

## PART II

### SECTION 12 LANDSCAPE WORK

The following are the minimum requirements that any contractor/developer has to consider in order to design, construct and/or install landscape work within public rights-of-way:

#### 1.0 GENERAL

##### 1.01 THE REQUIREMENT

A. The work included in this section consists of furnishing all labor, supplies equipment and materials necessary to complete the installation of all landscaping as shown on the Plans, including the installation of sod and seeding as shown, as well as all other related responsibilities as specified herein.

B. All plant materials included shall be of the specific size and quality indicated on the plans and in these specifications and shall be installed in strict accordance with sound nursery practices, and shall include maintenance and watering for all work outlined on the plans and specifications until final acceptance.

C. The ENGINEER reserves the right to adjust the number and locations of the designated types and species to be used at any of the locations shown in order to provide for any modifications which might become necessary.

D. Investigation of Subsurface Conditions: The Contractor shall be responsible for making site subsurface investigations and examinations as he or she chooses in order to become familiar with the character of the existing material and the construction conditions under which he or she will be working. These subsurface investigations and examinations shall be included in the bid. The Contractor shall not receive separate, additional compensation for such investigation.

E. Excavation Related to Inadequate Drainage: Some or all work areas may contain existing materials such as but not limited to, limerock, and it may even be compacted. This material and any compacted material may interfere with adequate vertical drainage and/or proper plant survival and growth. Removal of this material, in order to have adequate vertical drainage, is part of the scope of work for the project. Therefore, the sub surface investigations and examinations are necessary in order to determine the extent of removal and excavation required above and beyond the minimum requirements indicated in these Specifications, under the heading of "Excavation of Plant Holes", which is in PART 3. Compensation for any excavation and removal required, above and beyond the minimum requirements indicated, including any additional planting soil needed to fill the larger excavated area, shall be included in the bid. The Contractor shall not receive separate, additional compensation for this.

F. No separate, additional compensation will be granted because of any unusual difficulties which may be encountered in the execution of any portion of the work.

G. The Plans are not complete unless accompanied by these Specifications.

##### 1.02 QUALITY ASSURANCE

A. The CONTRACTOR'S Superintendent shall be well versed in Florida plant material, planting operations, blue print reading, and coordination with other performing contracts or services in

the job area. All CONTRACTOR employees shall be competent and highly skilled in their particular job in order to properly perform the work assigned to them. The CONTRACTOR shall be responsible for maintaining the quality of the material on the job throughout the duration of its responsibility.

B. Acceptance of any proposed individual, company, or corporation shall not relieve the Contractor of his responsibility to supervise the work and to coordinate the activities of his sub-contractor with work of all other trades.

1. Sub-Contractor Qualification - No individual, company or corporation will be permitted to perform any work under this Section by Contract of sub-Contract unless such individual, company or corporation is fully qualified to perform the work. The Contractor, if requested shall provide the following evidence that he or any of his proposed contractors or sub-contractors is qualified.

a. State or local license, where license is required by law.

b. Membership in trade or professional organizations:

1. Associated Landscape Contractors of America;
2. American Association of Nurserymen, or
3. Florida Nurserymen and Growers Association.

c. List of three (3) similar projects which the individual, company or corporations performed under contract or subcontract to a general contractor or Owner.

C. In the event that it becomes apparent that any nursery supplying plants for this work has knowingly and consistently represented the grade of plants as being higher than their actual grades as determined under these provisions, all plants already delivered from such sources shall be removed from the job at the CONTRACTOR'S expense, and no further plants will be accepted from such nursery until written evidence is submitted and confirmed that all material for delivery has been inspected and approved by inspectors of the State Plant Board as being of the grade as represented.

D. All plant material shall conform to the names given in Hortus Third, 1976 edition. Names of varieties not included therein conform generally with names accepted in the nursery trade.

E. Correct Grade of Plants: Any supplier of materials misrepresenting the grade or quality of their materials (i.e. a higher grade than they are). As determined by the Engineer through the application of the Plans and Specifications, shall not be allowed to supply any material for this project. All material already supplied and received from such a supplier, which is below specified grade, shall be removed and replaced at no additional cost to the City. This requirement for removal and replacement shall also include any installed materials. No further materials will be accepted from such supplier until written evidence is submitted and confirmed that all material for delivery is of the grade or quality represented.

1. Grade and Quality:

a. All plant material shall be nursery grown, and comply with all required inspections. Grading and quality standards and plant regulations as set forth in the Florida Department of Agriculture's "Grades and Standards for Nursery Plants, 1998 Edition. Part I and Part 2", or with any superseding specifications that may be called for on the Plans or in the Specifications and as established by the Turfgrass Producers Association of Florida. Inc., ALL PLANTS NOT LISTED IN THE GRADES AND STANDARDS FOR NURSERY PLANTS, shall conform to a Florida No. 1 as to: (1) health and vitality, (2) condition of foliage, (3) root system, (4) freedom from pest or mechanical damage and (5) heavily branched

and densely foliated according to the accepted normal shape of the species or sport.

b. Exception to "Grades and Standards": Any section of Florida Department of Agriculture's "Grades and Standards" which allows nails or spikes in the trunks of trees or palms shall be EXCLUDED from these Specifications. THESE SPECIFICATIONS PROHIBIT NAILS AND SPIKES IN TRUNKS.

## 2. Requirements for Various Plant Designations:

### a. Balled and Burlapped (B&B) Plants:

1. Burlap and other wrapping materials made of natural, biodegradable materials shall be used.

b. Growing site inspections shall be requested in writing with 48 hours advance notice by the Contractor.

c. The fact that the Engineer has not made an early inspection and discovery of faulty work or of work omitted, or of work performed which is not in accordance with the contract requirements, shall not bar the Landscape Architect from subsequently rejecting such work.

d. The Landscape Architect's on site inspections shall be for the purpose of verifying that the Plans and Specifications are being implemented properly only. The Landscape Architect's on-site inspections are not for safety on or off the job site. Job site safety is the sole responsibility of the Contractor.

