

SECTION 32 93 12

TREES, SHRUBS AND GROUND COVER

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Supply and plant trees, shrubs, and ground cover as indicated on the drawings and in the details.
- B. Maintain and water trees, shrubs, and ground cover as per the specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 31 22 19, Finish Grading
- B. Section 32 92 19, Seeding and Sodding

1.03 MEASURE AND PAYMENT

- A. No separate payment shall be made for material or work under this section. All costs shall be included in the bid items to which the work pertains.

1.04 REFERENCES/STANDARDS

- A. Plant specifications are as indicated in the current edition of ANSI Z60.1, "American Standard for Nursery Stock.
- B. Plant names are as taken or derived from *Standardized Plant Names, 2nd Edition*, 1942, prepared by the American Joint Committee on Horticultural Nomenclature. Where there are plant names covered therein, the custom of the nursery trade is followed.

1.05 SUBMITTALS

- A. Contractor shall be responsible for whatever inspection of plant material which may be required by local, state, or federal law and any necessary Certificate of Inspection shall accompany each shipment.
- B. Provide detailed typewritten instructions and recommendations to be followed by the Owner for properly maintaining landscape work for one full year following installation.

1.06 QUALITY ASSURANCE

- A. Qualifications: Contractors or subcontractors performing work under this section shall be qualified to do such work and hold the appropriate registration, license, or other permit as required by state or local law.
- B. Requirements of Regulatory Agencies
 - 1. Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work.
 - 2. Contractor shall comply with all requirements of state and regulatory agencies in transporting materials.
- C. Quality Standards
 - 1. Plant Materials: Comply with ANSI Z60.1. No inspection or sealing of plant materials

- specified in this section changes or modifies those requirements.
2. Plant Identification
 - a. Mark plant bundles properly for identification and for checking.
 - b. Provide each tree and shrub with legible, weatherproof label. Securely attach each label with rot-resistant rope or wire, attached so that plants are not damaged.
 - c. Do not remove tags until after plant materials have been approved by the owner's representatives and the local governing body (if plantings are required to meet local ordinances), and upon direction of the owner's representative.
 3. Plant Quality
 - a. Provide sound, healthy, vigorous, freshly dug, nursery grown stock, free from plant diseases and insect eggs. Heeled-in stock or stock from cold storage will not be accepted.
 - b. Provide plants:
 - (1) With healthy, normal root systems.
 - (2) With a habit of growth normal for the species, and which are equal to (or exceed) measurements specified in plant list.
 - (3) With symmetrical growth typical for the variety and species. Match plants for symmetry of a grouping where required.
 - (4) Plants will be acceptable if well grown, with a single stem, well-shaped, and bushy, and have sufficient well-spaced branches to give an appearance equal to those with multiple canes specified in the plant list.
 - (5) Plants that do not have normal balance of height and spread typical for the species will not be acceptable.
 4. Plant Root Systems
 - a. Balled and bur lapped plants are designated on the list as "B&B."
 5. Plant Substitutions
 - a. All plants will be of the size specified or larger (if approved by the architect). The use of larger material than that specified will not increase the contract price, and the use of larger material will not be permitted as a balance against smaller materials than specified.
 6. Planting Season: The season for planting extends from March 1 through May 30 and September 15 through November 31. Planting may be done at other times only with the owner's representative's written permission.
- D. Delivery, Storage, and Handling.
1. All plant materials shall be handled and packed in accordance with good nursery practices. Material shall be adequately protected during transit to prevent windburn, drying, or overheating. Upon delivery, plant materials will be adequately protected from the sun, freezing, and /or drying winds.
 2. When plants cannot be planted immediately after delivery:
 - a. Place plants on clean lawn surface, in protected areas, away from heat-gaining materials such as pavements and masonry construction.
 - b. Cover roots and root crowns with moist sod or approved mulch to protect them from sun and wind.
 - c. Water as necessary to keep them in good condition.
 - d. Where required, plant materials may be stored in a temporary shed or by heeling-in, using good nursery practice.
 3. Plant materials which are not adequately protected, left out of the ground unprotected overnight, left with roots exposed to the sun, improperly protected during transit, unloading, heeling-in, or during the planting operation shall be rejected and removed from the site.
 4. Packaged materials shall be delivered in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at the site.

