



City of Maitland
1776 Independence Lane
Maitland, Florida 32751
407-539-6212

PETITION FOR PRELIMINARY SUBDIVISION PLAT

CONTENTS:

- 1) General Public Summary Information
- 2) Petition Form

General Summary

The following is a guide designed to assist those persons who wish to subdivide and develop land within the corporate limits of Maitland. As such, it does not assure any approvals.

1. Become familiar with Chapters 16 (Subdivision Regulations) and 7.5 (Land Development Procedures) of the City Code. (Copies of the Subdivision Regulations and the Zoning Code may be purchased at City Hall or via the internet at www.itsmymaitland.com.)
2. Schedule a pre-application conference through the Community Development Department for the Development Review Committee. Preliminary drawings of the proposed subdivision must be submitted to the Zoning Administrator ten (10) working days prior to the Development Review Committee meeting. If the pre-application conference exceeds one-half (½) hour in time, a fee of \$250 will be charged to the applicant.
3. Submit all required application materials by noon, at least forty (40) days prior to the first Thursday of any month.
4. A \$5,000 review deposit, payable to the City of Maitland, must accompany this application, as specified in Article XVI, Chapter 7.5¹ (Section 7.5-143) of the City Code. *[The review deposit shall be utilized by the City to reimburse the City for the actual expenses incurred by the City as a result of the review of the development application. A waiver of this requirement may be acceptable under certain conditions, as specified in Section 7.5-143 (c)].*

The application fees are as follows:

- \$500 + \$10 per residential lot
- \$500 + \$50 per acre for commercial subdivisions

If waiver of the review deposit is approved, a minimum payment of the application fee plus \$150 for advertisement costs for Board reviews and postage cost per mailing item must be submitted with the application. If additional fees exceeding \$150 are incurred, you will be billed under separate cover.

Application fees must be submitted at the time of application. Submittals without applicable fees will not be reviewed. The application fee is not refundable. Likewise, the applicant will pay for all advertisements of hearings concerning the application.

¹ A copy of Ordinance No. 1160 creating Part II, Chapter 7.5, Article XVI, Section 7-5.2 – Pass-Through Fees is located via the internet at www.itsmymaitland.com (On-line Forms – Petition Application Forms).

5. Within five (5) days of submission, the Community Development Department will review the petition for sufficiency and completeness, and will accept it or request corrections. If corrections are requested, the applicant has five (5) days to make all requested changes. If all information is not submitted as required, the application will not be considered complete and will not be accepted. The applicant will forfeit the application fee and the application will not be processed. The balance of the review deposit shall be returned to the applicant as provided for in Article XVI, Chapter 7.5 (Section 7.5-144 Project Account) of the City Code.
6. A public hearing will be held the first Thursday of the month following submittal. The applicant should attend in person or by representative agent.
7. Following a public hearing by the Planning and Zoning Commission², the Development Review Committee will review the petition and any public hearing testimony and shall make a recommendation to the Planning and Zoning Commission for approval, approval with conditions or denial of the proposed petition.
8. Within forty-five (45) days after the Planning and Zoning Commission's public hearing, the Planning and Zoning Commission shall review the Development Review Committee's findings and recommendation and will grant approval, approval with conditions or denial. Approval or conditional acceptance of the preliminary plat and other required supplementary material shall not be construed as acceptance of the final plat. Rather, it shall be deemed an expression of acceptance of the layout submitted on the preliminary plat as a guide to the preparations of the final plat.
9. Upon approval of the preliminary plat, submit final plat at least forty (40) days prior to the first Thursday of any month, in accordance with Chapter 7.5. Submit engineering designs and construction plans for public improvements at the same time. The final subdivision plat and supplementary material must be submitted within twelve (12) months after approval of the preliminary plat.

***Please Note: Once a hearing is scheduled and advertised, the deadline for cancellation is no later than five (5) working days prior to the hearing. There is a \$50 fee in addition to postage cost for each mailing item, as well as payment for the hearing cancellation notice in the newspaper and for re-advertising the hearing at a later date.**

² The Planning and Zoning Commission of the City of Maitland, Florida, also sits as the Local Planning Agency and the Land Development Regulation Commission.

Petition Number _____
(office use only)



City of Maitland
1776 Independence Lane
Maitland, Florida 32751

PETITION FOR PRELIMINARY SUBDIVISION PLAT APPROVAL

PART I. APPLICANT INFORMATION (Part I to be submitted in triplicate.)

Please check box to indicate those who should receive all correspondence relating to this petition.

1. APPLICANT'S NAME _____

Address _____

Telephone No. (_____) _____ Fax No. (_____) _____

E-mail Address _____

(If more than one applicant, please attach list and signatures.)

2. CURRENT PROPERTY OWNER'S NAME(S) _____

Address _____

Telephone No. (_____) _____ Fax No. (_____) _____

E-mail Address _____

(Provide for each owner of real property that is subject to petition; please attach list and signatures.)

3. AGENT'S NAME _____

Address _____

Telephone No. (_____) _____ Fax No. (_____) _____

E-mail Address _____

(If more than one agent, please attach list.)

4. ENGINEER'S NAME _____

Address _____

Telephone No. (_____) _____ Fax No. (_____) _____

E-mail Address _____

(If more than one Engineer, please attach list.)

5. Gross Acreage _____ Net Acreage _____ Parcel I.D. _____

6. APPLICATION CERTIFICATION:

I certify that, to the best of my knowledge, the submitted information and statements are true and correct.

I have received and read the Public Summary Information, which outlines the Preliminary Plat procedure.

(Attach signatures as required)

Applicant's Signature

Date

NOTE: Any desire to amend or withdraw the application must be submitted in writing to the Community Development Department. If ownership of any part of or all of the real property subject to the petition shall change during the pendency of the petition, the petitioning owner who has conveyed said parcel of real property shall be required to immediately advise the Community Development Department in writing.

PART II. REQUIRED APPLICATION INFORMATION

1. FEES (Payment required upon application submission)

- A \$5,000 review deposit, payable to the City of Maitland, as specified in Article XVI, Chapter 7.5 (Section 7.5-143) of the City Code. *(The review deposit shall be utilized by the City to reimburse the City for the actual expenses incurred by the City as a result of the review of the development application. A waiver of this requirement may be acceptable under certain conditions as specified in Article XVI, Chapter 7.5 [Section 7.5-143 (c)] of the City Code.*
- The application fees are as follows:
 - \$500 + \$10 per residential lot
 - \$500 + \$50 per acre for commercial subdivisions
- If waiver of the review deposit is approved, a minimum payment of the application fee plus \$150 for advertisement costs for Board reviews and postage cost per mailing item must be submitted with the application. If additional fees exceeding \$150 are incurred, you will be billed under separate cover.

2. **LIST OF PROPERTY OWNERS.** A list of the names and mailing addresses of all property owners of real property within five hundred (500) feet of outer perimeter of subject property, taken from most recent tax rolls in Orange or Seminole Counties, shall be submitted. The five hundred feet distance shall be measured by a straight line from the point of the boundary of the subject property nearest to the point of the boundary of any property within five hundred (500) feet thereof.

3. **AUTHORIZATIONS.** If the applicant or agent is other than the property owner, the applicant or agent shall provide a notarized letter of authorization from the property owner.

4. **ENGINEER'S NAME.** The name of the registered engineer(s), if applicable, responsible for the plat and supporting data.

