



City of Maitland  
1776 Independence Lane  
Maitland, Florida 32751

## PETITION FOR SITE PLAN REVIEW

### CONTENTS:

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

### **General Summary**

The following is a guide designed to assist those persons who wish to obtain site plan approval for any projects which involve the construction of any facility, other than single-family dwellings or major appurtenances thereto (e.g.; private swimming pool, yard fence, etc.) or duplex residential units. Redevelopment projects that do not add to the total square footage of the structure are also exempt from this process. An approved site plan is required prior to the issuance of any permits. It is unlawful for any person to proceed with a project without site plan approval.

1. Become familiar with the Land Development Procedures, Article X, Chapter 7.5 of the City Code. Copies are available at City Hall, as well as the zoning district's requirements. Specific zoning information for the City of Maitland may be found in Chapter 21 of the City Code, which may be obtained via the internet at [www.itsmymaitland.com](http://www.itsmymaitland.com) or a copy of the Zoning Code may be purchased at City Hall.
2. A pre-application meeting with the Development Review Committee may be required prior to submittal of the application.
3. Submit petition and all required information, as outlined on the petition form, to the Community Development Department. For properties with frontage on Maitland Avenue, non-residential development in the RS-4 zoning district or special districts designated in the Comprehensive Plan for which design criteria have been established, applications must be submitted no later than 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 7.5<sup>1</sup> (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:

- \$250 for Administrative reviews
- \$800 for Board reviews

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.

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<sup>1</sup> 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](http://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 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. For applicable developments not in a special district, the Development Review Committee will hold a meeting to review the petition and shall approve, approve with changes or deny the application within twenty-one (21) days of the date the application is determined sufficient by the Community Development Department.

For properties in special districts designated in the Comprehensive Plan, the Development Review Committee shall recommend approval, approval with changes or denial to the Planning and Zoning Commission<sup>2</sup> or designated Design Review Board.

The applicant should attend this meeting in person or by representative agent.

7. For properties in special districts, a Planning and Zoning Commission public hearing will be held the first Thursday of the month following submittal to approve, approve with changes or deny the application. The applicant should attend in person or by representative agent.
8. If construction of the building(s), as determined by the Building Official's application of the current edition of the Florida Building Code, has not begun within one (1) year following approval of a site plan according to this procedure, or the building permit for construction of the building(s) has become void anytime after the one-year time period has expired, the approval of the site plan and use designated therein shall lapse. If approval of the site plan lapses, resubmission of a site plan is required and is subject to all review and approval processes, regardless of any previous site plan or permit approvals acquired.

**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.**

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<sup>2</sup> 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 SITE PLAN REVIEW

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

*Please check box for 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. CONTRACTOR'S NAME \_\_\_\_\_   
Address \_\_\_\_\_

Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

E-mail Address \_\_\_\_\_

*(If more than one contractor, please attach list.)*

5. ENGINEER'S NAME \_\_\_\_\_   
Address \_\_\_\_\_

Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

E-mail Address \_\_\_\_\_

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

6. Gross Acreage \_\_\_\_\_ Net Acreage \_\_\_\_\_ Parcel I.D. \_\_\_\_\_  
Existing and Proposed Land Use \_\_\_\_\_

7. BRIEFLY STATE PETITION REQUEST:  
\_\_\_\_\_  
\_\_\_\_\_

8. 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 Site Plan Review procedure.  
*(Attach signatures as required.)*

\_\_\_\_\_  
Applicant's Signature

\_\_\_\_\_  
Date

**NOTE:** Any desire to amend or withdraw 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:
  - \$250 for Administrative reviews.
  - \$800 for Board reviews.
- 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.** For Board reviews, a list of the names and mailing addresses of all property owners of real property within five hundred (500) feet of the outer perimeter of subject property, taken from the most recent tax rolls in Orange or Seminole Counties, is required. 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.

**PART III. 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 property subject to the petition;
- b. Relationships to surrounding streets;
- c. Existing zoning and land use on the site and surrounding areas (within 500 feet); and,
- d. An arrow indicating north and scale.

**2. SITE PLAN\*** to include:

- a. 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;
- b. Street address (if applicable);
- c. An arrow indicating north and scale;
- d. Existing and proposed easements and rights-of-way;
- e. Required yard and set back information;
- f. Required off-street: parking detail (number and location), loading areas, service and refuse areas;
- g. The layout of bikeways and pedestrian ways;
- h. Locations of ingress/egress to property (existing and proposed);
- i. Open space (provide total for open space);
- j. Recreation areas (if applicable);
- k. Permeable and impermeable surface areas (describe and provide total in text form as well);
- l. Existing and proposed building(s) located on site and indicate structural height and square footage (indicate floor area ratios in text form);

**PART III. SUPPLEMENTAL INFORMATION** (Continued)

- m. Width, pavement type and laneage of all adjacent rights-of-way;
- n. Indicate handicap parking, including details, location and accessible route to building with elevations;
- o. Indicate the total square footage along with the square footage on a floor-by-floor basis for the facility;
- p. Type of occupancy;
- q. Type of construction;
- r. Distance to any other structures on site;
- s. 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';
- t. 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;
- u. Roadways shall be designed to sustain the weight of fire apparatus; minimum design weight of 32 tons (64,000 lbs).

The site plan may be submitted in one or more drawings that have a uniform scale.

