

**SECTION 02920
TREE PLANTING**

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. Tree planting and maintenance.

1.2 MEASUREMENT AND PAYMENT

A. Unit Prices:

- 1. Payment for tree planting is on unit price basis for each tree planted.
- 2. When shown on the Drawings or directed by the Project Manager to remove and relocate tree affected by trench zone, work shall be paid for under one (1) of the following bid items:
 - a. Bid item "Remove and Relocate Tree" includes moving tree with truck mounted tree spade and replanting same tree in new location. Payment is for each tree removed and relocated.
 - b. Bid item "Remove, Temporary Store and Replant Tree" includes moving tree with truck mounted tree spade and replanting tree at temporary location, (determined by the Contractor) maintaining tree until construction is complete and replanting same tree back to its original location. Payment is for each tree removed, stored and replanted.
- 3. Refer to Section 01270 – Measurement and Payment for unit price procedures.

B. Stipulated Price (Lump Sum):

- 1. If Contract is Stipulated Price Contract, payment for work in this Section is included in Total Stipulated Price.

1.3 REFERENCES

- A. ANSI – American National Standards Institute.
 - 1. ANSI Z 60.1 – Nursery Stock.
- B. AOAC - Association of Official Agriculture Chemists.
- C. CFDCM – City of Friendswood Design Criteria Manual.
 - 1. Appendix D – Qualified Tree List.
- D. CFO – City of Friendswood Ordinance.
 - 1. Appendix C – Zoning.
- E. CFTS – City of Friendswood Technical Specifications.

1.4 SUBMITTALS

- A. Conform to requirements of Section 01330 – Submittal Procedures.
- B. Submit certification from supplier that each type of tree conforms to

these specification requirements.

- C. For unpackaged materials, submit analysis by recognized laboratory made in accordance with methods established by Association of Official Agriculture Chemists, when applicable.
- D. Submit name and experience of qualified Arborist to the Project Manager.
- E. Submit temporary tree storage location. Location must be outside public right-of-way and within five miles (5 Mi) of project site, unless otherwise approved by the Project Manager.

1.5 QUALITY ASSURANCE

- A. Landscaper shall be a firm specializing in landscape and planting the Work.
- B. Do not make substitutions of approved trees unless approved in writing by the Project Manager. When specified planting material is not obtainable, submit proof of non-availability together with proposal for use of equivalent material. Substitutions of larger size or better grade than specified shall be allowed, but with no increase in unit price.

1.6 DELIVERY, STORAGE and HANDLING

- A. Ship trees with Certificates of Inspection as required by governing authorities. Label each tree and shrub with securely attached waterproof tag bearing legible designation of botanical and common name. Do not remove container grown stock from containers before time of planting.
- B. Deliver packaged materials in fully labeled original containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at Site.
- C. Materials shall not be pruned prior to installation unless approved by the Project Manager in writing. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape. Use protective covering during delivery.

1.7 WARRANTY

- A. Warrant trees against defects including death, unsatisfactory growth or loss of shape due to improper pruning, maintenance or weather conditions, for one year (1 Yr) after completion of planting. Plumb leaning trees during warranty period.
- B. Remove and replace trees found to be dead during warranty period. Remove and replace trees which are in doubtful condition at end of warranty period or when approved by the Project Manager, extend warranty period for trees for full growing season.

PART II: PRODUCTS

2.1 TREES

- A. Provide container grown trees which are straight and symmetrical and have persistently preferred main leader. Crown shall be in good overall proportion to entire height of tree with branching configuration as recommended by ANSI Z60.1 for type and species specified. Where clump is specified, furnish plant having a minimum of three (3) stems originating from common base at ground line. Measure trees by average caliper of trunk as follows:
 - 1. For trunks up to four inches (4 In) or less in diameter, measure caliper six inches (6 In) above top of root ball.
 - 2. For trunks more than four inches (4 In), measure caliper twelve inches (12 In) above top of root ball.
 - 3. Caliper measurements shall be by diameter tape measure. Indicated calipers on the Drawings are minimum. Averaging of plant calibers shall not be allowed.
- B. Trees shall conform to following requirements:
 - 1. Healthy, vigorous stock, grown in recognized nursery.
 - 2. Free of disease, insects, eggs, larvae; and free of defects such as knots, sun-scald, injuries, abrasions, disfigurement or borers and infestations.

2.2 SOIL PRODUCTS

- A. Topsoil: Conform to requirements of Section 02905 – Topsoil.
- B. Peat moss, bark and fertilizer: Use material recommended by nursery for establishment of healthy stock after replanting.

2.3 STAKES AND GUYS

- A. Provide a minimum eight foot (8 Ft) long steel T-stakes and one inch (1 In) wide plastic tree chains.
- B. Where applicable for anchoring trees, use wood deadmen of at least two inch by four inch (2 In x 4 In) stock, thirty-six inches (36 In) long and buried three feet (3 Ft). Provide white surveyor's plastic tape for flagging tree guys.

2.4 TREE WRAP, TWINE and SEAL

- A. Wrap: First (1st) quality, bituminous impregnated tape, corrugated or crepe paper, specifically manufactured for tree wrapping and having qualities to resist insect infestation.
- B. Twine: Lightly tarred, medium-coarse sisal (lath) yarn. Do not use nails or staples to fasten wrapping.
- C. Seal: Commercially available asphaltic-base black emulsion specifically produced for use in sealing tree cuts and wounds.

