

STANDARD SPECIFICATIONS
SECTION 02930
EXTERIOR PLANTS

PART 1 GENERAL

1.1 DESCRIPTION

- A. Section includes requirements for tree, shrub, and ground cover planting at locations indicated and approved by Engineer.

1.2 SUBMITTALS

- A. Submit following Section 01330.
 - 1. Itemized list with sources of plant items.
 - 2. Samples of materials, except plants specified under this Section.
 - 3. Invoice or stock order with each shipment giving name of plants, date plants were dug for shipment, and certification that plants are free from disease.

1.3 REFERENCE DOCUMENTS

- A. Size and grade plants following current edition of American Standard for Nursery Stock approved by American Nursery & Landscape Association (ANLA).
- B. Use current edition of Standardized Plant Names adopted by American Joint Committee on Horticulture Nomenclature as authority for plant names.

1.4 INSPECTION AND ACCEPTANCE OF PLANT MATERIALS

- A. Plants will be subject to inspection and approval at place of growth or upon delivery for conformity to specification requirements for quality, size, and variety.
- B. Approval shall not impair right of inspection during progress of work or right of rejection due to damage suffered in handling, transportation, or planting process.
- C. Immediately remove rejected plants from site.
- D. Label plants as to genus, species, and size and bearing inspection certificate from Board or Department of Agriculture, or other State agency of the State where plants were grown.

1.5 GUARANTEE

- A. Guarantee trees, plants, and ground cover for 1 year from Final Completion.
 - 1. Care and maintenance of plants:

- a. Immediately after planting begin watering and provide whatever watering is necessary to keep plants live and healthy.

1.6 PLANT REPLACEMENTS

- A. When determined by Engineer, replace dead, weak, diseased, improperly sized, not true to specie, or in an unrecoverable condition:
 1. Replacement: Plants of same genus, species, and size as specified in Bid Schedule or following Drawings.
- B. Plants rejected during warranty period:
 1. Replace promptly and guarantee for 1 year from date of replacement.
 2. If replacement planting cannot be performed promptly, Engineer may require removal of rejected plant and backfilling to grade of planting pit until next planting season.
 3. When making plant replacements follow procedures in Planting Procedures, PART 3 EXECUTION.
- C. The Commission will pay costs of plant replacement directly attributable to restricted use of water due to the Commission directives.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Topsoil.
 1. Special purpose topsoil: See Section 02920.
 2. Do not deliver topsoil in frozen or muddy condition.
 3. Composted sludge meeting requirements specified in Section 02920 may be used instead of special-purpose topsoil.
- B. Fertilizers and Additives.
 1. Do not fertilize newly planted trees.
 2. Fertilizer for Established Trees and Shrubs: Organic form cottonseed meal or bone meal, or inorganic super phosphate.
 - a. Do not use inorganic nitrite or nitrate fertilizers for starter solution in tree or shrub pits.
 - b. Super phosphate: Composed of finely ground phosphate rock as commonly used for agricultural purposes, containing not less than 18 percent available phosphoric acid, applied at rate of 4 pounds for each inch of diameter at breast height (DBH).
 - c. Bone Meal: Commercial raw bone meal finely ground and having minimum analysis of 1 percent nitrogen and 18 percent phosphoric acid, applied at rate of 2 pounds for each inch of DBH.
 3. Peat Moss: Sphagnum peat moss free from woody substances.
 4. Manure: Dehydrated, well rotted cow manure.

5. Anti-desiccant: "Wilt-pruf" or equal delivered in manufacturers' containers and used following manufacturer's instructions.

C. Soil Mixes.

1. For Plants, Except Ericaceous Plants:
 - a. 200 pounds of manure and 36 cubic feet of peat moss to 12 cubic yards of special-purpose topsoil, or
 - b. When using composted sludge, use composted sludge to peat moss to vermiculite at ratio of 1:1:1.
2. For Ericaceous Plants: 50 cubic feet of peat moss to 12 cubic yards of special-purpose topsoil with no lime added.
3. Thoroughly mix soil mixtures before using.