F. All plant materials shall be nursery grown except where specified as collected material, and shall comply with all required inspections, grading standards and plant regulations as set forth by the Florida Department of Agriculture's "Grades and Standards for Nursery Plants" revised 1973, or with any superseding specifications that may be called for on the Plans or in the Specifications. ALL PLANTS NOT LISTED IN THE GRADES AND STANDARDS FOR NURSERY PLANTS, shall conform to a Florida No. 1 as to: (1) Health and Vitality, (2) Condition of Foliage, (3) Root System, (4) Freedom from Pest or Mechanical Damage, (5) Heavily Branched and Densely Foliated according to the accepted normal shape of the species, or sport, (6) Form and branching habit.

G. Balled and Burlapped (B&B) and Wire Balled and Burlapped (WB&B) plants shall be properly protected until they are planted. These plants shall be handled only by the earth ball and not be the plant itself.

H. Any (B&B) or (WB&B) plant which shows evidence of having handled by method other than the method outlined above, and resulting in a cracked or broken ball or of the roots being loosened within the ball shall be rejected.

I. For plants grown in soil of loose texture, which does not readily adhere to the root system, (especially in the case of large plant material), WB&B plants may be specified. For WB&B plants, before plant is removed from the hole, sound hog wire shall be placed around the burlapped ball and looped and tensioned until the burlapped ball is substantially packaged by the tightened wire netting, such as to prevent disturbing of the loose soil around the roots during handling. Any wire, synthetic material or chemically treated material will be removed from the rootball at planting time; all ties shall be removed from the rootball and around the trunk at planting.

J. Any Container Grown (CG) plants, which have become "pot bound" or for which the top system is out of proportion (larger) to the size of the container, will not be acceptable.

K. With metal containers, unless the root-ball system slips easily and unbroken from the can, a nursery can-cutter shall be used to slit the can in such a way that the can may be opened fully.

L. CG plants shall not be removed from the can until immediately before planting, and with all due care to prevent damage to the root system.

M. Submit to the ENGINEER the names and locations of nurseries proposed as sources of acceptable plant material. The ENGINEER reserves the right to visit the nursery to inspect and/or select any and all specified material.

N. The Engineer shall have the right, during any phase of the work operations, to reject any and all work and materials which do not meet the requirements of the Plans or Specifications. Rejected work and materials shall be immediately removed from the project area and replaced with acceptable work and material within seven (7) calendar days or as approved by the City's Representative.

### 1.03 DELIVERY, STORAGE AND HANDLING

A. Movement of nursery stock shall comply with all Federal, State, and local laws and regulations. Therefore, required inspection certificates shall accompany each shipment, and shall be filed with the City's Representative. Wire wrap burlap if root ball is not sufficiently compacted. Palms will not require burlap wrapping if the following requirements are met:

1. Dug from marl or heavy soil that adheres to roots and retains shape without shattering.

2. Moistened material used to cover ball and roots not exposed to wind and sun.

3. Transport material on vehicles large enough to allow plants not to be crowded. Plants shall be covered to prevent wind damage during transit and shall be kept moist, fresh and protected at all times. Such protection shall encompass the entire period that the plants are in transit, being handled, or are in temporary storage.

B. All plant material shall not remain on the work site longer than two (2) days prior to being installed.

### 1.04. SUBMITTALS

A. Written requests for approval, to substitute a materials plant designation (B&B, WB&B, and CG. etc.), type, grade, quality, size, quantity, etc., due to the non-availability of the material specified, shall be submitted within 14 calendar days after the preconstruction conference. Approval shall be given by the Engineer before the material is delivered and installed on the project.

B. Any request for the approval of an equal shall be in writing. Requests shall be submitted within 14 calendar days after the preconstruction conference. Approval shall be given by the Engineer before the material is delivered and installed on the project.

C. Submit prints of shop drawings for any special conditions not covered in the details indicated. This shall be for approval by the Engineer before they are installed on the project.

D. If requested by the Engineer, submit a written schedule of sources or suppliers of all materials for inspection and approval by the Engineer before they are delivered and installed on the project. To color photographs of each different item requested by the Engineer, showing different side views of the item shall be submitted with the schedule. Additional color photographs shall be submitted, if requested.

E. If requested by the Engineer, submit a letter indicating the sources or suppliers of all sod and the grade to be supplied for approval by the Engineer before it is delivered and installed on the project.

F. Submit a sample and analysis of all planting soil types for approval by the Landscape Architect before the material is delivered and installed on the project.

G. Submit a sample and analysis of mulch for approval by the Engineer before the material is delivered and installed on the project.

H. If requested by the Engineer, submit copies of the manufacturer's specifications or analysis for all fertilizer including data substantiating that proposed materials comply with specified requirements. This shall be for approval by the Engineer before the material is delivered and installed on the project.

I. The Engineer must review and approve shop drawings of all staking and guying, methods, before they are implemented on the project.

J. Submit, on an as needed basis, a schedule for spraying and dusting of materials to be used to control pests and disease infestation, the reason for their use and the method to be used to apply the materials and the method of application before it is delivered and used on the project. Also, if requested by the CITY, furnish documentation that the implementation of these control measures for pests and disease infestation is in strict compliance with all federal and local regulations.

#### 1.05 SUBSTITUTIONS

A. Substitutions of plant types or change in the size of plant material will only be permitted upon submission of documented proof that the particular plant type and size specified is not obtainable.

