DIVISION 2 SITE WORK  
02950 TREES, SHRUBS AND GROUND COVERS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The general provisions of the Contract including General Conditions, Supplementary Conditions, and Division 1 Sections, if any, apply to the work specified in this section.

B. SECTION 02810 LANDSCAPE IRRIGATION SYSTEM  
SECTION 02930 LAWN GRASSES SEEDED  
SECTION 02931 LAWN GRASSES SODDED

1.02 SCOPE OF WORK

A. The work covered by this part of the specifications consists of furnishing all plants and other materials, labor, equipment and appliances, and performing all operations in connection with the planting of trees, shrubs, ground covers and other such materials in strict accordance with these specifications and the applicable drawings, and subject to the terms and conditions of the contract.

1.03 STANDARDS

A. The following documents, used as standards, are to be considered a part of these specifications:


1.04 SUBSTITUTIONS

A. Substitution of materials will not be permitted without the Landscape Architect’s prior written approval.

1.05 MAINTENANCE

A. Contractor to maintain all plantings after installation until Final Acceptance. Maintenance consists of mowing, watering, cultivation, weeding, mulching, restaking, resetting of plants to proper grades and upright position, retaining of water saucers, control of erosion and furnishing and applying the necessary ingredients to keep plants free from insects, diseases and in optimum condition. Refer to Section 02970 in these specifications for additional requirements.
1.06 GUARANTEE

A. Guarantee all plant material to be true in name and to be in a healthy, vigorous condition at the end of the guarantee period.

B. Guarantee period for plants after Final Acceptance is as follows:
   1. Trees ........................................................................................................................................ 1 year
   2. Shrubs, vines & ground covers ............................................................................. 1 year
   3. Perennials ........................................................................................................... 90 days
   4. Annuals ........................................................................................................... 30 days

C. Make all replacements within 30 days of notification when weather conditions permit. Replace plants that are dead, not in a healthy, vigorous condition and plants, which have incurred loss of design value as determined by the Landscape Architect. Replacements are at no expense to the Owner.

D. The planting contractor is responsible for providing a written maintenance schedule (water, fertilizer, pruning, etc.) for all trees, shrubs, vines, and ground covers (excluding turf) during the 12-month guarantee period.

1.07 MATERIAL STORAGE

A. Package plants to provide adequate protection against climatic and breakage injuries during transit. Do not drop plant material from trucks or any other plant handling equipment. Handle plant material carefully to insure against frozen, cracked, broken, loose or "mushroomed" root balls. Damaged balls, root bound plants, plants infested with insects or having other deficiencies will constitute grounds for rejection. Remove rejected materials from the work site immediately. Protect roots and foliage from sun and drying before planting.

1.08 PLANT LIST

A. A plant list is shown on the Planting Plan or included at the end of this section.

1.09 NOMENCLATURE

A. The scientific and/or common names of plants herein specified conform with the approved names given in "Standardized Plant Names". Names of varieties not included therein conform generally with names accepted in the nursery trade.

1.10 QUANTITIES

A. The quantities necessary to complete the planting as shown and located on the drawings are furnished as a convenience to the contractor. The contractor shall be responsible for providing the quantities necessary to complete the planting plan. Dimensions for plant beds have, in many instances, been established from scaled drawings. It is the Contractor's responsibility to check these dimensions on the site and allow for the quantity of plants accordingly.
PART 2 MATERIALS

2.01 PLANT INSPECTION

A. Plants are subject to approval and inspection for name, variety, quality and size at place of growth, at the nursery and upon delivery to the work site. Inspection for latent defects or injuries will be made during work progress.

2.02 PLANT QUALITY AND SIZE

A. Plants shall have a habit of growth that is normal for the species and shall be sound, healthy, vigorous and free from insect pests, plant diseases, injuries, and after effects thereof.

B. All plants shall meet or exceed the measurements specified in the Plant List, which are minimum acceptable sizes. They shall be measured before pruning, with the branches in the normal position. Any necessary pruning shall be done at the time of planting. Contractor may use larger sizes of plant material at his discretion, but with no increase in the contract price to the owner.

