

TREE RELOCATION SECTION 02910

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Tree relocation specified in this section.
- B. Related Sections, if applicable:
 - 1. 02810 - Irrigation
 - 2. 02900 - Landscaping
 - 3. 02935 - Sodding

1.02 SUBMITTALS

- A. Prior to tree canopy pruning and root pruning, excavation, removal, planting pit preparation, or relocation, Contractor shall provide a detailed schedule of operations, indicating the work items listed herein as they apply to each of the four (4) Live Oaks and two (2) Palms to be relocated. Included shall be anticipated number of trees prepared for relocation each day, and actual number of trees to be relocated each day; total number of days required to relocate all trees; and canopy and root pruning schedule.
- B. Contractor shall apply for and obtain all licenses and permits as may be required by any City of Miami, Miami-Dade County, State of Florida, or federal agency or governing body, and pay all applicable fees. Insure full compliance with any and all governing environmental regulations related specifically to tree removals and/or relocations, more specifically requirements of both the Division of Environmental Resources, and the Department of Parks and Recreation, of the City of Miami
- C. Proposed methods, materials, and schedule for canopy pruning, root pruning, tree relocation, and maintenance shall be submitted to the Landscape Architect, for review and written approval.

1.03 QUALITY ASSURANCE

- A. Comply with applicable requirements of the following standards. Where standards conflict with other specified requirements, the most restrictive requirements shall govern.
 - 1. Z 60.1 / American Standard for Nursery Stock,
(American Association of Nurserymen, Inc.).

2. National Arborists Association (NAA):
Ref. 1 / Transplanting of Trees and Shrubs in the Southeastern United States.
 3. Florida Nurserymen and Growers Association:
Grades and Standards for Nursery Stock (Current Edition).
 4. Florida Division of Forestry.
- B. The term "Landscape Architect" shall refer to Ted Baker, FASLA, Landscape Architect, Department of Parks and Recreation, City of Miami.
- C. The term 'relocated tree' refers specifically to the following , reflected in the "Tree + Palm Relocation Plan", Department of Parks and Recreation, dated 7 May 2015:
- two (2) each, 12" caliper DBH Live Oak;
 - two (2) each, 36" caliper DBH Live Oak;
 - two (2) each, 9" caliper DBH Coconut Palm.

1.04 DESCRIPTION

- A. Each indicated Live Oak and each indicated Coconut Palm shall be relocated to its new planting location, as indicated on the referenced "Tree + Palm Relocation Plan".
- B. Each Live Oak and each Coconut Palm shall be prepared for relocation, moved, and replanted in accordance with this specification, and as directed by the Landscape Architect.
- C. The foreman of the Contractor responsible for the relocation of the trees and palms shall have a minimum of five years arboricultural/horticultural experience in the preparation, relocation, and maintenance of relocated specimen trees with canopy and caliper sizes comparable to that indicated for the trees and palms to be relocated.
- D. All open excavations (planting pits) to receive the relocated trees and palms shall be protected when unattended, by durable, stable barriers that will prevent access. Contractor shall take appropriate measures to stabilize, cover, and otherwise secure such excavations and shall be aware of the potential intrusion of children during and after work hours into the site of the work. Contractor shall correct all problems related to settlement, erosion, or other distress of excavated areas.
- E. Staging of tree and palm preparation and relocations shall occur as expeditiously as possible, and in a manner that will ensure protection of and appropriate access to the relocated tree, for purposes of on-going maintenance and watering.

1.05 GUARANTEE

- A. The Contractor is not required to provide a guarantee of specific duration for the relocated tree.

Tree Relocation
Section 02910
Curtis Park Boat Ramp
Department of Parks and Recreation
City of Miami
7 July 2015

1.06 CANOPY PRUNING

- A. Selectively prune and thin canopy of Live Oaks during root pruning operations, to remove approximately $\frac{1}{4}$ to $\frac{1}{3}$ of the secondary branches, preserving the typical shape and character of the species. Remove all dead, dying, diseased, split, broken, damaged, and rubbing branches. Prune trees with foliage in place.
- B. Remove by hand stripping all leaves, following canopy pruning and prior to relocation.
- C. After canopy pruning, but before relocation, apply a drench coat of anti-desiccant (Wilt-Pruf or equal, approved by Landscape Architect), to all foliage, branches, and trunks of relocated Live Oaks, and to all fronds of Coconut Palms.
- D. After completion and bracing of trees and palms after installation at new location, apply a second drench coat of anti-desiccant (WiltPruf or equal) as described in "C", above.
- E. Evaluate each Live Oak after relocation, for any conditions that may require cabling or placement of threaded rods to stabilize branches, branch-to-branch, or branch-to-trunk, and complete any remedial arboricultural care as required by the Landscape Architect.

