updated January 1, 2017

OFFICIAL DATE OF ADDENDUM:
July 17, 2017

ADDENDUM NO: 1 - issued by the

TEXAS DEPARTMENT OF TRANSPORTATION

CONSTRUCTION OF NEW ANGLETON AREA ENGINEER & MAINTENANCE FACILITY

LOCATION:	**18671 FM 523**
CITY/ST:	**ANGLETON, TX. 77515**
COUNTY:	**BRAZORIA**
DISTRICT:	**HOUSTON**
SITE NO.:	**129061**
BLDG NO.:	**128316, 317, 318,319, 320**
PROJECT ID #:	**12-470403058**
ESTIMATED COST:	**$5,200,000.00**
BID GUARANTY or BID BOND:	**$104,000.00**
PRE-BID DATE, TIME:	**JULY 11, 2017 @10:30 AM**
PRE-BID LOCATION:	**1033 E. ORANGE STREET, ANGLETON, TEXAS 77515**
BID DATE, TIME:	**AUGUST 1, 2017 @ 1:00 PM**
BID LOCATION:	**TxDOT STATE HEADQUARTERS**
BID ADDRESS:	**150 EAST RIVERSIDE DRIVE, 4N, AUSTIN, TEXAS 78704**

Project by the TEXAS DEPARTMENT OF TRANSPORTATION,
SUPPORT SERVICES DIVISION (SSD)
FACILITIES PLANNING & MANAGEMENT
150 Riverside Dr., 4th Floor - North Tower, Austin, TX 78704

BIDS DUE: AUGUST 1, 2017 @ 1:00 PM

at: 150 EAST RIVERSIDE DRIVE, 4N, AUSTIN, TEXAS 78704

- **ADDENDUM NO.** 1 IS ATTACHED WITH THIS NOTIFICATION. For a pdf file of the entire addendum,

E-MAIL Request to: SSD_ContractLettings@txdot.gov or Jim.Tate@txdot.gov

- Available to print from TxDOT Plans Online.

  www.txdot.gov (Business, Letting & Bids, Plans Online, Building Facility Projects from View or FTP)
  http://www.dot.state.tx.us/business/plansonline/plansonline.htm

- Addendum is also available at http://esbd.cpa.state.tx.us - Electronic State Business Daily (ESBD)

  Use Agency 601 for Requisition Number: 12-470403058

NOTE: THIS ADDENDUM SHALL BECOME AN OFFICIAL PART OF THE PLANS AND SPECIFICATIONS AND BIDDERS SHALL ACKNOWLEDGE RECEIPT OF THIS ADDENDUM IN PROPOSAL PACKAGE 1 (CONTRACT DOCUMENTS), "ADDENDUM ACKNOWLEDGMENT" SHEET

FAILURE TO ACKNOWLEDGE RECEIPT OF AN ADDENDUM WILL RESULT IN THE BID NOT BEING READ.

NOTICE TO BIDDERS:

This Addendum shall be considered as part of the Contract Documents for the above mentioned project as though it had been issued at the same time and incorporated therewith. Where provisions of the following supplementary data differ from those of the original Contract Documents, this Addendum shall govern and take precedence. Work not specifically deleted, modified, changed or altered by this Addendum shall remain in effect as a part of the Contract Documents.

Bidders are hereby notified that they shall make any necessary adjustment(s) in their estimates based on this Addendum. It will be construed that each bidder's proposal is submitted with full knowledge of all modifications and supplemental data specified herein.

ADDENDUM NO. 1

Revisions to specifications as per the attached.

INCOMPLETE PROPOSAL PACKAGE 1 (CONTRACT DOCUMENTS) WILL BE REJECTED

USE THE BID BOND FORM IN THE PROPOSAL PACKAGE 1 (CONTRACT DOCUMENTS). NO OTHER BID BOND FORM IS ACCEPTABLE. OBTAIN SIGNATURES, SEALS AND THE POWER OF ATTORNEY. THIS FORM MUST BE SIGNED BY THE CONTRACTOR AND SURETY – WITH AN IMPRESSED SEAL. AFTER SIGNATURES – INCLUDE THE COMPLETED BOND IN THE PROPOSAL.

