PART I - GENERAL

1.1 SECTION INCLUDES

A. Provide landscaping and restoration including:
   1. Tree planting, replacement, pruning, and protection.
   2. Shrub, groundcover, and perennial planting, replacement, and protection.

1.2 RELATED SECTIONS/DOCUMENTS

A. Section 01 35 00 – Special Procedures
B. Section 01 56 00 – Temporary Barriers and Enclosures
C. Section 32 91 19.13 – Topsoil Placement and Grading
D. Exhibit 32 93 00-1, Approved Plant List
E. Drawing 01 56 00-1, Tree Protection Fencing Requirements
F. Drawing 33 05 23-1, Utility Requirements Under Tree Root Zones

1.3 REFERENCES

A. Guide for Plant Appraisal, current edition, by Council of Tree and Landscape Appraisers
B. Standardized Plant Names, Horticulture Nomenclature.
E. Planting Details and Specifications as published by the International Society of Arborists.

1.4 CERTIFICATION

A. Certificates of Inspection: Shall accompany invoices for each shipment of plants as may be required by law for transportation. File certificates with Owner prior to acceptance of the material.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Planting: Shall be performed at normally accepted times in the spring and fall.
B. Variance: If special conditions exist which may warrant a variance in the normally approved planting dates, a written request shall be submitted to the Owner stating the special conditions and the proposed variance. Permission for the variance will be given if warranted in the opinion of the Owner.

1.6 WARRANTY

A. Substantial Completion: The guarantee period for trees, shrubs and groundcovers shall begin at the date of the Substantial Completion.
B. 1 Year: All plant material shall be guaranteed by the Contractor for a period of 1 year from the date of Substantial Completion to be in good, healthy, and flourishing condition.
C. Repair Damage: The Contractor shall further guarantee that during the period of the guarantee he will make good any defects to the Work and all damage caused to property of the Owner by such defects or by the Work required to remedy such defects.
D. Decision to Replace: At any time within the period of the guarantee, the Contractor is responsible for any plant that is dead, dying, in a declining condition, or that has failed to
flourish in such a manner that its usefulness or appearance has been impaired due to inferior or defective materials, workmanship or inadequate protection. The decision of the Owner for making replacements shall be conclusive and binding upon the Contractor. The Contractor shall also make good all damage to persons or property caused by defective workmanship or materials.

E. Trees and Shrubs: Any trees or shrubs found to be unacceptable as described above shall be removed from the site and replaced during the next planting season.

F. Of Same Kind: Plant replacements shall be of the same kind and size as specified in the plant list. All plant replacements shall be inspected, furnished, planted, mulched, and otherwise installed as specified at the Contractor’s expense.

G. Repair Damage: Where plants are replaced, the Contractor shall be responsible for repairing any damage caused by this replacement to lawns, pavements, or other areas involved with the replacement.

PART 2 - PRODUCTS

2.1 PLANT SELECTION AND TAGGING

A. Inspection: Plants shall be subject to inspection and approval at their place of growth and upon delivery for conformity to specifications. Such approval shall not impair the right of inspection and rejection during progress of the Work.

B. Written Requests: Written requests for inspection of plant material at their place of growth shall be submitted to the Owner at least 10 calendar days prior to digging. Written requests shall state the place of growth and quantity of plants to be inspected. The Owner may refuse inspection at this time if, in his judgment, a sufficient quantity of plants is not available for inspection.

C. Selected Specimen: Plants identified as "selected specimen" shall be approved and tagged at their place of growth. For distant material, submit photographs for pre-inspection review.

2.2 DIGGING AND HANDLING OF PLANT MATERIAL

A. Ball and Burlap: Ball and burlap (B&B) plants shall have natural balls of earth, of size not less than that recommended in the American Standard for Nursery Stock. Plants moved with a ball will not be accepted if the ball is dry, cracked, or broken before or during planting operations.

B. Freshly Dug: All plants shall be freshly dug. Heeled in plants or plants from cold storage will not be accepted. All nursery grown plants shall have been transplanted or root pruned at least once in the last 3 years.

C. Careful Handling: All plants shall be handled so that the roots, trunk, and branches are adequately protected at all times. During shipment, all plants shall be properly protected by a shade tarpaulin of approximately 90 percent shade material. No plant shall be so bound with rope or wire at any time as to damage the bark, break branches, or destroy its natural shape.

2.3 PLANTS

A. Grown In Accordance with Good Practice: Plants shall be true to species and variety specified and nursery grown in accordance with good horticultural practice under climatic conditions similar to those in the locality of the Project for at least 2 years. Plants shall be freshly dug, unless specified as container stock, and shall not be in leaf at time of digging.

B. Native Species: The use of native species is preferred.

C. Plant Quality: Unless specifically noted otherwise, all plants shall be of specimen quality, exceptionally heavy, symmetrical, so trained or favored in development and appearance as to be unquestionably and outstandingly superior in form, compactness, and symmetry. They shall be sound, healthy, vigorous, well branched and densely foliated when in leaf.
free of disease, insects, eggs, or larvae and shall have healthy, well-developed root systems.

