

GENERAL

1.1 SUMMARY

1.1.1 Includes But Not Limited To

1.1.1.1 Furnish and install landscaping plants as described in Contract Documents.

1.2 QUALITY ASSURANCE

1.2.1 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.

1.2.2 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.

1.2.3 All plants shall be nursery grown under climatic conditions similar to those in the locality of the project for a minimum of two years.

1.2.4 Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional charge. Larger plants shall not be cut back to size indicated.

1.2.5 Provide "specimen" plants with a special height, shape, or character of growth. Landscape Subcontractor is to tag specimen trees or shrubs at the source of supply. The Landscape Subcontractor shall inspect all plant material at source prior to Landscape Architect's approval. Landscape Subcontractor shall accompany Landscape Architect on final selection trip. The Landscape Architect will inspect specimen selections for suitability and adaptability to selected location. When specimen plants cannot be purchased locally, provide sufficient photographs of the proposed specimen plants for approval.

1.2.6 Plants may be inspected and approved at the place of growth for compliance with specification requirements for quality, size, and variety.

1.2.7 Approval of plant selection at the place of growth shall not impair the right of inspection and rejection upon delivery at the site or during progress of the work.

1.2.8 Provide percolation testing by filling plant pits with water and monitoring length of time for water to completely percolate into soil. Submit test results to Landscape Architect prior to starting work.

1.2.9 Before proceeding with work, check and verify dimensions and quantities. Report variations between Drawings and site to Landscape Architect before proceeding with work of this section.

1.2.10 Plant totals are for convenience only and are not guaranteed. Verify amounts shown on Drawings. All plantings indicated on Drawings are required unless indicated otherwise.

1.3 SUBMITTALS

1.3.1 Provide and pay for material testing. Testing agency shall be acceptable to the Landscape Architect. Provide the following data:

1.1. The loss of weight by ignition and moisture absorption capacity shall be tested for peat moss.

1.3.2 Submit the following material samples to Landscape Architect:

1.1. Peat moss, shredded hardwood bark mulch, planting accessories, pre-emergent herbicides, and plant fertilizers.

1.3.3 Submit the following materials certification to Landscape Architect:

1.1. Topsoil source and pH value, peat moss, and plant fertilizer.

1.4 DELIVERY, STORAGE, AND HANDLING

1.4.1 Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.

1.4.2 Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected.

1.4.3 Spray deciduous plants in foliage with an approved "Anti-Desiccant" immediately after digging to prevent dehydration.

1.4.4 Dig, pack, transport, and handle plants with care to ensure protection against injury.

1.4.5 Inspection certificates required by law shall accompany each shipment invoice or order to stock on arrival. The certificate shall be filed with the General Contractor's representative.

1.4.6 Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, shredded hardwood bark mulch, or in a manner acceptable to the General Contractor's representative.

1.4.7 Water heeled in plantings daily.

1.4.8 No plant shall be bound with rope or wire in a manner that could girdle or break the branches.

1.4.9 Cover plants transported on open vehicles with a protective covering to prevent wind burn.

1.4.10 Frozen or muddy topsoil is not acceptable.

1.5 PROJECT CONDITIONS

1.5.1 See Landscape Preparation Section.

1.5.2 Work notification: notify Landscape Architect at least seven working days prior to installation of plant material.

1.5.3 Protect existing utilities, paving, and other facilities from damage caused by landscaping operations.

1.5.4 A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the proposal form. In the event that quantity discrepancies or material omissions occur in the proposal form, Subcontractor shall notify the Landscape Architect during the proposal bidding process.

1.5.5 An irrigation system will be installed prior to planting. Locate, protect, and maintain the irrigation system during planting operations. Repair irrigation system components, damaged during planting operations, at the Landscape Subcontractor's expense.

1.5.6 The Landscape Subcontractor shall inspect existing soil conditions in all areas of the site where its operations will take place, prior to the beginning of work. It is the responsibility of the Landscape Subcontractor to notify the General Contractor's representative and the Landscape Architect in writing of any conditions which could affect the survivability of plant material to be installed.

1.6 WARRANTY

1.6.1 See Landscape Maintenance and Warranty Standards.

2.0 PRODUCTS

2.1 MATERIALS

- 2.1.1 Plants: Provide plants typical of their species or variety, with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, sunscald injuries, fire cracks, oblique cracks of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids and open spaces.
- 2.1.2 Dig balled and burlapped plants with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for the recovery of the plant. Provide root balls of sizes complying with the latest edition of the American Standard for Nursery Stock.¹ Cracked or mushroomed balls are not acceptable.
- 2.1.3 All trees shall have clay or clay loam balls. Trees with sand balls will be rejected.
- 2.1.4 Provide tree species that mature at heights over 25'-0" with a single, main trunk. Trees that have the main trunk forming a "Y" shape are not acceptable.