C. Requirements for the measurement, branching, grading, quality, balling and burlapping of plants generally follow the code of standards currently recommended by the "American Standard for Nursery Stock".

1. Minimum Root Ball Sizes for Trees:

<table>
<thead>
<tr>
<th>Tree Size</th>
<th>Ball Depth</th>
<th>Ball Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5&quot;-2.0</td>
<td>20&quot;</td>
<td>24&quot;</td>
</tr>
<tr>
<td>2.0&quot;-2.5&quot;</td>
<td>22&quot;</td>
<td>28&quot;</td>
</tr>
<tr>
<td>2.5&quot;-3.0&quot;</td>
<td>24&quot;</td>
<td>30&quot;</td>
</tr>
<tr>
<td>4.0&quot;</td>
<td>30&quot;</td>
<td>40&quot;</td>
</tr>
<tr>
<td>+4.0&quot;</td>
<td>1.5 x Ball Diameter 10&quot; per 1&quot; caliper</td>
<td></td>
</tr>
<tr>
<td>5'-6'ht.</td>
<td>18&quot;</td>
<td>24&quot;</td>
</tr>
<tr>
<td>6'-8'ht.</td>
<td>24&quot;</td>
<td>30&quot;</td>
</tr>
</tbody>
</table>

2. Tree ball shapes shall be truncated cones.

D. Caliper for single trunk trees is the diameter of the stem measured 6" above the ground level for trees 4" caliper or less and 12" above grade for sizes over 4". Caliper for multi-trunk trees is measured as the diameter of the largest stem plus one half the diameter of all remaining stems at a point 6" above ground level.
2.03 **BALLED AND BURLAPPED PLANTS (B&B)**

A. Use plants having natural balled and burlapped rootballs that are not cracked, broken, loose or mushroomed before or during installation. "Prefabricated" rootballs are considered as bare root and are not acceptable as balled and burlapped.

2.04 **BARE ROOT PLANTS (BR)**

A. Use plants with sufficient root spread and depth to full recovery and development of the plants.

2.05 **CONTAINER GROWN PLANTS**

A. Use plants grown in containers having sufficient roots to hold planting mix intact, but not root bound, after removal from the container.

2.06 **TOPSOIL**

A. Topsoil shall be a natural, fertile soil, possessing characteristics of representative productive soils in the vicinity. It shall be obtained from naturally well drained areas and shall not be excessively acid or alkaline or contain toxic substances which may be harmful to plant growth. Topsoil shall be without admixture of subsoil and shall contain a minimum of lumps, stones, stumps, roots, or similar substances one inch or more in diameter. It shall not be collected from sites that are infected with a growth of, or the reproductive parts of noxious weeds. It shall not be stripped, collected or deposited when wet. It is the responsibility of the Landscape Contractor to furnish the location where the topsoil is to be obtained to the Landscape Architect in writing as well as a one gallon sample of such soil. The Landscape Architect/Architect/Engineer shall determine quality of topsoil.

B. The Contractor shall have a sample of the proposed topsoil tested for horticultural suitability by the Agricultural Extension Service (Texas A&M University System) Soil Testing Laboratory or by an approved private soil testing laboratory. The soil test shall accurately indicate existing nutrient content and recommendations for amendments required for optimum horticultural use. The Landscape Contractor shall pay for soil test.

2.07 **WATER**

A. Water will be furnished by the Owner and will be suitable for irrigation purposes and free of ingredients harmful to plant life. The Contractor shall furnish hose and other equipment required for the placement of water.

2.08 **COMMERCIAL FERTILIZERS**

A. Fertilizers shall conform to all applicable state laws, shall be delivered in original, unopened containers, each bearing the manufacturer's guaranteed analysis, and shall be uniform in composition, dry and free flowing. Any fertilizer that becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.
2.09 ORGANIC MATTER AND MULCH

A. Organic matter shall be composted manure + alfalfa soil conditioner as manufactured by Humalfa Incorporated, Box 878, Shattuck, OK (405)938-2514 or approved equal and shall be of such character as not to be displaced by the wind.