Total pages to this Addendum including cover pages: **21**

ADDENDUM NO. 1

Date of Addendum: June 30, 2017

PROJECT NAME: NEW ANGLETON AREA ENGINEER AND MAINTENANCE FACILITY

FROM: Huitt-Zollars, Inc.

TO: Prospective Bidders

This Addendum forms a part of the Bidding Documents and will be incorporated into the Contract documents, as applicable. Insofar as the original Project Manual and Drawings are inconsistent, this Addendum governs.

CHANGES TO PROJECT MANUAL

SPECIFICATIONS

1. Section 32 01 91 Tree and Plant Protection
    a. Deleted Part 2 item A number 2
2. Section 32 84 00 Planting Irrigation
    a. Delete first paragraph of the Section
        i. "An allowance is included for the irrigation system . Design for system to be provide later. This section provided for information only, and as a basis for design."
3. Section 32 92 00 Turf and Grasses
    a. Remove this section in its entirety

4. Section 32 92 20 Sodding

    a. Delete first paragraph of the Section.

        i. "An allowance is included for landscaping. Design to be provide later. This section provided for information only, and as a basis for design."

5. Section 32 92 30 Hydroseeding

    a. Add attached section for hydroseeding

6. Section 32 93 00 Plants

    a. Replace the section in its entirety with the attached section

END OF ADDENDUM # 1

DATED: June 30, 2017

END OF DOCUMENT

SECTION 32 92 30

HYDROSEEDING

PART 1 GENERAL

1.1 SUMMARY

A. Work covered in this section shall include all materials, labor, equipment and supervision required for the installation of turf grass where and as described on the Drawings and in the Specifications. This work includes, but is not limited to the following:

1. Installation of turf by the hydroseed method.
2. Site cleans up.
3. Maintenance and guarantee.

B. Related Sections

1. Section 31 23 17 - Trenching: Rough grading over cut.
2. Section 32 84 00 - Planting Irrigation.
3. Section 32 91 19 - Landscape Grading: Preparation of subsoil and placement of topsoil in preparation for the Work of this section.
4. Section 32 92 20 - Sodding.
5. Section 32 92 30 - Hydroseeding.
6. Section 32 93 00 - Plants.

1.2 QUALITY ASSURANCE

A. Seed: owner or owner's representative shall be furnished a signed copy of statement from vendor, certifying that each container or bag of seed delivered is labeled in accordance with the Federal Seed Act and is at least equal to requirement previously specified. Seed analysis shall be furnished prior to commencement of planting operations. Each lot of seed may be re-sampled and retested in accordance with latest rules and regulations under the Federal Seed Act at the discretion of the owner or owner's representative. If these tests reveal the seed to be below the specified pure live seed content, the contractor shall be required to plant additional seed to compensate for the deficiency at no cost to the owner.

C. The owner or owner's representative reserves the right to take or request samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request. Rejected materials shall be immediately removed from the site at contractor's expense. Cost of replacement of materials not meeting specifications shall be paid by the contractor.

1.3 INSPECTIONS

A. Make written request for inspection after seeding operation have been completed. Such inspection is for the purpose of establishing maintenance period.

B. Submit written requests for inspection to the landscape architect, owner or owner's representative at least 7 days prior to anticipate inspection date.

1.4 SUBMITTAL

A. Furnish required copies of manufacturers' literature, certifications, or laboratory analytical data for the following items:

1. Seed source (certification).
2. Fiber mulch (laboratory analytical data)
3. Tank mix fertilizer (certification or laboratory analytical data)
4. Topdress fertilizer (certification)

PART 2 PRODUCTS

2.1 SEED

A. All seed used shall be labeled in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of Invitation for Bids. All seed shall be furnished in sealed standard containers, unless exception is granted in writing by the owner representative. Seed which has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable.

B. The minimum percentage by weight of pure live seed in each lot of seed shall be as follows and seed shall be planted at the rate per acre indicated under pure live seed required per acre

Kind of Seed	Minimum % Pure Live Seed Required	Pounds Pure Live Seed Required Per Acre
Summer Mix		
Common Bermuda Grass (Hulled)	85	65
Apply between September-November and/or March-May		
Winter Mix		
Common Bermuda Grass (Un-Hulled)	85	65
Winter Rye	90	200

Apply between October-December only.