- Plants planted in rows shall be matched in form, (see specimen stock).
- Plants larger than those specified in the plant list may be used when acceptable to the Landscape Architect.
 - No pruning wounds shall be present with a diameter of more than 1" and such wounds must show vigorous bark on all edges.
 - Evergreen trees shall be unsheared and branched to the ground.
 - Shrubs and small plants shall meet the requirements for spread and height indicated on the drawings.
 - Plant materials shall be subject to approval by the Landscape Architect as to size, health, quality, and character.
 - Bare root trees are not acceptable.
 - Provide plant materials from licensed nursery or grower.
- Bare root plants: grow with adequate fibrous roots, to be covered with a uniformly thick coating of mud by being puddled immediately after they are dug or packed in moist straw or peat moss.
- Container grown stock: grow in a container for sufficient length of time for the root system to have developed to hold its soil together, firm, and whole.
- No plants shall be loose in the container.
 - Container stock shall not be root bound.
 - Single stemmed or thin plants will not be accepted.
 - Side branches shall be generous, well twigged, and the plant as a whole well bushed to the ground.
 - Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.
- Collected stock consists of plants growing under natural conditions in soils and climate as exist at location to be planted, in locations lending themselves to proper collecting practices. Root system (balls) to be at least twenty-five (25%) percent larger than specified for nursery grown material.
- Specimen stock: all specimen designated plantings are to be nursery grown, fully developed, excellent quality, and typical example of the species. Plants designated to be planted in rows must be matched, symmetrical, and uniform in height, spread, caliper, and branching density.
- Matched plantings should be obtained from the same nursery and, preferably, from the same row or line. All specimen material will be approved by the Landscape Architect at nursery.
- Topsoil for planting mix: fertile, friable, natural topsoil of loamy character, free of admixture of subsoil material, obtained from a well drained gravel site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials with acidity range between pH 6.0 for ericaceous plants.
- Peat moss: brown to black in color, weed and seed free granulated raw peat.
- Provide ASTM D2607 sphagnum peat moss with a pH below 6.0 for ericaceous plants.
- Planting mixture Type A – trees: standard planting backfill shall be a mixture of ½ native soil (excavated from plant pits), ¼ topsoil, and ¼ sand. Add fertilizer Type "A" and "B" to planting mixture per manufacturer's requirements. Follow planting details.
- Planting mixture Type B for perennial flowers, groundcover beds, and ericaceous plants: planting backfill shall be a mixture of 1/3 screened topsoil, 1/3 sand and 1/3 peat. All existing soil shall be excavated and removed. Adding fertilizer Types "A" and "B" to planting mix per manufacturer's requirements. Follow planting details. Planting mixture Type C for annual flower beds: same as Type "B". Submit a sample to the Landscape Architect for approval prior to installation.
- Plant fertilizer Type A to be "Dimunure" applied per manufacturer recommendations.
- Plant fertilizer Type B to be "14-14-14". Apply per manufacturer recommendations.
- Bone Meal – 5 lbs. per cubic yard of soil mixes.
- Lime to be ground dolomitic limestone, ninety-five (95%) percent passing through #100 mesh screen. Use to adjust soil pH only, under direction of Landscape Architect.
- Sand to be clean, coarse, ungraded conforming to ASTM-C-3 for fine aggregates.
- 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.
- Shredded bark mulch shall be double processed, dark shredded hardwood bark that is clean, free of debris and sticks. Materials shall be uniform in size, shape, and texture. Submit samples to Landscape Architect for approval prior to installation. Install mulch to finish grade, level smooth, without ridges, humps, or depressions.
- Water: free of substances harmful to plant growth. Hoses or other methods of transportation shall be furnished by Sub Contractor.
- Stakes for staking: (3) Three Hardwood, 2" x 2" x 8'-0" long. Drive a min. of 18" deep firmly into subgrade prior to backfilling. Stakes for guying: Hardwood, 2" x 2" x 36" long.
- Guying/staking material: Wt. 2"-3" wide fabric straps, connect from tree to stake. Remove after (1) year, allow for flexibility. (Do not use wire & hose)
- Tree wrap: standard waterproofed tree wrapping paper, 2-1/2" wide, made of 2 layers of crepe kraft paper weighing not less than 30 lbs. per ream, cemented together with asphalt. Secure tree wrap with biodegradable material at top and bottom. Remove after first winter.
- Twine: two-ply jute material.
- ### MEASUREMENTS
- Measure height and spread of specimen plant materials with branches in their normal positions as indicated on Drawings or Plant List.
- 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.
- Measurement should be average of plant, not greatest diameter. For example, plant measuring 15 inches in widest direction and 9 inches in narrowest direction would be classified as 12 inch stock.
- Plants properly trimmed and transplanted should measure same in every direction.
- Measure caliper of trees 6 inches above surface of ground.
- Where caliper or other dimensions of plant materials are omitted from Plant List, plant materials shall be normal stock for type listed.
- Plant materials larger than those specified may be supplied, with prior written approval of Landscape Architect, and:
- If complying with Contract Document requirements in all other respects.
 - If at no additional cost to Owner.
 - If sizes of roots or balls are increased proportionately.
- The height of the trees, specified by height, measured from the crown of the roots to the top of the tree branch, shall not be less than the minimum size designated on the drawings.
- ### EXECUTION
- ### INSPECTION
- Landscape Architect or General Contractor's representative must approve proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.
- Individual plant locations shall be staked on the project site by the

