

**SHRUB, VINE, and GROUND COVER PLANTING
SECTION 02901**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
1. providing the species, sizes, varieties, quantities and quality of shrubs, vines, and ground covers specified;
 2. furnishing; installing; watering; fertilizing; mulching;
 3. selectively thinning (pruning);
 4. providing and placing Planting Mix and soil additives; and
 5. completing rough and fine grading as necessary.

1.02 REFERENCES

- A. "Grades and Standards for Nursery Plants", Part I and II, State of Florida, Department of Agriculture (current edition).
- B. "Approved Planting Practices", American Association of Nurserymen (current edition).
- C. "Hortus" (L.H. Bailey), Second Edition.
- D. "Manual of Cultivated Plants" (L.H. Bailey).
- E. "Standard Plant Names", American Joint Committee on Horticultural Nomenclature.

1.03 DEFINITIONS

- A. Satisfactory Fill Material: Materials classified in ASTM D2487 as GW, GP, SW and SP. Properly worked by Contractor to obtain optimum moisture and compaction.
- B. Unsatisfactory Materials: Materials of any classification that are determined by a certified agricultural testing laboratory as inappropriate for horticultural purposes.
- C. "Plant Materials" or "Plants": Includes all trees and palms indicated on the drawings and/or specified by the Landscape Architect.
- D. All plant material shall conform to a minimum "Florida #1" standard as defined by "Grades and Standards" of the Florida Department of Agriculture.

1.04 SUBMITTALS

- A. Planting Mix: A sample of approximately five (5) pounds of the Planting Mix (or each of the Planting Mixes, when more than one such Mix is specified) to be utilized in planting of all shrubs, vines, and ground covers, shall be submitted to the Landscape Architect for approval at least fourteen (14) working days prior to its intended delivery to the site.

- B. Contract Closeout Submittals:
 - 1. "As-Built"/Record Drawings: Provide blueprint with red line markings indicating all changes made to the planting system layout during installation. Notations shall reflect species, variety, location, quantity, and size changes, if any.
- C. Certificates:
 - 1. Submit certificates from supplier(s) stating that the delivered Planting Mix, delivered plant materials, and fertilizer comply with requirements specified.
 - 2. Certificates of Inspections: Shipments or orders of plant material shall be properly inspected at nursery or growing site by authorized federal and state authorities; include certificates with shipment.

1.05 QUALITY ASSURANCE

- A. Qualifications of Workers: Provide at least one person who shall be present at all times during execution of the Work, and who shall be thoroughly familiar, knowledgeable, and conversant in the English language with the types and requirements of horticultural materials being utilized and installed. This designated person shall direct the work performed under this Section. Provide name of designee to the Landscape Architect.
- B. Approvals: Obtain written acceptance from Landscape Architect for any variation from specified requirements before proceeding with work.
- C. Plant Materials: Meet or exceed specifications of federal, state and county laws requiring inspection for plant disease and insect control.
- D. Deficiencies: In the event that the Landscape Architect suspects deficiencies in materials proposed for use or installed on this project, such materials shall be tested by an independent testing laboratory. If results indicate non-conformance of materials tested, Contractor shall bear the costs of such tests, as well as all costs associated with the removal and replacement of such materials. Evidence of non-compliance will result in rejection of all work in which rejected materials have been utilized.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Storage:
 - 1. Deliver all materials to the site in a horticulturally approved manner, and store until use in protected condition on site, free from contact with water or other liquids, and any tainting.
 - 2. Immediately remove from the site - independently or as directed by the Landscape Architect - materials which do not comply with the provisions of this Section of this specification.
 - 3. Use all means necessary to protect materials before, during, and after installation and to protect installed work and materials of all other trades.