1.06 JOB CONDITIONS

A. Site Inspection

1. Contractor shall familiarize him/herself with the site, the plans, the specifications, special provisions, and plan requirements, and is responsible for calling any discrepancies or special problems to the attention of the architect.
2. Examine site, architectural, mechanical, and electrical plans, and record documents for locations of utility lines. Use caution when excavating and when placing stakes to avoid damage to utility lines. Should such damage occur to lawns, walks, paved areas, or utilities, have repairs made by appropriate trade at contractor's expense.
3. In the event of interference between utility lines or obstructions and plan locations, notify the owner's representative.

B. Protection

1. Protect, maintain, and restore benchmarks, construction stakes, monuments, and other reference points affected by this work. If such items are displaced or destroyed by this work, they will be reestablished by a licensed surveyor at no expense to the owner. After items have been permanently set, certify the work and furnish certification to the owner's representative.
2. Utilities: The contractor shall exercise particular care in locating utility lines by hand digging to prevent them from being damaged by excavating equipment.
3. Protect buildings, roads, walks, and other construction.
4. Plant Materials
 - a. Plants to remain shall be protected by the erection of a substantial temporary fence or other suitable means if not already accomplished by others.
 - b. Protect existing trees and other vegetation indicated to remain in place against unnecessary cutting, breaking, and skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within the drip line, excess foot or vehicular traffic, or parking of vehicles within the drip line. Provide temporary fences, barricades, or guards as required to protect trees and vegetation to be left standing.
 - c. Repair or replace trees and vegetation damaged by construction operations in a manner acceptable to the owner's representative. Damaged trees are to be repaired and restored to full growth status, as determined by a qualified tree surgeon.
 - d. No equipment, materials, trash, or other debris will be stored under trees to remain.
 - e. Replace any damaged lawns with new seed to match existing.

C. Environmental Requirements

1. Burning: No burning of trash or construction materials will be permitted.
2. Dirt on Pavements: Where the contractor's equipment is operated on any portion of the pavement used by traffic, the contractor shall clean the pavement of all dirt and debris at the end of each day's operation.
3. Dust Control: Dust control operations shall be performed by the contractor to keep the amount of dust and dirt to a minimum. Water used for dust control shall be furnished and applied by means of tanks equipped with suitable sprinkling devices. All water used shall be paid for by the contractor. The owner's representative along with the contractor's representative shall determine when water is required to alleviate or prevent dust nuisance.
4. Disposal of Vegetative Material: Comply with local and state requirements for the disposal of trees and shrubs.
5. Silting or Washing: No silting or washing of material will be allowed to extend beyond the limits of the property or construction limits line as applicable. Should such silting or washing occur, construct and maintain sediment basin(s) at no expense to the owner.

D. Weather Limitations

1. Unfavorable Weather: During dry weather or in drought, balled plants shall be set in the pits and backfilled with loam 3/4 full and the pit then filled to the brim with water. When still wet, soil backfill shall be settled by insertion of the handle of a shovel or other stick to subgrade, and rocked back and forth until the soil and water are well mixed, after which the backfill shall be completed and the next day firmed by tamping.
2. Protection from Sun, Wind, and Frost: At all times, plants must be adequately protected from the drying action of wind and sun. Plants distributed to planting beds for immediate planting shall be kept covered by wrapping or earth covering. During cold weather, the roots shall be protected from frost by heeling-in.
3. Cold and/or Wet Weather: Planting operations shall stop when soil is frozen or when topsoil is muddy.

E. Coordination

1. Sequencing/Scheduling: Contractor shall keep him/herself informed of the construction progress of all other contractors and/or subcontractors working on the project, particularly where the affect his/her work, and shall coordinate his/her work with that of other contractors to ensure efficient and orderly progress of the work.
2. Work in close coordination with trades performing the following:
 - a. Site grading and filling
 - b. Utilities excavating and backfilling
 - c. Lawn's installation

1.07 MAINTENANCE

- A. During Planting: See Part 3, Execution of this specification.

