

# **SECTION 02900**

## **LANDSCAPING**

**NOTE: THESE SPECIFICATIONS ARE FOR USE ON  
CITY OF MESQUITE PROJECTS ONLY**

### **PART 1 - GENERAL**

#### **1.01 GENERAL CONDITIONS**

1. The requirements of the "General Provisions" shall apply to all work of this Section with the same force and effect as though repeated in full herein.

#### **1.02 WORK INCLUDED**

2. Furnish all labor, material, equipment and services necessary to provide all landscape planting, and related items complete in place, as shown on the Drawings and specified, herein. Work Specified in this Section: Fine grading, steel edging, soil preparation, gravel groundcover, planting, clean-up, and all other miscellaneous items related to landscaping as shown on the drawings.

#### **1.03 QUALITY ASSURANCE**

##### **A. Standards:**

1. Standardized Plant Names, 1942 Edition, American Joint Committee on Horticulture Nomenclature.
2. American Standards for Nursery Stock, Latest Edition, American Association of Nurserymen.

##### **B. Source Quality Control:**

1. Submit documentation to Park Planner within ten (10) days after award of Contract that all plant material to be supplied by Contractor is available. Any and all substitutions due to unavailability must be requested in writing prior to confirmation of ordering. All materials shall be subject to inspection by Park Planner at any time after confirmation of ordering.
2. Plants to be supplied by Contractor shall be subject to inspection and approval of Park Planner at place of growth or upon delivery for conformity to Specifications. Such approval shall not impair the right of inspection and rejection during progress of the work. Inspection and tagging of plant material by the Park Planner is for design intent only and does not constitute the Park Planner's approval of the plant materials in regards to their health and vigor. The health and vigor of the plant material is the sole responsibility of the Contractor. Submit written request for inspection of plant material at place of growth to Park Planner. Written request shall state the place of growth and quantity of plants to be inspected. Park Planner reserves the right to refuse inspection at this time if, in their judgment, a sufficient quantity of plants is not available for inspection.
3. The Contractor shall submit specifications of any item being used on site upon the request of the Park Planner.

#### **1.04 PRODUCT DELIVERY, STORAGE AND HANDLING**

##### **A. Delivery:**

1. Deliver packaged materials to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trademark, and conformance to State Law.

2. Deliver all plants with legible identification labels.
    - a. Label trees, evergreens, bundles of containers of like shrubs, or groundcover plants.
    - b. State correct plant name and size indicated on plant list.
    - c. Use durable waterproof labels with water-resistant ink which will remain legible for at least 60 days.
  3. Protect plant material during and after delivery to prevent damage to root ball or desiccation of leaves.
- B. Storage:
1. Store plant material in shade and protect from weather.
  2. Storage at the site is allowed, however, Contractor accepts full responsibility for damage, theft, or vandalism.
  3. Any plant material balled or burlapped, not installed within 24 hours of delivery shall be healed in until such time as it is installed.
  4. Maintain and protect plant material not to be planted within four (4) hours in a healthy, vigorous condition.
- C. Handling: The Contractor is cautioned to exercise care in handling, loading, unloading and storing of plant materials. Plant materials that have been damaged in any way will be discarded and if installed, shall be replaced with undamaged materials at the Contractor's expense.

#### 1.05 JOB CONDITIONS

- A. Perform actual planting only when weather and soil conditions are suitable in accordance with locally accepted practice.
- B. Scheduling: Install trees, shrubs, and liner stock plant material before grassing is commenced.
- C. Contractor shall note that rock and/or construction materials from previous site use may be encountered on some areas of the site. Rock or construction material excavation shall be included as part of bid.

#### 1.06 QUALIFICATIONS OF WORKMEN

Provide at least one person who shall be present at all times during execution of this portion of the Work, who shall be thoroughly familiar with the type of materials being installed and the proper materials and methods for their installation, who speaks understandable English, and who shall direct all work performed under this Section.

#### 1.07 SAMPLES AND TESTS

Park Planner reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request by Park Planner. Rejected materials shall be immediately removed from the site at Contractor's expense. Cost of testing of materials not meeting Specifications shall be paid by Contractor.

