards, and parking lot plantings may be required and can be used to fulfill tree canopy requirements for a given development proposal. Native species are encouraged for these types of plantings, however any species found on the enclosed "General List of Acceptable Species" can be used.

# TREE PRESERVATION AS PART OF THE SITE PLAN REVIEW PROCESS

THE FIRST FOUR STEPS ARE NOT PART OF PLANNED DISTRICT, CONDITIONAL USE PERMIT, OR OTHER ZONING PROCEDURE. THEY ARE NORMALLY COMPLETED AS PART OF SPECIAL PROCEDURE PROCESSES.



# CONSTRUCTION STANDARDS FOR FIELD PRACTICE

The following practices may be required by the Director to insure survival of trees to be protected. All measures to be employed shall be shown on the Tree Protection Plan submitted to the Director for review.

- 1) **Pre-Construction Meeting.** An on-site meeting shall be held with the developer, City of Wildwood Director of Planning or his designee, the general contractor, and heavy equipment operators detailing the tree protection plan for the site. At this meeting, the Limits of Disturbance shall be clearly and visibly marked.
- 2) **Protective Methods (Fencing).** One or both of the following methods shall be used which will effectively protect the roots, trunk and top of the trees and other vegetation to be retained on the site. Personnel working in the vicinity of the area to be protected must be instructed to honor the protective devices.
  - A) **Active Protective Fencing** should be installed along the outer edge and completely surrounding the critical root zones of all trees to be protected. These fences should be a minimum of four feet (4') high, constructed in post and rail configuration. Four foot polyethylene laminar safety fencing is also acceptable.
  - B) **Passive Fencing** for tree protection may be utilized to delineate tree save areas which are less subject to encroachment by contractors. These can be comprised of plastic flagging supported by small posts. Regular inspections should be made to insure that flagging has not torn or collapsed. Repair of broken flagging should occur before crews work in the area.
- 3) **Signs** shall be used to designate tree protection areas. Signs are to be posted visibly on all sides of the fenced area. These signs are intended to inform contractors and subcontractors of the tree protection process. Minimum size for the signs is 11" x 15". Verbage should include, at a minimum, the following, "*TREE PROTECTION AREA - Machinery Access, Dumping, or Storage of Materials Prohibited*". Type size should be no smaller than 48 pt. Signs requesting subcontractor cooperation and compliance with tree protection standards are recommended for site entrances. No signs shall be attached to any tree.
- 4) **Root Pruning** shall occur when roots within the critical root zone of a tree to be protected will be damaged by nearby excavation or by adding fill over the root system. Root pruning allows roots to be cut cleanly and cover wounds quickly. Tearing roots with a backhoe or other mechanized equipment leads to root rot that can kill a tree or render it hazardous. Root pruning can be performed with "ditch-witch" type equipment or stump removers that cuts roots cleanly. Hand cutting of roots with pruning saws is also an appropriate method of root pruning. Backfilling of root pruning trenches must be performed as soon as possible to avoid drying out of exposed roots. Supplemental watering keeps exposed root ends healthy until backfilling occurs.

CONSTRUCTION STANDARDS FOR FIELD PRACTICE (continued)

- 5) Tunneling is required when utilities are to be run through a tree's critical root zone. No trenching is permitted for any reason within the critical root zone area.

Standards for tunneling are as follows:

- 
- A) Tunneling shall be no less than 24" from the surface.
- B) For trees less than six inches (6") DBH, trenches should approach no closer than the drip line of the tree. Tunneling shall occur under the tree's dripline.
- C) For tree's over six inches (6") DBH:

| <u>TREE DIAMETER (DBH)</u> | <u>TUNNEL DISTANCE FROM TREE ON BOTH SIDES</u> |
|----------------------------|--|
| 6 - 9"                     | 5'   |
| 10 - 14"                   | 10'  |
| 15 - 19"                   | 12'  |

---

It is recommended that reference be made to the publication "Trenching and Tunneling Near Trees" published by the National Arbor Day Foundation (100 Arbor Avenue, Nebraska City, NE 68410).

- 6) Aeration systems are required if moderate amounts of fill are placed over a tree's critical root zone. An aeration system provides critical oxygen to tree roots that will have non-porous materials placed over the roots. Perforated pipes can be either four inch (4") diameter drain pipe or 1 1/2" Schedule 40 PVC. Rock fill placed over the perforated pipe must be non-limestone based material larger than pea gravel size. "Meremac gravel" is appropriate. The pipe layout should be a bicycle spoke pattern or grid pattern with pipes placed no further than four feet (4') apart. Surface outlets can be perforated caps. Aeration systems are sometimes used in conjunction with retaining walls when fill is placed near protected trees.
- 7) Sediment and Erosion Control Structures must be used to keep eroded soil from covering roots of protected trees. Siltation screens, etc. are appropriate.



# TREE STAND DELINEATION

The purpose of a Tree Stand Delineation (TSD) is to provide a general accounting of existing vegetation so that conceptual design of proposed development can be done using the delineation as one of the determining factors in how the development is planned. The delineation should be used as a base plan for the conceptual site development plan.

There are various methods for preparing tree stand delineations. Alternate methods from those outlined in this manual may be acceptable to the Director following a review of the methodology, which must be prepared in detail and submitted by the applicant.

## Preparing a Tree Stand Delineation

Two processes for preparing a tree stand delineation will be outlined in this manual. The type of process depends upon the total acreage of wooded area on the subject site.

For sites with greater than 5 acres of wooded area, PROCESS 1 (Aerial Photography/BAF Study), as outlined in this manual, must be used.

For sites with less than 5 acres of wooded area, PROCESS 2 (Ocular Estimate), as outlined in this manual, must be used.

### *Process 1: Aerial Photography - BAF-10 Study*

The purpose of this process is to delineate tree stands on the wooded areas of a subject site based on species, composition, density, size, condition and age, including acreage of each stand type. The information is to be used to isolate stands of high quality, groves and individual grand trees to be considered for preservation when developing a conceptual site development plan.