Note: % Pure Live Seed = % Purity X % Germination = 100

2.2 Weed seed shall not exceed ten percent (10%) by weight of the total of pure live seed and other material in the mixture. Johnson grass, nut grass, or other noxious weak seed will not be allowed.

2.3 Fertilizer for Tank Mix

A. The additives shall be delivered to the site in bags or other convenient containers, each fully labeled, conforming to the applicable state fertilizer laws, and bearing the name or trademark and warranty of the producer. Fertilizer to conform to following for 1,000 sf

20 lbs. (3-13-13) NPK for Turf

2.4 WOOD CELLULOSE FIBER MULCH

A. Wood cellulose fiber mulch, for use with the hydraulic application of grass seed and fertilizer, shall consist of specially prepared wood cellulose fiber. It shall be processed in such a manner that it will not contain germination or growth-inhibiting factors. It shall be dyed an appropriate color to allow visual metering of its application. The wood cellulose fibers shall have the property of becoming evenly dispersed and suspended when agitated in water. When sprayed uniformly on the surface of the soil, the fibers shall form a blotter-like groundcover which readily absorbs water and allows infiltration to the underlying soil. Weight specifications from suppliers for all applications shall refer only to air dry weight of the fiber, a standard equivalent to 18% moisture. The mulch material shall be supplied in packages having a gross weight not in excess of 100 lbs. and be marked by the manufacturer to show the dry weight content. Suppliers shall be prepared to certify that laboratory and field testing of their product has been accomplished and that it meets all of the foregoing requirements.

2.5 WATER

A. Shall be free from oil, acid, alkali, salt, and other substances harmful to growth of grass. The water source shall be subject to approval prior to use.

2.6 Slurry Mix Components Per Acre

Wood Cellulose Fiber Mulch 2,000
Pounds of Grass Seed . . . . . .(as specified)
Fertilizer (13-13-13). . . . . 800 pound

2.7 Top Dress and Lawn Fertilizer for Existing Lawn (Delayed Application)

Complete fertilizer, fifty percent (50%) of the nitrogen to be derived from natural organic sources or urea-form. Available phosphoric acid shall be from superphosphate, bone, or tankage. Potash shall be derived from muriatic of potash containing sixty percent (60%) potash with elemental 20% iron sulfate equivalent to 400 lbs/acre:

16% Nitrogen
6% Phosphoric Acid
8% Potash

PART 3 EXECUTION

3.1 Hydromulch Seeding On Prepared Finished Grade

A. Prior to spreading topsoil for fine grading, contractor is required to remove any weeds that may had grown during the construction period by applying herbicide such as "Round Up" or approved equal.

1. Till all areas to receive seeds prior to spraying herbicide. After applying the first round of herbicide, wait two weeks and reapply second round. Wait another weeks then bring top soil for fine grading.

B. Bed Preparation: Spread topsoil to a 2"-3" minimum depth required and feather smoothly into finished grade at edge so as to blend with adjacent ground shapes. Immediately after finished grade has been approved, begin hydroseeding operation to reduce excessive weed growth.

C. The contractor shall apply seed, fertilizer and mulch by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified above.

D. Spraying Equipment: The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

1. The spraying unit shall also be equipped with a pressure pump capable of delivering 100 gallons per minute at a pressure of 100 pounds per square inch. The pump shall be mounted in a line which will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipelines shall be capable of providing clearance for 5/8 inch solids. The power unit for the pump and agitator shall have controls mounted so as to be

accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

E. Homogeneously mix slurry containing up to forty (40) pounds of fiber plus a combined total of seventy (70) pounds of fertilizer solids for each one hundred (100) gallons of water.