1.07 ROOT PRUNING

- A. The Live Oaks shall be root pruned with sharp, clean equipment, a minimum of forty (40) calendar days prior to intended relocation. Any torn or jagged roots identified on inspection by the Landscape Architect shall be neatly trimmed and cut back to viable tissue, using appropriate, sanitized arboricultural pruning tools and equipment.
- B. Root ball sizes shall be as follows:
 - 12" cal DBH Live Oaks shall have a 10'0" diameter root ball x 36" minimum depth;
 - 36" cal DBH Live Oaks shall have a 22'0" diameter root ball x 48" minimum depth;
 - 9" cal DBH Coconut Palms shall have a 36" diameter root ball x 30" minimum depth.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Planting Mix: An evenly blended mixture of 20% organic "Everglades Muck", 35% coarse ("sharp-edged") sand, 20% decomposed pine bark or wood chips, 15% Spaghnum peat moss, , and 10% decomposed (at least six months old) cow or horse manure, batch mixed by blended mechanical means (Atlas Peat and Soil, or Amerigrow Soil). Add 7 pounds of specified fertilizer to each cubic yard of Planting Mix and thoroughly blend.

After addition of fertilizer amendment, Planting Mix shall have pH between 6.0 and 7.0 after blending. Provide delivery receipt from supplier to the Landscape Architect.

- B. The Landscape Architect reserves the right to reject Planting Mix utilized at any time during the execution of work, which does not meet the specification.
- C. Commercial Fertilizer: Commercial grade fertilizer, uniform in composition, dry, free flowing and delivered to site in fully labeled, unopened containers, bearing name, trade name or trademark and warranty of Atlantic FEC Fertilizer. Fertilizer shall conform to applicable State and Federal law. At least 50% of the nitrogen content shall be derived from natural organic sources, and potash shall be derived from sulfate of potash. Each container of fertilizer shall bear the manufacturer's statement of analysis or a manufacturer's certificate of compliance, which shall be submitted to the Landscape Architect upon delivery of the fertilizer to the site. The following minimum percentages of available plant food by weight are required.

1. 12-4-8 Fertilizer

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

OXIDE	or	ELEMENTAL
Magnesium 2	or	Mn 1.20%
Manganese 1	or	Mn .70%

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

ELEMENTAL			
Boron	B ₂ O ₃	.1845%	B .05%
Copper	CuO	.1312%	Cu .10%
Iron	Fe ₂ O ₃	.3360%	Fe .26%
Manganese	MnO	.1372%	Mn .10%
Molybdenum	MoO ₃	.0015%	Mo
Zinc	ZnO	.1312%	Zn .10%

[9] Derived from this source Materials:

- a) Ammonium Nitrate
- b) Sulfate of Ammonia
- c) Ureaform or I.B.D.U.
- d) Triple Superphosphate
- e) Muriate of Potash
- f) Sulfa-Mag
- g) Manganese Sulfate

[10] All materials to be prilled or granular in form, except Manganese Sulfate.

- D. "Rootwell Pro 318 Vertical Root Aeration + Nutrient Delivery Tubes" (248-227-5705 / 888-766-8935) shall be installed around the perimeter of the root ball of each Live Oak with approximately 1" of the top of the tube exposed above finished grade. Top and bottom caps of the vertical tube shall be constructed of high-density styrene polymer, with the top-end cap containing an air convection insert. Placement and installation of tubes shall conform with the following:
- for each 12" cal DBH Live Oak, and for each 36" cal DBH Live Oak, a minimum of eight (8) Rootwell Pro 318 Tubes, set vertically at an approximate spacing of twenty-two and one half (22 ½) degrees between any two adjacent tubes (N, S, E, W, NE, NW, SE, and SW), around the perimeter and in direct contact with the outer vertical face of the root ball;
 - connect to the bottom 3" of each tube with locking plastic "zip ties", a porous landscape fabric sock with a closed bottom, measuring six (6) inches in diameter, and twelve (12) inches in length, filled with a mixture of 60% by volume sharp-edged builder's sand, and 40% by volume non-soluble polymer beads.
- E. Peat: Spaghnum peat moss for horticultural use.
- F. Mulch: Shredded 'Florimulch' (Forestry Resources, Ft. Myers, Florida), steam-sterilized, free of weed retardant. **No other mulch in any form is acceptable.**
- G. Anti-Dessicant: Apply "Wilt-Pruf" (1-800-972-0726), in compliance with this specification (see 1.06, Canopy Pruning).
- H. Stress-Reducer: Thoroughly incorporate "Diehard Transplant" (Horticultural Alliance, Sarasota, FL / 941-739-9121 / 800-628-6373), into the the top 8" to 10" of Planting Mix surrounding the root ball, in accordance with the manufacturer's guidelines, and water to total soil saturation for each tree in accordance with the following:
- 12" cal DBH Live Oak / 3 pounds (48 ounces) per tree;
 - 36" cal DBH Live Oak / 9 pounds (144 ounces) per trees;
 - 9" cal DBH Coconut Palm / 2.25 pounds (36 ounces) per palm.