#### **STEPS**

- 1) Study Aerial Photographs to determine general forest conditions and to make a preliminary determination of vegetation types which are to be verified in the field during step 2.
- 2) Site Visit/Determining Tree Structure - Point sampling is to be used in order to determine the distribution of tree diameter classes in each vegetation type. The BAF-10 (or Basal Area Factor 10) method is a standard among foresters and applied easily to develop a profile of the tree stands found on a site. One sample plot for each five acres of forest type shall be established. In addition to establishing sample plots for an overall profile of the tree stands found on a site, individual grand trees are to be field located and mapped as accurately as possible without the use of surveying equipment.
- 3) Map tree stands and grand trees at a scale equal to that of the conceptual site development plan, which must not be greater than 1"=100' for sites up to 100 acres. 1"=200' is permitted for sites over 100 acres.

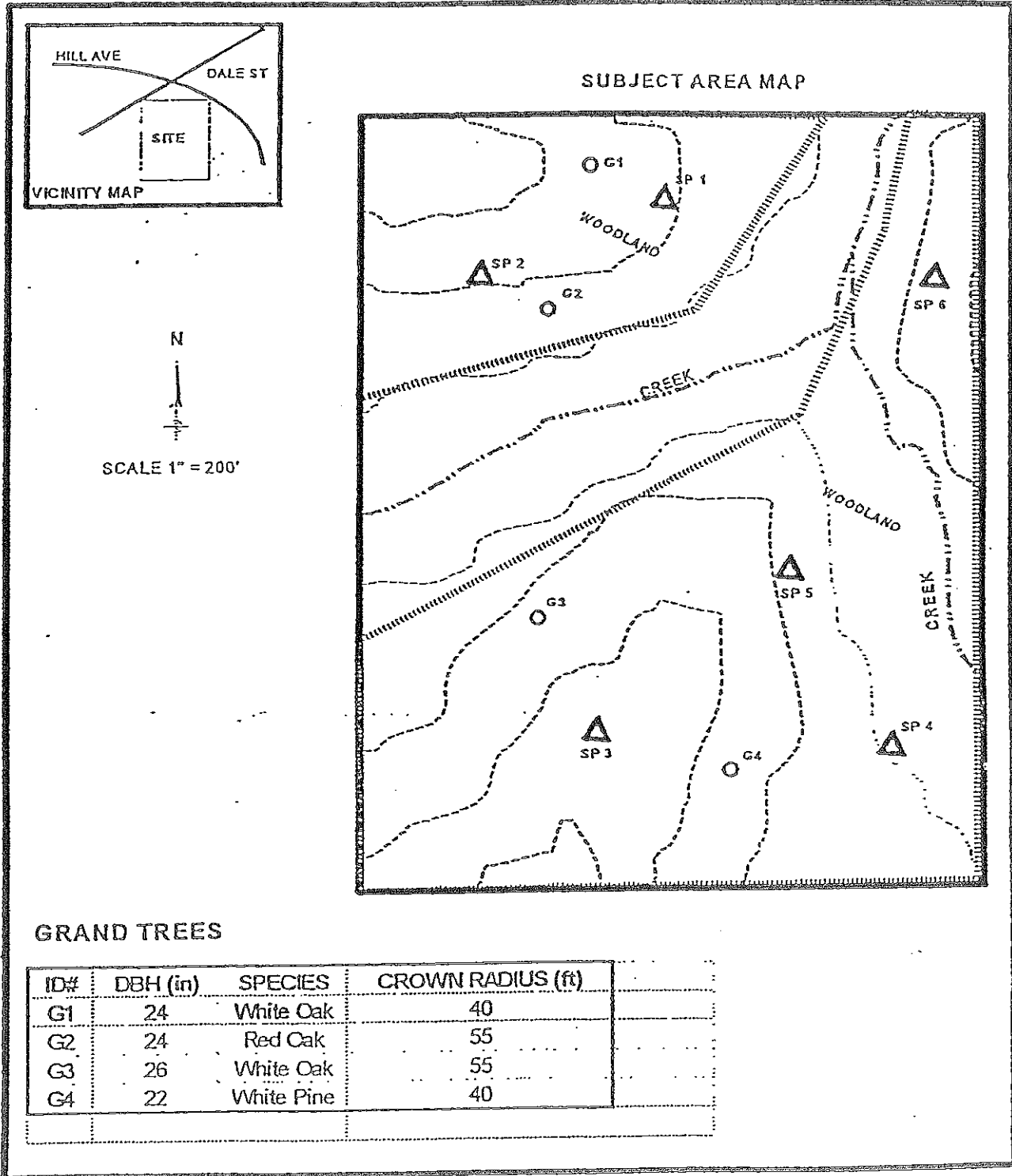
# Preparing a Tree Stand Delineation

## Process 1: Aerial Photography - BAF-10 Study (continued)

- 3)(continued) Maps shall meet the following checklist:
  - a) vicinity map locating the subject site;
  - b) north arrow and scale;
  - c) existing contours at no greater than 5 foot intervals;
  - d) limits of all wetlands and the location of the 100 year floodplain and required setbacks (estimated from FEMA, national inventory maps and field observations);
  - e) locations of existing structures;
  - f) locations of BAF-10 sampling points, 1 for each 5 acres of forest type;
  - g) locations of grand trees along with identification numbers (locations of grand trees within areas to be protected is optional);
  - h) limits of all existing tree stands;
  - i) locations of all existing roads;
  - j) locations of any significant, state-listed champion or rare trees or plants.
  
- 4) Prepare a written report describing each tree stand shown on the map. The following items must be shown in tabular form and attached to the narrative description:
  - a) acreage of stand;
  - b) forest type;
  - c) dominant and co-dominant species;
  - d) density expressed in trees per acre;
  - e) average diameter;
  - f) average overstory DBH;
  - g) frequency of occurrence for dominant species reflected as a percentage of the total number of trees in the stand);
  - h) list of understory species including groundcovers and herbaceous plants (by order of dominance at the time of the field investigation);
  - I) apparent health problems of any tree stand or grand tree;
  - j) aerial photographs (will be returned to applicant following review).

# SAMPLE TREE STAND DELINEATION MAP

## AERIAL PHOTOGRAPH BAF-10 METHOD



Process 2: Ocular Estimate (for sites with less than 5 acres of woodland)

The purpose of this method of preparing a tree stand delineation is to delineate specific trees in a wooded area of a site, and list the size, species, condition, age as well as the structure of the roots and canopy for each tree. The information is to be used to isolate individual trees of high quality for protection when developing a conceptual site development plan.