Part III. REQUIRED SUPPLEMENTAL INFORMATION. Submit two sets of all plans and supplemental materials until application has been deemed sufficient. When sufficient, all supplemental information shall be submitted in sets of twenty-two (22) copies. All plans submitted must be in sets of **12 full-size** and **10 half-sheet** sets.

1. VICINITY MAP showing:

- a. The location of the proposed subdivision;
- b. Relationships to surrounding streets;
- c. Existing zoning and land use on the site and surrounding areas (within 500 feet);
- d. An arrow indicating north and scale.

2. PLAT MAP* showing:

(Information can be shown on one or more sheets with a uniform scale).

- a. An arrow indicating north, noted standard scale, graphic scale, date and basis of bearing (desire true bearing).
- b. Key plan showing location of tract in reference to other areas of the city. (Not necessarily to scale.)
- c. Proposed subdivision name or identifying title which shall not duplicate or closely approximate the name of any other subdivision in Orange County.
- d. Boundary survey and the legal description of the property, prepared by a surveyor registered by the state of Florida under a surveyor's seal and certified to the City.
- e. All existing streets and alleys on or adjacent to the tract, including name; rights-of-way; width; street or pavement width and established center line elevations. Existing streets shall be proportioned to tract boundaries.

Part III. REQUIRED SUPPLEMENTAL INFORMATION (Continued)

- f. All existing property lines, buildings, transmission lines, sewers, bridges, culverts and drain pipes, water mains, county boundary lines, city limit lines and any public and/or private easements (including type).
 - g. Plat of adjacent subdivisions, if any, and recordation date, approximate percent build-up, typical lot size, dwelling type, etc. of such adjacent subdivision or subdivisions. Adjacent unplatted land shall be indicated by the words "not platted".
 - h. Location, name (where applicable) and width of all proposed streets, alleys, rights-of-way, easements and purpose of easements; proposed lot lines with dimensions; lot numbers and block designations.
 - i. The location of all property which is to be dedicated, reserved or proposed for public use, including drainage courses and easements and all property that may be reserved by covenants in deeds for the common use of the property owners in the subdivision, with the purposes indicated thereon.
 - j. Proposed public improvements, such as highways or other major improvements planned by public authorities for future construction on or near the tract.
 - k. Conditions on tract including all existing water courses, drainage ditches, and bodies of water, marshes, rock outcrop, surrounding physical features affecting the site, isolated preservable trees (one foot or more in diameter) and plans of tree planting and other significant features.
 - l. Access to all new buildings by fire/rescue apparatus shall be as required by applicable sections of the Florida Fire Prevention Code, current edition, and Chapter 6, City Fire Code. Site plan showing fire access shall be to scale, no greater than 1"=60';
 - m. Turning radii for fire engines shall be 20 inside and 40 outside diameter. Turning radii for ladder or aerial trucks shall be 25 inside and 50 outside in accordance with manufacturer's specifications;
 - n. Roadways shall be designed to sustain the weight of fire apparatus; minimum design weight of 32 tons (64,000 lbs).
3. **GRADING/DRAINAGE/UTILITY PLAN*** to include:
(On minor subdivisions, the Utility Plan may be combined with the Grading/Drainage Plan. On larger subdivisions, separate Utility Plans are required.)
- a. Proposed contour lines and spot elevations on site and extending 25 feet beyond the property boundary. Existing contour lines screened as background.
 - b. Location, size and description of drainage, sewage collection and water distribution systems and location of any proposed or existing fire hydrants;
 - c. All existing utilities on or adjacent to the site including connection details;
 - d. Plan(s) to include footprint of existing and proposed site improvements for evaluating the grading and drainage systems;
 - e. Note finished floor elevation and perimeter.
4. **FIRE FLOW.** To meet gpm requirements for the proposed project, the following information shall be provided to the Fire Marshal prior to submitting application:
- a. Type of construction for the proposed facility;
 - b. Floor-by-floor/and/or total square footage;
 - c. Type of occupancy or use for the proposed facility;
 - d. Whether the building is protected with fire sprinklers;
 - e. Distance from property lines and/or neighboring structures within 150 feet of proposed building;
 - f. The minimum required fire flow per building shall be provided by the Fire Marshal;

Part III. REQUIRED SUPPLEMENTAL INFORMATION (Continued)

- g. Engineered hydraulic calculations shall be accomplished to prove the required fire flow is available. The minimum acceptable design pressure shall not be less than 25 psi for these calculations;
 - h. The hydraulic calculations shall be submitted to the Fire Marshal for review and acceptance prior to the Development Review Committee meeting.
5. **TOPOGRAPHY MAP*** indicating existing one-foot contour intervals. The topography map must delineate the mean high water elevations for each water body and the one hundred-year flood elevations throughout the site, if applicable. (Topography Map may be included on the Grading/Drainage Plan).
6. **VEGETATION MAP** (for applications with property one (1) acre or larger).^{*} showing existing vegetation species, caliper, and condition and including all species that are threatened, endangered or of special concern and all preservable trees 6" or more in diameter.

*

All plans are to be drawn with a uniform scale and at a scale of at least 1"-60'.

7. **LEGAL INSTRUMENTS.** Drafts of protective covenants, whereby the developer proposes to regulate land use in the subdivision and otherwise protect the proposed development.
8. **CONSTRUCTION DETAILS.** Typical sections showing street type and width, curb and gutter, driveway entrances, sidewalks, storm drainage and designs of any proposed fences, walls and entrance structures to be maintained by the property owner.
9. **LEVEL OF SERVICE DATA AND ANALYSIS** illustrating that all adopted levels of service affecting the property are met or, if any service levels are not met, schedule of improvements which will be provided to ensure that all service levels are met and a detailed analysis of parking requirements, including time of use and function, to support request. Data shall include, but not be limited to, traffic, storm water drainage, water, sewer and parks and be in a format acceptable to the Community Development Director. Include the attached Water/Sewer Level of Service Analysis signed and sealed by an engineer.
10. **SOILS** showing subsurface conditions on the tract; location and results of tests made to ascertain subsurface soil, rock and ground water conditions; depth to ground water unless test pits are dry at a depth of three (3) feet; location and results of soil percolation test if individual sewage systems are proposed.
11. **WILDLIFE INVENTORY/PROTECTION PLAT.** An inventory of wildlife species on site, including species categorized as endangered, threatened or of special concern and a description of techniques and practices proposed to protect them.
12. **ANALYSIS** of the City's ability to provide adequate public services to the land proposed to be subdivided (e.g., police, fire, garbage, etc.).
13. **DETAILS.** Listed below are examples of details which are attached for reference and are to be included with the application:
- a. Water/sewer detail
 - b. Dumpster detail
 - c. Tree save detail
14. **PRELIMINARY SUBDIVISION PLAT APPROVAL APPLICATION CHECKLIST.** The checklist is to be completed and submitted with application.

FIRE FLOW CALCULATION ACCEPTANCE	WATER /SEWER LEVEL OF SERVICE ANALYSIS
Address of project: _____ _____	Address of project: _____ _____
Required Fire Flow per City: _____ gpm	water gpd: _____
Fire Flow available for Project per Engineered Calculations: _____ gpm	sewer gpd _____
Accepted by: _____ _____	Engineer's Signature _____ Date _____
Fire Marshal or Designee _____ Date _____	
Copy of Sealed Calculations attached	NOTE: Attach demand calculations signed and sealed by Engineer of Record.