B. Where B&B or WB&B plants are specified, CG plants of the same species, etc., will not be accepted. Where a B&B or WB&B is not specified on a particular plant material, B&B, WB&B or CG plants may be used provided they meet all specifications.

#### 1.06 GUARANTEE

A. All trees and palms shall be guaranteed for a minimum of one (1) calendar year from the time of final acceptance of the project. All shrubs and groundcover and sod shall be guaranteed for a minimum of 180 calendar days from the time of final acceptance.

#### 1.07 REPLACEMENT

A. The guaranteeing of plant material shall be construed to mean the complete and immediate replacement of plant material if it is:

1. Not in a healthy growing condition.

2. There is a question to its survival ability at the end of the guarantee period

3. It is dead.

#### 1.07 SIZE, QUALITY AND GRADE OF REPLACEMENT

A. Replacement plant material shall be of the same species, quality and grade as that of the plant to be replaced. The size of the replacement shall not necessarily be the same size as the original specified plant at its initial planting but shall closely match specimens of the same species. Replacements shall be guaranteed for a period equal to the originally specified guarantee. This

guarantee period shall begin at time of plant replacement.

#### 1.08 GUARANTEE NULL AND VOID

A. The guarantee shall be null and void for plant material which is damaged or dies as a result of "Act of God" limited to hail, freeze, lightning, winds which exceed hurricane force, and lethal yellowing, providing the plant was in a healthy growing condition prior to these "Acts of God".

## 2.0 MATERIALS

### 2.01 PLANT MATERIAL

A. Except where another grade is specifically called for in the Plans, all plant material shall be not less than Florida No. 1, or better, at the time of installation and final acceptance.

B. Containerized material shall be well established with at least one (1) full growing season in its container. Field grown material shall be well established with at least two (2) full growing seasons in its existing location.

C. Habit of Growth: All plant material shall have a habit of growth that is normal for that species and shall be sound, healthy, vigorous and free from insects, plant diseases and injuries.

D. Measurement of Trees. Palms, Shrubs & Ground Cover:

#### 1. Trees, Shrubs and Ground Cover:

a. Rootball: Requirements for the measurement of rootball diameter and depth shall comply with requirements as set forth in the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants. Part I and Part 2.

b. Height: The height of plant material shall be measured from finish grade and continue up to where the main mass of the plant uniformly ends. The height shall not include any singular or isolated parts of the plant, such as leaves, shoots, branches, limbs or fronds, which extend out beyond the main mass of the plant.

c. Width: The width of plant material shall be measured from one side of where the main mass uniformly ends and continue to the other side of where the main mass of the plant uniformly ends. The width shall not include any singular or isolated parts of the plant, such as leaves, shoots, branches, limbs or fronds, which extend out beyond the main mass of the plant.

d. Caliper: The caliper of tree trunks shall be measured 3' above the ground unless:

(1) The landscape regulations, ordinances and code requirements from the appropriate local jurisdiction the project is located in indicate another method of measurement.

(2) Another method of measurement is indicated otherwise on the Plans.

2. Palms: Requirements for the measurement of clear trunk, clear wood, graywood, rootball diameter and depth shall comply with requirements as set forth in the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants, Part 2".

E. All sizes shown for plant material on the Plans are to be CONSIDERED AS MINIMUMS. All plant material must meet or exceed these minimum requirements for height, spread, etc. as indicated on the Plans. When plant sizes are specified as a range of size, installed material shall average the mean of the range specified. Plant materials which exceed the minimum dimensions shall not constitute a means for additional compensation to the Contractor or dispensation from other portions of the work.

F. Die-Back and Leaf-Drop: Plant material showing signs of die-back or leaf-drop will not be accepted and must be removed from the project immediately, if so directed by the Landscape Architect. Therefore, any plant material with tendencies toward leaf-drop or die-back must be root pruned early enough to provide a sound network of hair roots prior to relocation.

G. Mechanical Destruction of Foliage: Mechanical destruction of foliage resulting from root pruning shall not affect more than 10% of the total foliage prior to planting on the project. Loss of foliage caused by seasonal change will be accepted.

H. Palms:

1. Before Transporting: See "Delivery and Handling" for requirements related to wrapping of root balls.
2. Remove a minimum of fronds from the crown of the palms to facilitate transporting and handling.
3. Palms with burn marks and frond boots on trunk will not be accepted.
4. Using biodegradable material, such as a burlap strip or untreated cotton twine, tie **Sabal palmetto** bud and leave in-place until palm is established. If by this time the bud has not opened naturally, then the Contractor shall remove the tie, including any bracing, even if the project has been completed, final acceptance has been given and the Contractor has left the job. There shall be no separate, additional compensation for this task. Tying shall be as set forth in the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants". Tying of other palms shall be at the option of the Contractor.
5. To reduce head volume. Palm fronds may be taper trimmed by not more than one-third.
6. Palms showing cable or chain marks and equipment scars shall be rejected.  
Chlorosis: The allowable level of Chlorosis in foliage shall be set forth in the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants".

J. Plant material shall not be accepted when the ball of earth surrounding its roots has been cracked, broken or otherwise damaged.

K. Root pruning of plant material, when necessary, shall be done a minimum of six (6) weeks or for a period as determined by the Landscape Architect, prior to planting at the project. Prior to root pruning, the Contractor shall give 48 hour advance notice to the Engineer advising of the date to root prune any plant material. This shall allow for any inspections during or after the root pruning, if necessary.