**STEPS**

1) **Site Visit/Mapping** - Every tree over 12" DBH is field located, as accurately as possible, on a map of existing topography along with identification numbers for each tree. Aerial photographs can be used to help locate individual trees. Trees that are not worthy of consideration for preservation, because of poor overall rating, need not be shown individually, but should be generally located and identified as a stand or as a note on the map. The map must meet the following checklist:

- a) vicinity map locating the subject site;
- b) north arrow and scale;
- c) existing contours at no greater than 5 foot intervals;
- d) limits of all wetlands and the location of the 100 year floodplain and required setbacks (estimated from FEMA, national inventory maps and field observations);
- e) locations of existing structures;
- f) locations of all existing roads;
- g) locations of any significant, state-listed champion or rare trees or plants.

2) **Rating Chart** - Each tree identified above is rated for each factor listed below in order to determine which trees should or should not be saved. The International Society of Arboriculture's landscape evaluation methodology can be used. A copy of this manual can be obtained from ISA (PO Box GG, Savoy, IL 61874-9902; Phone (217) 355-9411.)

- a) *Species* - Based on ability to survive normal construction impacts and its ability to live in a changed environment (silvicultural aspects of the species.)

POOR, FAIR, EXCELLENT

- b) *DBH* - based on the assumption that generally, the larger the tree, the more valuable.

|          |           |
|----------|-----------|
| 12 - 18" | FAIR      |
| 19 - 26" | GOOD      |
| >26"     | EXCELLENT |

Process 2: Ocular Estimate

2) Rating Chart (continued)

- c) *Health* - Based on the overall health of the tree at the time of the survey (disease, infestation, and decay)

POOR, FAIR, EXCELLENT

- d) *Structure of the Canopy* - Based on the wholeness of the shape, the ability to selectively prune and ability to regenerate growth (response to release).

POOR, FAIR, EXCELLENT

- e) *Structure of the Root System* - Based on any previous damage to the root system or the type of root system as it relates to normal construction impact.

POOR, FAIR, EXCELLENT

- f) *Other aspects* that may have a positive or negative impact on the preservation of a tree i.e. wind firmness, degree of lean, degree of potential hazard, secondary symptoms, etc.

## Guidelines for Using a Tree Stand Delineation

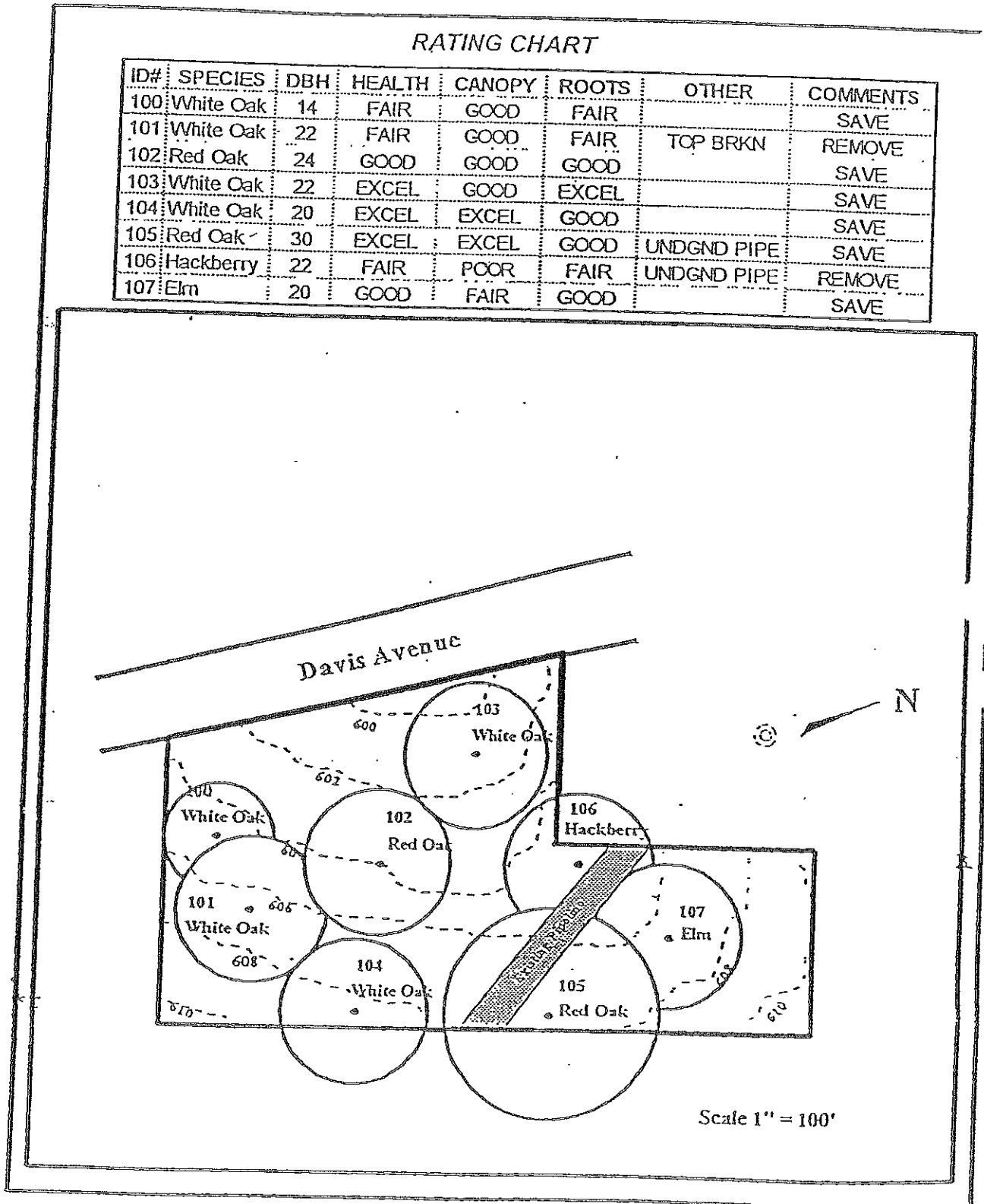
As mentioned in the previous section, the Tree Stand Delineation is to be used DURING the early conceptual design process for a proposed development. The process for using a TSD when developing a concept plan will be more complicated with larger sites that have large amounts of wooded area than with smaller sites that may have only a few trees.

