

SECTION 02930 - PLANTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 1. Trees.
 2. Lawns and Native Seeding.
 3. Topsoil and soil amendments.
 4. Fertilizers and mulches.
 5. Stakes and guys.

1.3 DEFINITIONS

- A. Balled and Burlapped Stock: Exterior plants dug with firm, natural balls of earth in which they are grown, with ball size not less than sizes as shown on plans; wrapped, tied, rigidly supported, and drum-laced as recommended by ANSI Z60.1.
- B. Finish Grade: Elevation of finished surface of planting soil.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- D. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- E. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract.
- B. Product certificates signed by manufacturers certifying that their products comply with specified requirements. Manufacturer's certified analysis for standard products.
 1. Analysis for other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
 2. Label data substantiating that plants, trees, shrubs, and planting materials comply with specified requirements.
 3. Certification of grass seed from seed vendor for each grass-seed mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

- C. Product Certificates: For each type of manufactured product, signed by product manufacturer, and complying with the following:
 - 1. Manufacturer's certified analysis for standard products.
 - 2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- D. Planting Schedule: indicating anticipated dates and locations for each type of planting.
- E. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of exterior plants during a calendar year. Submit before expiration of required maintenance periods.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful landscape establishment.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when exterior planting is in progress.
- B. Soil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity, deleterious material; pH; and mineral and nutrient content of on-site soil.
 - 1. Report suitability of on-site soil for plant growth. State recommended quantities of nitrogen, phosphorus, potassium, and other nutrients and soil amendments to be added to produce a satisfactory growing medium.
- C. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."
- D. Tree and Shrub Measurements: Measure according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.
- E. Observation: KCMO Park's Department Staff may observe trees and shrubs either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size, and quality. KCMO Park's Department Staff retains right to observe trees and shrubs further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site.
 - 1. Notify KCMO Park's Department Staff of sources of planting materials seven days in advance of delivery to site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver plants freshly dug or well rooted in their containers, as appropriate.

- B. Do not prune trees and shrubs before delivery, except as approved by KCMO Park's Department Staff. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage.
 - 1. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape.
 - 2. Provide protective covering to prevent wind damage during transportation to project site. Do not drop any plant materials during loading, unloading, transportation, and delivery. Plant materials shall be tightly packed during transportation; if a full load of plants is not required, packaging substitutes and braces shall be placed in such a way as to prevent any rolling or movement during the transportation period. Acceptable braces include: wood cross members, large stable rocks, shredded landscape mulch, and topsoil
- C. Handle balled and burlapped stock only by root ball; never move stock by gripping stems or foliage.
- D. Deliver trees after preparations for planting have been completed and install immediately. If planting is delayed more than 6 hours after delivery, set planting materials in a sheltered location if possible, protect from weather and mechanical damage, and keep roots moist.
 - 1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
 - 2. Do not remove container-grown stock from containers before time of planting.
 - 3. Water plant materials as often as necessary to maintain root systems in a moist condition.

1.7 PROJECT CONDITIONS

- A. Utilities: Determine location of above grade and underground utilities and perform work in a manner which will avoid damage. Hand excavate, as required. Maintain grade stakes until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify KCMO Park's Department Staff before planting.

1.8 COORDINATION

- A. Coordinate installation of planting materials during normal planting seasons for each type of plant material required. Notify KCMO Park's Department Staff in the event of planting discrepancies and if seasonal conditions become abnormal.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.
- C. Coordination with Seeded Areas: Plant trees after finish grades are established and before seeding, unless otherwise approved by KCMO Park's Department Staff.
 - 1. When planting trees after seeding, protect lawn areas and promptly repair damage caused by planting operations.

1.9 SAMPLES AND TESTS

- A. The Owner reserves the right to take and analyze samples of materials for conformity to specifications at any time. Rejected materials shall be immediately removed from the site at the Contractor's own expense. The cost of testing of materials not meeting specifications shall be paid by the Contractor.
- B. The Contractor shall have soil samples tested after finish grades have been established.
 - 1. Take separate samples at a minimum of three different locations to best represent the site soil conditions. Surface samples shall be taken with a trowel at 0" to 12" deep into finish grade. Should sub-surface samples be requested, these shall be taken at a depth of 18" to 24" below finish grade. Each sample shall contain approximately one quart, but no less, and be labeled per site location.
 - 2. All samples shall be tested by an established soils laboratory for soil fertility, agricultural suitability, and lime content. This report shall also contain recommendations for sub-soil drainage and/or any other special conditions specific to the project site and design. The contractor shall also include the plant list from the planting plans along with the soil samples for analysis by the soils laboratory and a clear indication for each soil sample as to the proposed plant type to be installed (turf, native grasses, low-water plants, ornamental shrubs, etc.).
 - 3. The Contractor shall send copies of the laboratory's soil preparation recommendations to the Owner, along with a written change order to the Owner describing any deductive or additive costs for soil preparation to be incurred as a result of the soil test lab's recommendations.
 - 4. The Owner may request additional testing of finish grades to determine actual amendment rates per 1.9.A above. The Contractor shall bear all costs related to such additional testing.