B. Alternate organic matter may be peat moss of German, Canadian or Michigan origin and is to be low in content of woody parts and free of minerals harmful to plant life. It shall have a pH of from 4 to 6, a moisture content of not more than 30% and a water absorbing capacity from 1100 to 2000%. Peat moss may be natural, shredded or granulated.

C. Mulch for topdressing of planted areas is to be shredded cypress bark mulch or approved equal.

2.10 WRAPPING

A. Tree wrapping for trunks or parts of other plants specified to be wrapped shall be double thickness, heavy kraft crepe paper, specially designed for this purpose, and supplied in rolls of appropriate widths. Twine for tying shall be lightly tared medium or coarse sisal (lath) yarn.

2.11 PLANTING BED HERBICIDE

A. Herbicide for all ground cover and shrub beds shall be “Pendulum” as manufactured by the American Cyanamid Corporation or pre-approved equal.

2.12 MATERIALS FOR STAKING TREES

A. Stakes for supporting trees shall be "T-Post" steel posts or 2" diameter treated, lodgepole pine posts. Posts shall be 6'-0" in length, minimum.

B. Wire for fastening trees to stakes shall be No. 14 galvanized iron.

C. Hose to encase wires shall be new or used 2-ply reinforced rubber garden, plastic garden, or flexible PVC hose.

2.13 MATERIALS FOR GUYING TREES

A. Notched stakes for anchoring guy wires shall be 2"x2"x24" creosoted wood.

B. Guy wires shall be No. 14 pliable, galvanized iron. Encased in rubber or flexible PVC hose.

2.14 SAND

A. Sharp sand graded clean of clay, rock, sticks, etc. and normally used as mason’s sand for mortar mix or concrete.

PART 3 EXECUTION

3.01 PLANTING TIME

A. Plant only under favorable conditions during season, which are normal for planting each type of plant.
### 3.02 Layout

A. Stake or mark planting locations, locate underground and overhead obstructions and make necessary location adjustments subject to Landscape Architect/Architect/Engineer’s approval prior to any digging.

B. Contractor shall be responsible for contacting all appropriate utility companies, agencies, or authorities and for locating and protecting all existing underground utilities and is solely responsible for any damage or interruption to service caused by his excavations.

### 3.03 Plant Pit Sizes

A. Excavate plant pits for all plants:
   1. Container grown plants at twice the container diameter in width and equal to the container depth for pit depth.
   2. Balled and Burlapped plants at 2 times the ball diameter in width and the same ball depth for pit depth.
   3. Bare root plants at 1-1/2 times the root spread in width and depth.

### 3.04 Plant Handling

A. Handle all plants by their containers or by the rootball. **DO NOT STRAP AND LIFT TREES BY THEIR TRUNKS.** Evidence of “strapping trees” shall be cause for rejection of that plant material. Do not cut or remove containers until time of installation. Remove boxes only after setting plant in pit. Move balled and burlapped plants by lifting or carrying (do not roll or drag).

### 3.05 Backfill for Trees

A. Thoroughly mix 1/3 part sharp sand + 1/3 part organic matter + 1/3 topsoil or approved existing soil.

### 3.06 Soil Preparation for all Shrub and Ground Cover Beds

A. Add 2" sharp sand, 3" of the specified organic material in section 2.09 and till to a depth of 8" to 10". Install plants and fertilizer, excavating as necessary to provide a finish grade after planting at 1" below walks, curbs and mow strips.

### 3.07 Plant Installation

A. Set plants plumb and straight in pits or as directed to bear the same relation to finish grade as existed in their original position in containers or as existed prior to transplanting; allow for settlement. Carefully place backfill around the base and sides of rootball to 1/2 the depth. Thoroughly water the backfill to eliminate all voids. Remove all polyrope, wire, burlap fasteners, and burlap from the top one third of the rootball. Water completely and add additional backfill as required for adjustments due to plant settling. Build watering saucers above finish grade for ground level trees as required to hold a sufficient amount of water in relation to plant size.
B. Plants in beds shall be carefully inserted into prepared soil at slightly above finished grade. When all plants are in place, rake the entire bed area smooth, water and allow to soak away. After settlement add soil as necessary to finished grade and water.