- 1) Identify tree stands or grand trees that are most worthy for preservation.
- 2) Identify areas on the site that have the most potential for disturbance.
- 3) Identify and apply all zoning requirements such as setbacks, parking spaces, tree canopy coverage, roads, etc. and seek optional waivers and/or variances in order to save valuable trees.
- 4) Locate roads, building footprints, parking lots, stormwater structures and utilities so as to minimize their impact on trees worthy of preservation.

SAMPLE TREE STAND DELINEATION MAP  
 OCULAR ESTIMATE METHOD

RATING CHART

| ID# | SPECIES   | DBH | HEALTH | CANOPY | ROOTS | OTHER       | COMMENTS |
|-----|-----------|-----|--------|--------|-------|-------------|----------|
| 100 | White Oak | 14  | FAIR   | GOOD   | FAIR  |             | SAVE     |
| 101 | White Oak | 22  | FAIR   | GOOD   | FAIR  | TOP BRKN    | REMOVE   |
| 102 | Red Oak   | 24  | GOOD   | GOOD   | GOOD  |             | SAVE     |
| 103 | White Oak | 22  | EXCEL  | GOOD   | EXCEL |             | SAVE     |
| 104 | White Oak | 20  | EXCEL  | EXCEL  | GOOD  |             | SAVE     |
| 105 | Red Oak   | 30  | EXCEL  | EXCEL  | GOOD  | UNDGND PIPE | SAVE     |
| 106 | Hackberry | 22  | FAIR   | POOR   | FAIR  | UNDGND PIPE | REMOVE   |
| 107 | Elm       | 20  | GOOD   | FAIR   | GOOD  |             | SAVE     |



# TREE PRESERVATION PLANS

A Tree Preservation Plan (TPP) is "a site plan prepared by an approved professional that delineates tree save areas and details measures to be taken to ensure protection and survivability of trees to be saved, prior to and during construction, and also complies with guidelines which are listed in the Wildwood Tree Manual". The purpose of such a plan is stated simply as "to ensure survivability of trees to be saved." Without successful implementation of such a plan, trees that are proposed for preservation will undoubtedly be damaged along with increased mortality during construction activity.

## *Conceptual Tree Preservation Plan Checklist:*

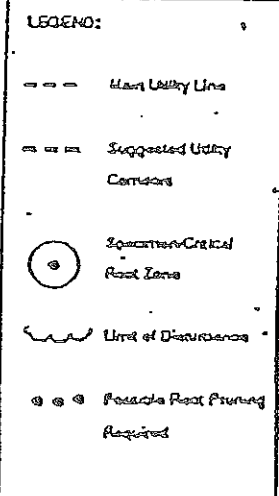
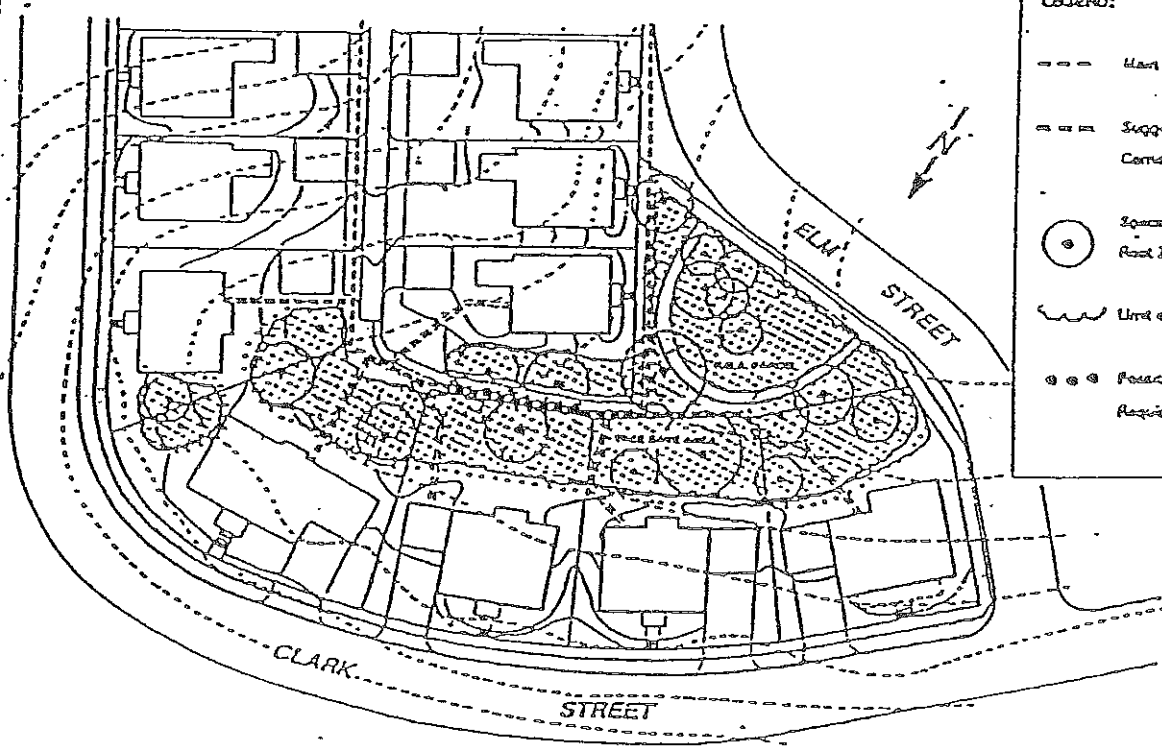
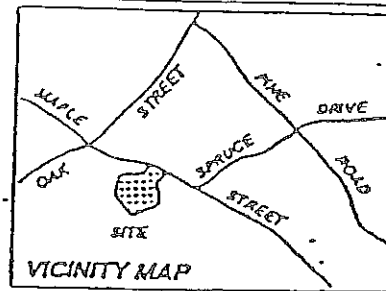
- 1) The limit of disturbance line;
- 2) Plan must be at the same scale as the site development plan or grading plan;
- 3) Table stating the zoning, total site area, square footage and percentage of canopy coverage required and provided;
- 4) Standard general notes and application specific notes;
- 5) Existing contours and proposed contours;
- 6) Locations of all improvements as shown on the site development plan;
- 7) General or conceptual locations of all sediment control devices and structures;
- 8) Locations of proposed utility corridors;
- 9) Clear graphic indication of the tree preservation areas on the plan including the location, type and size of any grand trees as shown on the Tree Stand Delineation and the critical root zone for those trees within fifty feet (50') of the limit of disturbance line.