- B. Replacements: In the event of damage or rejection, immediately make repairs and replacements necessary at not cost to the Owner, subject to acceptance by the Landscape Architect.
- C. Protection: Shrubs, vines, and ground covers shall be protected from storm, winds, and other deleterious weather conditions, and adequately packed/loaded to prevent breakage and drying out during transit.
- D. Representative Examples: Provide one representative example of each species, variety, each specified size (height and spread), and each container size, for each shrub, vine, and ground cover proposed for installation. Advise Landscape Architect in writing of delivery scheduled prior to commencement.
- F. Rejection of Shrubs, Vines, and Ground Covers: The following types of plants will be immediately rejected:
 - 1. those that manifest improper handling, reflecting bruised, torn, scarred, or split or broken branches or stalks;
 - 2. those with manufactured, damaged, or loose root balls; or those that have been recently "sized up" to a larger container, where the root structure does not engage at least 80% of the container's soil; and
 - 3. those that arrive on site in an unsatisfactory condition.
- G. Acceptance: Storage and/or installation of shrubs, vines, and ground covers on site by the Contractor does not in any way convey acceptance of such work by the Landscape Architect or Owner. When appropriate, a letter of Partial Written Acceptance, or Final Written Acceptance will be issued at the discretion of the Landscape Architect.

1.07 SEQUENCING

- A. Schedule: Provide to the Landscape Architect in pre-construction meeting, a written schedule of all shrub, vine, and ground cover installations, and indicate delivery dates to the site of these items. Notify the Landscape Architect by email a minimum of two (2) work days in advance of anticipated delays in deliveries.
- B. Periodic Construction Observation: In addition to other periodic construction observation, the Contractor shall schedule and facilitate the following observations, giving notice to the Landscape Architect at least seven (7) work days in advance:
 - 1. observation of proposed installation locations for shrubs, vines, and ground covers, as represented by staking or marking with spray paint;
 - 2. when required, line and utility locations marked by City of Miami GSA and/or Sunshine State;
 - 3. observation, upon delivery, of plant materials at the site to verify species, vigor and robustness, size, condition, shape, quantity, all in compliance with specification and drawings;
 - 4. observation of planting pit excavations.
 - 5. observation of all backfilling of shrubs, vines, and ground covers in planting pits with specified Planting Mix;

6. observation of work and materials after completion of planting. This observation shall be scheduled sufficiently in advance and in cooperation with the Landscape Architect so that it may be conducted within forty-eight (48) hours after completion of all planting;
7. observation, at written request of the Contractor with five (5) day advanced notice, at thirty (30) day intervals of the ninety (90) day period of maintenance that shall commence at issuance of either Partial Written Acceptance or Final Written Acceptance; and
8. observation for Final Written Acceptance at the end of the warranty period.

1.08 WARRANTY

- A. Replacements: At no additional cost to the Owner, the Contractor shall replace from date of Final Written Acceptance for a period of six months (182 days), any and all shrubs, vines, and ground covers that fail to establish, manifest, and maintain vigorous and robust growth. Throughout and at conclusion of the specified warranty period, the Landscape Architect shall observe the condition of all tree and palm plantings. Trees and palms that have died or that are in an unhealthy or badly impaired condition for reasons other than vandalism, "Acts of Providence" (*force majeure*), or documented neglect by the Owner, shall be replaced by the Contractor at the Landscape Architect's direction. Replacement will not be required in any season determined by the Landscape Architect as unfavorable to the survival and robust development of such trees and/or palms.
- B. Loss: After Final Written Acceptance, Contractor shall not be held responsible for losses beyond his control arising from "Acts of Providence" (*force majeure*); acts of vandalism; or loss arising from documented neglect and failure on the part of the Owner to properly care for planting.
- C. Maintenance Modifications: During warranty period and at no extra cost to the Owner, Contractor shall observe and determine if any changes should be made in the Owner's maintenance program. Proposed changes shall be submitted in writing, to the Landscape Architect.
- D. Remedial Clean-Up: Before Final Written Acceptance and at the end of the warranty period, relocate and redistribute existing mulch within planting areas as appropriate and install additional sod in areas from which mulch has been removed or realigned, on a smooth, even soil surface.

