SECTION 329300 - PLANTS

1.1 SUMMARY

A. Landscaping includes the layout, soil preparation, excavation for and planting of landscape materials, including trees, shrubs, ground covers, plants, and lawns, mulching, weed control barriers, erosion control, staking and guying trees and shrubs, and landscape edgings.

B. Topsoil preparation includes soil amendments and fertilizers.

C. The Consultant shall provide a typical photograph of each plant specified for the project.

D. The Consultant shall include in the plant list the height, caliper, spread, and crown spread, as appropriate, of each plant specified both at installation and maturity.

E. The Consultant shall prepare the construction documents such that installation of plant material and the maintenance thereof are packaged together. The University reserves the right to install plant material and perform all necessary maintenance with its own forces or under a separate contract from the general construction.

1.2 SUBMITTALS

A. Reviewed and approved submittals from the Consultant and the Project Manager must be in place prior to delivery of material to the site.

B. Analysis of existing surface soil.

C. Source of plant materials.

D. Source of topsoil and analysis.
   1. Analysis must include pH, mechanical analysis, organic material, nitrogen-phosphorus-potassium (N-P-K) balance, and noxious weed(s) content.

E. Planting schedule.

F. Mulch sample.

1.3 SUBSTITUTIONS

A. Substitutions, including plant material, must be approved in writing by the Project Manager at least ten (10) business days prior to delivery of materials to the site.

1.4 WARRANTY

A. Living Planting Materials: The installation contractor is relieved of all warranty requirements on completed and accepted installations.

1.5 MAINTENANCE

A. The University will assume all maintenance responsibilities once materials are planted, mulched, and staked.
1.6 MATERIALS

A. Plant Materials

1. General:
   - All plant material shall conform to the American Standard for Nursery Stock ANSI Z60.11996 or latest version.
   - All plant material shall be nursery grown, grown in nurseries located in USDA Hardiness Zone 6a or colder and verified source.
   - All plant material shall be free of wounds, damaged areas, conks, bleeding, and insect pests or disease.
   - Plant material shall be true to botanical name.
   - No substitutions shall be made without authorization of the Project Manager.
   - Each tree and shrub is to be labeled with a waterproof tag.

2. Trees:
   - Type: Shade, flowering, and coniferous evergreen.
   - Stock: Balled and burlapped, rooted into ball so that soil or media remains intact with the root crown exposed on the top surface of the root ball. The trunk should bend when gently pushed, not pivot at or below the soil line.
   - Trees maturing over 25’ in height are to have a single, strong central leader with a symmetrical canopy free of large voids and typical of the species or cultivar and having a live crown ratio of 3:5.
   - Type 1 & 2 Deciduous trees, minimum 2-1/2” – 3” caliper with minimum branching height of 6’.
   - Type 3 & 4 Deciduous trees, minimum 2” – 2-1/2” caliper with minimum branching height of 4½’.
   - Coniferous trees, minimum 6’-8’ in height.

3. Deciduous Shrubs:
   - Provide shrubs of the height shown or listed and with not less than minimum number of canes required by ANSI Z60.1 for type and height of shrub required.
   - Type 0, Top growth pruned, minimum 18” spread
   - Type 1, Dwarf and semi-dwarf, minimum 2’ spread
   - Type 2, Flowering, minimum 3’ spread
   - Type 3, Upright and spreading, minimum 3’ spread
   - Type 4, Multi-stem, minimum 4’ height
   - Type 5, Upright, minimum 4’ height
   - Type 6, Dense upright, minimum 2’ height
   - Type 7, Hedging, minimum 3’ height
   - Stock: Balled and burlapped or container grown.

4. Coniferous Shrubs:
   - Type 1, Creeping or prostrate, minimum 2’ spread
   - Type 2, Semi-spreading, minimum 2’ spread
   - Type 3, Broad spreading, globe, and upright, minimum 30” height
   - Type 4, Cone type/pyramidal, minimum 4’ height
   - Type 5, Broad upright, minimum 3’ height
   - Type 6, Columnar, minimum 4’ height
   - Stock: Balled and burlapped or container grown.

5. Broadleaf Evergreen Shrubs:
   - Type 1, Spreading, minimum 2’ spread
   - Type 2, Semi-spreading, minimum 2’ spread
   - Type 3, Globe or dwarf, minimum 2’-6” spread
   - Type 4, Broad upright, minimum 3’ height
   - Type 5, Cone, minimum 3’ height
   - Stock: Balled and burlapped or container grown.

6. Ground Covers, Grasses, and Perennials:
   - Stock: Ground covers, minimum 4” pot
   - Stock: Grasses and Perennials, minimum 1 gallon
B. Topsoil: Reuse surface soil stockpiled on-site or import topsoil. Imported topsoil and stockpiled soil shall meet the following and be verified via soil test:
   1. Fertile, friable, natural loam, surface soil, free of subsoil, clay, lumps, crushed stone, weeds, and other litter.
   2. pH between 6.5 and 7.2
   3. Minimum 5% organic material.
   4. Soil must be tested and results approved by the Manager of Horticulture and Grounds prior to delivery.
   5. Recommendations on type and quantity of additives required to establish satisfactory pH factor, supply of nutrients, and organic content.
   6. Unapproved soil must be removed.
   7. Lawn areas require 6” of approved topsoil; planting beds as outlined on plans require 18” of approved top soil.