#### 1.08 PLANT GUARANTEE

- A. All trees, shrubs, vines, and groundcovers will be guaranteed for a twelve (12) month period after Final Acceptance. The Contractor will replace all dead or defective materials upon notification (weather permitting) with plants of the same kind and size as those originally planted. Plants, including trees, which have partially died so that shape, size, or symmetry has been damaged, shall be considered subject to replacement, and the opinion of the Park Planner will be final. At the direction of the Park Planner, plants may

- be replaced at the start of the next planting or digging season, but in such cases, Contractor will remove dead plants within two (2) working days.
- B. All replacement work (including materials, labor and equipment) will be done at no cost to the Owner. Any damage, such as ruts in lawn or bed areas, that occurs when Contractor makes replacements, will be repaired immediately by the Contractor.
  - C. The guarantee will not apply where plants die after Final Acceptance because of injury by storms, drowning, drought, hail, freeze, insects, disease, mechanical injury by humans or machines, and theft.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. All materials shall be of standard, approved and first-grade quality and shall be in prime condition when installed and accepted. Any commercially processed or packaged material shall be delivered to the site in the original unopened container bearing the manufacturer's guaranteed analysis. Contractor shall supply Park Planner with a sample of all supplied materials accompanied by analytical data from an approved laboratory source illustrating compliance or bearing the manufacturer's guaranteed analysis.
- B. Product Manufacturer's name(s) and/or model numbers are used herein to set a standard of quality and are not intended to be a restraint of trade or prevent submittals of other manufacturer's products of equal quality.
- C. Soil Amendment:
  - Compost Mix: "A Professional Bedding Soil" as produced by Living Earth Technologies, Inc., 1808 W. Northwest Highway, Dallas, Texas (phone: 214/869-4332) composed of 45% Compost, 45% Composted Pine Bark, and 10% Sandy Loam, or approved equal.
- D. Tree Backfill Fertilizer:
  - 13.13.13 analysis bulk fertilizer.
- E. Tree Shrub, Groundcover, and Seasonal Color Fertilizer:
  - Provide commercial balanced slow release fertilizer (Osmocote), delivered to the site in bags labeled with the manufacturer's guaranteed analysis. If stored on the site, protect fertilizer from the elements at all times.
- F. Tree, Shrub, and Groundcover Planting Tablets:
  - Shall be slow-released type with potential acidity of not more than 5% by weight containing the following percentages of nutrients by weight:
    - 20% nitrogen
    - 10% phosphoric acid
    - 5% potash
- G. Plant Material:
  - 1. Plant names indicated, comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.
  - 2. Plant material shall meet and/or exceed grades and standards set forth by the Texas Association of Nurserymen. All plants shall have a normal habit of growth and shall be sound, healthy, vigorous and free of insect infestations, plant diseases, sunscalds, fresh abrasions of the bark, excessive abrasions, or other objectionable disfigurements. Tree trunks shall be sturdy and have well "hardened" systems and vigorous and fibrous root systems that are not root or pot-bound. In the event of

disagreement as to condition of root system, the root condition of the plants furnished by the Contractor in containers will be determined by removal of earth from the roots of not less than two or more than two percent of the total number of plants of each species or variety. Where container-grown plants are from several sources, the roots of not less than two plants of each species or the variety from each source will be inspected. In case the sample plants inspected are found defective, the Park Planner reserves the right to reject the entire lot or lots of plants represented by the defective samples. Any plants rendered unsuitable for planting because of this inspection will be considered as samples and will be provided at the expense of the Contractor.