**PRELIMINARY SUBDIVISION PLAT
APPLICATION CHECKLIST**

The following items must be included with the application before it can be deemed sufficient. If all items on this application are not addressed, the application for Preliminary Subdivision Plat **MAY BE DEEMED INSUFFICIENT**. Please check a Yes or No for **each** of the items listed below:

YES NO

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Signed Fire Flow Calculation Acceptance sheet. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Water/Sewer details. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. Paving & Hardscape details |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Dumpster Enclosure detail |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. SJRWMD Permit Application |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Tree Save detail |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Signs and lighting detail |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Traffic Impact Analysis |
| <input type="checkbox"/> | <input type="checkbox"/> | 9. Survey signed and sealed <u>Certified to the City of Maitland</u> |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. L.O.S. sheet attached, signed and sealed by Engineer |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. I understand if my application and plans are not complete, the application
WILL NOT BE REVIEWED |

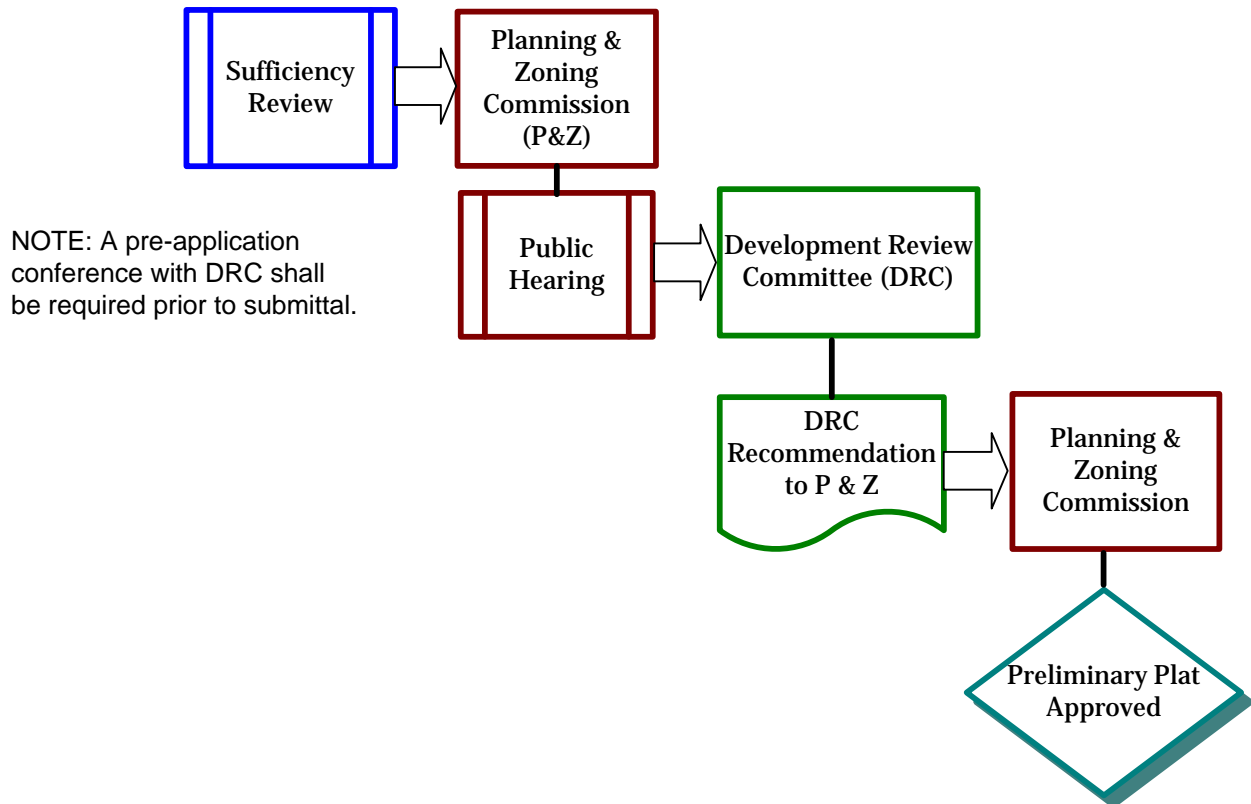
CERTIFICATION

I do hereby certify that I, the undersigned, have read the above information and have full understanding to the best of my knowledge and belief that all information supplied with this application is true and accurate.

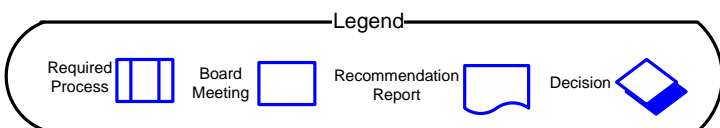
Signature _____ Date _____
 Owner Applicant