1. The slurry distribution lines shall be large enough to prevent stoppage. The discharge line shall be equipped with a set of hydraulic spray nozzles which provide even distribution of the slurry on the slopes to be seeded. Nozzles or spray shall never be directed toward the ground in such a manner as might produce erosion or runoff. The slurry tank shall have a minimum capacity of eight hundred (800) gallons and shall self-propelled or drawn with a separate unit which will place the slurry tank and spray nozzles within sufficient proximity to the areas to be seeded so as to provide uniform distribution without waste. The landscape architect may authorize equipment with smaller tank capacity provided that the equipment has the necessary agitation system and sufficient pump capacity to spray the slurry in a uniform coat.

F. Particular care shall be exercised to insure that the application is made uniformly and at the prescribed rate and to guard against miss and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area. Check on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets or paper or pans over the area at intervals and observing the quantity of material deposited thereon.

G. Operators of hydromulching equipment shall be thoroughly experienced in this type of application. Apply specified slurry mix in a motion to form a uniform mat at specified rate.

H. Keep hydromulch within areas designated and keep from contact with other plant material.

I. Slurry mixture which has not been applied within four (4) hours of mixing shall not be used and shall be removed from the site.

J. After application, the Contractor shall not operate any equipment over the covered area.

K. Immediately after application, thoroughly wash off any plant material, planting areas, or paved areas not intended to receive slurry mix. Keep all paved and planting areas clean during maintenance operations.

L. The contractor shall guarantee a good healthy stand of grass. Areas that fail to germinate within a reasonable period of time (3 to 4 weeks) shall be reseeded until healthy stands of grass are attained.

3.2 TOP DRESS FERTILIZER

A. Apply top dress fertilizer at the rate of six (6) pounds per 1,000 square feet at 21 days after seeding.

3.3 REPAIR OF EXISTING TURF

A. All areas within this contract not disturbed by construction or where repair of grade is not required shall be overseeded with a cyclone or equivalent type machine at one half the rate of the specified hydroseed mix.

B. Apply full rate of post seeding fertilizer as specified above.

3.4 MAINTENANCE BY THE CONTRACTOR

A. Maintenance under this contract shall commence immediately and include the care and periodical mowing as required to keep the site clean and presentable.

B. The contractor's maintenance period shall begin upon issuance of the Notice to Proceed and shall not be complete until final acceptance by the landscape architect, owner or owner’s representative.

C. The contractor's maintenance of new turf planting shall consist of watering, weeding, repair of all erosion and reseeding as necessary to establish a uniform stand of specified grasses. Contractor shall guarantee growth and coverage of planting under this contract to the effect that all turf areas will be covered with specified planting after sixty (60) days with no bare spots greater than four (4) square feet. Any area with dead or dying turf grass shall be reseeded.

D. Mowing shall be performed by the contractor during construction and per the agreed maintenance period after substantial completion. It shall be the owner’s responsibility after the agreed maintenance period.

E. The contractor shall not be held responsible for failures due to neglect by the owner, vandalism, or the act of god, during the guarantee period. Report such conditions to the landscape architect, owner or owner’s representative in writing.

3.5 FINAL ACCEPTANCE (END OF MAINTENANCE PERIOD)

A. Work under this section will be accepted by landscape architect upon satisfactory completion of all work, but exclusive of re-application under the guarantee period. Final Acceptance of lawn establishment shall be as follows:

B. Full coverage of all areas hydroseeded with full even coat of hydroseed mulch. Thin areas shall be reapplied.

C. Schedule overseeding operations with landscape architect, owner or owner's representative for observation of method and confirmation of application and conformity to rates specified.

3.6 CLEAN UP

Keep all areas of work clean, neat, and orderly at all times. Keep all paved areas clean during lawn installation operations. Clean up and remove all deleterious materials and debris from the entire work area prior to final acceptance to the satisfaction of landscape architect, owner or owner's representative

END OF SECTION

SECTION 32 93 00

PLANTS

Planting and Establishment

The Contractor shall make an examination of the project site and completely familiarize himself with the nature and extent of the work to be accomplished. No extra compensation will be allowed for any work made necessary by unusual conditions or obstacles encountered during the progress of the work which are readily apparent upon a visit to the site. If there are any questions in this regard, or discrepancies between the plans and actual site conditions, the Contractor shall notify the Engineer prior to the submission of bids.