**3. GRADING/DRAINAGE/UTILITY PLAN\*** to include:

- a. Proposed contour lines and spot elevations on site and extending 25 feet beyond the property boundary. Existing contour lines screened as background;
- b. All existing and proposed utilities on or adjacent to the site, including connection details;
- c. Location, size and description of drainage, sewage collection and water distribution systems, including location of any proposed or existing fire hydrants;
- d. Note finished floor elevation and perimeter;
- e. Plan(s) to include footprint of existing and proposed site improvements for evaluating the grading and drainage systems.

**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;
- 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. LANDSCAPE PLAN**

- a. The landscape plan shall be drawn at a noted scale of at least 1"=30' and be signed and sealed by a Landscape Architect.

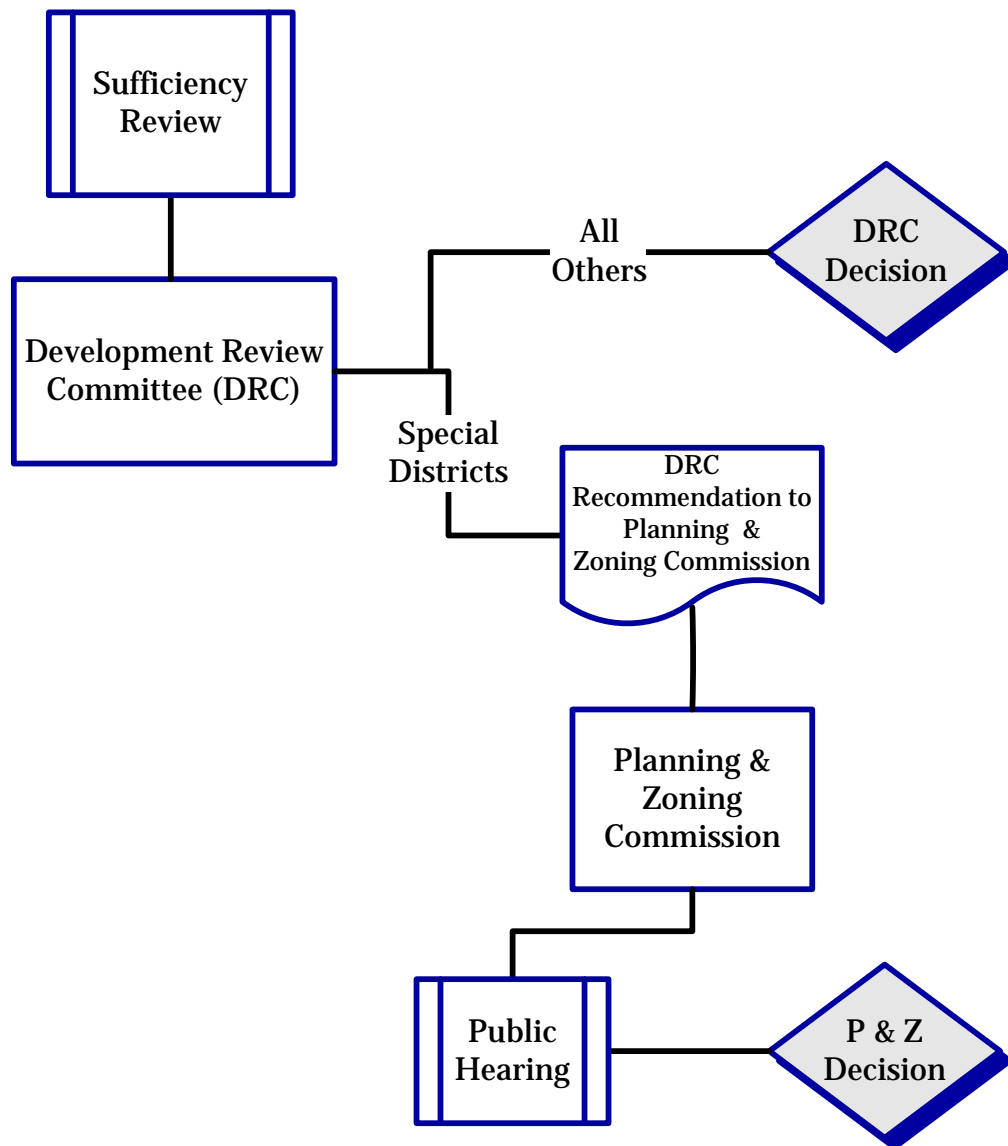
**PART III. SUPPLEMENTAL INFORMATION** (Continued)