NOTE: *The site plan can be used as a base plan, and the TPP can be combined with the site plan and/or landscape plan for sites with less than five (5) acres of woodland area.*

# SAMPLE CONCEPTUAL TRP

**GENERAL NOTES:**

|                       |                                 |
|-----------------------|---------------------------------|
| Zone:                 | MXD                             |
| Site Area:            | 1.7849 acres/77,754 sq. ft.     |
| Wooded Area:          | same as above                   |
| Tree Canopy Required: | 30%                             |
| Tree Canopy Saved:    | 17.8% or 13,875 sq. ft.         |
| Tree Canopy Planted:  | 27.9% or 21,764 sq. ft.         |
| Tree Canopy Provided: | 45.8% or 35,639 sq. ft.         |
| Proposed Units:       | 16 Single Family Detached Units |



Scale: 1" = 30'



## Final Tree Preservation Plan Checklist:

- 1) Include items 1 through 7 required for the conceptual TPP listed above;
- 2) Clear graphic indication of the tree preservation areas on the plan, including the location type and size of any grand trees.
- 3) All of the grand trees must be located using surveying equipment to verify the locations shown on the TSD;
- 4) Critical root zones for all trees to be saved greater than twelve inches (12") DBH and within fifty feet (50') of the limit of disturbance line;
- 5) Root pruning lines for all critical root zones that are encroached upon by the limit of disturbance line;
- 6) Protective devices with details (aeration systems, retaining walls, etc.);
- 7) Reforestation area as required;
- 8) Early maintenance schedule (ie pruning, injection fertilizing, etc.);
- 9) Locations of all utilities and special utility installation procedures;
- 10) Locations of tree preservation signage, construction parking areas, concrete washout areas, and material storage areas;
- 11) Special paving areas with details;
- 12) The following tree protection notes:
  - a) Pre-construction meeting, held on-site to include a presentation of tree protection measures to operators, construction supervisors, developer's representative, and city zoning inspectors;
  - b) Clearing limits shall be rough staked by developer in order to facilitate location for trenching and fencing installation;
  - c) No clearing or grading shall begin in areas where tree treatment and preservation measures have not been completed;
  - d) The sequence of tree treatment and preservation measures shall be:
    - 1) Root pruning trenching;
    - 2) tree protection fencing;
    - 3) Tree pruning and chemical treatment;
    - 4) Aeration systems installed;
    - 5) Sign installation.

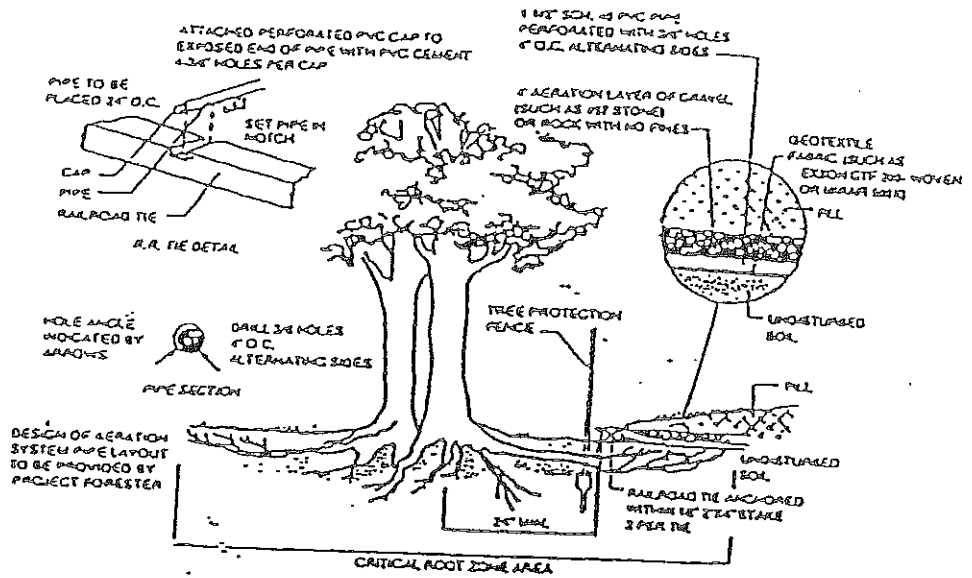
- e) A tree protection action key listing each tree to be preserved and the protective measures it will receive.

### Requirements During Grading and Construction

- 1) Above measures shall be directed in the field by the project forester;
- 2) Tree protection fencing shall be maintained and repaired by the developer or contractor for the duration construction and once approved by the city zoning inspector must not be altered without prior approval by the city zoning inspector;
- 3) Access to fenced areas by equipment, materials, or individuals that may cause harm to protected trees will only be permitted with the prior approval of the city zoning inspector;
- 4) Designated aeration zones shall be protected with temporary fencing until final grading;
- 5) Trees, shrubs, or undergrowth shall be removed from protected areas only when necessary and shall be performed with hand tools only;
- 6) Attachment of signage, fencing, etc. to any tree to be saved is prohibited;
- 7) After construction, all temporary barriers, fencing, debris, etc. shall be removed from the site by the contractor.

