

02950S01- TREES, PLANTS, AND GROUND COVER

Trees, plants, groundcover and signage shall not obstruct visibility at intersections.

1. SOD

1. General:

The Contractor shall sod any areas disturbed by construction operations and/or as called out on the drawings. Existing sod shall be removed from beneath all new sod. Exposed topsoil shall be fertilized prior to new sod being placed. New sod shall be "cut-in" to the edge of existing sod so both surfaces are at the same elevation and present a smooth uniform surface. Sod shall be watered as required for a minimum of three weeks to maintain and establish the lawn. After three weeks the sodded areas shall be mowed with the mower(s) set on the highest setting. Contractor shall continue mowing and watering until the project is accepted by the Owner.

2. Materials:

1. Class of Sod and Composition: Class of turfgrass shall be Cultivated Kentucky Bluegrass. Turfgrass sod shall be composed of 98% Bluegrass and have no noxious weeds, no more than 10 plants of tall fescue, no more than 10 broad leaf weeds, and no more than 5 plants nimble will per 1000 square feet.
2. Thickness of Cut: Sod shall be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness shall exclude top growth and thatch.
3. Pad Size: Individual pieces of sod shall be cut to the supplier's standard width and length. Maximum allowable deviation from standard widths and lengths shall be 5%. Broken pads and torn or uneven ends will not be acceptable.
4. Strength of Sod Sections: Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10% of the section.
5. Moisture Content: Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
6. Time Limitations: Sod shall be harvested, delivered and installed within a period of 36 hours. Sod not transplanted within this period shall be inspected and approved by the U.K. Grounds Superintendent Assistant prior to its installation. Sod must be in good condition when laid, not heated or off color.
7. Sod to be inspected and accepted by U.K. Grounds Superintendent or his assistant before being cut.

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3. Installation:

1. **Moistening of Soil:** During periods of high temperature and after all unevenness in the soil surface has been corrected, the soil shall be lightly irrigated immediately prior to laying the sod.
2. **Starter Strip:** The first row shall be laid in a straight line with subsequent rows placed parallel to and tightly against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Care shall be exercised to insure that the sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
3. **Sloping Surfaces:** On sloping areas where erosion may be a problem, sod shall be laid with staggered joints and secured by tamping, pegging, or other proven methods. Pegging shall occur on slopes with a grade of 40% or more with wooden pegs 1"x 1"x 8" driven through sod with only 2" above sod. Steel sod pins such as "A.M. Leonard" are acceptable as long as they are driven at least 6" through the sod immediately after the sod is laid on the steep bank. Stakes shall be 18" on center.
4. **Watering and Rolling:** Contractor shall water sod immediately after the installation to prevent excessive drying during progress of the work. As sodding is completed in any one section, the entire area should be rolled. It shall then be thoroughly irrigated to a depth sufficient that the underside of the new sod pad and soil immediately below the sod are thoroughly wet. The Contractor shall be responsible for having adequate water available at the site prior to and during installation of the sod. The University of Kentucky shall be responsible for having adequate water available after acceptance of the project.
5. **Acceptance:** Unless stated otherwise the sod will be accepted as a part of the total project. Any dead sod will be removed and replaced with living sod.
6. **Disclaimer:** The Contractor shall not be held liable for damages incurred to sod caused by deicing compounds, fertilizers, pesticides or other materials not applied by him or under his supervision, nor for those caused by acts of God or vandalism.
7. **Guarantee:** The Contractor shall guarantee work covered by this specification to the extent that all installed sod shall be uniform in color and quality and reasonably free of visible imperfections at acceptance.

2. SEEDING

If allowed on a project the contractor shall till the soil to a depth of not less than 6". Add fertilizer and till soil to a homogeneous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter. Moisten soil if soil conditions are dry prior to seeding. Sow seed using a spreader or seeding machine. Protect seeded areas with a lawn mulch after completion of the seeding operation and anchor mulch in place as required. Seeding shall only occur between September 1 to May 1 of the year.

3. QUALITY OF PLANTINGS

Requirements for the measurement, branching, grading, quality, balling and burlapping of plants in the plant list generally follows or exceeds a code of standards currently recommended by the American Association of Nurserymen, Inc. in the American Standard for Nursery Stocks.