## 2.02 SOD

A. Sod shall be Paspalum 'Supreme' or 'Aloha Seashore' as supplied by Emerald Island Turf (contact Michael Vanatta (@ 1-722-473-7671) or approved qual (i.e. 'Sea Isle 2000'). The quality

grade shall be PREMIUM. NOTE: Quality grade shall be based on the standards of sod quality grades of Premium, Standard or Commercial as established by the TURFGRASS PRODUCERS ASSOCIATION OF FLORIDA, INC. The sod shall be well matted with roots and of firm, tough texture having a compact top growth and heavy root development. The allowable weed content shall be as follows:

- Premium -no weeds or any other grass allowed. Only the species of sod specified.
- Standard - no casually visible broadleaf weeds, no obvious patches of weeds and no more than 2% of any other grass or weed in the total canopy.
- Commercial - any sod which does not meet the weed restrictions or Premium or Standard.

Sod sections shall be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10% of the section. Sod shall be moist and relatively free of thatch, up to one half inch allowable (uncompressed). The soil embedded in the sod shall be a clean earth free of stones and debris.

B. Mowing: The sod shall have been mowed at least three times with a lawn mower with final mowing not more than seven days prior to the sod being cut for placement.

C. Cutting: Sod shall not be harvested when moisture content (excessively dry or wet) may adversely affect its survival and shall be live, fresh and uninjured at the time of placement. After approval of source, mow and rake as necessary to remove excessive top growth and debris. Cut sod with mechanical sod cutters, retaining native soil mat of sufficient thickness to withstand handling. The sod shall be provided in commercial pad sizes measuring not less than 12" by 24" with a uniform thickness of 1 inch to 3/4 inches at time of cutting. Measurement for thickness shall exclude top growth and thatch.

D. Delivery: Deliver sod on pallets with root system protected from exposure to wind and sun. in quantities not greater than what the Contractor is capable of installing within 48 hours of cutting. It shall be planted within 48 hours after being cut and shall be shaded and kept moist from the time it is cut until it is planted.

E. Handling: Handle sod in a manner to prevent dislodging native soil mat. Pitchforks, dumping of pallets from vehicles and tearing of sod are prohibited.

## 2.03 PLANTING SOIL for TREES, PALMS, SHRUBS & GROUNDCOVER

A. PLANTING SOIL shall be natural, friable, and free from rocks larger than 1/2" diameter, weeds, stumps, plant tissue, litter, toxic substances, or any other deleterious materials. The Planting Soil shall consist of 70% clean, sharp, Silica Sand and 30% Everglades muck, mixed with the native, excavated soil in a 1:1 ratio (50/50). Soil must be taken from ground that has never been stripped, with a slight acid reaction (5.5 to 6.5 ph) and without an excess of calcium or carbonate. Soil shall be delivered in a loose friable condition.

B. Proof of soil characteristics shall be the Contractor's responsibility and shall be supplied by independent and certified testing laboratories, independently mailed to the Owner/Owner's Representative prior to the delivery and/or use of the soil.

C. General Type: All plant material shall be planted with a backfill material comprised of 50% existing native material and 50% planting soil. -

D. Submit soil analysis and sample at no additional cost to the Engineer.

## 2.04 SOD SOIL BLANKET



A. Shall be natural, friable, and free from rocks larger than 1/2" diameter, weeds, stumps, plant tissue, liner, toxic substances, or any other deleterious materials. The SOD SOIL BLANKET shall consist of 80% clean, sharp, Silica Sand and 20% Everglades muck, mixed with the native, excavated soil in a 1:1 ratio (50/50).

## 2.05 WATER

A. The Landscape Contractor is responsible to ascertain the location and accessibility of a potable water source. The Landscape Contractor is responsible for distribution of water to the areas of planting. If there is no source of potable water available at the job site approved for use, then the Landscape Contractor shall be responsible for bringing in a water truck or tank for hand watering. If water volumes accessibility and distribution are not satisfactory to the Contractor, it is his responsibility to negotiate acceptable terms with the CITY prior to signing of a contract, if during the planting, water availability previously agreed to, is curtailed. The Contractor shall notify, in writing within 24 hours, the City's Representative of the condition and, if the Landscape Contractor deems necessary, his intent to cease work until water is restored. For plants already installed prior to cut-off of water availability, the Landscape Contractor shall continue to be responsible for providing water as required by specifications.

## 2.06 MULCH

A. Mulch shall be processed entirely from the Melaleuca tree and composed of 97% hard inner wood and 3% outer bark. It shall be uniformly shredded and free from foreign matter, large pieces of bark, tree stump material, burrowing nematodes and ants. (Melaleuca mulch must have a written guarantee that there will not be any germination of Melaleuca seed which may be present in the mulch. If germination occurs, the Contractor shall be responsible for removal of the mulch and seedlings to the satisfaction of the Landscape Architect. The mulch shall be replaced with another acceptable mulch approved by the Landscape Architect).

## 2.07 FERTILIZER

A. Submit copies of the manufacturer's specifications or analysis of all fertilizer for approval.

B. Trees and Palms (Container): Fertilize per City's requirements during Maintenance Period. Shall be an "8-4-12" 'Palm Special' formulation, with a minimum of 50% nitrogen in the slow-release (preferably sulfur-coated) and a complete line of micro-nutrients, or approved equal.

C. Shrubs and Ground Cover: Fertilize per City's requirements during Maintenance Period. Shall be a "8-4-12" 'Palm Special' formulation, with a minimum of 50% nitrogen in the slow-release (preferably sulfur-coated) and a complete line of micro-nutrients. Release (preferably sulfur-coated) and a complete line of micro-nutrients, or approved equal

D. Fertilizer for sod shall be a granular fertilizer having an analysis of 12-6-8, to be approved by the City.

E. Rates of Application: Sod - 12 lbs per 1000 sq ft, or as recommended by the City's Representative.

F. Submit manufacturer's specification sheet(s) for approval of product. Submit tags from bags of fertilizer used on site to the City.