3. The size of the plants will correspond with that normally expected for species and variety of commercially available nursery stock or as specified on Drawings. The minimum acceptable size of all plants measured before pruning with the branches in normal position, shall conform to the measurements, if any, specified on the drawings in the list of plants to be furnished. Plants larger in size than specified may be used with the approval of the Park Planner, but the use of larger plants will make no change in Contract price. If the use of larger plants is approved, the ball of earth, container size, or spread of roots for each plant will be increased proportionately.
4. Provide "specimen" plants with a special height, shape, or character of growth. Tag specimen trees or shrubs at the source of supply. Plants may be inspected by the Park Planner and reviewed at the place of growth, for compliance with specification requirement for quality, size, and variety. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work.
5. Field-selected or Nursery Grown Balled and Burlapped Tree Stock (B&B): Dig balled and burlapped plants with, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide 10" of root ball per 1" caliper of trunk (measured 6" above grade level for trees 4" caliper and less and 12" above grade for larger trees). If a tree is of multi-trunk variety, the caliper of the tree is the average caliper of all its trunks. Cracked or mushroomed balls are not acceptable. Selectively remove 1/2 to 2/3 of twig growth.
6. Container-grown Stock (General): Grown in a container for sufficient length of time for the root system to have developed to hold the soil together, firm and whole.
  - a. No plants shall be loose in the container.
  - b. Container stock shall not be pot bound.
7. Container-grown Tree Stock: Grown in a container from seedling stage and complies with Paragraph 2.1 - G-6, Container-grown Stock requirements.
8. Containerized Tree Stock: Grown in a container for not less than one (1) year and complies with Paragraph 2.1 - G-6, Container-grown Stock requirements.
9. Plants planted in rows shall be matched in form, height and overall character.
10. Shrubs and small plants shall meet the requirements for spread and height indicated in the plant list.
  - a. The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.
  - b. Single stemmed or thin plants will not be accepted. Side branches shall be generous, well-twigged, and the plant as a whole well-bushed to the ground.
  - c. Plants shall be in a moist, vigorous condition, free from dead wood, bruises, or other root or branch injuries.
11. Pruning: At no time shall trees or plant materials be pruned, trimmed or topped prior to delivery and any alteration of their shape shall be conducted only with the approval and when in the presence of the Park Planner.

12. All plants not conforming to the requirements herein specified, shall be considered defective and such plants, whether in place or not, shall be marked as rejected and immediately removed from the site of the work and replaced with new plants at the Contractor's expense. The plants shall be of the species, variety, size and conditions specified herein or as shown on the Drawings. Under no conditions will there be any substitutions of plants or sizes listed on the accompanying plans, except with the express consent of the Park Planner.
- H. Tree Paint: Morrison Tree Seal, Cabort Tree Paint, or equal.
  - I. Water: Furnished by Owner; transport as required.
  - J. Mulch Topdressing: Shall be shredded, fine textured, hardwood mulch as approved by Park Planner. Minimum 2" layer spread uniformly.
  - K. Steel Edging and Stakes: 3/16" x 4" Ryerson 'Estate' edging, as manufactured by Joseph Ryerson Co., Inc., Houston, Texas (phone 713-675-6111), or approved equal.
  - L. Soil Saver/Jute Mesh (if required): Heavy weight (green) jute mesh as manufactured by Jim Walls Company, 12820 Hillcrest Road, Dallas, Texas 75230, or approved equal. Install on all groundcover or shrub bed slopes greater than 3:1 slope.
  - M. Anchoring Materials: In-ground type tree anchors approved by the Park Planner or the city's designated representative.
  - N. Gravel Mulch (if applicable): 3/4" to 1-1/2" native washed stone. Install 3" layer over layer of filter fabric (to be approved by Park Planner). Provide sample of gravel mulch for Park Planner approval.
  - O. Other Materials: All other materials, not specifically described but required for a complete and proper installation, shall be as selected by the Contractor subject to the approval of the Park Planner.

## **PART 3 - EXECUTION**

### **3.01 INSPECTION**

- A. Obtain Park Planner certification that final grades to  $\pm 0.10'$  have been established prior to commencing planting operations. Provide for inclusion of all amendments, settling, etc. Landscape Contractor shall be responsible for shaping all planting areas as indicated on Plans or as directed by Park Planner.
- B. Inspect trees, shrubs and groundcover plant material for injury, insect infestation and trees and shrubs for improper pruning.
- C. Do not begin planting of trees until deficiencies are corrected or plants replaced.

### **3.02 PLANTING PREPARATION**

- A. Soil Preparation for Groundcover, Shrub Beds:
  - 1. Excavate existing soil, if necessary, and add to complete shrub, groundcover, and seasonal color beds the following:
    - a. 4" layer of Compost Mix
    - b. 14-14-14 slow release fertilizer (Osmocote) at a rate of 5 lbs./100 sq.ft.
  - 2. Spread materials uniformly and cultivate thoroughly by means of a mechanical tiller. Till to a minimum depth of 8".
- B. Final Grades:
  - 1.      Minor modifications to grade may be required to establish the final grade.
  - 2. Finish grading shall ensure proper drainage of the site as determined on Drawings.