All material and work required for repair and replacement shall meet with the approval of the Engineer, and will not be paid for directly, but will be subsidiary to the various bid Items.

The Contractor shall be responsible for contacting, locating, and protecting all underground utilities and structures. The Engineer may assist the Contractor in locating underground utilities and structures. However, any damage to existing utilities or structures shall be repaired at the Contractor's expense. If in the course of the work, underground utilities or structures are encountered and are in conflict with the work, the Contractor shall contact the Engineer who will recommend necessary adjustments. Changes of this nature are considered incidental to the work and shall not entitle the Contractor to additional compensation.

If the Contractor needs additional area for employee parking, servicing, storage, and securing of equipment and materials used in the performance of the specified work, the Engineer will, upon request from the Contractor, designate an area for this purpose. Upon completion of the work, the Contractor shall promptly remove all equipment, structures, and excess materials from the site and restore the area to its original condition, including the reestablishment of surface vegetation. This work shall be accomplished to the satisfaction of the Engineer and shall be
Subsidiary to the various bid Items.

The Contractor shall be responsible for protection of his materials and equipment from theft, vandalism, animals, fire, etc., While said materials and equipment are on the project site, whether stored or installed in place, until the project has been accepted by the Engineer. In like manner, the Contractor shall protect all earthwork.

Upon completion of the project, the site(s) as defined herein, shall be cleaned of all debris and left in a neat and presentable condition. This shall include but not be limited to, the removal of all noxious weeds and debris from planted areas and the proper mowing of the site limits as specified herein or as specified by the Engineer. This work shall not be paid for directly, but shall be subsidiary to the various bid Items.

The Contractor shall be responsible for providing material samples as well as any manufacturer's literature of materials used on this project as required by the Engineer. Any costs associated with any sampling and testing shall be the responsibility of the Contractor. These costs shall be considered as incidental and the Contractor will not be entitled to any additional compensation.

Any water hauled to the site during the plant installation period, the ninety (90)-day maintenance period, and the twenty-four (24) month establishment period, shall be paid for by the Contractor.

The Contractor shall be required to verify and adhere to the requirements and codes of the controlling utility authorities in the event any materials or installation of any utilities shown on the plans are not adequate to meet the requirements or codes of the controlling utility authorities. Any changes that may be necessary shall be considered incidental and the Contractor shall not be entitled to any additional compensation.

Pre-construction conference

Prior to beginning work on the project and soon after the award of the contract, a conference will be held between the representatives of the Engineer, the Contractor, and any sub-Contractors that will be involved in the work. At this time the Contractor shall submit charts or briefs, outlining the manner of execution of the work that is intended in order to complete the specified work within the allotted time. This conference will more completely establish the sequence of work to be followed and establish the estimated progress schedule for completion of the various tasks.

In addition, at this conference, the Contractor shall be responsible for furnishing the Engineer with all of the following, as specified herein or as directed by the Engineer:

1. Samples of all materials, except plants, to be used on the project with identification as to product name, name, location, phone number (including area code), and mailing address of product source and manufacturer, if different from source, content of product, amount of each ingredient in the product, and manufacturer's directions as to use and application of the product, if applicable.

2. Manufacturer's literature of all materials and equipment installed on the project.

3. Any and all State and Federal certifications stating that the plant materials are free from disease and insect infestation.

4. All nursery locations, names, phone numbers (including area codes), and mailing addresses where the Contractor intends to procure plant material for the project so that critical plants may be inspected at the source, if necessary. Also, indicate which materials shall be used from each nursery.

5. A plan for transporting plant materials as specified under Item 192 of these general notes.

6. The source of water and the means of distribution on the project (this may be irrigation system or by other means as required by the project).

All of the requirements listed under the "pre-construction conference" will be subject to review, testing, and approval by the Engineer. If Items fail to meet approval, the Contractor shall correct the deficiencies and resubmit for approval as directed by the Engineer prior to beginning work on the project. If these Items fail a second approval, the Engineer will determine the course of action for the Contractor to follow. Any approval given, as Stated above, shall not relieve the Contractor from providing quality materials, products, and equipment during construction. The Engineer has the option to review, test, approve, or disapprove any phase of the construction or maintenance as the work progresses. It is understood that some materials for the project will require mixing. Therefore, these materials after mixing may be reviewed, tested, and approved as Stated within these general notes.