D. Pruning: Plants shall not be pruned before delivery. Trees with multiple leaders, unless specified, will be rejected. Trees with a damaged or crooked leader, abrasion of bark, sunscald, disfiguring knots, insect damage, or cuts of limbs over 3/4-inch in diameter not completely callused will be rejected.

E. Plant Size: All plants shall conform to the measurements specified in the plant list and shall conform to the American Standards for Nursery Stock. Plants larger than specified may be used if approved by the Owner. Use of such plants shall not increase the Contract price. If larger plants are approved, the root ball shall be increased in proportion to the size of the plant.

F. Measurement: All plants and all tree trunks shall be measured when the branches are in their normal position. Dimensions for height and spread refer to the main body of the plant and not from branch tip to branch tip. Measurements specified are minimum size acceptable after pruning where pruning is required. Plants that meet requirements but do not possess a normal balance between height and spread shall be rejected.

G. Labels: All plants shall be labeled with correct plant name and size. Labels shall be securely attached to all plants, bundles, and containers of plant materials delivered.

H. Substitutions: Substitution of plant materials is not permitted unless authorized in writing. If proof is submitted, substantiated in writing, that any plant specified is not obtainable, a proposal will be considered for the use of the nearest available size or similar variety with a corresponding adjustment of the Contract price. See Exhibit 32 93 00-1 for the approved list of plants and shrubs.

I. Replacement: When the plant list is complete, it shall include plants removed and/or damaged beyond reasonable repair during the Project, their correct spacing, and type (ball and burlap, container, etc.). Any damage will be evaluated by the Owner as to whether replacement is necessary. Such replacement shall be the sole responsibility of the Contractor.

2.4 MULCH

A. Mulch Quality: Mulch shall be shredded hardwood bark, chemically inert, nontoxic, free of weeds or any other substance injurious to plant growth. Shredded bark shall have a uniform fibrous texture, free from cakes and lumps. It shall be free of foreign material and of a uniform color. No individual piece shall be larger than 2 square inches.

2.5 TOPSOIL

A. Conform to Section 32 91 19.13 – Topsoil Placement and Grading. Topsoil depth for planting beds shall be a minimum of two (2) feet.

2.6 SLOW RELEASE WATER BAGS

A. Reinforced, UV treated, 10 mil polyethylene bags with heavy-duty nylon zippers with poly pro straps and heat sealed edges shall be provided for each tree over 2 inches in caliper. Each bag shall hold 20 gallons of water. Product shall be Treegator or Owner-approved equal. Treegators are available through Forestry Suppliers, Inc., 205 West Rankin Street, P.O. Box 8397 Jackson, MS 39284-8397 (800.647.5368).

PART 3 - EXECUTION

3.1 EXCAVATING OF PLANTED AREAS

A. Stake Out Excavation: Where required for planting operation, the Contractor shall perform all necessary excavations as part of the Contract price. Stake out plant locations and obtain approval from the Owner before excavation is begun. Excavations shall include complete removal of rock, old concrete, base materials, other debris, and necessary earth excavations.
B. Utilities: The Contractor shall be responsible for locating all underground utilities, and shall take all necessary precautions not to disturb or damage these utilities.

C. Obstructions: When an obstruction of rock, tree roots, utilities or any other object of substantial size and extent is encountered, an alternate location for the plant may be selected by the Owner. Where locations cannot be changed as determined by the Owner, submit cost required for moving or removing the obstruction. Proceed with such revisions only after approval by the Owner.

D. Schedule: Excavation shall be during the specified planting season and shall be scheduled so that it will be followed immediately by the placement of plant materials.

E. Depth: Excavate tree pits to the depth of the tree ball and at least twice the width of the tree ball. Excavate shrub pits to depth of shrub ball or container and one foot wider than the ball or container. Excavate groundcover pits to depth of container or sufficient to plant bare root ground cover to appropriate depth. Depth of all plant pits specified shall be measured from the finish grade.

F. Poor Soil Conditions: Detrimental soil conditions affecting plant growth shall be reported in writing to the Owner. State condition and submit proposal of correcting the condition to the Owner. Ensure proper drainage.

G. Remove Materials From Site: All excess excavated materials shall be disposed off site by the Contractor. The Contractor shall be responsible for removing all rubbish, waste materials, or other debris from the site at the completion of each working day.

3.2 PLANTING OPERATIONS

A. Protection: Protect plants at all times from conditions detrimental to the health of the plants. Plants that cannot be planted immediately on delivery shall be kept in shade or sun, according to their specific requirements, with B&B material well protected with soil, wood chips, shredded bark or other acceptable material. Plants shall be kept watered. Plants shall not remain unplanted for longer than 3 days after delivery.