- b. The landscape plan shall clearly identify the following:
    - i) Species of tree, caliper and condition of existing trees greater than 6" DBH;
    - ii) Proposed landscape areas, including berms and buffers (reference species type, dimensions and character at planting, as well as spot elevations and contours for berms);
    - iii) Location, height and material for walkways, fences, walls and other manmade landscape features;
    - iv) Existing vegetation to be preserved (reference species type, dimensions and character);
    - v) Relocation and/or preservation management process, if applicable;
    - vi) Irrigation plan (note G.P.D./usage);
    - vii) An arrow indicating north.
  - c. Plan must include screening and buffering (reference, type, dimensions, and character) and interior parking and service areas.
  - d. Signs and Lighting (existing and proposed locations, elevations, and typical sections) if any.
  - e. Clearances of seven and one-half feet (7 ft – 6 in) in front of and to the sides of fire hydrants and four feet (4 ft) behind fire hydrants shall be provided and maintained. Clearances of seven and one-half feet (7 ft – 6 in) in front of and to the sides of fire protection system appliances such as a Fire Department Connections (FDC) shall be provided and maintained. (Sec. 3-5.6, FFPC, '01 Ed.) Low-growth plants, maximum of 8 inches in height, may be planted in these areas.
  6. **TOPOGRAPHY MAP** showing existing contours at one-foot intervals, based on U.S. Geodetic Datum and extending 25 feet beyond the property boundaries. 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. (The topography map may be included on the Grading/Drainage Plan).
  7. **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 and of special concern and all preservable trees 6" D.B.H. or more in diameter.
- \* **All plans are to be drawn at a scale of at least 1"= 60'**
8. **BUILDING ELEVATIONS** for all sides including structural heights.
  9. **EXISTING BUILDING USES** listed for all buildings (if any) and intended use of each building or portion thereof.
  10. **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, a schedule of improvements that 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.
  11. **SOILS MAP** and detailed soils report based on the findings of a professional soils expert supporting proposed construction activity.
  12. **DETAILS.** Listed below are examples of details which are attached for reference and are to be included with application:
    - a. Water/Sewer details
    - b. Dumpster details
    - c. Tree Save details
  13. **SITE PLAN APPLICATION CHECKLIST** to be completed and submitted with application.



# SITE PLAN REVIEW APPLICATION

Special District applications must be submitted 40 days prior to Planning and Zoning Commission Public Hearing date. All others must be submitted 10 days prior to Development Review Committee meeting.