Mulch materials

1. Mulch material for soil amendment required in the backfill mix shall be 100% organic composted material, factory blended to contain non-defoliated (arsenic acid free) weed free, and containing an approximate non-leachable N-P-K analysis of 2.0-2.0-2.0 with trace elements.

   Example: sweet soil , soil amendment
   Manufactured by:

   Organic Compost Inc.
   Box 1637
   Edinburg, Texas 78504
   (956) 383-1121
   (or approved equal)

2. All mulch for surface application shall be shredded pine bark. The texture shall correspond to the Type I, Class B classification of the Federal Specification Q-P-166E, with particles ranging between the size from 3/8 inch to about 1 inch, with a minimum (not over 25% by volume) of finer particles and dust. Mulch of this type and class shall be free of sticks, stones, clay, or other foreign matter.

3. One cubic foot (1 CF) samples of each type of ingredient along with a label from the manufacturer's packages shall be submitted to the Engineer for approval. If bulk materials are used, typical samples of each type of material shall be provided to the Engineer for approval prior to the preparation of the planting mix. These samples, if approved by the Engineer, shall be used as the standard by which other materials shall be judged.

Any material that, in the judgment of the Engineer, is below the quality of these samples may be tested in accordance with the specifications set forth herein. Any rejected material shall be immediately removed from the site at the Contractors expense. Payment for any testing required under this section shall be the responsibility of the Contractor.

Planting soil mix

Backfilling of all plant pits shall be done with a planting soil mix as specified herein. Native soil removed from the planting pits and beds shall be used to form the watering basins. Excess soil shall be removed from the site or distributed and leveled on the site by the Contractor as directed by the Engineer. Watering basin shall be formed using the soil mix and raked smooth.

Planting soil mix used for backfilling planting pits shall be prepared in the following proportions by volume:

60% sandy loam topsoil (pH 7.0-7.8). Soil shall be typical of the area with no noxious weeds, grasses, sticks, roots, or stones present and shall be consistent in texture. (maximum lump size is 1").
40% mulch as listed above.

The Engineer may require the Contractor to mix all ingredients of the planting soil mix in the presence of the Engineer.

All ingredients shall be thoroughly blended to provide a homogeneous mixture. Mixing shall be in one cubic yard or greater batches using mechanical mixing one in a designated on-site area or it may be accomplished off-site if approved by the Engineer and the finished material transported to the site.

Samples of at least one cubic foot (1 CF) for each ten cubic yards (10 CY) of planting soil mix used on the site shall be submitted to the Engineer for approval. In the event deficiencies are found in the planting mix they shall be corrected immediately. If the material is rejected on the project site by the Engineer for any reason, all of the rejected material shall be immediately removed from the site and disposed of by the Contractor at his expense. If any of the rejected material has been used in the planting operations, the Engineer, at his discretion, may require the Contractor to remove and replace the soil mix with an approved mixture. Any testing required by the Engineer shall be the responsibility of the Contractor and shall be considered subsidiary to the work and no additional compensation shall be awarded.

Fertilizer application at planting

All plants shall be fertilized with an approved slow release tablet applied at the rate shown on the plans, or at a comparable rate for an approved substitute. The Contractor shall submit complete Manufacturer's literature and analysis data for approval of the Engineer prior to beginning work on the project.

Application shall be as follows:

(1) gallon material - one (1) tablets
(5) gallon material - two (2) tablets
(10) gallon material - two (2) tablets
(15) gallon material - three (3) tablets
Palms - eight (8) tablets each
Trees - one (1) tablet per ½ inch caliper

Placement of tablets are as designated on the plans.

Placement of tablets are as designated on the plans. See planting details.

Staking and guying shall be considered subsidiary to Item 192. And the Contractor shall not be entitled any additional compensation.