1.10 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Warrant the following living plant materials, for the warranty period indicated, against defects including death and unsatisfactory growth, except for defects resulting from neglect or abuse by Owner, or incidents that are beyond Contractor's control.
 - 1. Warranty Period for trees: Two years from date of Final Acceptance.
 - 2. Warranty Period for seed: One year from date of Final Acceptance.
 - 3. Remove dead plants immediately. Replace immediately unless required to plant in the succeeding planting season.
 - 4. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.

PART 2 - PRODUCTS

2.1 TREES

- A. General: Furnish nursery-grown trees and shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide

well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

- B. Grade: Provide trees and shrubs of sizes and grades complying with ANSI Z60.1 for type of trees and shrubs required. Trees and shrubs of a larger size may be used (at no additional cost to the Owner) if acceptable to the Landscape Architect, with a proportionate increase in size of roots or balls.
- C. Label each tree and shrub with securely attached, waterproof tag bearing legible designation of botanical and common name.
- D. Shade Trees: Trees shall be symmetrical in growth with balanced root and top growth and shall be No. 1 in grade or type, conforming with the latest edition of "American Standard of Nursery Stock" referenced herein. Trees shall have a single straight trunk, single dominant central leader (when characteristic of the species), and a well-balanced branch, complying with ANSI Z60.1 for type of trees required.
 - 1. Provide balled and burlapped trees.
 - 2. Branching height: One-third to one-half of tree height.

2.2 NATIVES AND GRASSES

- A. Native and grass seed: Provide blend of native and grass species and varieties with maximum percentages of purity, germination, and minimum percentage of weed seed as indicated on plans.

2.3 TOPSOIL

- A. Clean topsoil, free of stones larger than ½ inch, foreign matter, plants, roots, and seeds.
- B. Topsoil shall be sandy loam.

2.5 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 3/4-inch sieve; soluble salt content of less than 4 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.
- B. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.6 FERTILIZER

- A. Granular fertilizer consisting of nitrogen, phosphorus, potassium, and other nutrients in proportions and amounts recommended in soil reports from a qualified soil-testing agency.
 - 1. Fertilizer shall be slow release or quick release as per the soil report.

2.7 MULCHES

- A. Wood mulch shall consist of bagged or bulk aged wood chips, or shredded hardwood bark. Walnut bark or chips are not acceptable.
- B. Application of Mulch: Place 2 to 4 inches of mulch around all trees to cover an area approximately 3 feet in diameter. Do not mound mulch around tree trunk.

2.8 MISCELLANEOUS PRODUCTS

- A. Each tree shall be protected after planting with a plastic protector, 18" nominal height, 4" minimum diameter. Material shall be vented polyethylene or equivalent gray or not black in color..

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive exterior plants for compliance with requirements and conditions affecting installation and performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GENERAL

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing exterior plants from damage caused by planting operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Lay out individual tree locations and areas for multiple exterior plantings. Stake locations, outline areas, adjust locations when requested, and obtain KCMO Park's Department Staff acceptance of layout before planting. Make minor adjustments as required.

3.3 SOIL PREPARATION

- A. All areas to be planted or seeded shall be deep-ripped to a depth of twelve (12) inches. The deep ripping shall be done in a cross pattern, after the site has been rough graded, and prior to spreading soil amendments and conditioners. Do not deep-rip soil on slopes 3:1 or greater.
 - 1. Planting areas - general
 - a. Flatter than 3:1: After deep-ripping, all rocks and foreign matter which are two inches and greater in diameter, measured at their largest diameter, shall be removed from the top six (6) inches of the ripped area.
 - b. 3:1 slopes or steeper: Rip the soil surface to a depth of 6" (or as deep as practicable). After ripping, all rocks and foreign matter which are two inches and greater in diameter, measured at their largest diameter, shall be removed from the top six (6) inches of the ripped area.
 - 2. Native seed and wildflower seed areas: treat in the manners described above, except that all rocks 6" in diameter and greater, as well as all foreign matter 2" in diameter and greater, shall be removed from the top six (6) inches of the ripped area.

- B. At the completion of the ripping operations, all planting areas shall be brought to a smooth, uniform surface free of ruts, furrows and other irregularities. Accidental swales and mounds shall be limited to one-inch vertical deviation from a regular surface.
- C. After approximate finished grades have been established, test soil for agricultural suitability as described in Section 1.9.B. Actual materials and rates of amendments shall be determined by the soil laboratory recommendations. All soil areas shall be lightly compacted and settled by application of heavy irrigation to a minimum depth of twelve (12) inches.