## Legend

Required Process



Board Meeting

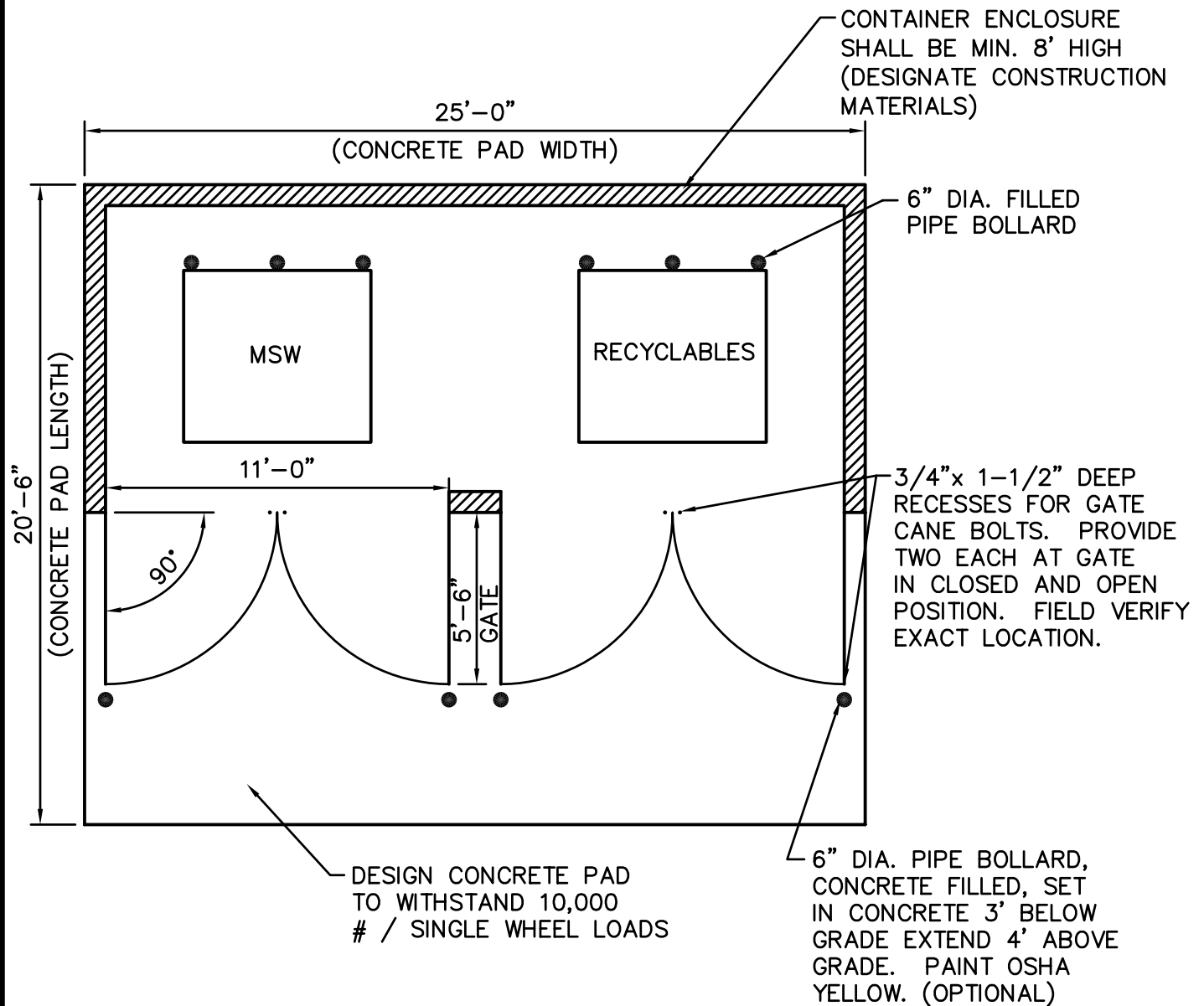


Recommendation Report



Decision



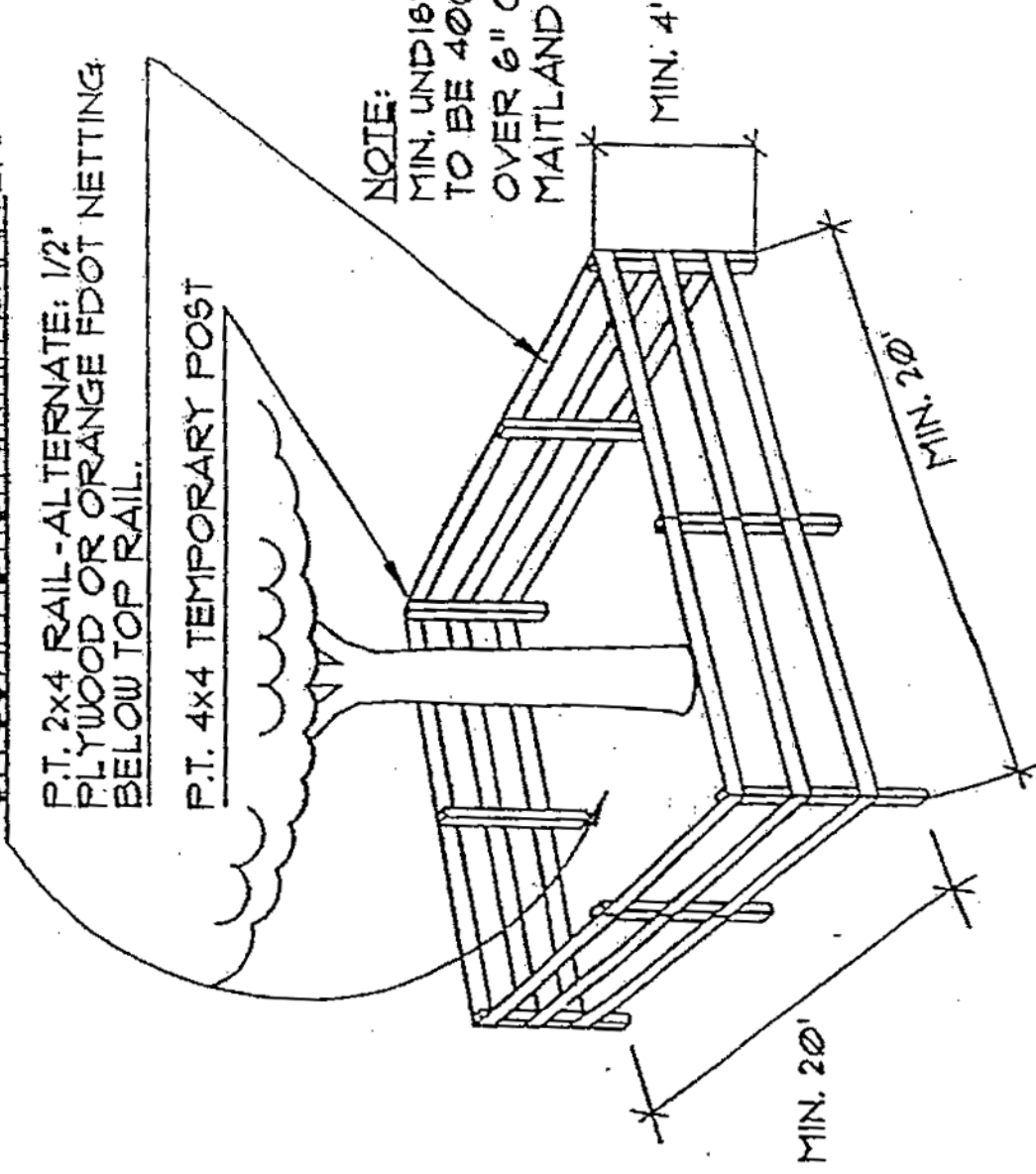


NO EQUIPMENT, DEBRIS, SOIL,  
OR COMPACTION WITHIN BARRIER.