Staking of plant material locations

All trees and palms shall be staked in the field by the Contractor and approved by the Engineer prior to any excavation of plant pits. Stakes shall be color coded to denote tree locations at the time when tree locations have been staked, the Engineer shall have the right to make adjustments to the plant locations to meet field conditions. These changes shall be considered incidental and the Contractor shall not be entitled to any additional compensation.

Signage staking

The Contractor shall also locate and stake all signage locations on the project at the time of plant staking, signage staking shall be considered incidental and the Contractor shall not be entitled to any additional compensation.

Staking and guying

The Contractor shall install and maintain the guying material as detailed on the plans or as directed by the Engineer.

Water and watering

Water for all planting and 90 day maintenance operations shall be the responsibility of the Contractor. Water shall be clean, clear, and free of industrial wastes or other substances harmful to plants. The Contractor shall provide all required facilities, to make connections and convey the water to the places where it will be used and to increase the water pressure if required. At the Pre-construction Conference, the Contractor should be prepared to identify the source of water and the means for delivery and distribution of water on the site.

During the planting operations, the Contractor shall provide a quantity and frequency of water application to keep the ground and backfill material moist to a depth of at least twelve inches (12") below the root ball and for the duration of the 90-day maintenance period as a part of this contract. The Contractor shall be required to meet the minimum watering requirement Stated above by a method approved by the Engineer or, if applicable, in the event the irrigation system fails.

Pruning

Any necessary pruning shall be done at the time of planting as directed by the Engineer and in accordance with approved horticultural methods. All pruning shall be accomplished with clean sharp tools specifically designed for these purposes. Pruning and selective thinning equal to Class I, "Fine Pruning" shall be accomplished as needed during the contract period. The removal of sucker growth shall be required to keep the plant material free of sucker growth.

Plant basin maintenance

During the installation and ninety (90) day maintenance period all plant basins and planting beds shall be maintained weed free. Nylon string trimmers shall not be used within the plant basins or planting beds. A two inch (2") layer of pine bark mulch or shredded cypress mulch, fine grade and free of debris, shall be established and maintained at all times within the basins and beds. Existing mulch shall be worked as to eliminate mulch compaction.

Watering basins shall be maintained as per details. Back fill material listed above, free of weed seed or other undesirable debris, shall be used to build basins and shall be compacted to adequately reduce erosion during watering or excessive rainfall.

Plant material

As directed by the Engineer, the Contractor shall be required to furnish and install the following plants within the project limits as needed. The quantity of each plant type listed within the estimate summary sheet and within the project proposal may be increased or decreased as necessary. The Contractor shall be paid for the actual number of plants installed based on the unit price bid for each type. Replacement plant material shall meet or exceed the following specifications:

Plant installation shall include all back fill, mulch, fertilizer, staking and guying, water, labor etc. to install and establish plant material, complete and in place.

Contractor shall be responsible for keeping plants segregated as to color at planting locations during and after planting.

All plants shall be true to species and variety and shall conform to measurements and conditions as specified, unless otherwise agreed upon by the Engineer.

Plants shall be subject to inspection and approval by the Engineer at the place of growth and upon delivery to the project site for conformity to the specifications. Such approval shall not impair the right of inspection and rejection during progress of the work. The Engineer reserves the right to refuse inspection at any time if in his judgment a sufficient quantity of plants is not available for inspection.

All plants inspected at the place of growth by the Engineer shall be tagged with serialized self-locking tags. Plants delivered to the site without these tags or with broken tags may be sufficient reason for rejection. Tags shall be furnished by the Contractor and approved by the Engineer.

The Contractor shall submit for approval a plan to the Engineer for transplanting plant material from the place of growth to the site. Such a plan shall include: date of pick-up, place of growth, nursery or place of storage, type of vehicle used for shipping, method of protecting plants during transit, date of delivery to site, projected date of installation, a means of storage and care. Watering and shading used between delivery and planting which shall be subject to review by the Engineer. Do not store plant materials on hard surfaces and immediately untie material upon delivery.

The following considerations for product handling by the Contractor shall be evaluated during hot weather and when practical:

1) The Contractor may be required to transport plant materials between sunset and sunrise if transported in an open trailer or unrefrigerated van.