2.5 WATER

- A. Water shall be potable from municipal water supplies.

2.6 SOURCE QUALITY CONTROL

- A. Notify the Project Manager, prior to installation, of location where trees that have been selected for planting may be inspected. Plant material shall be inspected for compliance with following requirements.
 - 1. Genus, species, variety, size and quality.
 - 2. Size and condition of balls and root systems, insects, injuries and latent defects.

PART III: EXECUTION

3.1 PREPARATION

- A. Schedule the Work so that planting can proceed rapidly as portions of site become available. Plant trees after final grades are established and prior to planting of lawns, unless otherwise approved by the Project Manager in writing. When planting of trees occurs after seeding the Work, protect lawn areas and promptly repair damage to lawns resulting from tree planting operations.
- B. Layout individual trees at locations shown on the Drawings. In case of conflicts, notify the Project Manager before proceeding with the Work. Trees shall be staked and approved by the Project Manager prior to planting.
- C. Trees shall not be planted in the City Rights-of-Way.

3.2 PREPARATION OF PLANTING SOIL

- A. Before mixing, clean topsoil of roots, plants, sod, stones, clay lumps and other extraneous materials harmful or toxic to plant growth.
- B. Strip and utilize four inch (4 In) layer of top soil, placed on esplanades under Section 02910 – Hydromulch Seeding, for planting soil mixture.
- C. Mix recommended soil amendments with topsoil at following rates:
 - 1. Top soil: Fifty percent (50%).
 - 2. Peat moss: Twenty-five percent (25%).
 - 3. Well rotted Bark: Twenty-five percent (25%).
 - 4. Fertilizer: Rate recommended by nursery.
- D. Delay mixing of fertilizer when planting shall not follow placing of planting soil within forty-eight hours (48 Hr), unless otherwise directed.
- E. Incorporate amendments into soil as part of soil preparation process prior to fine grading, fertilizing and planting. Broadcast or spread amendments evenly at specified rate over planting area. Thoroughly incorporate amendments into top two inches (2 In) or three inches (3 In) of soil until amendments are pulverized and have become homogeneous layer of topsoil ready for planting.

3.3 PLANTING

- A. Excavate pits, beds or trenches with vertical sides and with bottom of excavation raised a minimum of six inches (6 In) at center for proper drainage. Provide following minimum widths:
 - 1. Fifteen gallon (15 Gal) containers or larger, two feet (2 Ft) wider than diameter of root ball.
 - 2. One gallon (1 Gal) and five gallon (5 Gal) containers, six inches (6 In) wider than diameter of root ball.
- B. When conditions detrimental to plant growth are encountered, such as unsatisfactory soil, obstructions or adverse drainage conditions, notify the Project Manager before planting.
- C. Deliver trees after preparations for planting have been completed and plant immediately. When planting is delayed more than six hours (6 Hr) after delivery, set trees and shrubs in shade, protect from weather and mechanical damage and keep roots moist by covering with mulch, burlap or other acceptable means of retaining moisture and water as needed.
- D. Set root ball on undisturbed soil in center of pit or trench and plumb plant. Place plants at level that, after settlement, natural relationship of plant crown with ground surface shall be established.
- E. When set, place additional backfill around base and sides of ball and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately two-thirds (2/3) full, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
- F. Dish top of backfill to allow for mulching. Mulch pits, trenches and planted areas. Provide not less than four inch (4 In) thickness of mulch, work into top of backfill and finish level with adjacent finish grades. Cover entire root ball.
- G. Prune, thin out and shape trees in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed in writing, do not cut tree leaders and remove only injured and dead branches from flowering trees. Remove and replace excessively pruned or misformed stock resulting from improper pruning.
- H. Inspect tree trunks for injury, improper pruning and insect infestation and take corrective measures.
- I. Guy and stake trees immediately after planting.
- J. Control dust caused by planting operations. Dampen surfaces as required. Comply with pollution control regulations of governing authorities.

3.4 FIELD QUALITY CONTROL

- A. The Project Manager may reject unsatisfactory or defective material at anytime during progress of the Work. Remove rejected trees immediately from site and replace with specified materials. Plant

material not installed in accordance with these Technical Specifications shall be rejected.

- B. An inspection to determine final acceptance shall be conducted by the Project Manager at end of twelve month (12 Mo) maintenance period. Additional inspections shall be conducted for extended warranty periods provided for in paragraph 1.7.B.

3.5 MOVING EXISTING TREES

- A. Perform tree moving and replanting by a professional Arborist during dormant growth season.
- B. Provide tree spade of adequate size as directed by professional Arborist.

3.6 MAINTENANCE

- A. Maintain trees during planting operations and for period of twelve months (12 Mos) after completion of planting.
- B. Water trees to full depth a minimum of once each week or as required to maintain healthy vigorous growth.
- C. Prune, cultivate and weed as required for healthy growth. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Restore or replace damaged wrappings. Spray as required to keep trees and shrubs free of insects and disease.

3.7 CLEANUP AND PROTECTION

- A. During planting work, keep pavements clean and work area in orderly condition.
- B. Protect planting work and materials from damage due to planting operations. Maintain protection during installation and maintenance period. Treat, repair or replace damaged planting work as directed by the Project Manager.
- C. Dispose of excess soil and waste in accordance with requirements of Section Waste 01580 – Waste Material Disposal. On-site burning of combustible cleared materials shall not be permitted.

END OF SECTION