1.08 PLANT MATERIAL GUARANTEE

- A. Warranty plant materials for a period of one year after date of substantial completion against defects, including death and unsatisfactory growth, except for unusual phenomena or incidents which are beyond the control of the contractor.
- B. Remove and replace trees, shrubs, or other plants found to be dead or in unhealthy condition during the warranty period. Make replacements during the growth season following the end of the warranty period. Replace trees, shrubs, or ground cover plants which are in doubtful condition at the end of the warranty period unless, in the opinion of the owner's representative, it is advisable to extend the warranty period for a full growing season. Another warranty inspection will be conducted at the end of the extended warranty period, if any, to determine acceptance or rejection. Only one replacement (per tree, shrub, or ground cover plant) will be required at the end of the warranty period, except for losses or replacements due to contractor's failure to comply with specified requirements.

PART 2 - PRODUCTS

2.01 PLANT MATERIALS

- A. A list of plants required for this work is included on the drawings. Should any discrepancy occur between the plant list and the drawings, the drawings shall govern.

2.02 MATERIALS FOR PLANTING

- A. Topsoil: Natural, fertile, friable, productive soil, neither excessively acid nor alkaline, and free from toxic substances, stones, weeds, clay, clods, roots, cinders and debris.

- B. Sand: Clean, sharp, and free from admixtures which might inhibit plant growth.
- C. Commercial Fertilizer: Time release type containing 6 percent nitrogen, 12 percent phosphorus, and 12 percent potassium. Deliver fertilizer in unopened, original containers bearing manufacturer's guaranteed analysis.
- D. Sulphur: Elemental Sulphur, 99 percent derived from secondary nutrient Sulphur. Sulphur should be used to create an acid soil condition for ericaceous plants. Rates of application shall be determined by pH according to soil test to product pH of 5 to 5.5.
- E. Lime: Ground limestone containing not less than 45 percent of calcium oxide, and ground to such fineness that the residue on #30 and #200 sieves is not more than 0.5 percent and 15 percent, respectively.
- F. Peat: Horticultural peat composed of not less than 60 percent decomposed organic matter by weight, oven-dried. Deliver to the site in a workable condition free from lumps.

2.03 MISCELLANEOUS MATERIALS

- A. Herbicide: Herbicide shall be commercially approved, pre-emergent herbicide to prevent weed seed germination.
- B. Anti-desiccant/Anti-transpirant: Anti-desiccant/anti-transpirant shall be in liquid form and shall comply with ASTM Specification E 96.
- C. Tree Trunk Wrapping: Wrapping shall be standard nursery-type burlap, or heavy crepe paper produced for this use.
- D. See details on construction documents for other items required.

2.04 MULCHING MATERIALS

- A. Mulch shall be 3 inches of shredded hardwood bark.

2.05 WATER

- A. Use clean, potable water free from substances, which might inhibit plant growth. Water is to be provided or arranged for by the contractor.

PART 3 - EXECUTION

3.01 LAYOUT

- A. Stake out proposed plant locations and outlines for planting areas and obtain approval of the owner's representative before beginning planting.

3.02 SOIL PREPARATION

- A. Mix soil and additives when soil and additives are relatively dry. Thoroughly mix with hand tools or rotary tiller.
 - 1. Mix soils in entire shrub beds, not just pits for individual plants.
- B. Apply specified herbicide at rates specified on product packaging.
- C. Bed Preparation:

1. Shrub beds: Mix soil and additives to a depth of 18 inches, rake smooth, and leave cleaned and ready for planting.

D. Tree pits are to be prepared with soil mix 1.5 times the depth and width of root ball.

3.03 EXCAVATING AND PREPARING PLANT PITS

- A. Excavate plant pits to depths and to profiles specified and indicated. Pits shall be circular in outline. Pit depths specified below shall be measured in relation to finished grade.
- B. "B&B" and Container Grown Plants:
 1. Diameter: 12 inches greater than ball of plants.
 2. Depth: 6 inches greater than depth of ball or roots. (Note: Large, heavy shrubs can be set directly on pit bottoms.)
 3. Where pit depth is over-excavated, backfill with prepared topsoil to fill depth so that balls or root structure of plants will be at correct height.