G. Composition and Quality: All fertilizer shall be uniform in composition and dry. Granular fertilizer shall be free flowing and delivered in unopened bags. Tabletized fertilizer shall be delivered in unopened containers or boxes. All bags, containers or boxes shall be fully labeled with the manufacturer's analysis.

H. All shall comply with the State of Florida fertilizer laws.

### **3.0 EXECUTION**

#### **3.01 INSPECTION**

A. Prior to the work, carefully inspect the installed work of other trades and the site conditions and verify that all such work and site conditions are complete to the point where this installation may properly commence.

B. Start of work shall imply acceptance of the site conditions.

C. Utilities (Overhead and Underground)

1. The work area may have existing utilities, such as, but not limited to irrigation, phone, electrical and storm sewer. It shall be the responsibility of the Contractor to verify the location of all such utilities, structures, etc. by hand excavation or other appropriate measures before performing any work that could result in damage or injury to persons, utilities, structures or property. The Contractor shall make a thorough search of the site for utilities, structures, etc., before work is commenced in any particular location.

2. The Contractor shall take immediate steps to repair, replace, or restore all services to any utilities or other facilities which are disrupted due to his or her operations. Further, the Contractor shall engage any additional outside repairs on a continuous "around the clock" basis until services are restored. He or she shall also provide and operate any supplemental temporary services to maintain uninterrupted use of the facilities. All costs involved in the repairs and restoring of disrupted service resulting from negligence on the part of the Contractor shall be borne by the Contractor and he or she shall be fully responsible for any and all claims resulting from the damage.

3. Should utilities, structures, etc., be encountered which interfere with the work the Engineer shall be consulted immediately in order for a decision to be made on the relocation of the work so it will clear the obstruction, if the obstruction cannot be relocated.

4. The Contractor shall not purposefully disrupt or disconnect any type of utility whatsoever without first obtaining the written permission of the Landscape Architect. Requests for disconnection must be in writing and received by the Engineer at least 72 hours prior to the time of the requested interruption.

#### **3.02 GRADES**

A. Rough Grades: Grading for drainage, swales, etc. shall be provided by the Contractor.

B. It shall be the responsibility of the Contractor to provide the final grading so the final level for planting areas conforms to surrounding grades and is at the proper elevation with relation to walks, paving, drain structures and other site conditions, unless indicated otherwise on the Plans.

C. Plant Areas Next to Pavement: All planting areas next to pavement areas such as, but not limited to, curbs, roads, drives, walks, terraces, decks and slabs shall be set so that the TOP OF THE MULCH IS (one) 1" BELOW THE TOP OF THE PAVEMENT AREA or as indicated otherwise on the Plans, and the top of sod is level with the top of pavement area, measured from the top of pavement to the top of grass blades after mowing.

### 3.03 HERBICIDE TREATMENT

A. In all areas infected with weed and/or grass growth, a herbicide as approved by the Engineer shall be applied per manufacturers rates. When it has been established where work will be done, the herbicide shall be applied in accordance with manufacturer's labeling to kill all noxious growth. Landscape Contractor shall schedule his work to allow more than one application to obtain at least 95% kill of undesirable growth. Landscape Contractor shall exercise extreme care to prevent damage to desirable existing growth. If necessary, Landscape Contractor shall conduct a test to establish suitability of product and applicator to be used on this project prior to execution of the full application.

### 3.04 PREPARATION

A. All areas proposed for planting not covered by more than 12" of new fill shall be scarified by an approved means to a depth of not less than 36, and shall be treated with two separate applications of appropriate herbicide as recommended by the manufacturer and approved by the City's Representative.

B. Staking Plant Locations: Stake or mark plant material locations prior to plant hole excavation, based on information from the Plans.

C. Spacing of Ground Cover and Shrubs: The location of a planting bed (shrub or groundcover) next to another bed, walkway, structure, etc., shall have the plants along the perimeter spaced so that the plants can mature properly without growing into the other bed, walkway, structure etc.

D. The rootballs of B&B plants which cannot be planted immediately shall be covered with moist soil or mulch to insure protection from drying winds and sun. All plants shall be maintained as necessary until planting. Refer to the section entitled "DELIVERY, HANDLING AND STORAGE" for additional requirements.

E. Subsurface Conditions: Some or all work areas may be compacted and/or contain existing material such as limerock which may interfere with adequate vertical drainage and/or proper plant survival and growth and therefore removal of this material is part of the scope of work for the project. The Contractor shall be responsible for ensuring adequate drainage in these areas and shall remove this existing material, as required by such means as augering, drilling or rototilling.

F. The Contractor shall remove all existing concrete, asphaltic concrete and rocks, above and below grade, from areas to be landscaped unless indicated otherwise on the Plans.

G. Excavation of Plant Holes:

1. General:

a. Excavation of plant holes shall be roughly cylindrical in shape with the sides approximately vertical. The Engineer reserves the right to adjust the size and shape of the plant hole and the location of the plant in the hole to compensate for unanticipated structures or unanticipated factors which are a conflict.

b. The excavated material from the plant holes shall not be used to backfill around the plant material. Such material shall be disposed of either on the project site or off the site, as directed by the Landscape Architect.

2. Trees and Palms:

a. Depth of hole shall be equal to the rootball depth plus 6 inches, unless further depth is required to provide adequate drainage as per 3.04 D.

b. Diameter of hole shall be as follows:

ROOTBALL DIAMETER

HOLE DIAMETER

12" or less

ball diameter: + 12"

13" to 24"

ball diameter: -f 18"

25" to 60"

ball diameter: + 36"

61" or greater

ball diameter: + 48"

3. Shrubs:

a. Single Plants:

- 1. Depth of hole shall be equal to the rootball depth plus 4 inches.
- 2. Diameter of hole shall be 50% greater than the rootball width.

b. Mass Planting (2 or more together) Planted 24 Inches on Center or Less:

- 1. Depth shall be equal to the rootball depth plus 4 inches
- 2. Diameter: Shrub material in mass shall not be planted in individual holes but rather in one continuous hole or excavation for the entire mass.