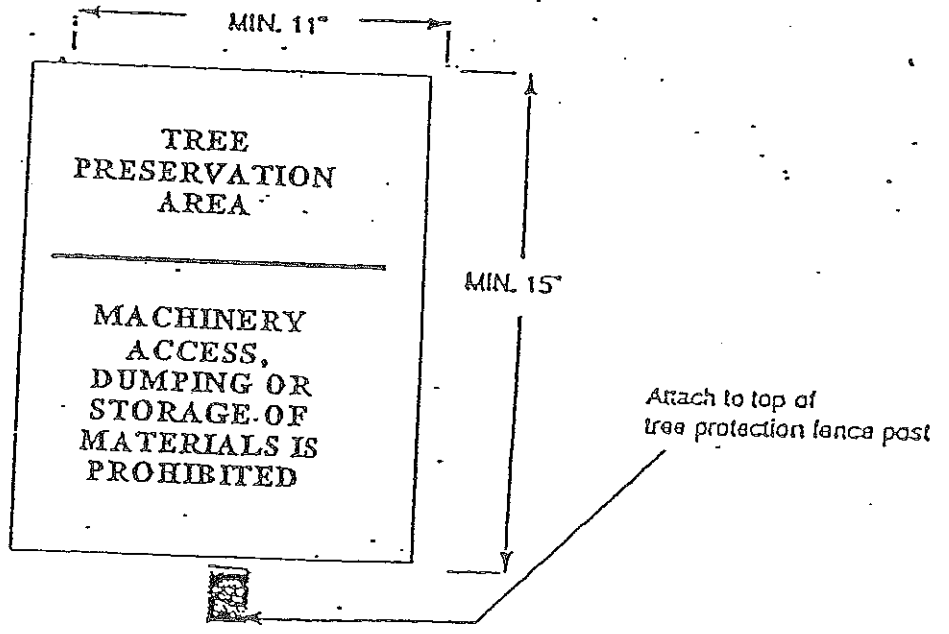


# SAMPLE TREE PRESERVATION PLAN DETAILS



Source: Steve Clark & Associates

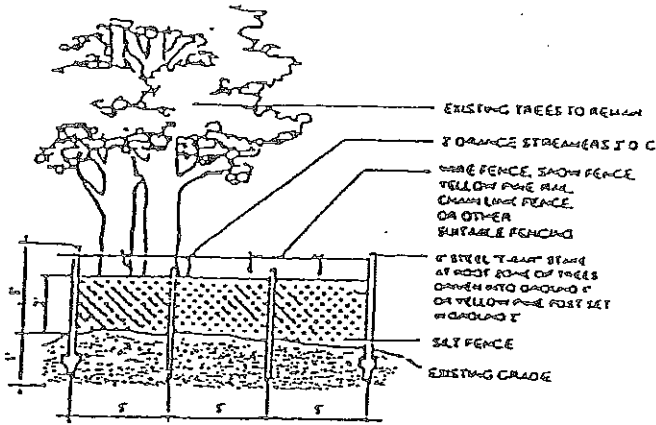
## TIMBER AERATION SYSTEM



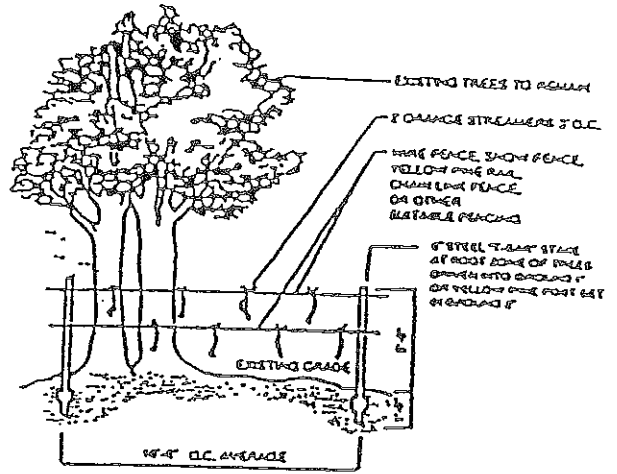
## TREE PRESERVATION SIGN

SAMPLE

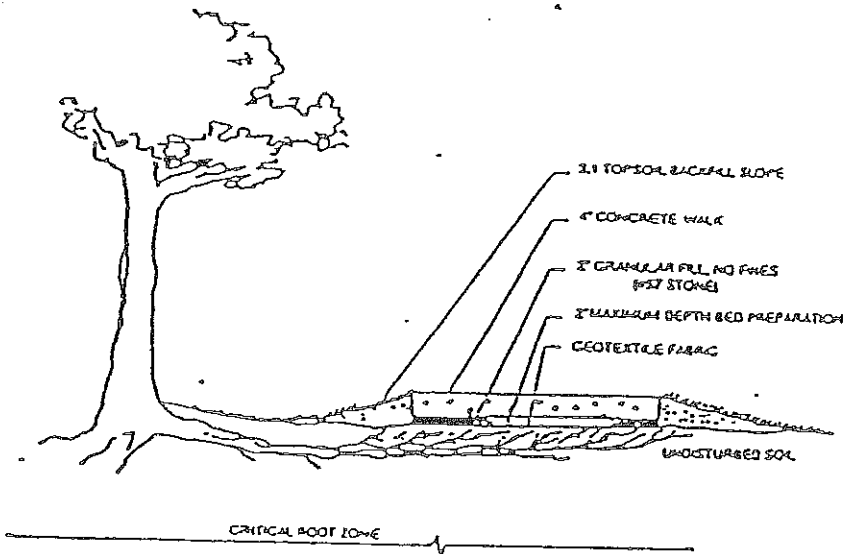
TREE PRESERVATION PLAN  
DETAILS



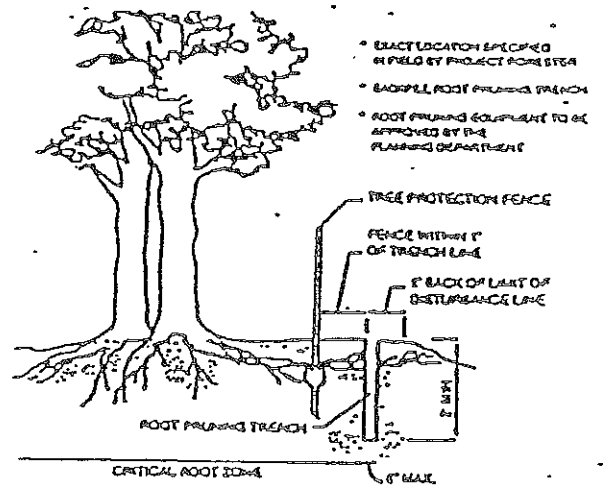
COMBINED SILT AND TREE PROTECTION FENCE



CONSTRUCTION FENCE FOR TREE PROTECTION



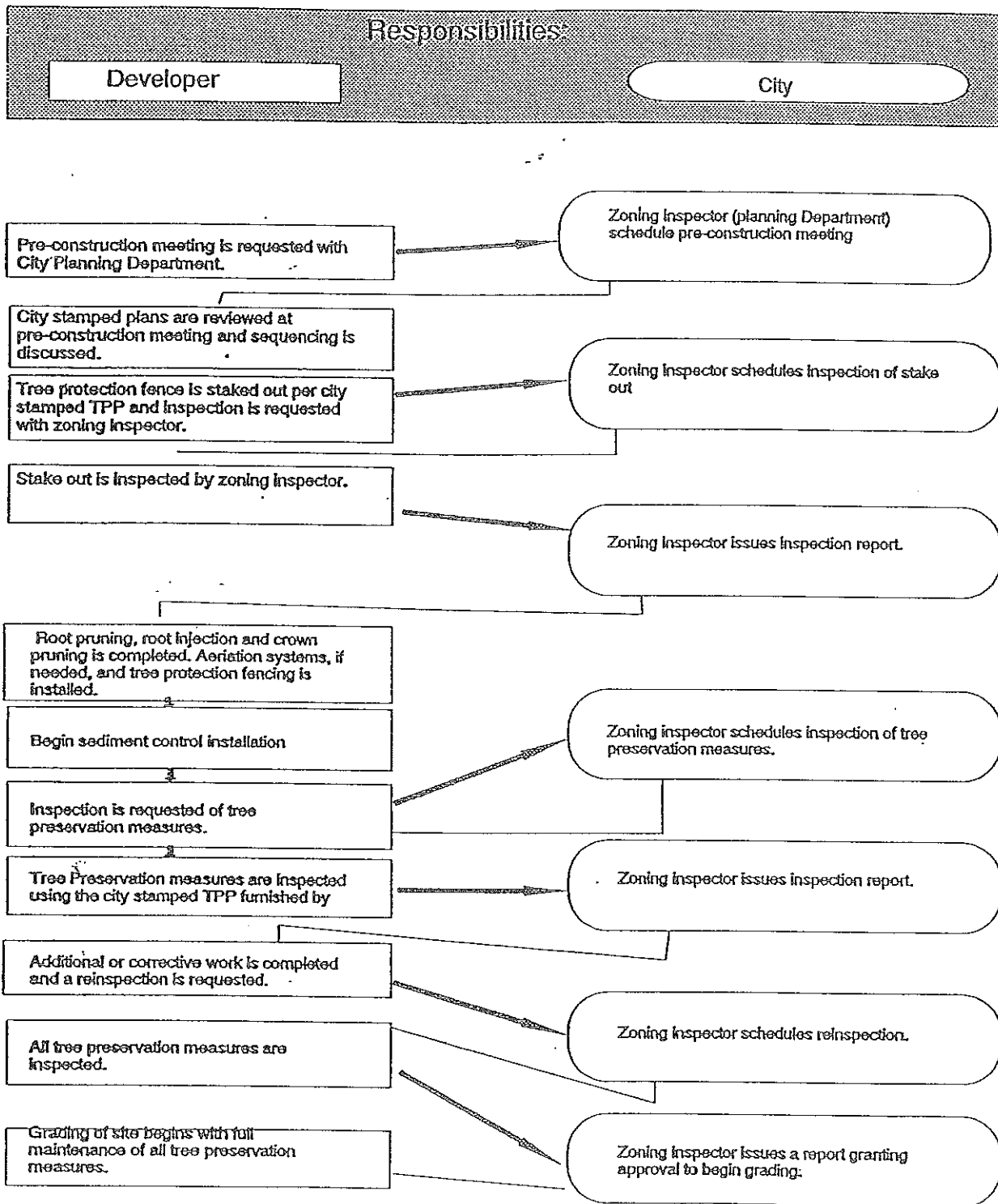
CONCRETE WALK OVER CRITICAL ROOT ZONE



ROOT PRUNING

Source: Steve Clark & Associates

# TREE PRESERVATION INSPECTION PROCESS



# LANDSCAPE PLANS

It is the purpose of this portion of the manual to provide guidelines for the development of landscape plans that are required to be submitted to the City for approval. A Conceptual Landscape Plan is required with the preliminary site plan review. A Final Landscape Plan is required with the final site plan review.

## Checklist for Conceptual Landscape Plans

- 1) Conceptual site plan is to be used as a base plan;
- 2) Clear graphic representation of the location of each proposed plant as well as existing trees that are shown to be saved on the Tree Preservation Plan;
- 3) Plant Key - establishes a symbol for each general category of proposed plant, ie Large Shade Tree, Medium Shade Tree, Small Flowering Tree, Small Evergreen Tree, Large Evergreen Tree, Shrub Mass, Annual Bed, Ground Cover;