3. All areas shall be graded so that the final grades will be 1" below adjacent paved areas, curbs, valve boxes, edging, clean-outs, drains, manholes, etc., or as indicated on Plans.
  4. At time of planting, the top 6" of all areas to be planted or seeded shall be free of stones, stumps, or other deleterious matter 1" in diameter or larger, and shall be free from all wire, plaster, or similar objects that would be a hindrance to planting or maintenance.
- C. Disposal of Excess Soil: Disposal of any unacceptable or excess soil shall be the sole responsibility of the Contractor. Excess soil may be spoiled on-site per direction of Owner.

### 3.03 PLANTING INSTALLATION

- A. General:
1. Actual planting shall be performed during those periods when weather and soil conditions are suitable and in accordance with locally accepted practice, as approved by the Park Planner.
  2. Only as many plants as can be planted and watered on that same day shall be distributed in a planting area.
  3. Containers shall be opened and plants shall be removed in such a manner that the ball of earth surrounding the roots is not broken and they shall be planted and watered as herein specified immediately after removal from the containers. Containers shall not be opened prior to placing the plants in the planting area.
- B. Layout of Major Plantings: Locations for plants and outlines of areas to be planted shall be marked on the ground by the Contractor before any plant pits are dug. All such locations shall be approved by the Park Planner. If underground construction or utility line is encountered in the excavation of planting areas, other locations for planting may be selected by the Park Planner. Layout shall be accomplished by flagged grade stakes indicating plant names and specified container size on each stake. It shall be the Contractor's responsibility to confirm with the Park Planner superintendent and governing agencies the location and depth of all underground utilities, and obstructions.
- C. Excavation:
1. Excavation for planting shall include the stripping and stacking of all acceptable topsoil encountered within the areas to be excavated for trenches, tree holes, plant pits and planting beds.
  2. Excess soil generated from the planting holes and not used as backfill, or in establishing the final grades may be spoiled on-site per direction of Owner.
  3. Protect all areas from excessive compaction when trucking plants or other material to the planting site.
  4. Tree and shrub pits shall be excavated to allow the root ball to set on undisturbed soil and excavated to the following diameters:

<u>Plant Size</u>	<u>Pit Diameter</u>
a. Up to 5 gallon container	12" greater than root ball diameter
b. 5 gallon container and larger (including trees)	24" greater than root ball diameter

5. All excavated holes shall have vertical sides with roughened surfaces.
6. All holes for trees and large shrubs shall be tested for water retention prior to tree or shrub installation. After hole is excavated, it is to be filled with water to the top of the excavation. If, after 24 hours, the hole still holds water, the Contractor shall excavate an additional 6" from the bottom of hole. The Contractor shall then install

6" of native washed gravel covered on the top (and up a minimum of 12" on the sides of the hole) with filter fabric. The Contractor shall also install a capped 3" diameter PVC sump which will extend from near the bottom of the rock layer to 3" above the proposed finish grade so the hole can be evacuated through mechanical means.

D. Planting Trees:

1. Container Removal:
  - a. Cut cans (if applicable) with an acceptable can cutter. Remove tree from plastic container or box carefully so container can be re-used.
  - b. Do not injure root ball.
2. Center tree in pit.
3. Face plants with fullest growth into prevailing wind, or away from building facade.
4. Set plants plumb and hold rigidly in position until soil has been tamped firmly around ball.
5. Tree Pit Backfill:

Tree backfill should be composed of 5 parts existing soil excavated from the hole to one part Soil Amendment, thoroughly mixed with 5 lbs. per cubic yard tree backfill fertilizer. Tree backfill to be mechanically mixed prior to backfill operations.
6. Set tree in upright position in the center of the hole and compact the backfill mixture around the ball or roots. Thoroughly water each plant after back filling. After planting trees not in beds, surround the pits with a 3" height berm.
7. Plant Tablets:
  - a. After the water has completely drained from the plant pit, planting tablets shall be placed in the top 3" of the plant pit, four tablets per every foot of rootball diameter per tree.
  - b. Planting tablets shall be set with each plant on the top of the rootball while the plants are still in their containers so the required number of tablets to be used in each hole can be easily verified by the Park Planner.
8. Pruning: Pruning shall be limited to the minimum necessary to remove injured twigs and branches or to limb-up trees as directed by the Park Planner. Pruning may not be done prior to delivery of plants. Cuts over 3/4" in diameter shall be painted with tree paint.
9. Newly planted trees must be anchored the first year to help the tree become established. Some flexibility must be provided to allow the stem and root system to develop strength. For trees up to a 4" caliper diameter, use a minimum of two in-ground tree anchors; 4" - 8" use a minimum of three in-ground tree anchors. Information about in-ground tree anchoring products can be found at the website [www.treestaple.com](http://www.treestaple.com). This product and its web site are offered as an example of one type of tree anchoring system to establish a standard of quality. Similar products with equal specifications will be accepted.