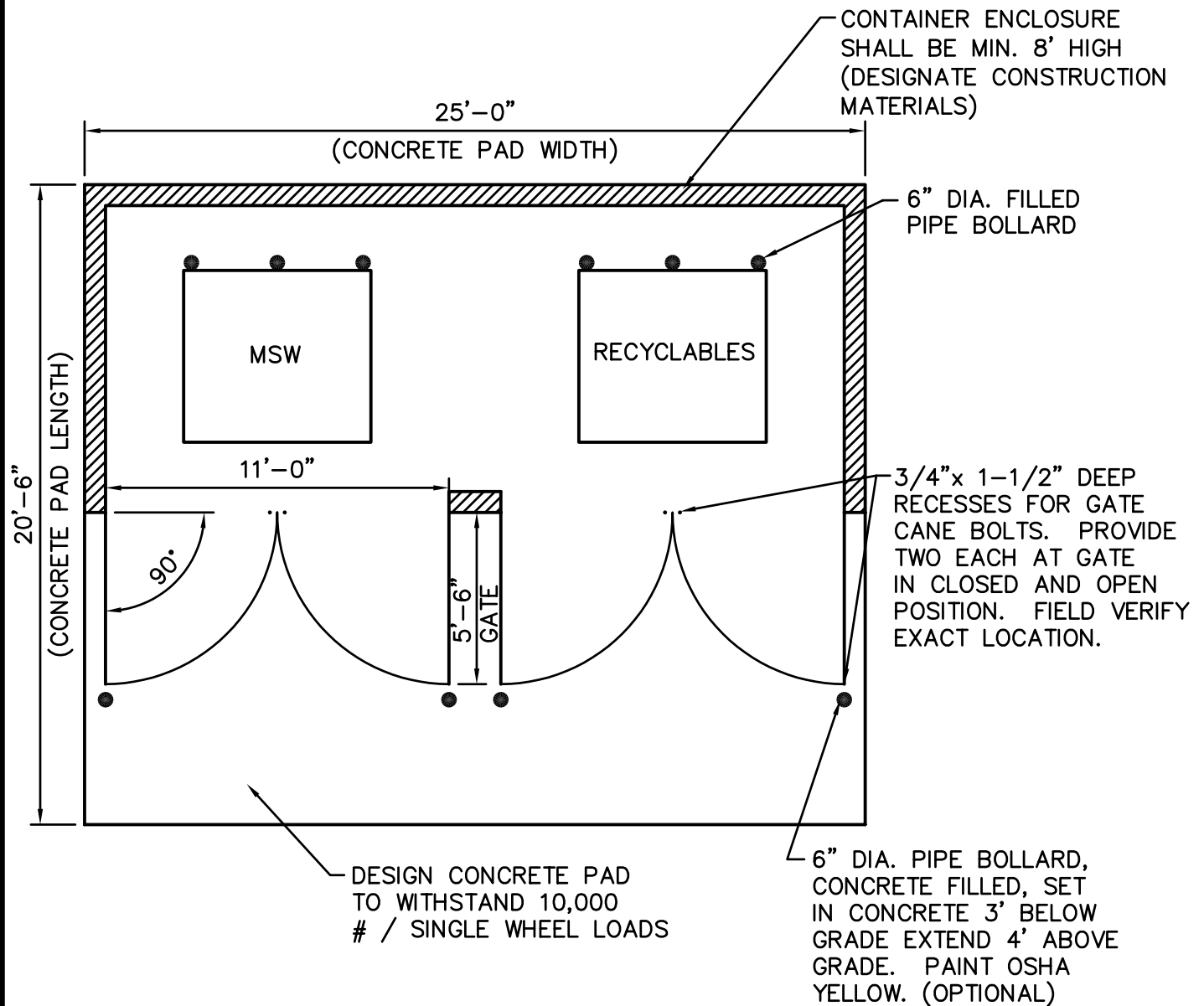
Print Name _____

PRELIMINARY SUBDIVISION PLAT APPLICATION PROCESS



Final Subdivision Plat and supplemental materials must be submitted within twelve (12) months after approval of the Preliminary Plat.



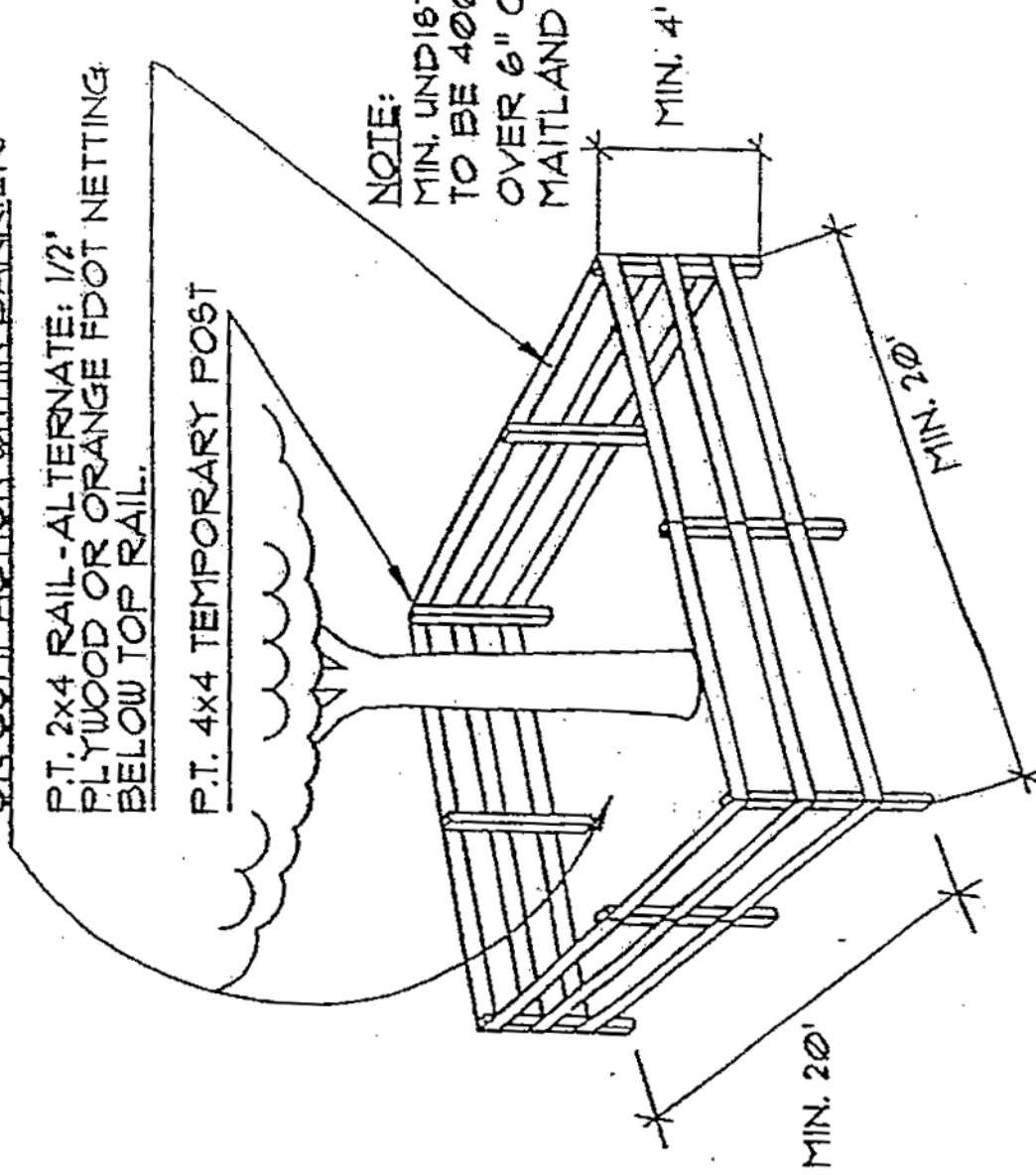


NO EQUIPMENT, DEBRIS, SOIL,
OR COMPACTION WITHIN BARRIER.

P.T. 2x4 RAIL - ALTERNATE: 1/2"
PLYWOOD OR ORANGE FOOT NETTING
BELOW TOP RAIL.