3.04 PLANTING TREES AND SHRUBS

- A. The planting details show the planting height in relation to existing surface as a general rule. Plant new vegetation approximately 1" to 2" above the existing grade, to allow for settlement of the new plants.
- B. In individual pits, set plants so that after settlement they will be at same levels as originally grown.
 1. Center plants in pits and place them upright.
 2. Face each plant to give best appearance to closest observation point.
 3. Cut off broken, frayed, and dead roots.
 4. Handle plants so as to prevent damage.
- C. Planting "B&B" and Container-Grown Plants:
 1. Comply with guidelines outlined A and B above.
 2. Set "B&B" plants in pits. Thoroughly wet burlap. Loosen tie material and carefully roll back burlap so that ball is not broken. Cut the loose burlap and tie material; do not pull tie material or burlap out from under balls.

3.05 BACKFILLING PLANT PITS

- A. When plants are in positions in pits, place prepared topsoil until pit is approximately 3/4 full.
- B. Compact and settle soil by watering thoroughly.
- C. After water has soaked in, complete backfilling to finished grade and again compact and settle soil by thoroughly soaking.
- D. If further settling occurs, add additional soil so that finished backfilling is even with finished grade. Do not fill above root crowns of plants.

3.06 PLANTING GROUND COVER (Also see Erosion Control below.)

- A. Container-Grown Ground Cover:
 1. Position where indicated on drawings.
 2. Plant and backfill as specified above for container-grown plants.
- B. Bare Rooted Ground Cover
 1. Position where indicated.

- 2. Plant in prepared beds at same level as originally grown.
- C. Water entire beds containing ground cover to point of saturation.

3.07 PRUNING

- A. Remove dead and broken branches from plant materials.
- B. Prune to retain typical growth habit of individual plants with as much height and spread as practicable. Make cuts with a sharp instrument and cut flush with trunk or adjacent branch to eliminate stubs.
- C. Do not prune the central leader on trees. "Head back" cuts at right angles to line of growth is not permitted. Do not pole or top trees.
- D. Do not prune plants to less than the size in height or spread as required to meet applicable community ordinances (as applicable). Coordinate this item with the architect.

3.08 MULCHING

- A. After plants have been set and cultivation within groups of plants has been completed and approved, cover the area within the outline of each planting pit or bed with a smooth layer of specified mulch to the depth specified in details.
- B. After placing mulch, thoroughly wet it to prevent displacement by wind.

3.09 MAINTENANCE

- A. Begin maintenance as soon as each plant is in place and continue maintenance until all planting has passed final acceptance of the total facility by the owner's representative. Maintenance includes the following: spraying for insect control; watering; weeding; cultivating; removal of dead material; resetting plants to proper grades or upright position; restoration of plant sources and mulch; and other operations to keep plant healthy and looking good.
- B. Protect lawn areas during this work.

3.10 CLEANUP

- A. As work progresses, keep grounds free from debris and paved areas free from debris and dirt.
- B. When work is otherwise complete, clean grounds and pavements. Remove excess materials and equipment from project site.

3.11 FINAL INSPECTION

- A. At the end of the guarantee period(s), contractor is to make an inspection of the plantings with the owner's representative at a time mutually acceptable to both parties. If agreement as to time cannot be reached, the owner's representative may make the inspection on his/her own.
- B. As a result of the inspection, a list of deficiencies will be prepared and given to the contractor.

3.12 REPLACEMENT PLANTING

- A. Contractor is to correct deficiencies noted on the list of deficiencies prepared in the final inspection.
 - 1. Remove and replace plants that are not showing satisfactory growth as determined by the owner's representative.
 - 2. Replace plants missing due to installation oversight as soon as conditions permit, but during the normal planting season as determined by the owner's representative.
 - 3. When there is question regarding the satisfactory establishment of plants, the owner's representative may allow plants to remain through another complete growing season as described in Part 1 of this specification. After that time, contractor will replace plants that are dead, unhealthy, or in a badly impaired condition, as determined by the owner's representative.
 - 4. Replace with plants of same kind and size as specified in plant list.
- B. Deficiencies are to be corrected during the normal planting season for such plantings.
- C. Upon correction of any deficiencies, the owner's representative will re-inspect the plantings and, if acceptable, the contractor will be relieved of further responsibility.

END OF SECTION