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

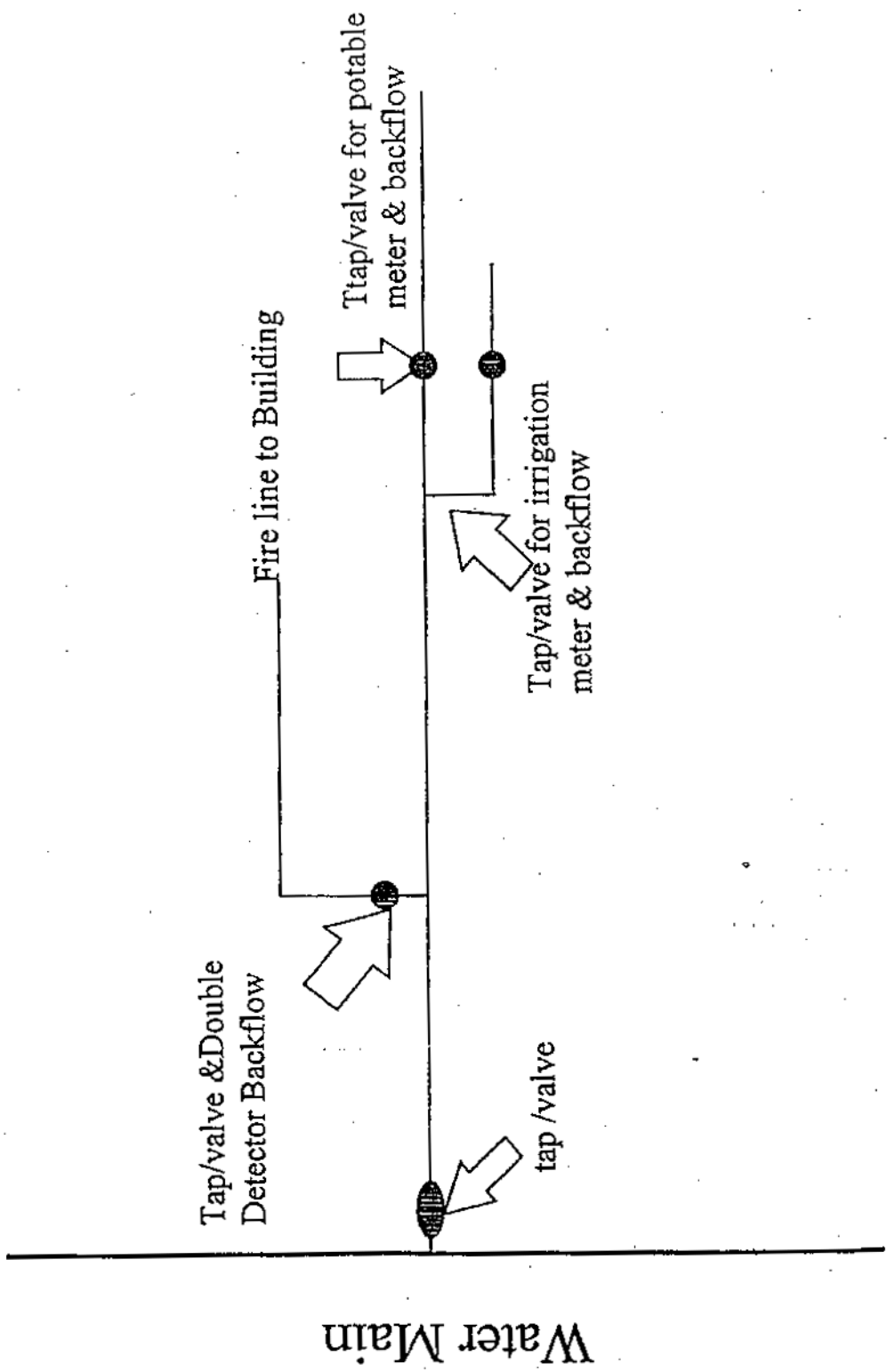
P.T. 4x4 TEMPORARY POST

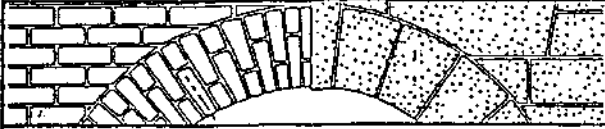
NOTE:  
MIN. UNDISTURBED AREA  
TO BE 400 SF FOR THE TREES  
OVER 6" CAL. PER CITY OF  
MAITLAND CODE.



TREE SAVE DETAIL

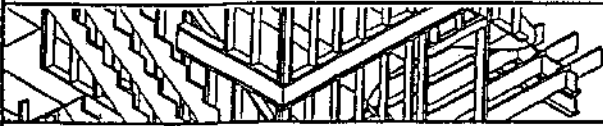
# Example of a watermain tap with fire lines and potable domestic/irrigation lines





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

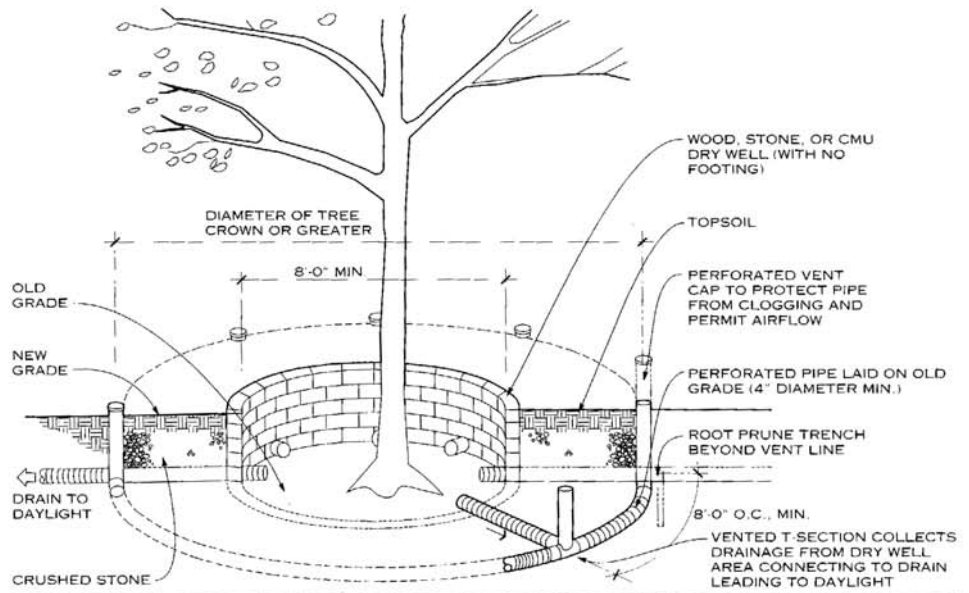
**CONSTRUCTION AROUND EXISTING TREES**

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.