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1. All plants shall have a well formed head with minimum caliper, height and spread of the side branches as shown on the plant list. Trunks shall be undamaged and shape shall be typical of the species.
2. Measurement of conifer height shall include no more than fifty (50) per cent of this years vertical growth (candle top).
3. All plants shall be inspected and tagged at the nursery by University of Kentucky Physical Plant Grounds Superintendent or his Assistant before digging. A list of plants and where they are to be inspected must be furnished to the University's Project Manager. The Contractor will set up the appointments and make arrangements to purchase plants after the University has tagged them. Plants must be bought within a 400 mile radius of Lexington, Kentucky to facilitate the inspection and tagging.

All plants must be inspected before March 1st for the Spring planting, or September 1st for the Fall planting. All trees and shrubs are to be balled and burlapped with regular burlap unless potted plants are accepted during inspection at the nursery. Treated or synthetic burlap must be removed when planting. Trees will have to be dug before leafing. Upon delivery of plants to job site, but prior to planting, a second inspection shall be made by University PPD Grounds personnel. If the plants are not in good condition at the time of delivery, such as too small of a ball, loose in ball, damaged trunks, or broken balls, they will not be accepted.

4. PLANTING SEASON FOR DECIDUOUS SHRUBS AND TREES

Planting season for deciduous shrubs and trees shall be March 15 to May 1, or October 15 to December 1. Deciduous shrubs and trees planted before or after the above dates will be rejected.

5. HEDGES:

Planting Hedge Plants: Hedge plants shall be evenly spaced in the row. The plants for single row hedges shall be planted on the centerline of the trenches, and for two or more rows they shall be planted in rows and the designated distance apart with the outside rows equally distant from the centerline of the trench. After planting, and prior to mulching, edges of each trench shall be neatly marked and the soil surface of the trench raked smooth.

Hedge plants after planting shall be pruned to an even height of two-thirds (2/3) of the specified size as shown on the Plant List.

6. CURRENT UK PLANTINGS:

The following pages are a listing of plantings currently on the University of Kentucky Campus. This listing contains the botanical name, the common name, a rating by PPD Grounds, and comments on experiences with the plantings. Any consultant selecting plantings for a new or renovated facility should consult this listing. PPD Grounds shall have a chance to review the selected plantings either prior to or during the Phase "B" Review.

PLANT LIST RATING FOR U.K. GROUNDS DEPT.

RATING: E Excellent; G Good; F Fair; P Poor.

<u>Botanical Name</u>	<u>Common Name</u>	<u>Rate</u>	<u>Comments</u>
Acer Rubrum "October Glory"	Red Maple	E	No experience with older mature trees. Observed Oct. Glory.

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Acer Rubrum	Red Sunset Red Maple	G	Better growing apparent,greener, more uniform shape & fall color.
Acer Saccharum	"Green Mountain"	E	No experience with older trees. Young trees still looking good.
Betula Nigra		?	No experience.
Fraxinus Pennsylvanica Lanceolata	Marshalls Green Seedless Ash	?	Ashes hard to grow because of scale and bores.
Gleditsia Triacanthos Inermis	"Imperial" Thornless Honey Locust	G	Red spider & roots near surface.
Same as above	"Shademaster" Honey Locust	?	Same comments as above.
Koelreutarim Paniculata	Goldenrain	F	Nice tree but subject to freeze damage.
Liquidambar Styraciflua	Sweet Gum	E	Balls can be problem where areas need to be cleaned.
* Quercus Borealis	Northern Red Oak	E	Good Fast Grower
* Quercus Coccinea	Scarlet Oak	E	Varieties become very mixed hard to get replacement to match what you have in street planning.
* Need Dormate Oil Spray For Control of Scale.			
<u>Botanical Name</u>	<u>Common Name</u>	<u>Rate</u>	<u>Comments</u>
* Quercus imbricarin	Shingle Oak	G	
* Quercus Palustris	Pin Oak	G	Sweeping limbs can be a problem in parking area; late shedding leaves.
* Quercus Phellos	Willow Oak	G	Hard to transplant. Subject to freeze damage when young. Planting water oak Quercus Nigra; much hardier.
Sophora Japonica	Japanese Pagoda	E	Subject to winter damage.
Tilia Cordata	Little leaf linden "Greenspire"	G	Jap beetles really like to feed on these. Would hesitate to plant a large number because of this pest.

