

SECTION 329300 - PLANTS

1.1 QUALITY ASSURANCE

- A. Installer's Personnel Certifications: Certified Landscape Technician, CLT-Exterior. Provide at least 1 person who shall be present at all times during execution of this portion of work thoroughly familiar with type of materials being installed and best methods for their installation and who shall direct the work performed under this section
- B. Planting Materials: Meet or exceed specifications of federal, state, and county laws requiring inspection for plant disease and insect control.
- C. Sod Procurement: Comply with white fringed beetle and fire ants quarantine requirements.
- D. Before planting is installed, test topsoil and amend the topsoil as recommended by the testing lab to verify topsoil pH is between 6.0 and 6.5 and is suitable for intended use.
- E. In the event that Landscape Architect suspects deficiencies in materials used on this project, such materials will be tested by the Owner contracted testing laboratory. Cost of Testing:
 - 1. Initial Testing: By the Owner.
 - 2. Retesting: By Contractor.
- F. Evidence of non-compliance will result in rejection of all work.

1.2 WARRANTY

- A. Warrant trees, shrubs, and ground covers for 1 year and sod for 90 days after final completion and the satisfactory conclusion of the maintenance period. Any planting that fails or dies within that period shall be replaced and replanted immediately without expense to the Owner, The Contractor shall not be held responsible for losses beyond his control arising from "Acts of Providence"; acts of vandalism, or loss arising from documented neglect by the Owner to properly care for planting after final completion Contractor is to replace, at no additional cost to the Owner, grass areas in unsightly or damaged condition, for 90 days after final completion. Replace, at no additional cost to the Owner, dead grass, dead trees, palms, shrubs, and ground cover for one year.
- B. Water by hand or water truck the newly planted grass, trees, palms, shrubs, and ground cover until final completion of installation and for a period of 180 consecutive calendar days after acceptance of installation. Watering shall occur in sufficient quantity to insure the orderly establishment of the grass and planting.
- C. Any loss of plant materials due to the negligence of the Contractor shall result in the replacement of the material at no cost to the Owner. Said plant material shall be replaced with the same species of equal size.

- D. The Contractor shall make periodic reviews of the grass and planting, at no extra cost to the Owner, during the warranty period to determine what changes, if any, should be made in the Board's maintenance program. Proposed changes shall be submitted, in writing, to the Owner and, jointly by copy, to the Landscape Architect.
- E. At conclusion of the 1 year and 90-day warranty periods, the Landscape Architect will make a construction review to determine the condition of planting and sodding. Plants or sod that have died or, in the opinion of the Landscape Architect, are in an unhealthy or badly impaired condition for reasons other than vandalism, "Acts of Providence", or documented neglect by the Board, shall be replaced by the Contractor as soon as possible, except that replacement will not be required in any season definitely unfavorable for the kinds of plants involved.
- F. At the end of the warranty period, remove saucers. Mulch and place sod around trees formerly saucered and mulched. Guying and bracing of trees shall remain in place until windfirm.

1.3 MAINTENANCE SERVICE

- A. Trees, Shrubs, Ground Cover and Other Plants: 12 months. Maintain sod and planting, starting at the time of planting and continuing for 90 calendar days after final completion.
- B. Maintain and protect sodding and planting including incidental materials until end of maintenance period.
- C. Tree Maintenance:
 - 1. Maintenance shall begin immediately after each plant is planted and shall continue until final completion. Plants shall be watered, mulched, weeded, pruned, sprayed, fertilized, cultivated, and otherwise maintained and protected during time stated above.
 - 2. Settled plants shall be reset to proper grade position, planting saucer rested and dead material removed. Guys shall be tightened and repaired.
 - 3. Defective work shall be corrected as soon as possible after it becomes apparent and weather and season allows. Upon completion of planting, the Contractor shall remove from the site excess soil and debris, and repair damage to structures, etc., resulting from planting operations.
- D. Sodding Maintenance:
 - 1. Provide a complete maintenance cultural program until final completion.
 - 2. Cultural program shall consist of watering, fertilizing, mowing insect and disease control, and weed control.
 - 3. Begin mowing program as soon as sod is firmly rooted. Mow sod with a rotary type mower at least twice per month at a 3 inch mowing height. Mowing program shall include weed-eating and edging of beds, and along walks, curbs, and buildings.
 - 4. Final completion is contingent upon full coverage of the sodded area resulting in healthy, vigorous turf, free of insects, disease, and weeds.
 - 5. Contractor shall submit a written schedule for proposed maintenance of sodded areas.
- E. General Maintenance:

1. Maintenance shall include watering, weeding, fertilizing, cultivating, spraying, adjustment of guying, staking, and pruning necessary to keep plant materials in a healthy vigorous growing condition and to keep planted areas neat and attractive.
2. Provide equipment and means for proper application of water to those planted areas not provided with an irrigation system.