2) Dug material shall be maintained and watered as required at the nursery to guarantee their vitality and health until installation.

3) Protect trunks, stems, branches, and root balls from all damage during digging, handling, typing, wrapping, loading, unloading, and untying operations.

4) Load containers onto transport vehicle and secure in a manner that protects the structural integrity of the root balls and branches.

5) The Contractor shall be solely responsible for the safe transportation of plants to the site and their condition upon arrival.

6) Plants damaged, dehydrated or abused during transit and storage will be rejected.

7) Plant materials shall not be stored on concrete or left exposed to the sun.

8) Protect the root balls and water regularly until planting.

9) If plants are left in storage over the weekend or holiday a means of periodically watering and inspecting root ball moisture shall be provided.

The Engineer may inspect any phase of product handling and may reject any plant material improperly handled during any point of this operation.

Where specified to be nursery-grown, either in containers or in the field, such plants shall be nursery-grown in accordance with horticultural practices under climatic conditions similar to those of the project for at least twelve (12) months, unless specifically otherwise authorized by the Engineer in writing. Unless specifically noted otherwise, all plants shall be heavy, symmetrical, tightly knit, so trained or favored in development and appearance as to be superior in form, number of branches, compactness and symmetry.

Plants shall be sound, healthy and vigorous, well branched and densely foliated, when in leaf. They shall be free of disease, insect infestation, eggs, or larvae, and shall have healthy, well-developed root systems. They shall be free from physical damage or adverse conditions that would prevent thriving growth.

Plants that meet the measurements specified, but do not possess a normal balance between height and spread shall be rejected.

All plants specified in containers shall be provided in structurally sound, nursery plant containers with the minimum size as specified. Container dimensions shall be as recommended by the "American Standard for Nursery Stock", (current edition). If a container is not listed in the "American Standard for Nursery Stock", then the Engineer will have final approval of container dimensions.

Samples must prove no root bound conditions exist. No container plants that have cracked or broken balls of earth when taken from container shall be planted. Container stock shall not be pruned before delivery. Field grown plants recently transplanted into containers will not be accepted.

The Contractor shall neither work subsoil for planting operations when moisture content is so great that excessive compaction will occur nor when it is so dry that the clods will not break readily. Water shall be applied, if necessary.

Canned stock shall be removed carefully after cans have been cut on two or three sides with an approved tool. Do not use spade to cut cans. Do not lift or handle container plant by tops, stems, or trunks at any time.

Do not bind or handle any plant with wire or rope at any time so as to damage bark or break branches. Lift and handle plants only form bottom of ball.

The Contractor shall follow these steps for the installation of pit planted materials:

1) Scarify the walls and bottom of all plant pits immediately prior to the placement of plant and backfill mix to insure the removal of all glazing caused by an auger or mechanical hole digger.

2) Fill plant pits with backfill mix to compact depth to receive root ball, so that the top of the root ball is two inches (2") above finished grade.

3) For boxed material, break vertical bands and remove top and bottom of container. Carefully lower plant into pit with backhoe or approved method and adjust elevation, cut horizontal bands and remove sides.

4) Prune away girdled roots and tease root hair masses. Carefully fill pit with backfill mix and compact by watering in to support root ball.

5) Smooth planted areas to conform to specified grades after full settlement has occurred. Create watering basins as shown on the plans. Water all plants immediately after planting.

6) Spread mulch in required areas to the compacted depth of three inches (3") or as specified in the details or by the Engineer.

7) Trees should be staked for support during the same day as planting. Plants shall stand plumb after staking. The Contractor shall be responsible for material remaining plumb and straight for all given conditions throughout the contract period. Free support shall be done as outlined in the details.

Replacement of Material

If at any time during the contract period, a plant is found to be dead, it shall be replaced to the satisfaction of the Engineer, and within the period specified in the formal written notification from the Engineer. Failure to accomplish replacement of plant materials during the specified time period will be considered non-performance of the guarantee and maintenance requirements included in this contract and the Engineer may withhold payment until the required replacement has been accomplished.

Planting Requirement for Plant Replacement

The Contractor shall utilize the same process for replacement of planting or materials as used in the original installation process.

END OF SECTION