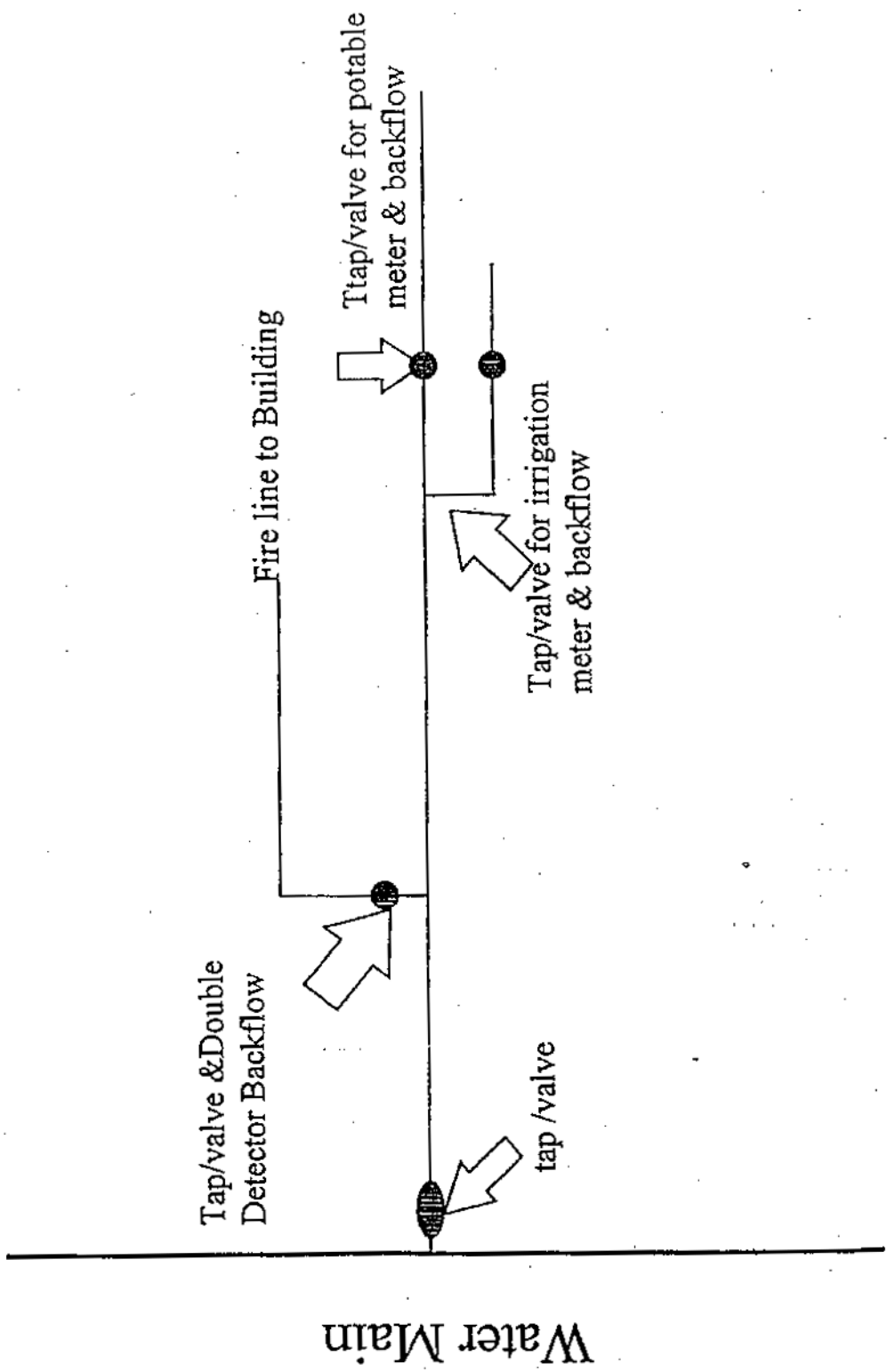
P.T. 4x4 TEMPORARY POST

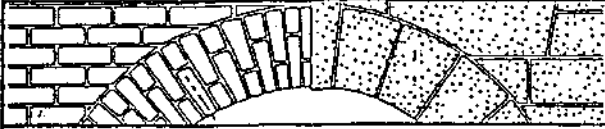
NOTE:
MIN. UNDISTURBED AREA
TO BE 400 SF FOR THE TREES
OVER 6" CAL. PER CITY OF
MAITLAND CODE.



TREE SAVE DETAIL

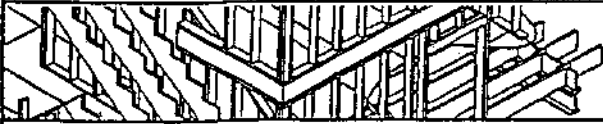
Example of a watermain tap with fire lines and potable domestic/irrigation lines





RAMSEY/SLEEPER

ARCHITECTURAL GRAPHIC STANDARDS



TENTH EDITION

JOHN RAY HOKE, JR., FAIA
EDITOR IN CHIEF



JOHN WILEY & SONS, INC.

New York • Chichester • Weinheim • Brisbane • Singapore • Toronto

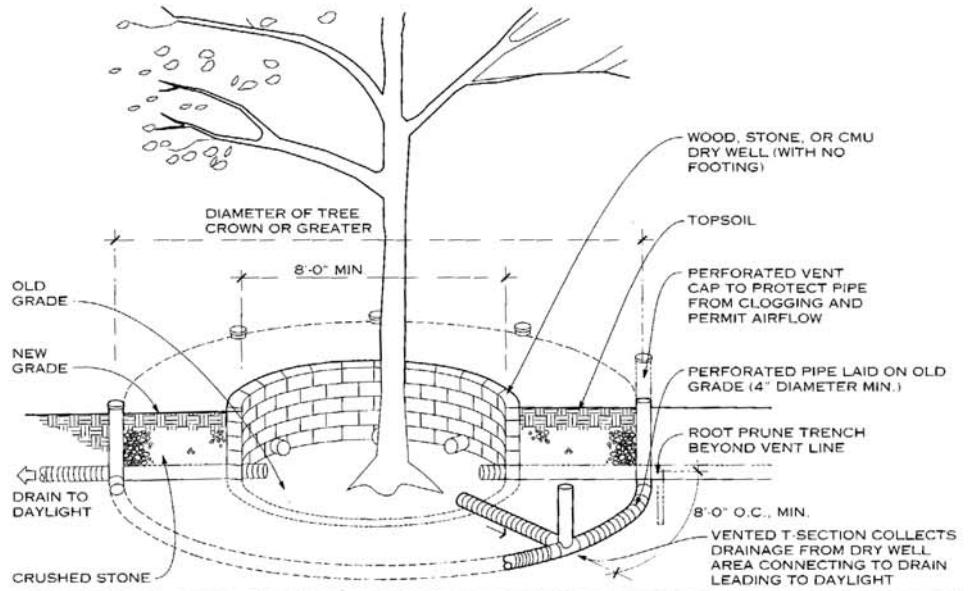
CONSTRUCTION AROUND EXISTING TREES

Great care should be taken not to compact, cut, or fill the earth within the crown area of existing trees. Most tree roots are located in the top 6 to 18 in. of the soil and often spread considerably farther than the drip line of the tree. Compaction can cause severe root damage and reduce the movement of water and air through the soil. To avoid compacting the earth, do not operate equipment or store materials within the crown spread.

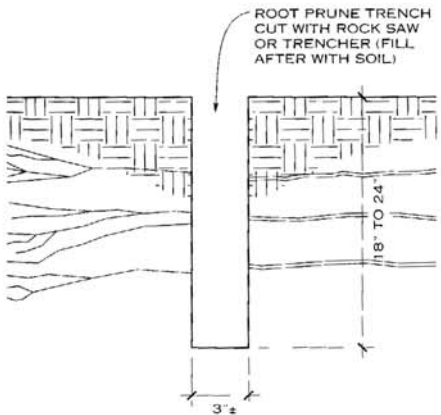
Before construction begins, inject the soil within the crown area of nearby mature trees with commercially prepared kelp-based fertilizer and mycorrhiza fungus developed to invigorate tree roots. Prune tree roots at the edge of the root save area, as roots pulled during grading can snap or split well into the root save area. Rot and disease that enters dying roots in compacted or filled areas can move into the tree if root pruning has not been carried out. Install tree protection fencing and silt protection at the limits of construction activity near trees.

During construction, apply additional water in the canopy area to compensate for any root loss beyond the crown spread. Have all mature trees inspected by a certified arborist before construction begins to identify any special problems. Remove all deadwood and treat all trees for existing insect and disease problems. When possible, begin fertilization and problem treatments at least one full growing season before construction.

Removal of significant portions of the crown will affect the health of a tree by reducing its ability to photosynthesize in proportion to the mass of its trunk. Younger, healthier trees withstand construction impacts better than older trees.