3.4 ESTABLISHMENT OF FINISH GRADES

- A. Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
 - 1. After deep watering, minor modification to grades may be required to establish the final grade. These areas shall not be worked until the moisture content has been reduced to a point where working it will not destroy soil structure.
 - a. All areas shall be graded so that the final grades will be 1" below adjacent paved areas, sidewalks, and valve boxes in areas to be sodded or seeded, and 2" in shrub and groundcover areas.
 - b. Surface drainage shall be away from all building foundations.
 - c. Eliminate all erosion scars.
 - d. Finish grading shall be consistent and free from undulations, irregularities or depressions. Areas filled by floating loose soil into depressions shall be thoroughly watered to ensure compaction.
 - 2. It shall be the responsibility of the Contractor to maintain the final grades throughout the Construction Phase. All erosion shall be properly repaired at the Contractor's own cost to the Owner's satisfaction. Any slope soil run-off onto adjacent paving areas shall be cleaned regularly by the Contractor.
- B. At time of planting, the top six (6) inches of all areas to be planted, sodded, or seeded shall be free of stones and foreign matter as described in Section 3.3.A.

3.5 TREE AND SHRUB PLANTING PIT EXCAVATION

- A. Pits and trenches: Excavate circular pits of the dimensions as shown on the planting details. Scarify sides of plant pit smoothed during excavation.
 - 1. Trees: excavate pit 3"-4" shallower than root ball depth.
- B. Obstructions: Notify KCMO Park's Department Staff if unexpected rock or obstructions detrimental to trees or shrub placement or growth are encountered in excavations.
 - 1. Hardpan layer: Where encountered, drill 6-inch diameter holes into free-draining strata or to a depth of 10 feet, whichever is less, and backfill holes with ¾" crushed gravel.
- C. Drainage: Notify KCMO Park's Department Staff if subsoil conditions reveal unexpected water seepage or retention in tree or shrub pits.

3.6 TREE AND SHRUB PLANTING

- A. General
 - 1. Actual planting shall be performed during those periods when weather and soil conditions are suitable and in accordance with locally accepted practice, as approved by the Landscape Architect.
 - 2. Only as many plants as can be planted and watered on that same day shall be distributed in a planting area.
- B. Set root ball plumb and in center of pit or trench with top of root ball flush above adjacent finish grades, as specified in Section 3.5.A.
 - 1. Remove burlap and wire baskets from tops of root balls and partially from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operations.
 - 2. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.
- C. Place tree guards on trees.
- E. Do not prune trees and shrubs except to remove damaged growth.
- F. Contractor will be responsible for watering the trees on the following schedule:
 - 1. Two (2) times a week for the first four weeks (week 1 to week 4) after planting.
 - 2. One (1) time a week for the following four weeks (week 4 to week 8).
 - 3. Following the initial eight weeks contractor will water as needed during the two year warranty period to maintain health and aesthetic quality of the trees with at least two waterings/mo for 18 months out of the 24 months.

3.9 SEED PLANTING PREPARATION

- A. Limit subgrade preparation to areas that will be planted in the immediate future.
- B. Soil preparation:
 - 1. Remove all stones larger than ½ inch in any dimension and sticks, roots, rubbish, and other extraneous materials occurring in the top six inches of soil, and legally dispose of it offsite.
 - 2. Apply required soil amendments and initial fertilizers as per the soil test recommendations and mix thoroughly into top six inches of soil.
- C. Grade seeding areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future. Remove trash, debris, stones larger than ½ inch in any dimension, and other objects that may interfere with planting or maintenance operations.
- D. If soil is dry, moisten prepared lawn areas before planting. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- E. Restore prepared areas if eroded or otherwise disturbed after fine grading and before planting.

- F. Preparation of unchanged grades: Where lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, remove and dispose of existing grass and other vegetation. Do not turn over into soil being prepared for lawns. After removing vegetation, prepare as described above.
- G. Moisten prepared areas before planting if soil is dry. Water thoroughly and allow surface to dry off before seeding operations. Do not create muddy soil.
- H. Sow seed with a broadcast spreader. Seed shall be of the type and rate indicated on the plans.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.
 - 2. Sow no less than the quantity of seed specified.
 - 3. Broadcast seed using two passes, the direction of the second pass being 90° from the first. Use half of the required seed for each pass.

3.10 SEED MULCHING

- A. Protect seeded slopes against erosion with jute mesh erosion netting, with an open 1"x1" weave, provided in 4' width.

3.11 CLEANUP AND PROTECTION

- A. During exterior planting, keep adjacent pavings and construction clean and work area in an orderly condition.
- B. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting.
- C. Maintain barricades throughout maintenance period and until substantial and healthy stand of grass is established. Erect barricades and warning signs as required to protect newly planted areas from traffic.

3.12 DISPOSAL

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, , and legally dispose of them trash off Owner's property.

END OF SECTION