4. Groundcover Beds:

a. Container Material:

- 1. Depth shall be equal to the rootball depth plus 4 inches
- 2. Diameter: Groundcover material in mass shall not be planted in individual holes but rather in one continuous hole or excavation for the entire mass, all at a depth of 4 inches more than the depth of the rootball.

5. Sod:

- a. Excavation, Backfilling, and Final Grading: AREAS WHERE SOD IS TO BE PLANTED SHALL HAVE THE TOP THREE (3) INCHES OF MATERIAL REMOVED AND REPLACED BY A TWO (2) INCH BLANKET OF PLANTING SOIL PRIOR TO PLANTING. Remove stones, sticks, rubbish, and other extraneous matter. All rough areas and voids shall be eliminated during final grading in order to have a smooth and even grade.

3.05 INSTALLATION

A. Container Plant Material: After container grown plant material is removed from its container, the sides of the root ball shall be given six (6) vertical cuts full length. These cuts shall be about 1/4 inch deep. The bottom of the root ball shall also receive an "X" shaped cut that is 1/4 inch deep.

B. Setting of Plants:

1. PLANT MATERIAL SHALL BE PLANTED AT THEIR NATURAL AND ORIGINAL PLANTING LEVEL PRIOR TO THEIR PLACEMENT ON THIS PROJECT OR JOB. WHEN LOWERED INTO THE HOLE, THE PLANTS SHALL REST ON THE PREPARED HOLE BOTTOM SUCH THAT THE SURFACE ROOTS AT THE TOP OF THE ROOTBALL ARE LEVEL OR SLIGHTLY ABOVE THE LEVEL OF THE SURROUNDING FINAL GRADE AFTER SETTLEMENT (I.E. THE FINAL LEVEL OF THE TOP OF THE PLANT'S ROOTBALL SHALL BE THE SAME AS THE SURROUNDING FINAL GRADE). THE PRACTICE OF PLUNGING, BURYING OR PLANTING ANY PLANT MATERIAL SUCH THAT THE SURFACE ROOTS AT THE TOP OF THE ROOTBALL ARE BELOW THE LEVEL OF THE SURROUNDING FINAL GRADE, WILL NOT BE PERMITTED UNLESS IT IS INDICATED OTHERWISE IN THESE SPECIFICATIONS OR IT IS APPROVED IN WRITING BY THE ENGINEER PRIOR TO SUCH ACTION BEING TAKEN. The plants shall be set straight or plumb or normal to the relationship of their growth prior to transplanting. The Engineer reserves the right to realign any plant material after

it has been set.

**2. Sabal palmetto and Cocos. Sp.** may be set deeper than the depth of their original growing condition in order to lessen the necessity for support or bracing. For such deeper planting, however, it will be required that the underlying soil be friable. The clear trunk requirements set forth in the plant list shall be maintained from the finished grade and NOT from the previous grade of the palm tree before it was planted.

3. Plant material of the shrub category and smaller must be handled by the ball only. Plant material too large for handling by hand, if moved by winch or crane, must be thoroughly protected from chain, rope or cable marks, girdling, bark slippage, limb breakage and any other damage that might occur by improper handling or negligence.

4. All trees and palms shall be handled by both the trunk and rootball at the same time and not by the trunk only. Trunks shall be thoroughly protected.

5. Container grown plant material shall be carefully removed from the container so as not to disturb the root system.

6. All palms and trees planted east of Coastal Construction Control Line (CCCL) shall be set with anchoring system as shown in the plans.

#### C. Installation of Sod:

1. LAND FORMS: Contractor shall ensure that a uniform blanket of soil 12" in depth is placed on the Land Forms prior to sod installation. Contractor shall install sod on Land Forms no later than two (2) days after final grading.

2. SOD LAWNS: Contractor shall ensure that a uniform blanket of soil 2" in depth is placed on the SOD LAWNS prior to sod installation. Contractor shall install sod no later than two (2) days after final grading.

3. Placement of sod: Sod shall be carefully placed by hand, edge to edge in rows at right angles to slopes, commencing at the base of sloped areas to be sodded and working upward. The sod shall be immediately pressed firmly into contact with a 500 pound hand roller or any other equipment approved by the Engineer that will produce a 90 pound per square inch compression grading. The rolling operation shall provide a true and even surface and insure knitting without displacement of sod or deformation of the surfaces of the sodded area. Hand tamps those areas inaccessible to the roller. The edges of the sodded area shall be staggered in a corresponding manner providing the offset along the edge does not exceed 6 inches. All vertical edging adjacent to sodded areas shall be tamped so as to produce a feathered edge.

4. On slopes having a ratio greater than one in three, peg the installed sod into place with not less than two stakes per square yard.

5. Sanding: If, in the opinion of the Landscape Architect, the sod bed, after planting, is in need of an application of sandy top-dressing for reasons of irregularities or shrinking joints, the Contractor shall perform this task at no additional compensation.

6. Fertilizing: Spread fertilizer over sodded areas uniformly, as directed the City's representative by use of a device calibrated to distribute fertilizer at specific quantities.