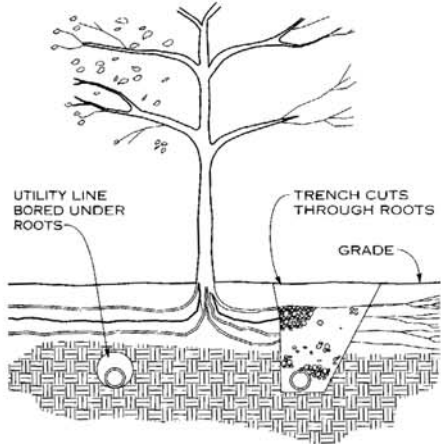
FILLING AROUND EXISTING TREE



NOTE

A root prune trench severs roots with a clean cut, protecting remaining roots from cracking, rot, and disease.

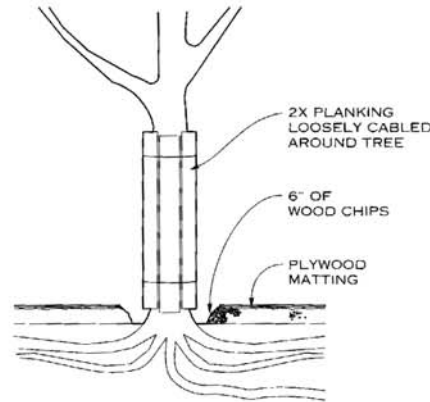
ROOT PRUNE TRENCH



NOTE

Fewer roots are severed by tunneling under a tree than by digging a trench beside it.

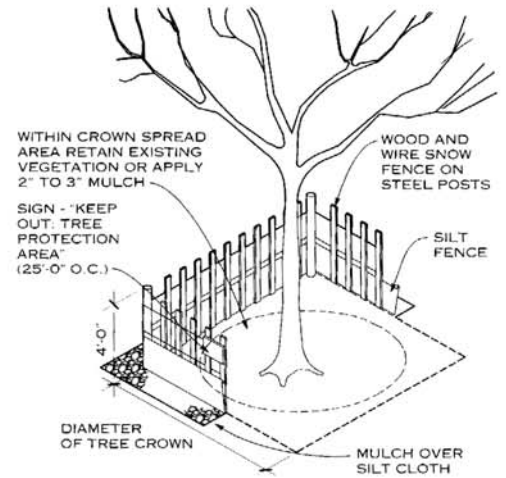
UNDERGROUND UTILITY LINE NEAR EXISTING TREES



NOTE

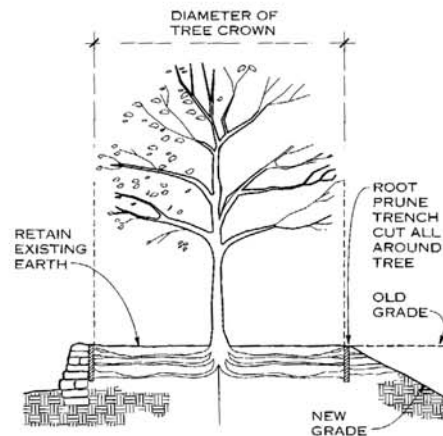
If construction operations must take place within the crown spread area, install 6 in. of wood chips on top of the soil to protect it. Use plywood matting over mulch in areas where equipment must operate. Protect the trunk of the tree with planking loosely cabled around the tree to reduce scarring by equipment. Remove planking, matting, and mulch as soon as operations are finished.

TREE AND ROOT PROTECTION

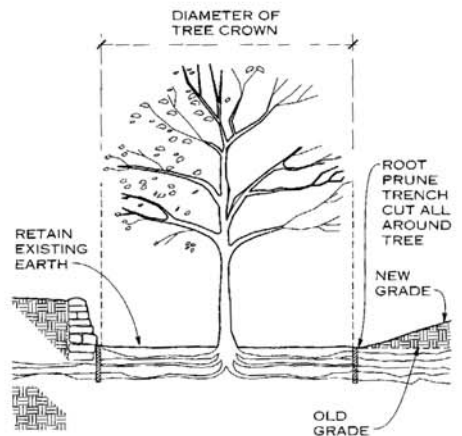


NOTE

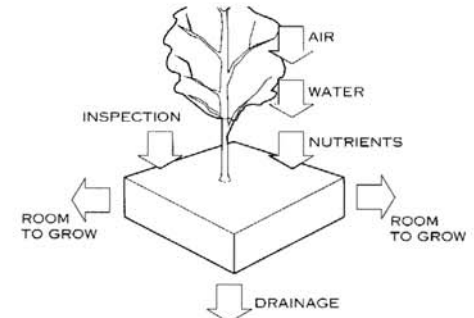
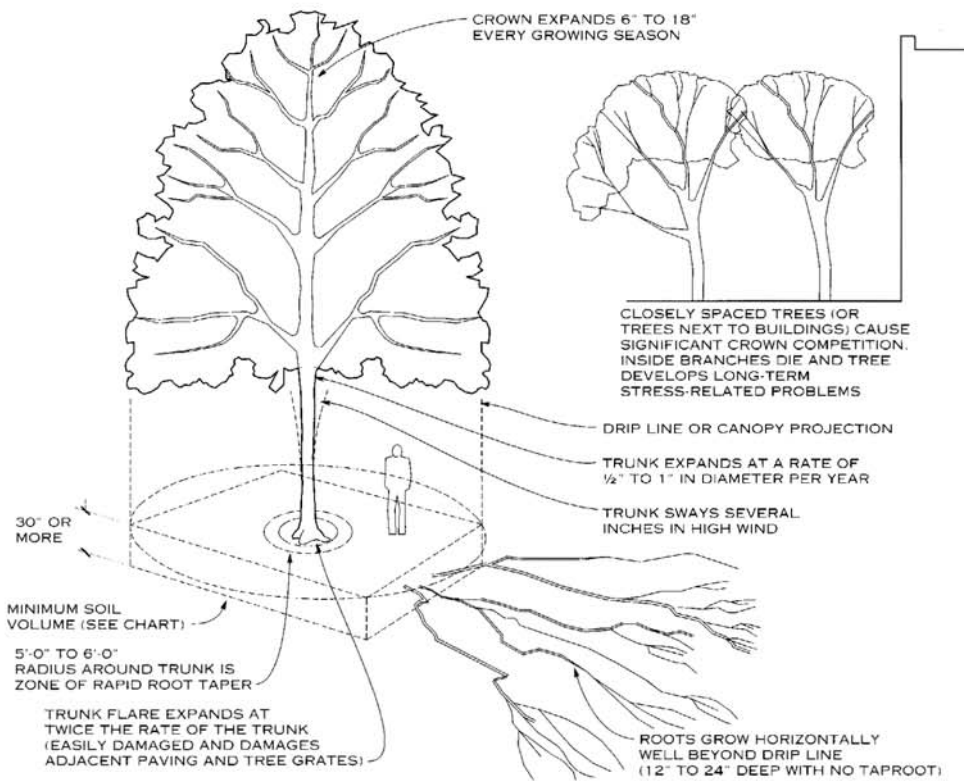
A barrier such as that illustrated can keep construction equipment and personnel from compacting the soil around tree roots.



