

SECTION 02490 – TREES, PLANTS AND GROUND COVERS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide trees, plants and ground covers as shown and specified. The work includes:
 - 1. Soil preparation.
 - 2. Trees, plants and ground covers.
 - 3. Planting mixes.
 - 4. Mulch and planting accessories.
 - 5. Maintenance.

1.2 RELATED WORK

- A. Section 02200: Earthwork.
- B. Section 02485: Seeding.
- C. Section 02487: Sodding

1.3 QUALITY ASSURANCE

- A. Comply with Section 02000 requirements.
- B. Plant names indicated, comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged. No substitutions will be allowed unless approved in writing by Landscape Architect.
- C. Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock". A plant shall be dimensioned as it stands in its natural position.
- D. All plants shall be nursery grown under climatic conditions similar to those in the locality of the project for a minimum of 2 years.
- E. Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional cost, and providing that the larger plants will not be cut back to size indicated. Where a minimum and maximum size (size range) is specified, the average of the lot will approximate the midpoint of the specified size range and 50% of the lot will be within the middle 1/3 of the specified range. Where a caliper and height range are given, the minimum of each range shall be acceptable.
- F. The contractor shall have a minimum of 5 years experience installing commercial landscape installations similar in size to the work proposed in these contract documents.

1.4 SUBMITTALS

- A. Submit the following material samples:
 - 1. Mulch.
 - 2. Planting accessories.
 - 3. Soil conditioner.
- B. Upon plant material acceptance, submit written maintenance instructions recommending procedures for maintenance of plant materials.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver fertilizer in original, unopened, undamaged containers showing weight, analysis, and name of manufacturer. Store to prevent wetting and deterioration.
- B. Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected. This includes spraying deciduous plants in foliage with an approved anti-desiccant immediately after digging when necessary to prevent dehydration. Dig, pack, transport, and handle plants with care to ensure protection against injury. Inspection certificates required by law shall accompany each shipment, invoice, or order to stock and, upon arrival, the certificate will be filed with the Landscape Architect. Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, wet bark mulch, or other acceptable manner. Water heeled-in plants daily. No plant shall be bound with rope or wire in a manner that could damage or break the branches.
- C. Cover plants transported on open vehicles with a protective covering to prevent windburn.
- D. Provide dry, loose topsoil for planting bed mixes. Frozen or muddy topsoil is not acceptable.

1.6 PROJECT CONDITIONS

- A. Protect existing utilities, paving, and other facilities from damage caused by planting operations. Have underground utility locations marked by utility companies and consult architectural and engineering drawings of the site for locations of other known utility lines.
- B. A list of plants including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant material list, the planting plans shall govern.
- C. If an irrigation system will be installed prior to planting, locate, protect, and maintain the system during planting. Repair irrigation system components damaged during planting operations at this contractors expense.

1.7 WARRANTY

- A. Warrant plant material to remain alive and be in a healthy and vigorous condition for a period of 1 year after completion and acceptance of the entire project or for the warranty period required by the general conditions, whichever is longer.
- B. During the Warranty Period replace, in accordance with the drawings and specifications, all plants that are dead or, as determined by the Landscape Architect, are in an unhealthy or unsightly condition, and have lost their natural shape not due to the Owner's negligence. The cost of such replacement(s) is at Contractor's expense. Warrant all replacement plants for 6 months after installation. Warranty shall not include damage or loss of trees, plants, or ground covers caused by fires, floods, freezing rains, lightning storms, or winds over 75 miles per hour, winter kill caused by extreme cold or severe winter conditions not typical of planting areas; acts of vandalism or negligence on the part of the Owner.

PART 2 - PRODUCTS

2.1 PLANT MATERIALS

- A. Provide plants typical of their species or variety; with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, health, vigorous plants free from defects, disfiguring knots, sunscald injuries, frost cracks, abrasions of the bark, plant diseases, weeds, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids and open spaces. Plants held in storage will be rejected if they show signs of growth during storage. Deciduous shade trees shall be straight and symmetrical with a crown having a persistent main leader unless otherwise specified. The size of the crown shall be in good overall proportion to the total height of the tree. Evergreen trees shall be of form typical of the species and not unnaturally sheared or color treated.