accurately stake plant material according to the Drawings. Stakes shall be above grade, painted a bright color, and labeled with the name of the plant material to be installed at that location.

TIME OF PLANTING

Evergreen material: Plant Evergreen materials between September 1 and October 15 or in spring before new growth begins. If project requirements require planting at other times, plants shall be sprayed with anti-desiccant prior to planting operations.

Deciduous material: Plant deciduous materials in a dormant condition. If deciduous trees are planted in leaf, they shall be sprayed with anti-desiccant prior to planting operation.

Planting times other than those indicated must be acceptable to the Landscape Architect.

PREPARATION

General: See Landscape Preparation Section

Vegetation Removal

- Strip existing grass and weeds, including roots from all bed areas leaving the soil surface one (1") inch below finish grade.
- Herbicide: as required to prepare area for new planting applied to all ground cover, evergreen and shrubby beds and all mulch areas before application of preemergence herbicide, per manufacturer's recommendations. Clean area of all dead material after five (5) days.
- Pre-Emergence Herbicide: applied per manufacturer recommendations to same area where "Herbicide" has been applied and to planting bed areas, after area is cleared of dead vegetation.
- Herbicides to be applied by licensed applicator as required by the State.
- Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide plant pits per planting details. Depth of pit shall accommodate the root system. Scarify the bottom of the pit to a depth of 6".
- Roughen sides of excavations.
- Provide premixed planting mixture Type "A" for use around the balls and roots of all deciduous and evergreen tree plantings.

Ground Cover Beds, Perennial Flower Beds, and Ericaceous Plant Beds

- Excavate existing soil to 12" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Set plants according to drawings and backfill entire bed with premixed planting mixture "Type B". Ground Cover shall be planted after bed has been backfilled with plant mix and mulched. Plant ground cover through mulch and into plant mix.

Mass Shrub Beds / Hedge Beds:

- Excavate existing soil to 18" depth over entire bed area and remove soil from site. Scarify bottom of the bed to a 4" depth. Set plants according to drawings and Specifications. Backfill entire bed with (premixed) specified planting mixture Type "A".

Annual Flower Beds:

- Excavate existing soil to 8" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Backfill entire bed to an 8" depth with premixed planting mixture "Type B".

INSTALLATION

Planting shall be performed only by experienced workman familiar with planting procedures under the supervision of a qualified supervisor.

Planting pits shall be round, with vertical sides and flat bottoms, and sized in accordance with outlines and dimensions shown on the planting details.

See drawings for planting details.

If obstructions are encountered that are not indicated, do not proceed with planting operations until alternative plant locations have been selected and approved in writing by the Landscape Architect. Where location or spacing dimensions are not clearly shown, request clarification by the Landscape Architect.

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.
- Set plant material so it is flush to finish grade after settling, or 1-2" higher in poorly drained soil, or as directed by Landscape Architect.
- No filling will be permitted around the trunks or stems.
- Do not cover top of root ball with soil.
- Backfill pit with planting mixture. Do not use frozen or muddy mixtures for backfilling.
- Form a ring of soil around the edge of the planting pit to retain water.

After balled and burlapped plants are set, tamp planting mixture around of balls and fill all voids and remove air pockets.

Remove all burlap, ropes, and wires from top 1/3 of balls.

Space ground cover plants in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants. Plant to within 12" of trunks and shrubs and to within 6" of planting bed.

Spread and arrange roots of bare rooted plants in their natural position. Work in planting mixture. Do not mat roots together. Cut all broken and froayed roots before installing planting mixture.