E. Planting Shrubs:

1. Container Removal:
  - a. Cut cans on two sides with an acceptable can cutter. Do not cut cans with spade or ax.
  - b. Do not injure root system.
2. Center plant in pit or trench.
3. Face plants with fullest growth into prevailing wind, or away from building facade.
4. Set plants plumb and hold rigidly in position until soil has been tamped firmly around ball or roots.
5. Fill holes with backfill composed of 50% soil taken from the hole and 50% Soil Amendment, thoroughly mixed.

6. Set plant in upright position in the center of the hole and compact the backfill mixture around the ball or roots. Thoroughly water each plant after back filling. After shrubs not in beds, surround the pits with a 3" height berm.
  7. Plant Tablets:
    - a. After the water has completely drained from plant pit, planting tablets shall be placed in the top 3" of the plant pit as indicated:  
One tablet per one-gallon container and two-gallon container  
Two tablets per five-gallon container
    - b. Planting tablets shall be set with each tablet on the top of the rootball while the plants are still in their containers so the required number of tablets to be used in each hole can be easily verified by the Park Planner.
  8. Pruning: Pruning shall be limited to the minimum necessary to remove injured twigs and branches. Pruning may not be done prior to delivery of plants.
- F. Planting Groundcover:
1. Space the plants evenly as indicated on the Drawings, staggering.
  2. After planting is completed, cover the bed uniformly with a minimum 2" layer of mulch topdressing.
  3. Thoroughly water entire planting bed.
- G. Grass Installation:
1. Sod Grass:
    - a. All areas to receive sod must be roto-tilled to a depth of 2"(inches), cleaned of any rocks, bricks or other debris and fine graded before sod is planted.
    - b. Sod must be fresh and free of any weeds. Sod may not sit on palettes for more than 48 hours without being planted. Any sod allowed to sit on palettes for more than 24 hours is subject to rejection by the Park Planner, and will be replaced at contractor's expense.
    - c. All sod is to be planted in a "running bond" pattern.
    - d. All sod planted on the site must be watered and rolled with a grass roller the same day it is planted.
  2. Grass seed:
    - a. All areas to receive grass seed must be roto-tilled to a depth of 2"(inches), cleaned of any rocks, bricks or other debris, and fine graded before seed is spread.
    - b. All seed must be distributed in a uniform fashion as per product manufacturer's or grower's recommendations.
    - c. All areas that have been seeded must remain moist for 7 to 10 days from the time of the first watering or until seed has germinated. Seed that is allowed to dry before germination will be subject to replacement at Contractor's expense. It is the Contractor's responsibility to coordinate site watering.

### 3.04 CLEAN-UP

- A. After all planting operations have been completed, remove all trash, excess soil, empty plant containers and rubbish from the property. All scars, ruts or other marks in the ground caused by this work shall be repaired and the ground left in a neat and orderly condition throughout the site. Contractor shall pick up all trash resulting from this work on a daily basis. All trash shall be removed completely from the site.
- B. The Contractor shall leave the site area broom-clean and shall wash down all paved areas within the Contract area, leaving the premises in a clean condition.

### 3.05 MAINTENANCE

- A. Maintain the trees, shrubs, groundcovers, and sod grass until Final Completion and Acceptance of the entire project.
- B. Maintenance shall include pruning, cultivating, weeding, watering, and application of appropriate insecticides and fungicides necessary to maintain plant free of insects and disease.
  - 1. Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.
  - 2. Correct defective work as soon as possible after deficiencies become apparent and weather and season permits.
  - 3. Deep-water trees, plants, and groundcover beds within the first 24 hours of initial planting, and not less than twice per week until final acceptance.

### 3.06 OBSERVATION SCHEDULE

- A. When observations are conducted by someone other than the Park Planner, the Contractor shall show evidence in writing of when and by whom these observations were made.
- B. No site visits shall commence without all items noted in previous Observation Reports either completed or remedied unless such compliance has been waived by the Owner and/or Park Planner.

**END OF SECTION 02900**