- B. Balled and burlapped plants shall be dug with firm, natural balls of soil of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Balls shall be firmly wrapped with burlap or similar material and bound with twine, cord, or wire. Balled and burlapped plants shall be watered prior to transportation and kept moist until planted.
- C. Bare-root plants are not to be used.
- D. Container-grown stock: Grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm and whole.
 - 1. No plants shall be loose in the container.
 - 2. Container stock shall not be root nor pot bound.
- E. Unless otherwise called for provide tree species with a single main trunk. Trees that have the main trunk forming a `Y' shape are not acceptable.
- F. Plants of 1 variety planted in rows shall be matched in form.
- G. Plants larger than those specified in the plant list may be used when acceptable to the Architect. If the use of larger plants is acceptable, increase the spread of roots or root ball in proportion to the size of the plant.
- H. The height of the trees, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size designated in the plant list.
- I. No pruning wounds shall be present with a diameter of more than 1", and such wounds must show vigorous bark on all edges.
- J. Evergreen trees shall be branched to the ground.
- K. Shrubs and small plants shall meet the requirements for spread and height indicated in the plant list.
 - 1. The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.
 - 2. Single stemmed or thin plants will not be accepted.
 - 3. Side branches shall be generous, well-twigged, and the plant as a whole shall be well bushed to the ground.
 - 4. Plants shall be in a moist, vigorous condition, free from dead wood, bruises, or other root or branch injuries.

2.2 ACCESSORIES

- A. Topsoil for Planting Beds: Fertile, friable, natural topsoil of loamy character, containing not less than 1-1/2% organic matter, without admixture of subsoil material, obtained from a well-drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials, with acidity range of between pH 6.5 and 7.0.
 - 1. Provide topsoil free of substance harmful to the plants which will be grown in the soil.
 - 2. Public Roads Administration Classification shall be A-4 or A-5 silt loam. Extractable quantities of phosphorous, potassium, and magnesium shall be 100 parts per million each (minimum). Minimum extractable quantity of calcium shall be 1000 parts per million. Method of testing shall be as performed by State Cooperative Extension Service.
- B. Soil Conditioner will be: One of the following:
 - 1. Decomposed pine bark: Consisting of pure bark sawmill fines mixed with approximately 10% sand. Sawmill fines shall be 1/2" maximum size and shall have been composted a minimum of 2 years.
 - 2. Peat Moss: Commercial Quality Michigan or Canadian. Black to brown in color, weed and seed free granulated raw peat or baled peat, containing not more than 9% mineral content on a dry basis.

- C. Fertilizer: Commercial type approved by the Landscape Architect, containing 12% nitrogen, 12% phosphoric acid, and 12% potash by weight. 1/4 of nitrogen in the form of nitrates, 1/4 in form of ammonia salt, and 1/2 in form of organic nitrogen.
- D. Anti-Desiccant: Protective film emulsion providing a protective film over plant surfaces; permeable to permit transpiration. Mixed and applied in accordance with manufacturer's instructions.
- E. Mulch: Clean pine straw. Free of branches, cones or other impurities. Furnish in bales or bulk.
- F. Water: Free of substances harmful to plant growth. Hoses or other methods of transportation furnished by Contractor.
- G. Stakes for guying and staking: Wolmanized pine, 2" x 2" x length shown in drawings.
- H. Guying/Staking Wire: No. 14 gage galvanized wire. Turnbuckles: Galvanized steel of size and gage required to provide tensile strength equal to that of the wire. Turnbuckle openings shall be at least 3". Staking and Guying Hose: Two-ply, reinforced garden hose not less than 1/2" inside the diameter.
- I. Steel Edging: Painted (green) steel 14 ga. thick x 4" depth, carbon steel with interlocking joints and steel pins (minimum 9" length). As manufactured by Collier Manufacturing, Joseph T. Ryerson and Son, Inc., or approved equal.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Planting shall be performed only by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor. All plant stock shall be handled with reasonable care to prevent injuries to trunk, branches, roots, and leaves.
- B. Locate plants as indicated or as approved in the field after staking by the Contractor. If obstructions are encountered that are not shown on the drawings, do not proceed with planting operations until alternate plant locations have been selected and approved by the Architect.
- C. Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide shrub and tree pits at least twice the diameter of the root system. Depth of pit shall accommodate the root system plus 6". Scarify and compact the soil in the bottom of the pit. Form a 3" high basin around pit with excess soil.
- D. After the planting pit has been dug, distribute over the soil from the pit: Soil Conditioner (1/5 by volume of soil from the planting pit), topsoil (1/5 by volume, of soil from the planting pit), and steer manure (1/2 pound per cubic yard of soil mixture). Mix these evenly with the soil from the pit.
- E. Spade all bed areas to a depth of 8". Add topsoil, soil conditioner, and fertilizer (same ratio as in individual plant pits, bringing the grade of the prepared beds 3" above existing grade. Till bed areas to incorporate the mixture to a depth of 8".