1.09 MAINTENANCE

- A. Maintenance Period: Contractor shall maintain all shrubs, vines, and ground covers from commencement of planting and continuing until issuance of Final Written Acceptance by the Landscape Architect. Maintain and protect shrub, vine, and ground cover plantings including incidental materials, until completion of planting operations, and receipt of Final Written Acceptance.

Shrub, Vine + Ground Cover Planting
Section 02901
Curtis Park Boat Ramp
Department of Parks + Recreation
City of Miami
7 July 2015

- B. Maintenance:
1. Maintenance shall begin immediately after each shrub, vine, and ground cover plant is properly installed and shall continue until the completion of the Contract, or the Final Written Acceptance, whichever is latest.
 2. Settled plant materials, whose root ball crowns do not maintain a flush relationship with adjacent grades, shall be reset to proper grade position. Individual shrubs, vines, or ground covers that manifest at least 50% or more of their total foliage as dead or failing, shall be immediately removed and replaced.
 3. Defective work shall be corrected within a reasonable period of time after being manifest and when weather permits. Upon completion of planting, the Contractor shall remove from the site excess soil and debris, and repair all damage to the work of any trade, resulting from planting operations.
 4. Maintenance shall include all watering, mulching, weeding, fertilizing, cultivating, spraying, and pruning necessary to keep shrubs, vines, and ground covers in a healthy, vigorous growing condition for the period of time indicated. All planted areas shall be maintained in a neat and attractive appearance.
 6. Provide all equipment and means for proper application of water to those shrubs, vines, and ground covers that do not receive water from an irrigation system.
- C. Extension of Maintenance Period: The contractor shall continue maintenance period at no additional cost to Owner, for an additional period of 30 days after previously noted deficiencies have been corrected. Warranty period shall commence at the end of the maintenance period for such replacement plantings.
- D. Completion of Maintenance: The Contractor shall conclude maintenance (exclusive of replacement within warranty period) upon Final Written Acceptance issued by the Landscape Architect at the end of the maintenance period or, as provided for above, at the end of the extended maintenance period.
- E. Protection: Protect all work from damage, and immediately restore any work of any trade, that is damaged during construction by Contractor or supporting forces.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Planting Mix: An evenly blended mixture of 50% organic "Everglades Muck", 30% coarse ("sharp-edged") sand, 10% decomposed pine bark or wood chips, and 10% Canadian Peat Moss. Add five (5) pounds of Atlantic FEC TRINITE PLUS 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. The Landscape Architect reserves the right to reject Planting Mix that fails to meet the Specification at any time during the execution of work.
- B. Commercial Fertilizer: Commercial grade fertilizer, uniform in composition, dry, free flowing and delivered to site in fully labeled, unopened containers, bearing name, trade

Shrub, Vine + Ground Cover Planting
Section 02901
Curtis Park Boat Ramp
Department of Parks + Recreation
City of Miami
7 July 2015

name or trademark and warranty of producer. Fertilizers shall conform to applicable State and Federal law. At least 50% of the nitrogen content of fertilizers 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 shall be submitted to the Landscape Architect upon delivery 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.

- C. Mulch: Shredded 'Florimulch' (Forestry Resources, Ft. Myers, Florida), free of weed retardant, as certified by the Florida Department of Agriculture. **No other mulch in any form is acceptable.**
- D. 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..
- E. Shrubs, Vines, and Ground Covers:
 - 1. shall be as noted on plans and as approved by the Landscape Architect;
 - 2. comply with physical description for shrubs, vines, and ground covers (height and spread measurements and container size);
 - 3. substitutions in plant species or sizes shall be made only with written authorization of the Landscape Architect, and request for such substitutions shall be submitted by the Contractor during the pre-construction meeting; and
 - 4. shrubs, vines, and ground covers or associated products 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.
- F. Pruning:
 - 1. Shrubs, vines, and ground covers shall not be pruned prior to delivery.
 - 2. Prune in accordance with current Florida Department of Agriculture standards immediately after planting, under observation of the Landscape Architect.
- G. Plant Quality:
 - 1. Shrubs, vines, and ground covers shall be containerized, nursery grown stock.
 - 2. All plant material shall be free of broken or damaged root balls, or root bound conditions. Plant materials shall be sound, healthy, vigorous, free from plant diseases, insect pests or their eggs, and shall have healthy, normal root systems.
 - 3. Collected plants are not acceptable, and shall not be used.
 - 4. Shrubs, vines, and ground covers shall be Florida No. 1 or better quality, graded in accordance with Grades and Standards for Nursery Plants, published by the State of Florida, Department of Agriculture. Plant materials shall have pronounced symmetry of, and a full foliar crown. Plants judged to be non-complying will be rejected, and shall be immediately removed from the site of the work.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspection: Observe work of all other trades and verify that all such work is complete to the point at which this landscape work may properly and safely commence. Verify that planting can be completed in accordance with Contract documents.