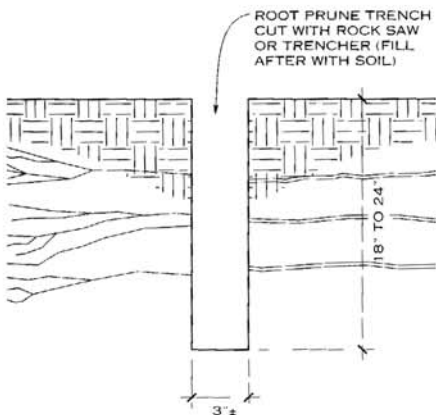
Before construction begins, inject the soil within the crown area of nearby mature trees with commercially prepared kelp-based fertilizer and mycorrhiza fungus developed to invigorate tree roots. Prune tree roots at the edge of the root save area, as roots pulled during grading can snap or split well 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.



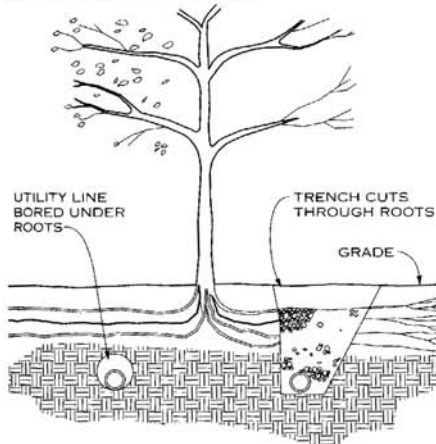
**FILLING AROUND EXISTING TREE**



**NOTE**

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

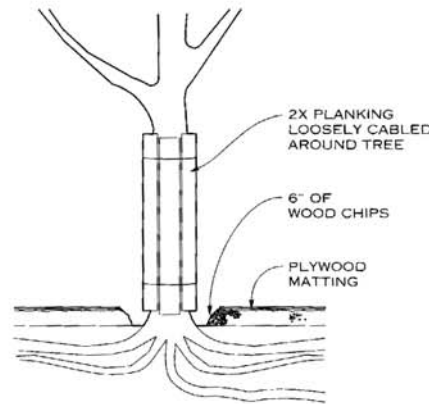
**ROOT PRUNE TRENCH**



**NOTE**

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

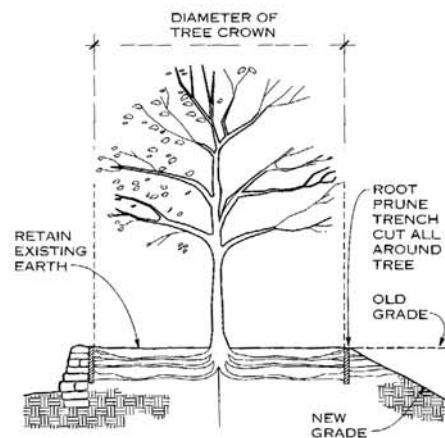
**UNDERGROUND UTILITY LINE NEAR EXISTING TREES**



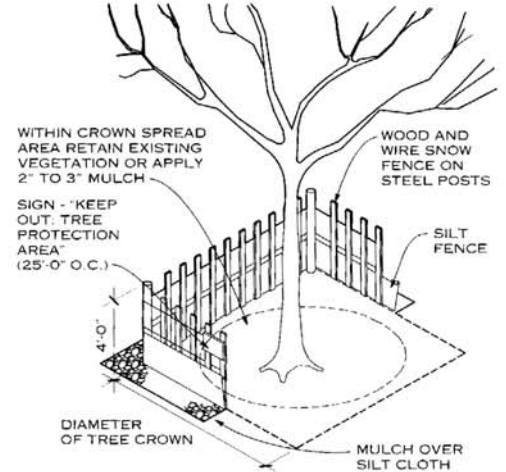
**NOTE**

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**