7. Watering Fertilized Sod: Wash fertilizer off the grass blades, no later than 4 hours from time of spreading.

D. Backfilling: Use planting soil indicated under "PLANTING SOIL". Backfill the bottom to thirds of the planting hole and firmly tamp and settle by watering as backfilling progresses. After having tamped and settled the bottom two thirds of the hole, thoroughly puddle with water and fill remaining one third of the hole with planting soil, tamping and watering to eliminate air pockets.

E. Application Rates of Fertilizer: Shall be as recommended by the fertilizer manufacturer, or as otherwise approved by the City.

F. Mulch: Within 24 hours after planting. Planted areas must be mulched uniformly to a depth of approximately two inches, or as indicated on the Plans. Keep mulch approximately one inch away from trunks, stems or growing points of ground covers.

G. Staking and Guying:

1. Staking and guying shall not be attached to the plant material with nails. Staking and guying shall be installed as indicated in the details or approved shop drawings. Refer to the heading "Setting of Plants", which is in PART 3 of these Specifications, for additional information.
2. Staking and guying shall be in accordance with all applicable regulations, ordinances and code requirements in effect at the time of award of the contract.
3. The decision of whether to stake or guy shall be left to the discretion of the Contractor, provided it is not required according to local regulations, ordinances and code requirements. However, a Contractor's decision not to stake or guy shall not relieve he or she of the responsibility of resetting plant material if it blows, falls or leans over. Also, it will not relieve him or her of the guarantee if the material dies as a result of blowing, falling or leaning over.
  - a. Install in the manner indicated in the details.
  - b. The contractor shall remove and dispose of materials when it is determined by the Engineer that sufficient time has elapsed for the plants roots to stabilize the plant.

H. Watering:

1. Initially, water the plant material to develop uniform coverage and deep water penetration of at least six inches. Avoid erosion, puddling, and washing soil away from plant roots.
2. Provide continuous watering of plant material and sod, after planting. in order to achieve optimum growth conditions to establish plants. Water shall be applied as necessary and the amount of water and frequency of watering shall be based on the specific needs of each plant type, the time of year, amount of rainfall and other environmental conditions present at the time. This watering shall begin after the plant is planted and continue until final acceptance or for a minimum of sixty (60) consecutive calendar days, whichever is greater in time. ALL TREES AND PALMS SHALL BE HAND WATERED, ONLY. DURING THIS PERIOD DO NOT RELY ON THE IRRIGATION SYSTEM, IF THERE IS ONE, TO ACHIEVE THIS TASK. It cannot deliver the volume of water required, without flooding areas beyond where water is needed and/or over watering other landscape material. Shrubs and ground cover may be watered by using the irrigation system, if there is one, otherwise hands water during this period.
3. If there is no source for water available at the project, such as a hose bib(s) or fire hydrant(s) if approved for use then the Contractor shall be responsible for supplying water for hand watering by means of a truck or tank.

4. Canopy watering of transplanted existing trees, using misting heads on PVC risers to cover entire canopy, may be required at the discretion of the Landscape Architect. Operate by hand or on a time clock to spray as required to keep soil at root ball from getting too wet.

I. Pruning and Thinning:

1. The amount of general pruning and thinning shall be limited to the minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots as a result of transplanting operations. Pruning and thinning shall be done in such a manner as not to change the natural form or shape of a plant. The Engineer shall be contacted prior to performing any major pruning and thinning and may elect to be present during any pruning and thinning.

2. All broken or damaged branches or roots shall be cut off smoothly.

3. "Hat racking" shall only be allowed upon written approval and direction of the Landscape Architect.

J. Weeding:

1. If weeds become prevalent to such an extent that they threaten the health of plant material, then they shall be removed. This condition shall apply during the construction, maintenance and guarantee periods if the weeds were introduced by the Contractor through the plant material, planting soil, sand or mulch used.

2. If necessary plant material, mulch, sand and/or planting soil shall be replaced as needed to eliminate weeds or undesirable vegetation at the expense of the Contractor.

K. Removal of Plant Material: All plant material to be removed, shall be removed completely, including the rootball or as directed by the Landscape Architect, from the job site. The remaining hole shall be filled with suitable material or planting soil.

3.06 CLEANUP

A. Disposal of Waste: All waste and other objectionable material created through planting operations and landscape construction shall be removed completely, on a daily basis, from the job site or as directed by the Landscape Architect. Any paved area, including curbs and sidewalks which contain soil, sod waste fertilizer or other waste shall be thoroughly swept. The City is not required to supply areas or facilities for storage or removal of waste on-site.

B. Excess Fill: All excess fill which results from the installation of the project shall remain the property of the City and remain on the project at the option of the City. All excess fill which the City does not want shall be removed and disposed of from the project at no additional cost to the City. No excess fill shall be removed or disposed of from the site until approved by the City's Representative. Excess fill shall be disposed of as directed.

3.07 PROTECTION

A. Responsibility for Protection and Restoration of Property: The Contractor shall be responsible for all damage or injury to person or property.

B. Protection Against Mechanical Damage: The Contractor's responsibility for protection against mechanical damage shall include providing protection from vehicles and providing warning signs and barricades as might be necessary and he or she shall repair,

restore and replace all property which becomes damaged as a result of any negligence of the Contractor or his or her employees in complying with these requirements. Coordination shall be with THE CITY'S REPRESENTATIVE and the Landscape Architect.

### 3.08 COMPLETION AND FINAL ACCEPTANCE

A. Upon written notice from the Contractor of the presumptive completion, as defined below, of the entire project, the Landscape Architect, along with other appropriate parties, will make an inspection within 48 hours after the written notice. If all construction provided for and contemplated by the Plans and Specifications, is found to be completed in accordance with the Plans and Specifications, such inspection shall constitute the final inspection. The Contractor shall be notified in writing of final acceptance as of the date of the final inspection.