F. Replacements:

1. At the end of maintenance period, plant material shall be in a healthy growing condition.
2. During maintenance period immediately replace any plants showing weakness and probability of failure with a new healthy plant of the same type and size, without additional cost to the Owner.

G. Extension of Maintenance Period: Continue maintenance period, at no additional cost to the Owner, for additional 30 days after previously noted deficiencies have been corrected. Warranty extension period shall start upon acceptance of planting and at the end of the maintenance period.

H. The Contractor shall conclude maintenance (exclusive of replacement within warranty period) upon written acceptance of the Landscape Architect at the end of the maintenance period or, as provided for above, at the end of the extended maintenance period.

1.4 MATERIALS

A. Plants, General: Nursery-grown and complying with ANSI Z60.1. Plant species shall comply with those indicated on Drawings.

1. Plant Quality:
 - a. Plants shall be freshly dug, balled and burlapped nursery grown stock or container grown nursery stock. Plants shall be free of broken, damaged root balls or root bound conditions. Plants shall be sound, healthy, vigorous, free from plant diseases, insect pests or their eggs, and shall have healthy normal root systems.
 - b. Collected plants shall not be used unless authorized in writing by the Landscape Architect.
 - c. Plant material, not specified as "Specimen", shall be Florida No.1 or better quality, graded according to Grades and Standards for Nursery Plants, published by the State of Florida, Department of Agriculture. Plants judged to be not according to said standards will be rejected.
2. Solid Sod: Argentine Bahia as shown on plans.
 - a. Mow sod to a height not to exceed 1-1/2" before lifting.
 - b. Lifts shall have uniform thickness with not over 1-1/2" nor less than 1 inch of soil.
 - c. Sod shall be strongly rooted and free of pernicious weeds, 1-1/2" minimum root structure, freshly dug, brought to the site and placed immediately.
 - d. Sod showing discoloration or wilting will be rejected.
 - e. Sod containing nutgrass, lippia, water sedge, and dollar weed is not acceptable.
3. Trees and shrubs shall be as noted on plans and as approved by the Owner and Landscape Architect.
 - a. Caliper measurement, height measurement, height relation to caliper, spread, bare root, ball dimensions, and ground covers, etc. shall comply with the applicable standards above and the requirements for this project.

- b. Substitutions in plant species or sizes shall be made only after written authorization by the Landscape Architect and the Owner.
- c. Materials or Work may be rejected if, in the opinion of the Landscape Architect, such work does not meet the requirements of the Specifications. Rejected materials shall be promptly removed from the site by the Contractor at no expense to the Owner or Landscape Architect.

B. Planting Soils: Planting Soil: An evenly blended mixture as per planting notes. Add 2 pounds of fertilizer, as specified, to each cubic yard of soil and thoroughly mix. Planting soil shall have pH of between 6.0 and 7.0 after mixing and fertilizer amendment.

C. Fertilizer - 12-4-8 Fertilizer:

- 1. Total Nitrogen, not less than 12.00 percent.
- 2. Nitrate Nitrogen, not less than 1.5 percent.
- 3. Ammoniacal Nitrogen, not less than 5.7 percent.
- 4. Granular Blend Requirements:
 - a. Water soluble organic nitrogen, not less than 1.3 percent.
 - b. Water insoluble organic nitrogen, not less than 3.5 percent.
 - c. Available Phosphoric Acid, not less than 4.0 percent.
 - d. Water Soluble Potash, not less than 8.0 percent.
 - e. Total primary plant food, not less than 24.0 percent.
 - f. Chlorine, not more than 6.0 percent.
 - g. Secondary Plant Foods:

<u>OXIDE</u>	<u>ELEMENTAL</u>
Magnesium 2	Mg 1.20%
Manganese 1	Mn .70%

h. From F.T.E. 504 - 30 lbs. per ton to be composed of the following elements:

<u>ELEMENTAL</u>				
Boron	B ₂ O ₃	0.1845%	B	0.05%
Copper	CuO	0.1312%	Cu	0.10%
Iron	Fe ₂ O ₃	0.3360%	Fe	0.26%
Manganese	MnO	0.1372%	Mn	0.10%
Molybdenum	MoO ₃	0.0015%	Mo	
Zinc	ZnO	0.1312%	Zn	0.10%

- i. Derived from this source materials:
 - 1) Ammonium Nitrate
 - 2) Sulfate of Ammonia
 - 3) Ureaform or I.B.D.U.
 - 4) Triple Superphosphate

- 5) Muriate of Potash
- 6) Sulfa-Mag
- 7) Manganese Sulfate
- j. Materials shall be prilled or granular except Manganese Sulfate.
- 5. Statement of Analysis: Each container of fertilizer shall bear producer's statement of analysis or producer's certificate of compliance shall be submitted to Landscape Architect upon delivery of fertilizer to jobsite.
- D. Mulches: As specified in plans.
- E. Pesticides: Registered and approved by EPA pre-emergent and post-emergent herbicide(s) as required.
- F. Tree Stabilization: As specified in planting details in plans.
- G. Root barrier: As specified in plans.