D. Planting Stakes and Appurtenances.

1. Vertical Stakes: Rough-sawn, straight grain oak, reasonably free from knot holes, bark, wane, warp, and splits.
 - a. Stakes for trees over 10 feet tall: 2 inches by 2 inches by 10 feet.
 - b. Stakes for smaller trees: 2 inches by 2 inches by 8 feet.
 - c. Stake sizes are nominal.
2. Guying Stakes:
 - a. Wood of uniform size, free of knotholes, and 1-3/4 inches by 1-3/4 inches by 30 inches.
 - b. Stake sizes: Nominal.
3. Guying Wire: Pliable number 12 or 14 gauge galvanized.
4. Tree Ties: 5/8 inch or 3/4 inch reinforced corded garden hose.
5. Tree Wrapping: First quality commercial paper tree wrap, in 4 inch to 6 inch strips, or clean new burlap, 7 or 8 ounce weight for each square yard, treated with solution containing bactericide, fungicide, and insecticide.
6. Tree Wound Dressing: "Tree-cote" or equal.

E. Mulch.

1. Free of toxic substances or foreign materials that may harm plant life.
2. Type and Composition for Tree, Shrub Planting, and Mulch Bed Preparation:
 - a. Ground bark:
 - 1) 100 percent true pine bark with organic content of not less than 90 percent, with white wood content not to exceed 8 percent and of good uniform brown color.
 - 2) Size: Not more than 50 percent able to pass through 3/4 inch sieve.
 - b. Shredded bark:
 - 1) 100 percent true pine bark peelings with organic content of not less than 90 percent consisting of fibrous material of good uniform brown color.
 - 2) Size: Not more than 25 percent able to pass through a 3/4 inch sieve.
 - c. Peat moss: Specified herein above.
 - d. Peanut hulls: Unground hulls that have not been subjected to any conditions that would shorten their life or cause them to lose their value as mulch.

- e. Stone chips: Washed gravel of various colors and 3/4 inch size or 3/4 inch marble-stone, quartz.
- F. Water: Obtain water used for planting and maintenance from fresh water sources free from injurious chemicals and other toxic substances harmful to plant life.
- G. Herbicide:
- 1. In mulch beds that will not contain plantings, use chemical to eliminate and prevent regrowth of undesired vegetation with Engineer's approval.
 - 2. Do not use herbicides without Engineer's approval.
- H. Plant Materials:
- 1. Unless otherwise approved, use nursery grown plants that are hardy, and grown under climatic conditions similar to those in locality of project.
 - 2. Use plants typical of their species or variety, having normal habit of growth, and meeting following requirements:
 - a. Sound, healthy, vigorous, well-branched plants densely foliated when in leaf.
 - b. Free of diseases and insect pests, eggs, or larvae with healthy, well developed root systems.
 - c. Plants that are weak or that have been cut back from larger grades to meet specifications will be rejected.
 - 3. Use plants conforming to measurements specified in Bid Schedule or following Drawings with following exceptions.
 - a. Plants larger than specified may be used with Engineer's approval, at no additional cost to the Commission.
 - b. If use of larger plants is approved, increase spread of roots or ball of earth in proportion to size of plant.
 - c. Up to 10 percent of undersize plants in any one variety or grade may be used, provided that there are sufficient plants above size to make average equal to or above specified grade, and provided that undersize plants are larger than average size of next smaller grade.
 - 4. Excavation and Preparation for Shipment.
 - a. Dig bare root shrubs with adequate fibrous roots retained and delivered to site of project before plant material comes into leaf.
 - 1) Pack roots of these plants in moist straw or peat moss immediately after digging.
 - b. Dig balled and burlapped plants with firm natural balls of earth of sufficient diameter and depth to include most of fibrous roots.
 - c. Use container-grown stock grown in container large enough for root system to have developed sufficiently to hold its soil together firmly.
 - d. Do not use plants that are loose in container.
- I. Low Maintenance Ground Cover, Crown Vetch.
- 1. Seed Mix: K-31 Tall Fescue at 40 pounds for each acre and Crown Vetch at 20 pounds for each acre.