Water immediately after planting.

Apply pre-emergent herbicide to bed areas per manufacturer's recommendations before mulching.

MULCHING

Mulch trees and shrub planting pits and shrub beds with shredded hardwood bark mulch 3" deep to diptline immediately after planting. Leave 3" circle of bare soil around tree trunk. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.

Mulch shall not be placed in contact with trunks or stems.

Mulch ground cover beds with shredded bark mulch 2" to 3" deep prior to planting.

Plant ground cover through mulch.

WRAPPING, GUYING, AND STAKING

Inspect trees for injury to trunks, evidence of insect infestation and improper pruning before wrapping.

Wrap trunks of all trees spirally from bottom to top with specified tree wrap and secure in place.

Stake deciduous trees under 4" caliper. Stake evergreen trees under 6"-0" tall and over with metal fence post, three (3)per tree.

Stake/guy all trees immediately after installation. When high winds or other conditions which may effect tree survival or appearance occur during the warranty period, the Sub-Contractor shall immediately repair the staking/guying.

Guy deciduous trees 4" caliper and over. Stake evergreen trees 6"-0" tall and over with metal fence post, three (3) per tree.

All work shall be acceptable to the Landscape Architect/Owner's representative.

PRUNING

- 3.7.1 Remove or cut back broken, damaged, and unsymmetrical growth of new wood.
- 3.7.2 Multiple leader plants: preserve the leader which will best promote the symmetry of the plant. Do not prune terminal leader.
- Cut branches flush with the trunk of the main branch, at a point beyond a lateral shoot or bud at a distance of not less than 1/2 the diameter of the supporting branch. Make cut on an angle.
- 3.7.3 Prune evergreens only to remove broken or damaged branches.
- 3.8 MAINTENANCE
- 3.8.1 See Landscape Maintenance and Warranty Standards.
- 3.9 CLEANING
- 3.9.1 Perform cleaning during installation of the work and upon completion of the work. Remove from all site excess materials, soil, debris, and equipment. Repair damage resulting from planting operations.
- END OF SECTION
- LANDSCAPE MAINTENANCE AND WARRANTY STANDARDS**
- 1.0 GENERAL
- 1.1 SUMMARY
- 1.1.1 Includes But Not Limited To
1. Provide maintenance for new landscaping as described in Contract Documents.
2. The requirements of the Section include a one (1) year warranty period from date of acceptance of installation performed by the General Contractor's Representative and Landscape Architect.
- 2.0 PRODUCTS - Not Used
- 3.0 EXECUTION
- 3.1 PERFORMANCE
- 3.1.1 Acceptance of Installation
1. At the completion of all landscape installation, or pre-approved portions thereof, the Landscape Subcontractor shall request in writing an inspection for Acceptance of Installation in which the Landscape Subcontractor, Landscape Architect, and General Contractor's Representative shall be present.
- a. Following the acceptance inspection a punch list will be issued by the Landscape Architect.
- b. Upon completion of all punch list items, the Landscape Architect and/or General Contractor's Representative shall reinspect the project and issue a written statement of Acceptance of Installation and establish the beginning of the Project Warranty Period.
- c. At the time of acceptance all plant material shall be of vigorous health.
- d. It is the responsibility of the Landscape Subcontractor to make the written request for inspection of installation in a timely fashion.
- e. If there is plant material loss prior to the Landscape Subcontractor's written request for inspection of installation, the Landscape Contractor shall make all replacements of this dead material at no additional cost. These replacements are not considered to be the required one (1) replacement of dead plant material by the Landscape Subcontractor during the one (1) year project warranty period, as outlined below.
2. Landscape work may be inspected for acceptance in parts agreeable to the General Contractor's Representative and Landscape Architect provided work offered for inspection is complete, including maintenance as required.
3. For work to be inspected for partial acceptance, the Landscape Subcontractor shall provide a drawing outlining work completed and supply a written statement requesting acceptance of this work completed to date.
- 3.1.2 Project Warranty
1. The Project Warranty Period begins upon written preliminary acceptance of the project installation by the Landscape Architect and General Contractor's representative.
2. The Landscape Subcontractor shall guarantee trees, shrubs, ground covers, beds and seeded or sodded areas through construction and for a period of one (1) year after date of Acceptance of installation against defects including death and unsatisfactory growth, except for defects resulting from neglect, abuse or damage by others or unusual phenomena or incidents which are beyond Landscape Subcontractor's control.
- 3.1.3 Maintenance During One (1) Year Project Warranty
1. To insure guarantee standards, the following maintenance procedures for trees, shrubs, and ground covers shall be executed during construction and for the full Project Warranty Periods.
- a. Landscape Subcontractor shall be responsible for only one (1) replacement of any plant materials during the one (1) year Project Warranty Period. These include those which are dead or in the opinion of the Landscape Architect are in an unhealthy or unsightly condition, or having lost natural shape, resulting from dieback, excessive pruning, or inadequate or improper maintenance as part of the guarantee.
- b. Prior to any replacements, Landscape Subcontractor shall review individual plants in question with Landscape Architect to determine reason for plant demise.
2. Replacements must meet the standards specified on the Landscape plans and in the specifications, i.e. quality, species of plant material and planting procedures to receive approval of replacement materials by Landscape Architect.
3. Costs for replacements are assumed part of bid quotations and therefore will not result in an additional cost to General Contractor or Landscape Architect.
4. Areas damaged as a result of replacement operation are to be restored by Landscape Subcontractor at no cost to the General Contractor or Landscape Architect.
5. The Landscape Subcontractor shall be responsible for watering all plantings through the warranty period and shall keep guy wires taut, raise tree balls which settle, furnish and apply sprays as necessary to keep the plantings free of disease and insects until the end of the warranty period.
6. The Landscape Subcontractor shall remove and replace trees, shrubs or other plants found to be dead or in unhealthy condition.
- a. Rejected plants and materials shall be removed promptly.
- b. Replacements shall be made during the following normal planting schedule.
- c. Trees and shrubs which are in doubt shall be replaced, unless, in the opinion of the Landscape Architect, it is advisable to extend Project Warranty Period for full growing Season.
7. The Landscape Subcontractor shall apply anti-desiccants on evergreen trees and evergreen shrub beds within 150' of major streets and drives, no later than December 1, during the one (1) year project warranty.
8. The first spring after plant installation the contractor shall check all trees to insure twine has rotted from around the trunk. If twine is still present, it shall be removed and disposed of off-site.
9. All stakes, guy wires, tree wrap paper, dead twigs and branches shall be removed from tree and plant materials at the end of this warranty period.