- 4) Ultimate Canopy Sizes - for proposed trees shall be: 1,000 square feet for large shade trees, 700 square feet for medium shade trees and large evergreen trees, and 300 square feet for for small flowering trees and small evergreen trees;
- 5) Data Table - that lists the required and provided canopy coverage and green space that is provided by existing and proposed trees.

## Checklist for Final Landscape Plans

- 1) Numbers 1, 2 and 5 from above checklist;
- 2) Plant List - for each plant, list the quantity, botanical name, common name, size (in accordance with the minimum sizes listed in this manual), container type and any specific comments;
- 3) General Notes - the following general notes must be placed on all landscape plans where relevant:
  - a) Individual homeowners must be notified at least one week prior installation of plants on lots that have an occupied dwelling;
  - b) Unless otherwise stipulated by specific requirements of the City of Wildwood Tree Manual, the landscaping shown on this plan must be planted in accordance with the latest edition of the Tree and Shrub Transplanting Manual published by the International Society of Arboriculture (PO Box GG, Savoy, IL 61874-9902);
  - c) All tree are to be located a minimum distance of 5' from all utility boxes, 5' from a storm drain inlet or manhole, 10' from a fire hydrant, 15' from public street lights, 5' from driveway aprons, 20' from any traffic control sign, and at least 30' from any intersection;