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Ulmus Parvifolia	Chinese Elm	P	Breaks easily, beetles eat. No fall color.
Zelkova Serrata	"Village Green"s	E	Use patented village green for uniform trees.
Pinus Nigra	Austrian Black Pine	E	Young tree can be cracked but tends to grow out of it. Older trees getting blight. Blight really showing up on 15+ years old. 1988 first time try to control by spraying.
Pinea Abies	Norway Spruce	G	Red spider can be problem.
Picea Pugens	Colorado Green Spruce	F	
Pinus Densiflor	Japanese Red Pine	G	No experience.
Pinus Densiflora "Umbraculifera"	Tanyosho Pine	?	No experience.
Pinus Strobus	Easter White Pine	F	Beautiful tree but can be subject to auto pollution.
Pinus Sylvestris	Scotch Pine	E	

* Need Dormate Oil Spray For Control of Scale.

<u>Botanical Name</u>	<u>Common Name</u>	<u>Rate</u>	<u>Comments</u>
Pinus Thunbergi	Japanese Black Pine	?	No experience.
Acer Campestrine	Hedge Maple	F	Make small screen yellow fall color.
Acer Grinnala	Amur Maple	G	Scarlet autumn color. Good for small screen.
Carpinus Betulus "Fastigiata"	Upright European Horn Beam	G	
Cornus Kousa "Chinensis"	Pagoda Dogwood	G	
Crataegus Crugalli Inermis	Thornless Cockspur Hawthorn	?	No experience.
Crataegus Phaenopypum	Washington Hawthorn	F	Subject to cedar rust, red spider.
Crataegus Viridic	"Winter King"	E	Have to keep water sprouts cut and spray for cedar rust.
Magnolia Stellata	Star Magnolia	E	
Magnolia Virginiana	Sweet Bay	E	
Malus Floribunda	Jap. Flowering Crab	E	

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Malus Sargentii		E	Where small tree is needed.
Malus Selkirk		?	No experience.
Malus Sieboldii Zumi	Zumi Crab	E	
Malus Snowdrift	Snowdrift Crab	E	
Malus Radiant		G	Red
Pyrus Calleryana	"Bradford" Pear	E	Have to reinforce with metal bolts after tree is 3 inches to keep from splitting out.
Amelanchier Laevis	Allegheny Serviceberry	F	
<u>Botanical Name</u>	<u>Common Name</u>	<u>Rate</u>	<u>Comments</u>
Berberis Thunbergi	"Crimson pygmy" Japanese Bayberry	G	
Chaenomeles Japonica	"Texas Scarlet" Flower Quince	?	Subject to leaf disease that defoliates.
Cornus Stolonifera	Redosier dogwood	E	
Cotoneaster Apiculata	Cranberry Cotoneaster	F	Subject to fire blight, red spider, freeze damage & weeds. Beautiful plants when well cared for. Don't overplant. High maintenance.
Cotoneaster Dammeri	"Coral Beauty" Cotoneaster	F	Same comments as Cotoneaster Apiculata
Cotoneaster Divaricata	Spreading cotoneaster	F	Same comments as Cotoneaster Apiculata
Cotoneaster Horizontalis	Rock Cotoneaster	F	Same comments Cotoneaster Apiculata
Euonymus Alatus Compactus	Dwarf Burning Bush	E	
Hydrangea Petiolaris Anomala	Climbing Hydrangea	?	No experience.
Ilex Crenata "Green Luster"	Jap. Holly	F	All Jap. Holly freeze out sooner or later. Don't overplant. You are asking for a big loss.
Ilex Glabra "Compacta"	Compact Inkberry	F	Same comments as Ilex Crenata.

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Juniperus Chinensis Sargenti "Glauca"	Blue Sargent	F	Not as hardy as Green Sargent. Last 15 yr.
Juniperus Horiz. Pl. Campacta	Youngstown Dwarf Andonna	G	
Cornus Florida		F	Attractive but if plant too large hard to survive because of borer. Have quit planting on campus because bores are so bad.
<u>Botanical Name</u>	<u>Common Name</u>	<u>Rate</u>	<u>Comments</u>
Gileditsia Iriacanthos	Skyline	G	
Gladrstis lutca	Yellow Wood	G	Don't make block planting. Hard to get to grow.
Juniperus Horizontalis "Witloni"	Blue Rug	E	
Juniperus Confera	Blue Pacific	E	
Juniperus Sabina "Broadmoor"		?	No experience.
Juniperus Chinensis Sargent viridis	Green Sargent	E	Seems to tolerate shade well.
Juniperus Chinensis	Mint Julip	E	No problem with red spider. Good spreader. Will grow in dense shade and not get as large.
Ligustrum Obtusifolium Regelianum	Regel Privet	G	
Myrica Pensylvanica	Northern Bayberry	G	
Pieris Japonica	Japanese Andromeda	G	Not real hardy in this area.
Pinus Mago "Mughus"	Swiss Mountain Pine	E	
Pyracantha Coccinea "Monrovia"		E	All other varieties on campus have frozen back twice in last several years. This variety has not.
Taxus Baccata "Rapandens"		G	

