
SECTION 32 93 00 – PLANTS**PART 1 - GENERAL**

1.01 SUMMARY

- A. Section Includes
 - 1. Preparation of subsoil and topsoil.
 - 2. Topsoil bedding.
 - 3. Trees, plants, and ground cover.
 - 4. Mulch.
 - 5. Fertilizer.
 - 6. Pruning.
 - 7. Maintenance.

- B. Related Sections:
 - 1. Section 31 23 16 - Excavation.
 - 2. Section 32 91 13 - Soil Preparation
 - 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 19 - Seeding
 - 5. Section 32 92 00 – Turf and Grasses.

1.02 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A300 - Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance - Standard Practices.
 - 2. ANSI Z60.1 - Nursery Stock.

- B. Forest Stewardship Council:
 - 1. FSC Guidelines - Forest Stewardship Council Guidelines.

1.03 DEFINITIONS

- A. Weeds: Vegetative species other than specified species to be established in given area.

- B. Plants: Living trees, plants, and ground cover specified in this Section, and described in ANSI Z60.1.

1.04 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Contractor's Qualifications: Submit Contractor's Qualifications complying with requirements of Qualifications.

- C. Product Data: Submit list of plant material sources, data for fertilizer and other

accessories.

- D. As part of "Close out Submittals" contractor shall provide a log depicting the following:
 - 1. Type of plants.
 - 2. Dates of planting.
 - 3. Dates and type of maintenance activities performed including fertilizing.

1.05 QUALITY ASSURANCE

- A. Tree Pruning: ANSI A300 Pruning Standards for Woody Plants.

1.06 QUALIFICATIONS

- A. Nursery: Company specializing in growing and cultivating plants with three years documented experience.
- B. Installer: Company specializing in installing and planting plants with three years documented experience.
- C. Tree Pruner: Company specializing in performing work of this section with minimum two years' experience.
- D. Maintenance Services: Performed by installer.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
- B. Protect and maintain plant life until planted.
- C. Deliver plant life materials immediately prior to placement. Keep plants moist.
- D. Plant material damaged as a result of delivery, storage or handling will be rejected.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Do not install plant life when ambient temperatures may drop below 35degrees F or rise above 90 degrees F.
- B. Do not install plant life when wind velocity exceeds 30 mph.

1.09 WARRANTY

- A. Section 01 78 36 - Warranties: Requirements for warranties.
- B. Furnish one year manufacturer warranty for trees, plants, and ground cover.

1.10 MAINTENANCE SERVICE

- A. Maintain plant life immediately after placement until plants are well established and exhibit vigorous growing condition. Continue maintenance until termination of warranty period.
- B. Maintenance includes:
 - 1. Cultivation and weeding plant beds and tree pits.
 - 2. Applying herbicides for weed control. Remedy damage resulting from use of herbicides.
 - 3. Remedy damage from use of insecticides.
 - 4. Irrigating sufficient to saturate root system.
 - 5. Pruning, including removal of dead or broken branches.
 - 6. Disease control.
 - 7. Maintaining wrapping, guys, turnbuckles, and stakes. Adjust turnbuckles to keep guy wires tight. Repair or replace accessories when required.
 - 8. Replacement of mulch.

PART 2 - PRODUCTS

2.01 TREES, PLANTS, AND GROUND COVER

- A. Planting Stock:
 - 1. Species: In accordance with Standardized Plant Names, official code of American Joint Committee on Horticulture Nomenclature.
 - 2. Identification: Label individual plants or each bundle of plants when tied in bundles.
 - 3. Plants: No. 1 Grade conforming to “American Standard for Nursery Stock” of American Association of Nurserymen (AAN); well-branched, vigorous and balanced root and top growth; free from disease, injurious insects, mechanical wounds, broken branches, decay and other defects.
 - 4. Trees: Furnish with reasonably straight trunks, well balanced tops, and single leader.
 - 5. Deciduous plants: Furnish in dormant state, except those specified as container grown.
- B. Trees Plants and Ground Cover: Species and size identifiable in plant schedule, grown in climatic conditions similar to those in locality of the Work.

2.02 SOIL MATERIALS

- A. Topsoil: Excavated from site or Imported as needed meeting requirements specified in Section 32 91 19.

2.03 SOIL AMMENDMENTS

- A. When soil tests indicate soil amendment, apply soil conditioners or fertilizers to amend

soil to specified conditions.