- a. Inoculate seed with fresh inoculant as directed on package insuring that crown vetch inoculant contains sticker supplement.
 - b. Maintain temperature of between 50 and 75 degrees F during inoculation.
 - c. When hydroseeding, use 4 times inoculant rate.
2. Lime, Fertilizer, Mulch, and Other Materials: See Section 02920.

PART 3 EXECUTION

3.1 SEASONS FOR PLANTING

- A. Plant trees and shrubs between October 1 and May 15 only, but do not plant during periods of freezing temperatures.
- B. Preparations for planting may begin earlier than specified season, provided locations have been approved by Engineer.
- C. Plant ground covers same as grass seed, unless otherwise designated.

3.2 HANDLING AND PROTECTION OF DELIVERED PLANTS

- A. Protect roots or balls of plants from sun and drying winds or frost.
- B. Set on ground balled and burlapped plants that cannot be planted immediately upon delivery and protect with soil, wet straw, peat moss, or other acceptable material.
- C. Temporarily plant bare roots plant that cannot be planted immediately, or heel in trenches upon delivery.
- D. Open bundles of plants and separate them before roots are covered.
- E. Take care to prevent voids among roots.
- F. During planting operations, cover bare roots with canvas, straw, or other suitable material.
- G. Do not bind plant with wires or ropes at any time so as to damage bark or break branches.

3.3 PLANTING PROCEDURES

- A. Excavation for Planting.
 1. Notify Engineer before beginning operations.
 2. Stake locations for plant excavations: Follow Drawings and with Engineer's approval.
 3. Do not change locations without Engineer's approval.

4. If excavations are made in advance of planting, backfill to grade with specified soil mix, mark locations, and record on Drawings.
5. Trees and shrubs.
 - a. Bare rooted: Pits broad enough to accommodate roots fully extended and only deep enough so that uppermost roots are just below original grade.
 - a. Vertical sides and horizontal bottom or if in heavy soils slope sides outward and scarify.
 - b. Allow tolerance of 1 inch for below dimensions.
 - c. Trees: Two feet greater in diameter than rootball.
 - d. Shrubs: 12 inches greater in diameter than rootball.

B. Planting.

1. Remove seals and tags only after Engineer's inspection and acceptance of plants.
2. Place plants on undisturbed existing soil or well compacted backfill.
3. Set plants plumb and straight in center of excavations with vertical sides and horizontal bottom at depth to allow 1/8 of ball to be above existing grade.
4. After setting balled and burlapped plants, compact soil mix around bases of balls, to fill voids, up to 1/2 depth of balls, tamp, and thoroughly water.
 - a. Loosen burlap around top 1/2 of balls and spread out away from ball.
 - b. If too bulky, cut burlap away and remove.
 - c. Remove balling and tying materials or containers, other than burlap and jute twine, from excavation without damage to soil ball.
 - d. Cover burlap and twine with at least 2 inches of soil mix.
 - e. Fill remainder of excavation with soil mix, tamp, and again water, within same day of planting.
5. When container-grown plants are planted, remove plant from container, so as not to damage root ball, and plant as outlined for balled and burlapped plants.
6. When bare root plants are set, spread roots of plant carefully in their natural positions and work soil mix around roots, thoroughly tamp into place and water, within same day of planting.
7. Water by fully and thoroughly saturating backfill in excavations the day plants are planted. Apply water by container or open end hose under low pressure only.
8. Ensure that planted, watered, and fully settled plants are vertical and backfill is flush with surrounding surface.
9. Form soil shoulder at least 3 inches high around outside of excavation above finished grade, to entrap water.
10. When directed by Engineer wrap trees over 1-1/2-inch caliper with specified wrapping material.
 - a. Smooth bark trees: Wrap during dormant installation and remove when tree leaves out.
 - b. Wrap spirally from ground line up to lowest main branches and overlap approximately 2 inches.
 - c. Secure wrapping material at bottom, middle, and top with ties spaced maximum of 2 feet apart.
11. Mulch completed plantings with specified mulching material.