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Taxus Cuspidata Capitata G

Taxus Caupidata Compacta E

Taxus Cuspidata Intermedia E

Botanical Name Common Name Rate Comments

Taxus cuspidata Nana E

Taxus Cuspidata Andersoni E

Taxus Media densiformis E

Taxus Media Everlow E Proving to be good. Low growing taxus.

Taxus Media Wardii E

Viburnum Burkwoodii E

Viburnum Carlesi Koreanspice E

Viburnum DiLatatum Linden G

Viburnum Lantana Wayfaring Tree ?

Viburnum Opulus Campcatum ?

Viburnum Rhytidophyllum Leatherleaf G Attractive white bloom.

Vibrunum Plicatum "Mariesii" E

Ajuga Reptans Carpet Bugle G

Euonymus Fortunei "Coloratus" E To control scale, need to mow once in early spring. Apply dormate oil.

Hedesa Helix English Ivy F Subject to winter kill & bacteria spot. Freezes out too easily.

achyrandra Terminalis Jap Spurge G

Vinca Minor Periwinkle

Ilex Opacca G

Ilex Fosteri E Do not try setting. Too large of a plant.

Ilex Meserveac Blue prince & Blue princess G

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<u>Botanical Name</u>	<u>Common Name</u>	<u>Rate</u>	<u>Comments</u>
Crown Vetch		E	On steep bank for holding soil. Have to mow off in winter so won't set fire. Have used where steep banks are created between construction sites. Plant plants 1 ft. apart for one season coverage. 2 ft. for 2 years.

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7. UNDERGROUND UTILITIES

The landscape contractor is responsible for the contacting of the appropriate agencies for verification of underground utilities within the limits of the work area. The contractor shall verify the exact location of all utility lines prior to commencement of digging operations.

8. LAYOUT OF PLANTINGS

The landscape contractor is responsible for staking and layout of plantings on the project. The architect and the owner shall be advised when stakes are ready for inspection of various planting areas. All layout work shall be inspected and approved by the architect and the owner prior to opening any planting pits.

9. DRAINAGE

It is the responsibility of the landscape contractor to verify that each excavated tree or shrub pit will percolate (drain) prior to adding topsoil and installing trees or shrubs. The contractor shall fill the bottom of selected holes with six (6) inches of water. This water should percolate out within a twenty-four (24) hour period. The owner and architect shall verify accuracy and effect of percolation testing. If the soil at a given area does not drain properly, a P.V.C. drain or gravel sump shall be installed or the plantings relocated.

10. UNSATISFACTORY CONDITIONS

Should the landscape contractor encounter unsatisfactory surface or subsurface drainage conditions, soil depth, latent soils, hard pan, steam or other utility lines or other conditions that will jeopardize the health and vigor of the plants, he must advise the architect in writing of the conditions prior to installing the plants. Otherwise the landscape contractor warrants that the planting areas are suitable for proper growth and development of the plants installed.

11. PLANTING PITS

Planting pits for trees and shrubs shall be dug a full twelve (12) inches wider than the ball around the entire plant and six (6) inches deeper than the ball. New topsoil as furnished by the contractor shall be mixed with peat moss at a rate of 5:1 volume for backfill. Any heavy clay or other soil unsuitable for planting encountered in the bottom of the holes shall be removed from the site. If the contractor encounters soils that are suitable for backfill, he shall advise the architect prior to backfilling. A written change order with a credit to the owner may be prepared to allow the contractor to use existing soils as backfill. No excavation of planting pit shall be left unattended or open overnight.

12. PLANTING BEDS

Planting Beds shall be dug out to a depth of 22 inches below finish grade. Install four (4) inch plastic drainage tile a minimum of thirty- six inches on center. Tile shall be connected to storm drainage system in the area or to a French drain located away from planting area as directed by Owner. Next place number nine gravel chips around and two inches deep over the tile. Then install eighteen (18) inches of clean topsoil and water to settle. Sample of topsoil shall be submitted to the University sixty days prior to preparation of bed for testing. If sample is not of good quality with humus after testing it will be rejected.