B. Setting Plant: Set plants in planting pits with the root flare at finish grade. Set plant plumb and brace rigidly into position until prepared topsoil has been tamped solidly around ball and roots so that the plant will be of the same depth 1 year later. See Tree and Shrub Transplanting Manual.

C. Remove Wrapping: Cut and remove ropes, strings and wrapping from the top 1/2 of the ball after plant has been set. Leave balance of wrapping intact around the ball. All waterproof, water repellant, or rot resistant wrappings shall be removed from the ball. Wire baskets shall be removed if the ball will hold together once it is removed. If the ball will not hold together, remove top half of the wire basket once the plant is in the planting hole.

D. Backfill and Water: Backfill plant pits with excavated material. When plant pits have been backfilled about 1/2 full, water thoroughly, eliminating all air pockets.

E. Fill and Repeat Water: After watering, install soil to top of pit and repeat watering. Avoid puddled soil conditions.

F. Saucer: Form saucer around tree and shrub pits as indicated in the Tree and Shrub Transplanting Manual.

G. Firm Soil: Ensure the soil is firm around groundcover plants and water thoroughly.

H. Finish Grade: The finish grade around the planting area shall conform to the appropriate grade after full settlement of the soil has occurred.

I. Mulch: Mulch all tree and shrub pits with shredded bark to a depth of 3-inches immediately after planting. Mulching depth of perennial and groundcover beds will be from 1-inch to 3-inches as appropriate for the planting.

J. Water: Water all plants thoroughly. The Owner will furnish water to the Contractor from existing facilities. Contractor shall furnish all hose, meters, back flow preventers and other connections necessary for watering plants.
K. Slow Release Water Bag: Connect and place two bags for each tree. Contractor shall fill with water and maintain water in the bag during the maintenance period.

L. All trees, shrubs, and planting beds shall be tiled with 4” plastic drain tile that is wrapped with drainage fabric. The top of tile is to be placed at a depth of 36” below finish grade. If conditions do not permit tile installation at a 36” depth, a 24” minimum depth is permitted after approval by the University.

3.3 GUYING, STAKING, WRAPPING AND PRUNING

A. Guys: If directed by the F&S Horticulturist or Landscape Architect, flag guys with 18-inch sections of 1-inch diameter white PVC pipe if guys extend outside planting area or pose a tripping hazard. Guys shall be completed immediately after planting. Drive anchors into the ground outside of the planting pit to a depth that will securely hold the tree. Attach cables with hose around the trunk. Leave cables with just enough slack that they will go tight in a wind.

B. Stakes: If directed by the F&S Horticulturist or Landscape Architect, use 3 stakes on trees over 2-inches in caliper.

C. Wrap: If directed by the F&S Horticulturist or Landscape Architect, wrap trunks of deciduous trees 1.5-inches or more in caliper with a spiral overlapping tree wrap to a minimum height of the first branch. Wrap from the bottom and tie wrapping securely in place. Consult the Owner for acceptable trunk wrap material.

D. Prune: Prune plants only at time of planting and according to horticultural standards to preserve the natural character of the plant, and only to remove broken, crossing, or damaged branches. Pruning shall be done only with approval from the Owner. Use only clean, sharp tools.

3.4 MAINTENANCE OF TREES, SHRUBS AND GROUNDCOVERS

A. Begin Immediately: Maintenance shall begin immediately after each plant is planted and shall continue until acceptance. The Contractor’s maintenance period shall end at Substantial Completion unless otherwise noted.

B. Complete Maintenance: Maintenance shall consist of pruning, watering, cultivating, weeding, mulching, tightening, repairing of guys and stakes, wrapping repair, resetting plants to proper grades or upright condition, restoration of planting saucer, and furnishing and applying such sprays or other items as are necessary to keep the plantings free of insects and disease and in thriving condition.

C. Clean of Debris: Sidewalks and other paved areas shall be kept clean of debris and material resulting from planting and maintenance work.

3.5 FERTILIZING

A. Tree and Shrub Fertilizer: Commercial Fertilizer for trees and shrubs shall be Nutri-Pak controlled release plant food as manufactured by JRP International, Inc. of Fon du Lac, Wisconsin or Owner-approved equal.

1. Standard Formulation: Guaranteed analysis of 16 percent total Nitrogen, 8 percent available Phosphoric Acid and 8 percent soluble Potash (16/8/8) packaged in a patented controlled release packet.

B. Groundcover and Perennials Fertilizer: Commercial Fertilizer for groundcover and perennials shall be a General Purpose complete plant food (10-10-10), furnished in a uniform granular or pelletized form as approved by the Owner.

1. Standard Formulation: Guaranteed Analysis of 10 percent total Nitrogen, 10 percent available Phosphoric Acid and 10 percent soluble Potash.
This section of the *U of I Facilities Standards* establishes minimum requirements only. It should not be used as a complete specification.