CUTTING GRADE AROUND EXISTING TREE

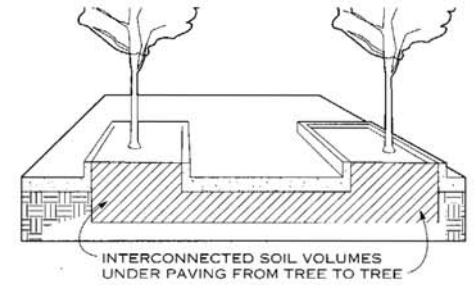


FILLING GRADE AROUND EXISTING TREE



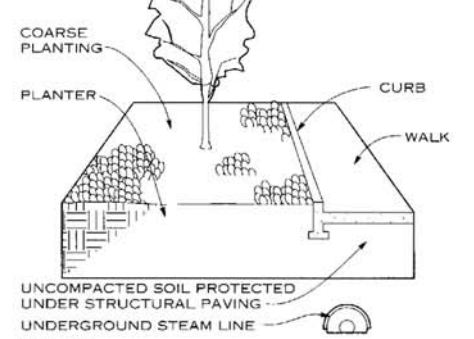
NOTE
Soil volume provided for trees in urban areas must be sufficient for long-term maintenance.

SOIL VOLUME—REQUIREMENTS FOR TREES



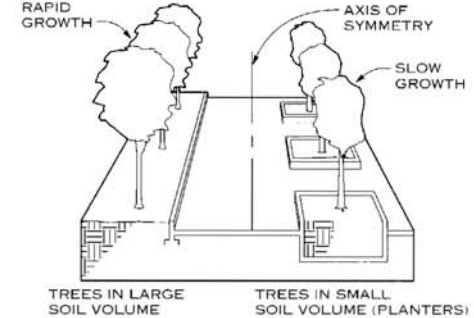
NOTE
The interconnection of soil volumes from tree to tree has been observed to improve the health and vigor of trees.

SOIL VOLUME—INTERCONNECTION



- NOTES**
1. Coarse plantings keep pedestrians out of planters.
 2. Curbs protect planters from pedestrians and deicing salts.
 3. Underground steam lines must be insulated or vented to protect planter soil.

SOIL PROTECTION FROM COMPACTION AND DEGRADATION



NOTE
If visually symmetrical tree planting is required, symmetrical soil volumes are also required to produce trees of similar crown size.

VISUALLY SYMMETRICAL TREES

TREE STRUCTURE—PARTS AND GROWING CHARACTERISTICS

GENERAL

Areas of dense urban development leave little room for tree roots to develop. Large areas of pavement, competition with foundations and utilities for space below ground, and extensive soil compaction and disruption limit the amount of soil available for trees. When the area of ground around the tree open to the rain and sun is less than 400 to 500 sq ft per tree, the following design guidelines should be followed to encourage the growth of large healthy trees.

Five major parts of the tree structure must be accommodated in the design process:

CROWN GROWTH: The tree crown expands every growing season at a rate of 6 to 18 in. per year. Once the crown reaches a competing object such as a building or another tree canopy, the canopy growth in that area slows and then stops. Eventually the branches on that side of the tree die. As the canopy expansion potential is reduced, the overall growth rate and tree health are also reduced.

TRUNK GROWTH: The tree trunk expands about 1/2 to 1 in. per year. As the tree increases in size, the lower branches die and the trunk lengthens. Tree trunks move considerably in the wind, especially during the early years of development, and are damaged by close objects.

TRUNK FLARE: At the point where the trunk leaves the ground, most tree species develop a pronounced swelling or flare as the tree matures. This flare grows at more than twice the rate of the main trunk diameter and helps the tree remain structurally stable. Any hard object placed in this area, such as a tree grate or confining pavement, will either damage the tree or be moved by the tremendous force of this growth.

ZONE OF RAPID ROOT TAPER: Tree roots begin to form in the trunk flare and divide several times in the immediate area around the trunk. In this area, about 5 to 6 ft away from the trunk, the roots rapidly taper from about 6 in. in diameter to about 2 in. Most damage to adjacent paving occurs in this area immediately around the tree. Keeping the zone of rapid taper free of obstructions is important to long-term tree health. Once a tree is established, the zone of rapid taper is generally less susceptible to compaction damage than the rest of the root zone.

ROOT ZONE: Tree roots grow radially and horizontally from the trunk and occupy only the upper layers (12 to 24 in.) of the soil. Trees in all but the most well-drained soils do not have taproots. A relationship exists between the amount of tree canopy and the volume of root-supporting soil required (see the accompanying chart). This relationship is the most

critical factor in determining long-term tree health. Root-supporting soil is generally defined as soil with adequate drainage, low compaction, and sufficient organic and nutrient components to support the tree. The root zone must be protected from compaction both during and after construction. Root zones that are connected from tree to tree generally produce healthier trees than isolated root zones.

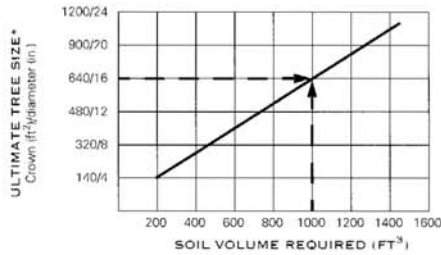
SOIL MODIFICATIONS

Thoroughly till organic matter into the top 6 to 12 in. of most planting soils to improve the soil's ability to retain water and nutrients. (Do not add organic matter to soil more than 12 in. deep.) Use composted bark, recycled yard waste, peat moss, or municipal processed sewage sludge. All products should be composted to a dark color and be free of pieces with identifiable leaf or wood structure. Recycled material should be tested for pH and certified free of toxic material by the supplier. Avoid material with a pH higher than 7.5.

Modify heavy clay or silt soils (more than 40% clay or silt) by adding composted pine bark (up to 30% by volume) and/or gypsum. Coarse sand may be used if enough is added to bring the sand content to more than 60% of the total mix. Improve drainage in heavy soils by planting on raised mounds or beds and including subsurface drainage lines.

Modify extremely sandy soils (more than 85% sand) by adding organic matter and/or dry, shredded clay loam up to 30% of the total mix.

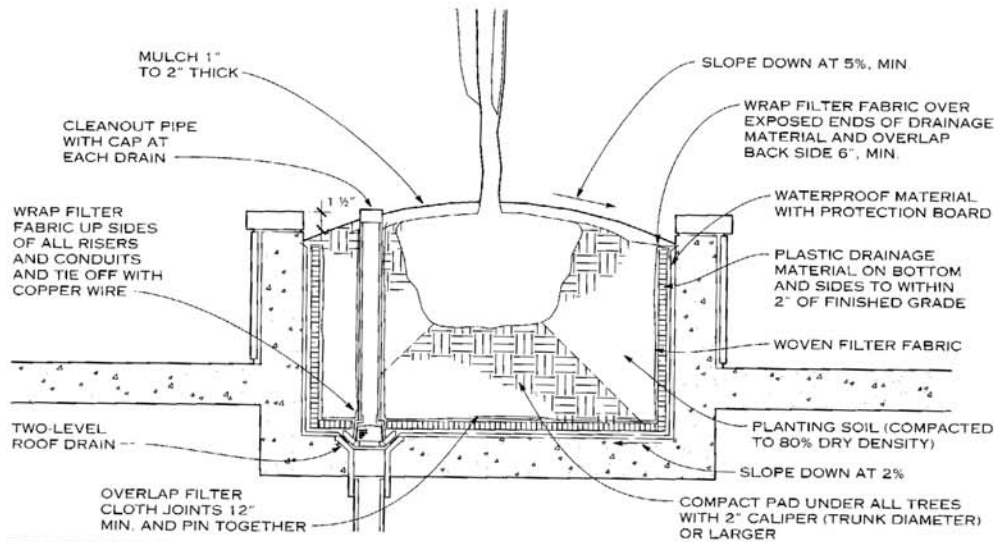
SOIL VOLUME FOR TREES



*The ultimate tree size is defined by the projected size of the crown and the diameter of the tree at breast height.