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13. MULCH

1. Bark Mulch shall be applied to all Shrub Beds by the contractor. Beds shall be treated with preemergent herbicide by the contractor before mulch is applied. Bark Mulch shall be one and one-half inches deep. A sample of mulch shall be presented to the owners representative for approval.
2. After the work of setting Trees has been completed, and the tree trunks wrapped, trees shall be mulched with a mixture of one-half (1/2) manure and one-half (1/2) wheat straw to a depth of ten (10) inches and extending to the full width of the excavated pit.

14. STAKING

All trees shall be staked and wrapped immediately after planting. Stakes shall consist of 7' "T" section steel fence post driven at a slight angle clearing the ball. Guy lines consisting of 2 strands of #10 GA. galvanized wire twisted shall pull the steel posts straight. Each guy line shall be shielded with a hose to protect the tree from damage. Trees with diameter of 1 3/4" and bigger shall have three stakes. All stakes shall be painted and guy lines flagged for visibility immediately after installation.

15. MAINTENANCE

1. General Requirements. The operations and maintenance shall begin immediately after each plant is planted and shall continue for a minimum period of six (6) months after planting.
2. The Contractor shall maintain the planting in a healthy growing condition by spraying, cultivating pits and beds where needed, replacing displaced mulch, resetting stakes, and watering if drought intervenes during the guaranteed period. The Contractor shall inspect the planting during the growing season and take necessary steps to control insect and blight attack. During the dormant season, before the guarantee has expired, the Contractor shall inspect the planting after severe storms and exercise corrective measures as may be practical. During the last week of May following planting, all mulch shall be completely renewed.

16. GUARANTEE

The Contractor shall guarantee all plants for a period of six months after planting. Within one (1) week of the expiration of the guarantee period, the Contractor shall request the Landscape Architects, in writing, for an inspection to determine the number of plants to be replaced. A count of dead plants shall be made and listed; the Contractor shall replace these in the subsequent planting season. Plants which have lost fifty (50) percent of their branches shall be considered dead and shall be replaced, unless in the opinion of the Landscape Architect, they show promise of a vigorous recovery. When replacements have been made and installed in compliance with these specifications, the requirements for planting under this Contract shall be considered fulfilled.

17. CLEAN UP

The landscape contractor shall be responsible for cleaning up the site at the completion of the project and shall maintain the site in a reasonably neat and clean state throughout the installation process. Streets and paved areas shall be cleaned regularly to remove construction materials and other debris resulting from work on the project.

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18. REPLACEMENTS

Replacements of dead or unsatisfactory material shall be made as specified in the plant list. The owner or landscape architect shall inspect replaced plants when all replacements have been made. Replacements are to be alive and in a healthy condition when replacements are complete but they shall not be subject to a six (6) month guarantee.

Should the contractor not make replacements in a satisfactory and timely fashion in accord with the planting notes, the owner, after proper notification to the contractor, may utilize the funds of the retainage to have the replacements made in accord with the specifications by another contractor.

19. SPRINKLER SYSTEM(S)

Provide a permanent automatic watering system (where required) for planter beds and intensely planted areas. System shall be designed to keep plantings uniformly moist for proper growth. Provide a separate water meter and backflow preventor for this watering system.

20. HOSE BIBS

Provide hose bibs located around new or renovated facilities. Hose bibs should be spaced such that a 100 foot length of hose can reach all plantings around the facility. Where plantings are located a distance of 100' plus from the facility a hose bib recessed in the ground may be required. Install vacuum breakers on hose bibs (permanently) if not integrated in bib at time of manufacture.

21. TREE PROTECTION AND TRIMMING

1. Description of Work

Protect trees indicated to remain as herein specified. Where trees which would interfere with new construction are shown to remain, trim and protect such trees as shown and as specified herein.

2. General

Protect tree root system from damage due to deleterious materials in solution caused by run-off or spillage during mixing of construction materials or drainage from stored materials. Protect root systems from flooding, erosion, or excessive wetting resulting from dewatering operations.

Do not allow fires under or adjacent to trees or other plants which are to remain.

Engage a qualified tree surgeon to remove branches from trees which are to remain, if required to clear new construction. Where directed by the Landscape Architect, extend pruning operation to restore natural shape of entire tree.

If required, cut branches and roots with sharp, pruning instruments; do not break or chop. Paint cuts over 1/2" in size with standard tree paint or compound which is waterproof, antiseptic, elastic and free of kerosene, coal tar, creosote, and other substances harmful to plants.