C. Soil Amendments
   1. Trees & Shrubs
      • No amendments at planting
   2. Plant Beds
      • 2 to 4 yards of peat per 1,000 sq ft
      • Pre-emergent herbicide applied per label
   3. Others as required to meet specifications
      • Lime, aluminum sulfate, sand, perlite, peat humus, sawdust or ground-bark humus, manure, and herbicides.

D. Fertilizers: Bonemeal, superphosphate, commercial fertilizer, and slow-release fertilizer applied per package label and standard professional practice. Commercial Fertilizer shall be of neutral character, with some elements derived from organic sources. Soil test to indicate if phosphorus is required.
   1. All applications shall be in accordance with labeled instructions, applicable local, state and federal laws and ANSI A300 (Part 2)-1998.
   2. At least 50% of nitrogen to be in organic form.
   3. Trees & Shrubs
      • No fertilization at planting
      • Subsurface liquid fertilizer, slow release nitrogen, 30-0-7, salt index of less than 50, 2-4 lbs actual nitrogen per 1,000 sq ft for established plantings.
   4. Plant Beds
      • A 5-0-5 nitrogen-phosphorus-potassium (N-P-K) slow release granular fertilizer at 2-3 lb. per 100 sq. ft. to be incorporated with peat moss at planting.
   5. Turf
      • 1 lb. actual nitrogen in 10-0-4 slow release granular fertilizer as seedbed is prepared per 1,000 sq. ft.

E. Mulches: Shredded seasoned hardwood, minimum double ground, organic, free of deleterious materials peat, fiber, and mineral; 3” throughout planting bed.

F. Weed Control Barriers: Nonwoven fabric; installed prior to installation of mulch.

G. Erosion Control Materials: Blankets and fiber mesh.

H. Stakes and Guys: Hardwood, with 3/8” rubber cord or equivalent to stabilize tree while allowing some movement; installed immediately after material is planted.

I. Landscape Edgings: To be used only when stone mulch abuts lawn
   1. ¼” X 4” deep steel edging secured with minimum 15” stakes. Finish shall be two (2) coats of black rust inhibiting paint.

J. Miscellaneous Materials:
   1. Tree grates and frames, as required by project.
   2. Tree wrap is prohibited in all cases.
1.7 INSTALLATION

A. The Contractor Project Manager shall stake out and review plant material locations for approval by the Project Manager and Manager of Horticulture and Grounds prior to planting operations.

B. The Contractor shall be responsible to maintain the health of all plant material stored on site including but not limited to watering and mulching prior to installation.

C. Plant Density:
   1. Plants shall be placed at an acceptable distance from buildings, walkways, traffic and pedestrian intersections, entrance and light fixtures to maintain safe sight distances and passage, and conflicts with permanent structures without requiring extensive pruning throughout the life of the plant.
   2. Plants shall be placed on centers that create a full, mature appearing landscape at installation.
   3. Trees: Crowns shall not overlap more than one-third the spread of the mature tree size.
   4. Ground Covers: Shall be placed on centers such that the area shall be covered, free of voids and gaps, immediately.

D. Trees and shrubs may require French drains or other drainage systems for planting in clay soil.

E. Recondition existing lawn areas damaged by Contractor operations, including relief of compacted areas with aerating and proper seedbed preparation prior to reseeding. Maintenance requirements shall match those of new plantings.

F. Control dust and mud to keep the traveled way free from materials spilled from hauling equipment, including control in areas outside the contract limits.

G. Maintain the traveled way such that snow, ice, and drainage control may be maintained by others. Within the contract limits, the Contractor shall maintain the traveled way including snow, ice, and drainage control.

H. Remove and dispose of surplus soil and waste material off Owner's property.

I. Augers are not allowed in planting pit preparation unless an additional 6” is removed by hand shovel to remove glazing caused by power augers.

1.8 INSPECTION AND ACCEPTANCE

A. The Consultant, Project Manager, and/or Manager of Horticulture and Grounds must inspect plant materials for general health, shipping damage, compliance with the standards stated herein and contract specifications and may reject plant materials at the place of growth, place of resale, or at the site, before planting.

B. The Consultant, Project Manager, and/or Manager of Horticulture and Grounds must inspect planting pits for size, preparation, and backfill mixture, before planting.

C. When landscape work is completed, the Project Manager and Manager of Horticulture and Grounds will make an inspection to determine acceptability.

D. The installation contractor shall provide a minimum 24-hour notice in advance of planting, bed preparation, and/or backfilling to the Project Manager to assure that inspection by University personnel is properly coordinated.

E. When landscape work does not comply with requirements, replace rejected work as specified and maintain until re-inspected and accepted by the Project Manager and Manager of Horticulture and Grounds. Replacement of rejected work will be at no additional cost to the Owner.