1. Tree Fertilizer: Containing fifty percent of elements derived from organic sources; of proportion necessary to eliminate deficiencies of topsoil as indicated in analysis.
- B. Peat Moss: Shredded, loose, sphagnum moss; free of lumps, roots, inorganic material or acidic materials; minimum of 85% organic material measured by oven dry weight, pH range of 4 to 5; moisture content of 30%.
- C. Bone Meal: Raw, finely ground, commercial grade, minimum of 3 percent nitrogen and 20 percent phosphorous.
- D. Lime: Ground limestone, dolomite type, minimum 95 percent carbonates.
- E. Water: Clean, fresh, and free of substances or matter capable of inhibiting vigorous growth of plants.
- F. Pesticide: must be approved.

2.04 MULCHING MATERIALS

- A. Mulching material: Composted, shredded hardwood bark, dark brown in color.

2.05 ACCESSORIES

- A. Wrapping Materials: Burlap.
- B. Stakes: Softwood lumber, pointed end.
- C. Cable, Wire, Eye Bolts and Turnbuckles: Non-corrosive, of sufficient strength to withstand wind pressure and resulting movement of plant life.
- D. Plant Protectors: Rubber sleeves over cable to protect plant stems, trunks, and branches.
- E. Membrane: 20 mil thick, polyethylene or water permeable polyolefin fabric.
- F. Tree Protectors: Plastic with galvanized rings.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify prepared subsoil [and planters] are ready to receive work.
- B. Saturate soil with water to test drainage.
- C. Verify required underground utilities are available, in proper location, and ready for use.

3.02 PREPARATION OF SUBSOIL

- A. Prepare subsoil to eliminate uneven areas. Maintain profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated subsoil.
- C. Scarify subsoil to depth of 3 inches where plants are to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.
- D. Dig pits and beds three times wider than plant root system.

3.03 PLACING TOPSOIL

- A. Spread topsoil to minimum depth of 6 inches over area to be planted. Rake smooth.
- B. Place topsoil during dry weather and on dry unfrozen subgrade.
- C. Remove vegetative matter and foreign non-organic material from topsoil while spreading.
- D. Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.
- E. Install topsoil into pits and beds intended for plant root balls, to minimum thickness of 6 inches.

3.04 FERTILIZING

- A. Apply starter fertilizer at rate of 50 pounds/1000 SF.
- B. Apply after initial raking of topsoil.
- C. Mix thoroughly into upper 4 inches of topsoil.
- D. Lightly water soil to aid dissipation of fertilizer.

3.05 PLANTING

- A. Place plants for best appearance for review and final orientation by Architect/Engineer.
- B. Set plants vertical.
- C. Remove non-biodegradable root containers.
- D. Set plants in pits or beds, partly filled with prepared plant mix, at minimum depth of 6 Inches or as indicated on Drawings under each plant. Remove burlap, ropes, and wires, from top half of root ball.

- E. Place bare root plant materials so roots lie in natural position. Backfill soil mixture in 6 inch layers. Maintain plant life in vertical position.
- F. Saturate soil with water when pit or bed is half full of topsoil and again when full.

3.06 PLANT RELOCATION AND RE-PLANTING

- A. Relocate plants as [indicated] [directed] by Architect/Engineer.
- B. Ball or pot removed plants when temporary relocation is required.
- C. Replant plants in pits or beds, partly filled with prepared plant mix, at minimum depth of 6 Inches or as indicated on Drawings under each plant. Remove burlap, ropes, and wires, from top half of root ball.
- D. Place bare root plant materials so roots lie in natural position. Backfill soil mixture in 6 inch layers. Maintain plant life in vertical position.
- E. Saturate soil with water when pit or bed is half full of topsoil and again when full.

3.07 INSTALLATION OF ACCESSORIES

- A. Wrap deciduous shade and flowering tree trunks and place tree protectors.

3.08 PLANT SUPPORT

- A. Brace plants vertically with plant protector wrapped guy wires and stakes to the following:

Tree Caliper	Tree Support Method
1 inch	1 stake with one tie
1-2 inches	2 stake with one tie
2-4 inches	3 guy wires with eye bolts and turn buckles
Over 4 inches	4 guy wires with eye bolts and turn buckles

3.09 TREE PRUNING

- A. When pruning trees is required, lightly prune trees in accordance with ANSI A300 Maintenance Pruning Type: Crown Cleaning.

3.10 FIELD QUALITY CONTROL

- A. Plants will be rejected when ball of earth surrounding roots has been disturbed or damaged prior to or during planting.

3.11 PLANTING SCHEDULE – As noted on drawings.

END OF SECTION