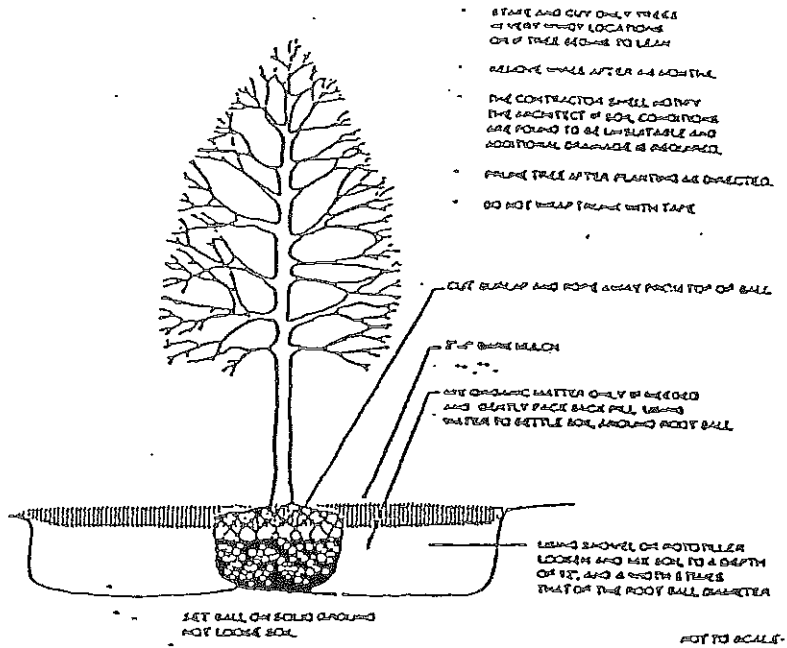
- d) Locations of street trees may be subject to change in order to avoid conflict with street lighting;
  - e) Any planting within a tree preservation area, as designated on the Tree Preservation Plan and shown on this plan, must be done to avoid any adverse impact to the roots of existing trees;
  - f) Plant type substitutions are permitted with verbal or written approval from the City of Wildwood Planning Department;
  - g) All plant material will be reinspected for survival by the City of Wildwood Planning Department one year following installation and again two full growing seasons after planting;
  - h) All plants must meet standards of the latest edition of the American Standards for Nursery Stock sponsored by the Association of American Nurserymen;
  - i) No plant shall be located in areas of obvious poor drainage. If such conditions exist, contact the landscape architect immediately to relocate affected plant material.
  - j) Soil conditions must be tested, verified and adjusted by the landscape contractor to insure that appropriate soil composition and pH levels are suitable for plant material specified for that specific location.
- 4) Conceptual locations of proposed street lights as well as any parking lot lights along with details of any light.
- 5) Planting details and details of any landscape structures that are proposed.

#### Required Tree Sizes

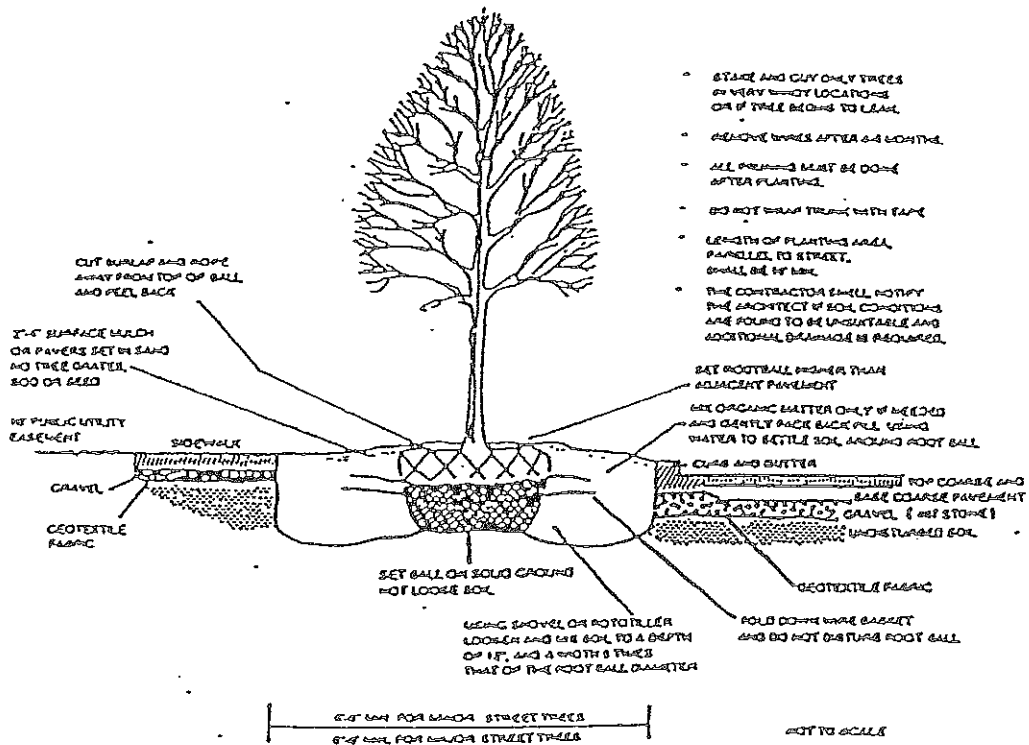
| <u>TREE TYPE</u>   | <u>MINIMUM SIZE</u> | <u>MAXIMUM SIZE</u>        | <u>USE</u>                           |
|--|---------------------|----------------------------|--------------------------------------|
| Street Trees or Shade Trees                              | 2" - 2 1/2" caliper | 4" caliper                 | Streets, Parking Lots<br>Restoration |
| Other Deciduous Trees<br>beds, near bldgs, in open areas | 1 1/2" - 2" caliper | 3" caliper                 | Planting                             |
| Evergreen Buffer Trees                                   | 8' in height        | 12' in height<br>buffering | Screening,                           |
| Other Evergreen Trees<br>groupings                       | 5' in height        | 7' in height               | Accents,                             |



# LANDSCAPE PLAN DETAILS



## DECIDUOUS TREE PLANTING



## STREET TREE AND PARKING LOT ISLAND PLANTING

Source: American Forestry Association