3. Temporary Protection of Trees

Provide temporary barricades as required to protect trees and other plants, which are to remain, from above-grade damage.

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Protect root systems from smothering. Do not store construction materials, debris or excavated material within drip line (outer perimeter of branches). Do not permit vehicular traffic or parking within drip line. Restrict foot traffic to prevent excessive compaction of soil over root systems.

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4. Excavation Around Trees

Excavate within drip line of trees only where shown.

Where trenching for utilities is required within drip lines, tunnel under or around roots by hand digging. Do not cut main lateral roots or tap roots; cut smaller roots which interfere with installation of new work. Cut roots with sharp pruning instruments; do not break or chop.

Where excavating for new construction is required within drip line of trees, hand excavate to minimize damage to root systems, and provide sheeting at excavation if required. Use narrow tine spading forks and comb soil to expose roots. Relocate roots in backfill areas wherever possible. If large, main lateral roots are encountered, expose beyond excavation limits as required to band and relocate without breaking. If encountered immediately adjacent to location of new construction and relocation is not practical, cut roots approximately 3" back from new construction. Do not allow exposed roots to dry out before permanent backfill is placed; provide temporary earth cover, or pack with peat moss and wrap with burlap. Water and maintain in moist condition and temporarily support and protect from damage until permanently relocated and covered with backfill.

Prune branches in accordance with good horticultural practice to balance loss to root system caused by damage or cutting of root system. Engage a qualified tree surgeon to prune branches.

5. Graded and Filling Around Trees

Maintain existing grade within drip line of trees unless otherwise shown.

Lowering Grades: Where existing grade is above new finish grade shown around trees, carefully hand excavate within drip line to new grade. Cut exposed roots approximately 3" below elevation of new finish grade. Engage a qualified tree surgeon to recommend procedures to compensate for loss of roots and to provide initial services such as pruning of branches and stimulation of root growth. Provide subsequent maintenance during contract period as recommended by tree surgeon. Provide Owner with typed instructions for recommended long-range maintenance procedures to be followed after completion of construction operations.

Raising Grades: For minor fills where the existing grade is 6" or less below elevation of finish grade shown, use a topsoil type fill material rich in organic matter and loamy in texture. Place in single layer and do not compact.

For moderate fills where existing grade is more than 6" but less than 12" below elevation of finish grade shown, place a layer of coarse stone or gravel fill on existing grade prior to placing of topsoil. Use stone or gravel on existing grade prior to placing of topsoil. Use stone or gravel graded to pass a 3" sieve and be retained on a 1" sieve. Carefully place against trunk of tree to an elevation of approximately 2" above finish grade and extending not less than 18" from tree trunk on all sides. For balance of area within drip line perimeter, place coarse stone or gravel to an elevation 6" below finish grade and complete fill with a 6" layer of topsoil which is rich in organic matter and loamy in texture. Do not compact stone or gravel or topsoil layers.

For deep fills where the existing grade is 12" or more below elevation of finish grade shown, provide the following:

Construct retaining wall around perimeter of tree trunk as shown.

Place stone or gravel drainage bed on existing grade from retaining wall to drip line perimeter. Use stone or gravel graded to pass a 3" sieve and be retained on a 1" sieve. Terminate drainage layer

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6" below finish grade shown and complete fill with a 6" layer of topsoil, rich in organic matter and loamy in texture. Do not fill well formed around tree trunk by retaining wall.

Place vertical vents in fill as work progresses. Use 4" bell type clay tile or plastic drainage pipe placed on 6" bed of stone or gravel fill and extending slightly above finished grade shown. Locate about 1' inside of drip line at 3' o.c. spacing around perimeter. Provide heavy galvanized 1/4" wire screen closures sized to fit in exposed bell.

Prior to placing stone drainage bed, provide horizontal clay tile or plastic pipe drainage system around tree. Place on existing grade and slope to french drain or catch basin.

6. Repair and Replacement of Trees

Engage a qualified tree surgeon to perform tree repair work. Repair trees damaged by construction operations, in a manner acceptable to the Landscape Architect. Make repairs promptly after damage occurs to prevent progressive deterioration of damaged trees.

Remove and replace dead trees and damaged trees which are determined by the tree surgeon to be incapable of restoration to normal growth pattern. Provide and plant new trees of same size and species as those replaced. If trees over 6" in caliper measurement (taken 12" above grade) are required to be replaced, provide new trees of 6" caliper size, and of the species selected by the Landscape Architect.