B. If, however, the inspection mentioned in paragraph A, above discloses any work, in whole or in part, as being unsatisfactory, final acceptance shall not be given the Contractor. THE CITY'S REPRESENTATIVE will give to the Contractor the necessary instructions or "punch lists" for correction of same, and the Contractor shall have up to 20 calendar days from the date such instructions or "punch lists" to correct the work are received. If the instructions or "punch lists" to correct the work are not complete within the 20 calendar days, then THE CITY'S REPRESENTATIVE may correct the work and back-charge the Contractor for materials, labor and equipment.

C. Upon correction of work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, THE CITY'S REPRESENTATIVE or their representative shall make the final acceptance and notify the contractor in writing of this final acceptance as of the date of this final inspection.

D. Completion of the work shall mean the full and exact compliance and conformity with the provisions expressed or implied in the Plans and Specifications including any and all "punch lists" which may be issued outlining certain items of work which were found unsatisfactory) or require completion or correction action.

E. Final acceptance shall not be given until all construction provided for and indicated in the Plans and Specifications is inspected by THE CITY'S REPRESENTATIVE and found to be completed in accordance with the Plans and Specifications.

F. Final acceptance shall not be official until acknowledged in writing by THE CITY'S REPRESENTATIVE.

G. The guarantee shall not begin until the day final acceptance is given.

### 3.09 RESPONSIBILITY PRIOR TO FINAL ACCEPTANCE

A. Certain responsibilities prior to final acceptance: The following is a partial list of certain responsibilities. It is not a complete list, but only a summary of certain responsibilities. There are other responsibilities indicated elsewhere in the Plans and Specifications. The lack of listing a responsibility on the following list does not relieve the Contractor of that responsibility if it is indicated elsewhere in the Plans and Specifications. Also, the listing of a responsibility on the following list does not necessarily make it any more important than one which is not listed:

1. The Contractor is responsible for the entire project prior to final acceptance.
2. The Contractor is responsible for safety on and off the job site.



B. Maintenance Prior to Final Acceptance:

1. Maintenance shall begin immediately after each plant is planted and continue until final acceptance except for the watering indicated in the paragraph below. This watering shall begin as indicated and shall continue until completed, even if the indicated period goes beyond the time of final acceptance.

2. Plant maintenance shall include watering, pruning, weeding, cultivating, repair of erosion, mulching, tightening and repairing of guys, stakes, braces, etc., replacement of sick or dead plants, resetting plants to proper grades or upright position, maintenance of the watering saucer, litter removal, and all other care needed for proper growth of the plants. Mowing and edging shall be done at least every fourteen (14) days and the irrigation system shall be checked every fourteen (14) days and report and repairs required to responsible Contractor.

3. Immediately after planting, each plant shall be watered and the watering period shall continue until final acceptance or for a minimum of 42 consecutive calendar days, whichever is greater in time. Refer to the section entitled "Watering" for additional requirements.

4. All plant material shall be weeded once a week. In the event that weeds or other undesirable vegetation becomes prevalent to such an extent that they threaten plant material, the weeds shall be removed as directed by the Landscape Architect. If necessary, the plant material, mulch, sand and/or planting soil shall be replaced as needed to eliminate weeds or undesirable vegetation at the expense of the Contractor.

5. Insecticides:

a. Contractor shall apply all insecticides as needed, for complete control of pests and diseases. The materials and methods shall be in accordance with highest standard horticultural practices and as recommended by the County Agent, and approved by the Landscape Architect, prior to implementation.

b. When a chemical is being applied, the person using it shall have in their possession all labeling associated with the chemical. Also the chemical shall be applied as indicated on the said labeling.

c. The spraying of insecticides and other such chemicals are to be confined to the individual plant. Spraying techniques which may introduce the material being sprayed beyond the immediate area of the individual plant, is strictly prohibited.

d. The implementation of control measures for pests and disease infestations shall be in strict compliance with all federal and local regulations. Upon request, the Contractor shall furnish documentation of such compliance.

e. All insecticides shall be applied by a licensed/certified operator only. The operator shall have the license/certification in their possession when insecticides are being applied.

6. Sod: After the sod has been laid, tamped and top dressed, all areas and parts of areas which fail to show uniform growth and health, shall be resodded repeatedly if necessary, until all sodded areas are covered with a satisfactory lawn. Damage resulting from erosion, gullies, washouts, or other causes shall be repaired by filling with topsoil, tamping, re-fertilizing, and resodding by the Contractor at his or her expense.

7. Protection: Planted trees and plants shall be protected against trespassing and damage. If any plants become damaged or injured, they shall be treated or replaced as

directed and in compliance with the Specifications at no additional cost to the City. No work shall be done within or over planting areas or adjacent to plants without proper safeguards and protection.

8. Keep sidewalks, curbs and gutters, drainage structures, driveways, parking areas, streets, terraces, decks and pavers free of plant cuttings, debris and stains.

9. Material rejected during the course of construction shall be removed within ten (10) working days and replaced before an inspection for completion will be scheduled.

10. If the Contractor fails to perform maintenance consistent with these specifications, as determined by THE CITY'S REPRESENTATIVE, then the City may perform any necessary maintenance and backcharge the Contractor for labor and materials.

C. Survival and Conditions: The Contractor shall be responsible for the proper maintenance and the survival and condition of all landscape items from the time a landscape item is installed until final acceptance.

D. Replacement: Replacement of plant material shall be the responsibility of the Contractor including the possible replacement of plant material resulting from removal by theft or vandalism or acts of negligence on the part of others. All plant material shall be alive and in good growing condition for each specific kind of plant at the time of final acceptance.

E. Rating: The rating of plant material according to Florida Grades and Standards shall be equal to or better than that called for on the Plans and in these Specifications at the time of final acceptance.