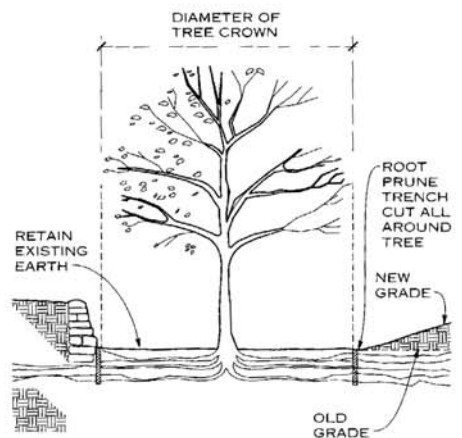


**CUTTING GRADE AROUND EXISTING TREE**

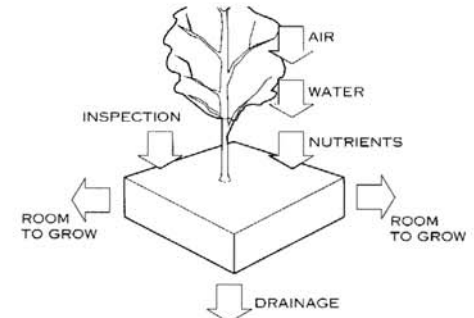
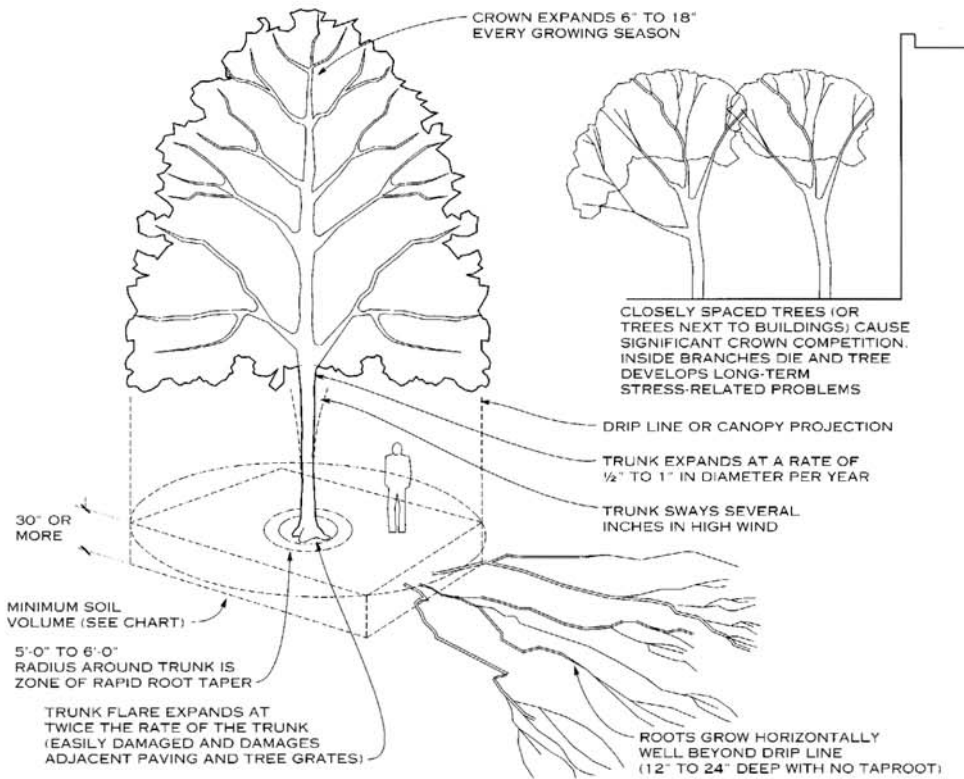


**NOTE**

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

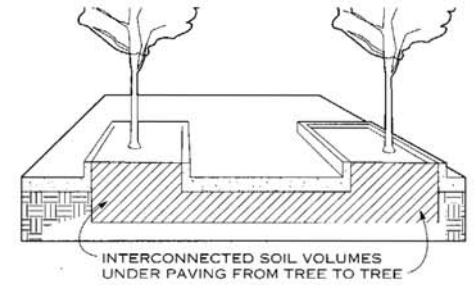


**FILLING GRADE AROUND EXISTING TREE**



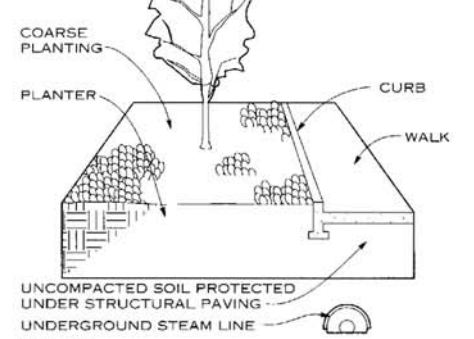
**NOTE**  
Soil volume provided for trees in urban areas must be sufficient for long-term maintenance.

**SOIL VOLUME—REQUIREMENTS FOR TREES**



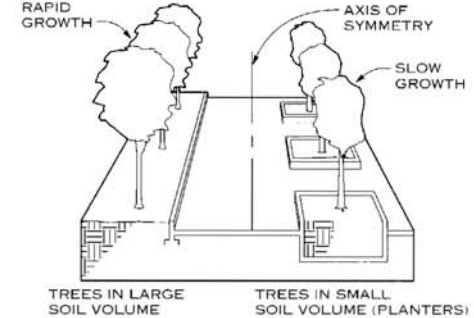
**NOTE**  
The interconnection of soil volumes from tree to tree has been observed to improve the health and vigor of trees.

**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.

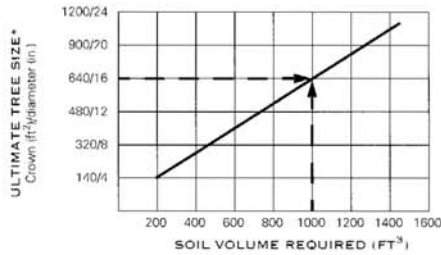
**SOIL MODIFICATIONS**

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.