1.5 INSTALLATION

A. INSPECTION

- 1. Do not proceed with the work of this section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.
- 2. Inspect work of other trades and verify work is complete to the point landscape work may start. Verify planting may be completed according to Construction Documents.
- B. Discrepancies: In event of discrepancy, immediately notify Landscape Architect. Do not proceed with installation of materials or plants in areas of discrepancy until such discrepancies have been fully resolved to the satisfaction of the Landscape Architect.

1.6 PREPARATION

- A. Stake the proposed location of trees to be planted.
- B. Excavate planting pits and beds, prepare fine subgrade, place soil blanket.
- C. Provide plants, fertilizer, sod, planting soil, and incidental materials as specified.
- D. Place plants, backfill, and guy or brace plants as required.

1.7 PREPARATION OF FINE GRADING

- A. Fine grading shall be correct and suitable materials and proper drainage shall exist before placing sod. Soil or drainage conditions detrimental to growth of plant material shall be corrected.

- B. Existing subgrade shall be scarified to a minimum depth of 3 inches before spreading of topsoil. Subgrade shall be brought to true and uniform grade, and shall be cleared of stones greater than 2 inches, sticks, and other extraneous materials.
- C. Soil in compacted areas shall be tilled to a depth of 24 inches to produce a loose friable soil.
- D. Final grading elevations shall be as shown in the plans.

1.8 APPLICATION

- A. Planting Trees:
 - 1. Excavation:
 - a. Excavations identified as having potential utility or service line conflicts shall be excavated by hand tools to determine the location of any utilities.
 - b. Excavate tree and palm pits as necessary to accommodate root balls of material when plant is set to finished grade, with a minimum of 6 inches of specified planting soil under the spread of bottom most roots. Diameter of pits for trees shall be at least 1 foot greater than diameter or spread of roots.
 - c. Barricade or mark excavations to prevent hazards to mechanical vehicles and pedestrians.
 - 2. Planting:
 - a. Set trees and palms in vertical position with the grade elevation of the previous container or field growth equal to finish grade.
 - b. Set plant in upright position in center of hole and place specified planting soil around rootball.
 - c. Thoroughly water each plant when hole is 2/3 twigs and branches. Cuts more than 3/4" diameter shall be painted with an accepted horticultural tree wound paint. Plant materials shall meet specifications after pruning.
 - d. Earth shall be banked at edge of pit to form broad saucer not less than 4 inches in depth. Flush planting soil into place with slow hose stream until air pockets are eliminated and pit is filled with soil to saucer grade.
 - e. Trees and palms shall be guyed or staked in an upright position immediately after planting as per details in plans.
 - f. Pruning shall be limited to remove injured twigs and branches. Cuts more than 3/4" diameter shall be painted with an accepted horticultural tree wound paint. Plant materials shall meet specifications after pruning.
 - g. Removal of Burlap: After the soil ball is in the hole, remove burlap from top and sides of the ball but not from beneath the ball. If removal of the burlap will cause soil crumbling, roll burlap back only from the top and slit along the sides.
- B. Pest Control: Set up spray program to guard against scales, borers, foliage feeders, aphids, mites, leaf-spot and dieback, nematodes and canker-producing fungi.
- C. Provisional Inspection:
 - 1. On completion of the work and upon receipt of the written request of the Contractor, the Landscape Architect shall inspect planting work for substantial completion. The request shall be received from the Contractor at least three work days before the anticipated date of provisional inspection.

2. The Contractor shall repair or replace defective work before substantial completion of the work.

- D. Final Inspection: At the end of the warranty period, inspection of plants will be made by the Landscape Architect upon written notice requesting such inspection, submitted by the Contractor at least 3 days before the anticipated inspection. Defects discovered shall be repaired or replaced by the Contractor.

1.9 ADJUSTMENT AND CLEANING

- A. Site Clean-Up:
 1. Upon completion of any landscape project, thoroughly clean up the project site.
 2. Remove equipment, unused materials, deleterious material, and surplus excavated material.
 3. Fine grade disturbed areas and the areas adjacent to the new plantings to provide a neat and uniform site.
 4. Damaged or altered existing structures, because of the landscape work, shall be corrected.

END OF SECTION 329300