- a. Spread mulch evenly to minimum thickness of 3 inches over entire area of filled excavation.
 - 1) Shrubs in beds: Spread 2 to 3 inches of mulch evenly over entire area of shrub bed.
- b. Apply mulch within 4 days after planting.
- 12. Prune each tree and shrub following ANLA Standards to preserve natural appearance and character of plant.
 - a. Do not cut leaders of shade trees.
 - b. Remove dead wood, broken or badly bruised branches, or suckers using clean, sharp pruning tools.
 - c. Make cuts back to lateral branch or bud perpendicular above tree collar.
- 13. Stake designated trees within 24 hours of planting trees.
 - a. Use stakes that are neat, secure, and evenly support tree to true vertical line.
 - b. When driving stakes, avoid damage to branches.
 - c. Drive stakes just outside ball or root-spread and into solid earth below excavation bottom.
 - d. Cover guying wires with hose material where wire is in contact with trunk and branches, and wrap 2 full turns around stakes secured in notch so tree is held firm and vertical.

C. Clean up After Planting.

- 1. Perform clean up following Section 01770.
- 2. Remove waste materials continuously and promptly.
- 3. When directed by Engineer, regrade and restore existing turf areas damaged, and seed or sod, at no cost to the Commission.

D. Low Maintenance Ground Cover, Crown Vetch.

- 1. Lime soil to produce pH between 6.5 and 7.0, using ground limestone.
- 2. Fertilize soil with 600 pounds of 20-60-20 and 400 pounds of 38-0-0 ureaform.
- 3. Mulch with straw.
- 4. When hydroseeding, proceed, in following sequence:
 - a. Apply lime and fertilizer.
 - b. Apply seed mixture with inoculant at rate of 20 pounds for each acre on well drained soil.
 - c. Apply straw mulch and anchor.

3.4 TRANSPLANTING EXISTING TREES, PLANTS, AND GROUND COVER

- A. When shown on Drawings or otherwise indicated, relocate and remove plants, existing trees, and ground cover and temporarily transplant and maintain, and then replant at original location.
- B. Plant following requirements herein for new plants.

3.5 MAINTENANCE

- A. Maintain planting material commencing immediately after each plant is planted and continuing until expiration of guarantee period defined herein.
 - 1. During this time, perform work necessary to establish and maintain plants in live, healthy condition, including:
 - a. If less than 1 inch of precipitation is recorded by National Weather Service in Metropolitan Area for end of each 14 day period, water:
 - 1) Each tree at least 5 gallons.
 - 2) Each shrub at least 2 gallons.
 - b. Clearing plant mulched area of weeds and grasses.
 - 1) Remove weeds when they have attained height of 4 inches.
 - 2) Use herbicides to control weeds and grasses only if Maryland Department of Agriculture regulations are followed.
 - c. Pruning of dead material and removal of suckering growth.
 - d. Resetting settled plants to proper grade.
 - e. Reshaping and remulching of washed out planting saucers.
 - f. Tightening and repairing of guying and staking.
 - g. Fertilizing of nutrient-deficient plants.
 - h. Replacing of dead, weak, or diseased plants.

PART 4 MEASUREMENT AND PAYMENT

4.1 TREES AND SHRUBS

- A. Measurement: By each of various types and sizes actually planted with Engineer's acceptance when listed on Bid Schedule.
- B. Payment: At unit prices for each listed in Bid Schedule.
 - 1. Payment includes preparatory and maintenance work and necessary appurtenant materials and equipment.

WSSC