C. **Trees or Shrubs that have settled below finished grade after the initial planting procedure will be dug up by the Landscape Contractor and reset to proper grade with no additional expense to the Owner. Determination of plant resetting will be at the discretion of the Landscape Architect no later than at the Substantial Completion Inspection.**

### 3.08 PRUNING

A. Prune all plants as directed by the Landscape Architect. Do not destroy the natural form of the plant. Remove all broken, weak and unnecessary plant growth by cutting flush with the trunk or stem. Leave a clean cut and paint all cuts and damaged areas greater than 3/4" in diameter with asphaltic tree paint.

### 3.09 STAKING, GUYING AND WRAPPING OF TREES

A. Trees shall be set plumb and rigidly braced in position until the soil has been tamped solidly around the ball and roots. Trees of two inch and one half inches (2.5") caliper or greater shall be guyed; trees of less than 2.5" caliper shall be staked if required.

1. Guying, if required by the Landscape Architect/Architect/Engineer, shall be with three guys, equally spaced around the tree. Each guy shall consist of two strands of No. 14 galvanized wire attached to the tree trunk at an angle of about 45° at approximately 2/5 of the tree height and anchored to the ground stakes which have been driven into the ground at an angle away from the tree and notched to accommodate the guy wires. Guys shall be slightly tightened by twisting the strands together. Under no circumstances shall a tree be plumbed with extreme tautness of guy wires. Plumbing shall be accomplished by adjusting the ball.

2. Staking, if required, shall be accomplished with two stakes that shall be driven one foot below the bottom of the plant ball and to extend 3/5 of the height, or long enough to properly support the tree. Trees shall be secured to the stakes with two strands of No. 14 galvanized wire encased in two-ply, reinforced garden hose.

3. Wrapping, if required, shall be done promptly after planting. The trunks of all trees shall be spirally wrapped with 2 layers of crepe paper material, as hereinbefore specified, to the height of the second branches. Wrapping shall be stapled or tied with sisal securely in place.

### 3.10 MULCHING

A. Plants shall be mulched within two days after planting with a three inch layer of mulch material, entirely covering the area around each plant. In case of ground cover areas, the entire area between the plants is to be so treated, regardless of plant spacing. Add herbicide, as specified, before mulching according to the manufacturer's recommendations. **Reapply additional mulch prior to Final Acceptance to provide the specified depth and coverage.**

B. Around each tree there shall be a tree well clear area consistently 36" in diameter, where there is no sod or seeded lawn. This area shall be mulched to a depth of 3". **See planting detail on drawings.**
3.11  **SOAKING**

A. All plants are to be soaked with "Green Light" Root Stimulator or "Carl Pool's Root Activator", as suggested by manufacturer, during the planting procedure.

3.12  **CLEAN UP**

A. As planting operations proceed, all rope, wire, burlap empty containers, rocks, clods and all other debris shall not be allowed to accumulate but shall be removed daily and the site kept as clean and tidy as possible at all times.

3.13  **FINAL ACCEPTANCE**

Substantial Completion Inspection request by the Contractor shall only be made when the project is completed to plans and specification and not before. The request shall only be made in writing to the Landscape Architect. The Landscape Architect will make the Substantial Completion Inspection within 48 hours of receipt of the written request, weather permitting. Any deficiencies will be noted and forwarded to the Contractor in writing within 24 hours for his correction within an agreed upon time period prior to reinspection by the Landscape Architect and Final Acceptance by the Owner.

Final Acceptance of the landscape portion of the project will only be made after the required 45 Day Landscape Establishment & Maintenance Period, as described in Section 02970 of these specifications, has been successfully completed.

END OF SECTION 02950