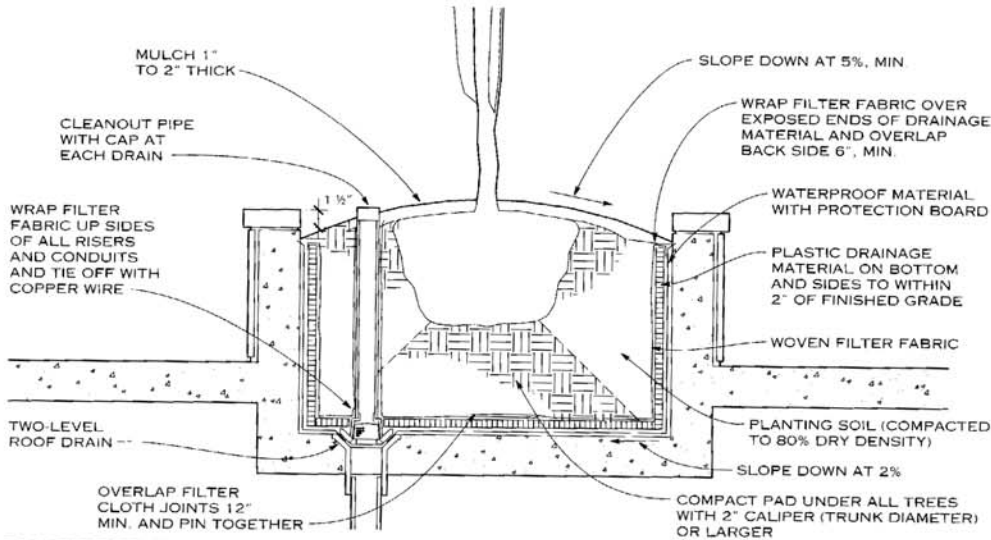
**SOIL VOLUME FOR TREES**



\*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.

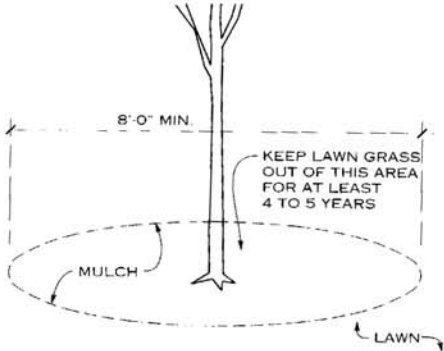
**RAPID SOIL TEMPERATURE FLUCTUATION:** The variation in conduction capacity of planter materials results in a broad range of soil temperatures in planters of different materials. Cold or heat can cause severe root damage in certain plant species. Proper drainage helps alleviate this condition.

**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**

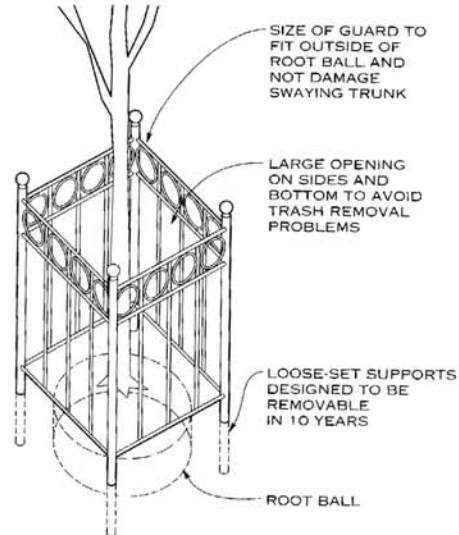
for shrubs, 24 in. deep; and for lawns, 12 in. deep (10 in. if irrigated).

**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.

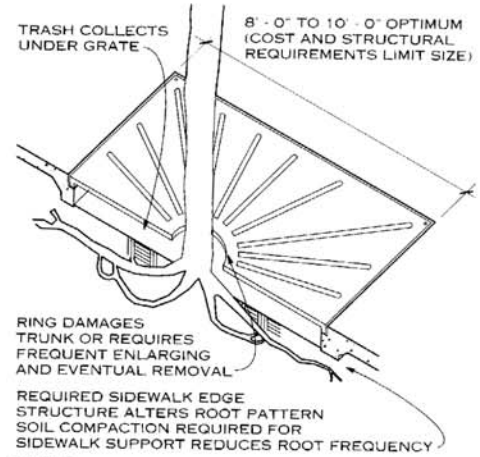
**INSULATION:** Most planters do not require insulation; however, in colder climates planters with small soil volumes located over heated structures may require insulation. Consult local sources for a list of cold-hardy plants.



**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.

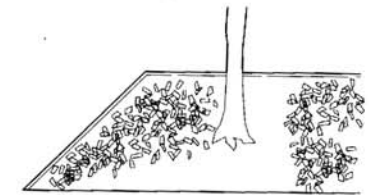
**TREE GUARDS**



**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.

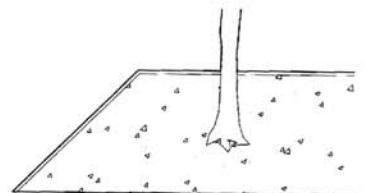
**TREE GRATES**



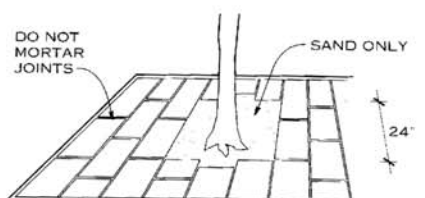
**BARK MULCH**



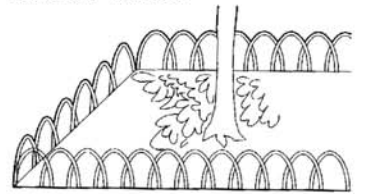
**GROUND COVER PLANTS**



**STONE DUST OR GRAVEL**



**SAND-SET PAVERS**



**LOW FENCE AND GROUND COVER**

**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**