- I. Water Absorber/Retainer: Thoroughly incorporate “Horta-Sorb Coarse Hydrogel” (Horticultural Alliance, Sarasota, FL / 941-739-9121 / 800-628-6373), into the Planting Mix around the bottom 12” of each root ball, in accordance with the manufacturer’s guidelines, the following:
 - 12” cal DBH Live Oak / 3 pounds (48 ounces) per tree;
 - 36” cal DBH Live Oak / 9 pounds (144 ounces) per trees;
 - 9” cal DBH Coconut Palm / 2.25 pounds (36 ounces) per palm.
- J. Water: Potable water shall be provided by the Contractor. In the event of emergency or other loss of water supply, Contractor shall be responsible for providing adequate water supply for required watering of all plant materials.

PART 3 EXECUTION

3.01 INSPECTION

- A. Proceed with the work of this section only when conditions favorable to the proper and timely completion of the work exist, and when unacceptable conditions have been corrected in an acceptable manner.
- B. Periodic observation work of this section will be undertaken by the Landscape Architect.

3.02 TRANSPLANTING

- A. The Live Oaks and Coconut Palms shall be dug and prepared for relocation in a manner that will not cause damage to the branches, shape, root system, symmetry, and development of the tree.
- B. The root ball shall be firmly wrapped with burlap or shrink wrap before relocation. ***The tree shall be lifted from the bottom of the root ball, using multiple straps, or a solid wood platform.*** Submit detailed written description of proposed methodologies for related tasks, addressing in detail the preparation, relocation, and replanting of each tree and palm.
- C. Contractor shall maintain a watering regime between 6:00 AM and 8:00 AM, as follows:
 - for each 12” cal DBH Live Oak / one hour per day, for 45 calendar days from replanting;
 - for each 36” cal DBH Live Oaks / two hours per day, for 45 calendar days from replanting;
 - for each 9” cal DBH Cononut Palms / ½ hour per day, for 30 calendar days from replanting.

- D. Tree Bracing: Set each tree with a minimum of six, 12' long pressure treated 4x4 braces evenly spaced around tree. Use additional 4x4 pressure treated braces as necessary to support extended branches. Secure base of each 4x4, 12" below grade with a single 24" long 2x4 pressure treated stake driven into the ground flush with grade. Secure each stake to adjacent 4x4 with three ten penny nails. Paint completely all surfaces of the 4x4 braces with "DayGlo" orange paint. Wrap trunk or branch to receive 4x4 brace with five layers of burlap, setting 9" long, 2x4 blocking as necessary to receive each 4x4 brace, secured with metal strapping. Nail brace securely to blocking with ten penny nails.

3.03 HANDLING AND TRANSPORTATION

- A. The tree shall be properly handled during excavation, moving and relocation so trunks will not be scarred or otherwise damaged, and to avoid breaking limbs and large branches. Broken limbs and branches may cause tree to be determined unacceptable requiring its removal and mitigation.
- B. The root balls of the tree shall be supported by slings and/or platforms during relocation, and shall not be lifted by slings connected only to trunks and branches.
- C. The tree shall have secured to the base of its trunk immediately above the crown of the root ball, a guide rope minimum 20' in length, to assist in maneuvering the tree from its removal location to its proposed new planting location. The contractor shall provide adequate supervision and personnel during relocation operations to insure protection of persons and property. Comply with all OSHA requirements.
- D. Each tree and palm shall be completely replanted the same day it is removed from its existing location.

3.04 MAINTENANCE

- A. Each relocated Live Oak shall be maintained by the Contractor immediately after relocation, and for a period of 45 calendar days, and until issuance by the Landscape Architect of Final Written Acceptance.
- B. Each relocated Coconut Palms shall be maintained by the Contractor immediately after relocation and for a period of 30 calendar days, and until issuance by the Landscape Architect of Final Written Acceptance.

END OF SECTION