3.3 INSTALLATION

- A. Set plant material in the planting pit to proper grade and alignment. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure. For well-drained soil, set

plant so that when planted and settled it will bear the same relation to finished grade that it did to the soil surface in the original place of growth. For plants in heavy soil, set plant material 2"-3" above the finish grade. No filling will be permitted around trunks and stems. Backfill the pit with planting mixture. Do not use frozen or muddy mixtures for backfilling. Form a 3" high ring of soil around the edge of each planting pit to retain water.

- B. After balled and burlapped plants are set, install planting soil mixture around bases of balls and fill all voids. Remove wires from root balls.
- C. Space ground cover plants in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting beds with indicated quantity of plants. Plant to within 12" of the trunks of trees and shrubs within planting bed and to one-half of specified spacing of edge of bed. Set plants in neat, straight rows, parallel to the nearest paving edge or header at intervals shown in the drawings.
- D. Metal Edging: Anchor edging with min. 3 pins/section.
- E. Mulching: Mulch trees and shrub and ground cover beds with required mulching material 2" deep immediately after planting. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.
- F. Guying and Staking: Stake/guy all trees as shown in the drawings immediately after lawn seeding or sodding operations and prior to acceptance. When high winds or other conditions that may effect tree survival or appearance occurs, stake immediately after planting.
- G. Pruning: Prune branches of deciduous stock, after planting, to balance the loss of roots and preserve the natural character appropriate to the particular plant requirements. In general, remove 1/2 to 1/3 of the leaf bearing buds, proportion shall in all cases be acceptable to the Architect. Remove or cut back broken, damaged, or unsymmetrical growth of new wood. Make cuts flush with trunk or intersecting branch.
 - 1. Multiple leader plants: Preserve the leaders, which will best promote the symmetry of the plant. Cut branches flush with the trunk or main branch, at a point beyond a lateral shoot or bud a distance of not less than 1/2 the diameter of the supporting branch. Make cut on an angle.
 - 2. Prune evergreens only to remove broken or damaged branches.

3.4 MAINTENANCE

- A. Maintain plantings for a period of three months after completion and acceptance of the entire project. Maintenance shall include pruning, cultivating, weeding, watering, mowing, and application of appropriate insecticides and fungicides necessary to maintain plants free of insects and disease. Re-set settled plants to proper grade and position. Restore planting saucer and adjacent materials and remove dead material. Tighten and repair guy wires as stakes as required. Correct defective work as soon as possible after deficiencies become apparent and weather and season permit. Water trees, plants, and ground cover beds within the first 24 hours of initial planting. Irrigate all plants regularly in order to supplement natural rainfall to a total of 2" per week until final acceptance. Irrigation by hose or any other method shall not be applied with a force that will displace mulch or cause soil erosion and shall not be applied so quickly that it cannot be absorbed by the mulch and plants. Replace mulch as needed. In plant beds, grass and weeds shall not be allowed to reach a height of 3" before being completely removed, including the root growth. When plants are in groups other than cultivated beds, the Contractor shall not permit grass or other vegetation between them to become more than 5" in height. Bed areas must be completely free of weeds for final acceptance. Mow grass when it reaches a height of 3". Cut to a height of 2".

3.5 ACCEPTANCE

- A. Inspection to determine acceptance of planted areas will be made by the Architect, upon Contractor's request. Provide notification at least 10 working days before requested inspection date.

- B. Planted areas will be accepted provided all requirements, including maintenance, have been complied with and plant materials are alive and in a healthy, vigorous condition.
 - C. Upon acceptance, the Owner will assume plant maintenance.
- 3.6 CLEANING
- A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Repair damage resulting from planting operations.

END OF SECTION 02490