NOTE

For example, a 16-in. diameter tree requires 1000 cu ft of soil.



ROOFTOP PLANTER

SELECTING PLANTS FOR ROOFTOP PLANTING

When choosing plants for a rooftop setting, consider the factors outlined below:

WIND TOLERANCE: Higher elevations and exposure to wind can cause defoliation and increase the transpiration rate of plants. High parapet walls with louvers can reduce wind velocity and provide shelter for plants.

HIGH EVAPORATION RATE: The drying effects of wind and sun on the soil in a planter reduce soil moisture rapidly. Irrigation, mulches, and moisture-holding soil additives (diatomaceous earth or organic matter) help reduce this moisture loss.

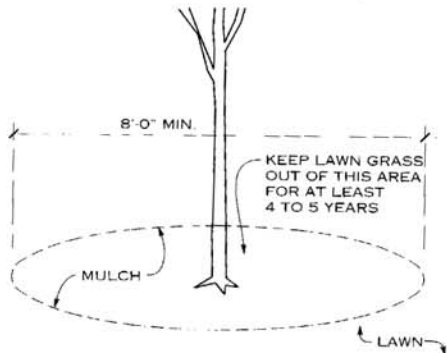
RAPID SOIL TEMPERATURE FLUCTUATION: The variation in conduction capacity of planter materials results in a broad range of soil temperatures in planters of different materials. Cold or heat can cause severe root damage in certain plant species. Proper drainage helps alleviate this condition.

TOPSOIL: Improve topsoil in planters to provide optimum growing conditions for the plants selected. A general formula calls for adding fertilizer (determined by soil testing) and one part peat moss to five parts sandy loam topsoil. More specific requirements for certain varieties of plants or grasses should be considered.

ROOT CAPACITY: Choose plant species carefully, considering their adaptation to the size of the plant bed. If species with shallow, fibrous roots are used instead of species with a coarse root system, consult with a nursery advisor. Consider the ultimate maturity of the plant species when sizing a planter.

PLANTING DETAILS

SOIL DEPTH: Minimum soil depth in a planter varies with the plant type: for large trees, the soil should be 36 in. deep or 6 in. deeper than the root ball; for small trees, 30 in. deep;



NOTE

Young trees planted in lawn areas face substantial competition from the roots of grasses.

TREES PLANTED IN LAWNS

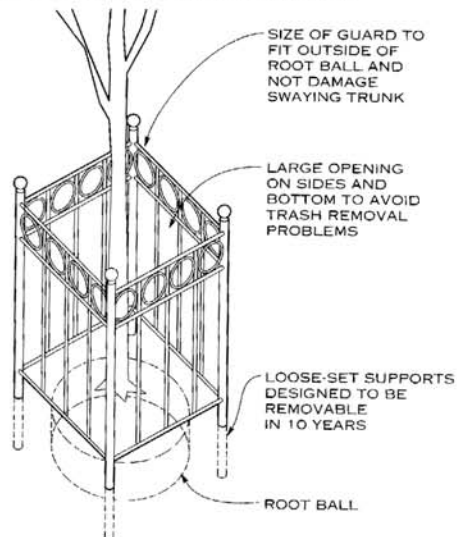
for shrubs, 24 in. deep; and for lawns, 12 in. deep (10 in. if irrigated).

SOIL VOLUME: To determine sufficient soil volume, see chart on Soil Volumes for Trees (on another AGS page in this section).

SOIL WEIGHT: The saturated weight of normal soil mix ranges from 100 to 120 pcf, depending on soil type and compaction rate. Soils can be made lighter by adding expanded shale or perlite. Soils lighter than 80 pcf cannot provide structure adequate to support trees.

DRAINAGE FABRIC: Plastic drainage material should be a minimum of 1/2 in. thick. Most drainage material comes with a filter fabric attached, but the overlap joints provided are not wide enough for the unconsolidated soils found in planters. A second layer of woven filter fabric, delivered in rolls greater than 10 ft in width, should be installed. Tuck the fabric over the exposed top of the drainage material to keep soil out of the drainage layer.

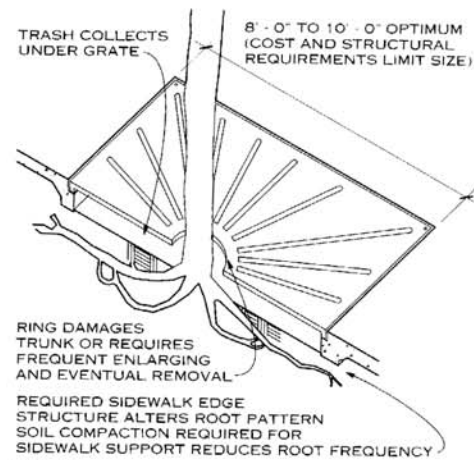
INSULATION: Most planters do not require insulation; however, in colder climates planters with small soil volumes located over heated structures may require insulation. Consult local sources for a list of cold-hardy plants.



NOTE

Tree guards can protect young trees from trunk damage caused by bicycles. If made too small, however (less than 30 in. in diameter), they can damage the tree as it grows and are difficult to remove. The high cost and potential harm to trees outweigh the minor protection tree guards afford a trunk. They should only be used in areas with particularly high traffic.

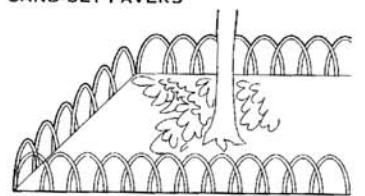
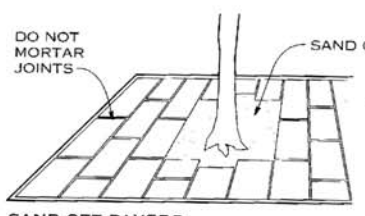
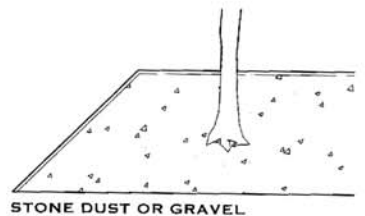
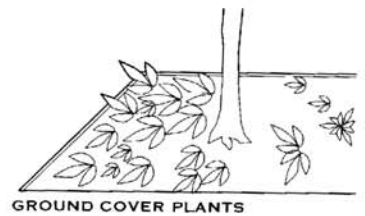
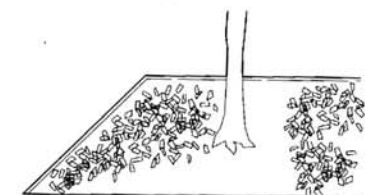
TREE GUARDS



NOTE

Tree grates decorate the base of a tree but provide no significant benefit. Many aspects of tree grates can damage a tree or reduce its potential for growth.

TREE GRATES



NOTE

Alternatives to tree grates (and guards) include softer, organic coverings that suit the purpose better, are less expensive, and require less maintenance over the life of the tree.

TREE BASE PROTECTION