- 3.1.4 Maintenance of Seeded Lawn Areas
1. The Landscape Subcontractor shall maintain seeded lawn areas.
 - a. Water, fertilize, weed, and apply chemicals until a dense lawn of permanent grasses, free from lumps and depressions or any bare spots, none of which is larger than one (1) foot of area up to a maximum of 3% of the total seeded lawn area is established.
 - b. Seeded lawn that fails to show a uniform growth and/or germination shall be reseeded until a dense cover is established, regardless of what season the seed was installed.
 2. The Landscape Subcontractor shall maintain and mow all lawn areas for until acceptance of installation (typically 3 mows) . When lawn reaches 3" in height it shall be cut to 2" in height.
 3. The Owner assumes cutting responsibilities following the Acceptance of Installation of the seeded lawn.
 4. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all seeded lawn maintenance responsibilities.
- 3.1.5 Maintenance of Sodded Lawn Areas
1. The Landscape Subcontractor shall maintain sodded lawn areas.
 - a. Water, fertilize, spot weed, apply herbicides, fungicides, insecticides and reseed until a full uniform, smooth stand of sod is knitted to topsoil, and accepted by the Landscape Architect or his or her representative.
 2. Water sod thoroughly, as required to establish proper rooting.
 3. Repair, rework, and reseed all areas that have washed out or are eroded. Replace undesirable or dead areas with new sod.
 4. Mow lawn areas once as soon as sod has rooted sufficiently and knitted to the topsoil. Cut back to 2" height. Not more than 40% of grass leaf shall be removed at any single mowing. Excess clipping to be removed by the Landscape Subcontractor. The Landscape Subcontractor shall be responsible for lawn mowing until acceptance of installation (typically 3-mows).
 5. The Owner assumes mowing responsibilities following the Acceptance of Installation of the sodded lawn.
 6. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all sodded lawn maintenance responsibilities.
- 3.1.6 Final Acceptance Upon Conclusion of the Warranty Period
1. At the conclusion of the Project Warranty Period the Landscape Subcontractor shall request a project inspection for final acceptance in which the Landscape Contractor, Landscape Architect and Owner's Representative shall be present.
 2. After the inspection for final acceptance, a punch list will be issued by the Landscape Architect. Upon completion of all punch list items, the Landscape Architect and the Owner's Representative shall reinspect the project and issue a Written Statement of Final Acceptance.
- END OF SECTION
- NOTE: The Owners may at their option elect to utilize a Construction Manager in lieu of a General Contractor for all matters pertaining to these specifications and the site work.