Shrub, Vine + Ground Cover Planting
Section 02901
Curtis Park Boat Ramp
Department of Parks + Recreation
City of Miami
7 July 2015

- B. Discrepancies:
 - 1. In event of discrepancy, immediately notify the Landscape Architect.
 - 2. Do not proceed with installation of shrubs, vines, and ground covers in areas of discrepancy until all such discrepancies have been fully resolved to the satisfaction of the Landscape Architect.

3.02 PREPARATION

- A. Marking Locations: Stake or mark with paint the proposed location of all shrub, vine, and ground cover plantings, individually and in clusters.
- B. Digging: Excavate planting pits.
- C. Provide plant materials, fertilizer, Planting Mix, soil amendments, and incidental materials as specified.
- D. Set plant materials, backfill, and install as specified.
- E. Complete incidental work related to planting operations, and as specified.

3.03 APPLICATION

- A. Finish Sub-grade: Upon acceptance of rough grading elevations, establish fine sub-grade with smooth and even finish. Remove rocks exceeding one-half inch (1/2") in diameter, sticks, debris, roots, deleterious material, grass and soil clods, and vegetation.
- B. Excavation:
 - 1. Excavations identified as having potential utility or service line conflicts shall be excavated with hand tools to determine the location of and avoid damage to such utilities.
 - 2. Excavate planting pits a minimum of 10" greater in diameter than the root ball, and minimum 8" deeper than vertical height of root ball.
 - 3. Barricade or mark excavations to prevent hazards to mechanical equipment, vehicles, and pedestrians.
- C. Planting:
 - 1. Set plant materials in vertical position with the top of the root ball flush with the adjacent, finish grade.
 - 2. Set plant in upright position in center of planting pit and place specified Planting Mix under and around root ball.
 - 3. Thoroughly water each plant after placement of Planting Mix in each lift, to remove all air pockets.
 - 4. Selectively thin shrubs, removing no more than 1/4 of twigs, stalks, and branches, while maintaining the uniform character and shape typical of the species. Remove all dead diseased, rubbing, and dying branches. All trees shall meet height and spread \
 - 5. Place Florimulch to a loose measure 3" layer within shrub, vine, and ground cover plantings.
 - 6. If planting is performed after sod placement, proper protection shall be provided and damage resulting from planting operations shall be repaired promptly.

E. 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 provisional acceptance. The request shall be received from the Contractor at least five (5) work days before the anticipated date of provisional inspection.
2. The Contractor shall repair or replace defective work before provisional acceptance of the work.

F. Clean-up and Final Inspection:

1. Upon completion of the work in its entirety, the Contractor must thoroughly clean up the project site. In addition to removing all equipment, unused materials, deleterious material, and surplus excavated material, the Contractor shall fine grade all disturbed areas and the areas adjacent to the new plantings to provide a neat and uniform site. All existing structures, appurtenances, and site features and elements damaged or altered, as a result of the landscape work, shall be corrected by the Contractor.
2. 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 five (5) days before the desired inspection.
3. All defects discovered shall be repaired or replaced by the Contractor prior to Final Written Acceptance.

END OF SECTION