

SECTION 722 – PLANT INSTALLATION

722.01 DESCRIPTION

This section discusses the installation and maintenance of trees, shrubs and perennials, and the application of mulches and planting accessories.

722.02 REFERENCE STANDARDS

Hortus	Nomenclature for plant materials shall be in accordance with Hortus III, by the staff of L.H. Bailey Hortorium.
ANLA	American Standard for Nursery Stock. ANSI Z60.1, latest edition, American Nursery & Landscape Association (ANLA).
LCA	Landscape Specification Guidelines, latest edition, Landscape Contractors Association. In instances where these specifications and recommendations of the Landscape Contractors Association are different the most stringent specifications shall govern.
M-NCPPC	Section 723 – Landscape Soil

722.03 DEFINITION

- A. Maintenance Period: The maintenance period is defined as the time from plant installation to acceptance of the plants at the time of the punch list.
- B. Aftercare Period: The aftercare period is defined as two years from the end of the maintenance period. The period ends with final acceptance of all plant materials.

722.04 MATERIALS

- A. Plant Material.
 - 1. Plants shall be in accordance with ANLA Standards and nursery-grown with best horticultural practices under climatic conditions similar to those of the Project for at least two (2) years, unless specifically noted otherwise. All plants shall be of certified nursery stock and meet the referenced ANLA standards for quality by being exceptionally full, uniform, so trained or favored in development and appearance as to be superior in form, density, spread of branches, compactness and symmetry. The M-NCPPC Construction Manager shall make determination of quality.
 - 2. Plants must be sound, healthy and vigorous, well branched and densely foliated when in leaf. Plants shall be free of disease, insect pests, eggs or larvae and shall have healthy, well developed root systems. Plants must be free from physical damage or adverse conditions that would prevent vigorous growth. All trees shall be single-stem specimens unless otherwise noted. Plants should not be pruned prior to delivery.
 - 3. Trees that have a damaged or crooked leader, missing leaders or multiple leaders (unless otherwise noted) will be rejected. Trees with damage or abrasion of the bark, sun scalds, disfiguring knots or fresh cuts longer than 1-¼ inches that have not completely callused will be rejected.

4. Plants must be true to species, variety, size and container type shown on Drawings.
5. Plants should be obtained from growers in the Mid-Atlantic Region. If the Contractor can demonstrate that sufficient plants can't be located within the region, the M-NCPPC Construction Manager may approve alternate nursery sites.
6. Plant Size.
 - a. Plants must conform to the measurements specified in plant schedules on the Drawings. Plants larger than specified may be used if acceptable to the M-NCPPC Construction Manager. Use of such plants shall not increase the contract price. If larger plants are accepted, the root ball shall conform to ANLA specifications.
 - b. Deciduous trees; A caliper measurement shall be taken at a point on the trunk six (6) inches above the natural ground line for trees up to four (4) inches in diameter and at a point twelve (12) inches above the natural ground line for trees greater than four (4) inches in diameter. Coniferous evergreens: Measurement is based on height as per American Standard for Nursery Stock (ANSI Z60.1, latest edition).
 - c. Plants shall be measured when branches are in their normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to tip.
 - d. No plant shall be less than the minimum size when a range of sizes is given. The minimum size acceptable gives measurements after pruning when pruning is required. Evergreen trees and shrubs shall be full to the extent of their normal development as a standard nursery practice. No sheared or undersized evergreens will be accepted.
 - e. Plants that meet measurements specified but do not possess normal balance between height and spread, or height and caliper, shall be rejected.
 - f. Shrubs shall meet the requirements for spread or height stated on the drawings. The measurements for height shall be taken from the ground level to the average height of the shrub and not to the longest branch. Single stemmed or thin plants will be rejected. The side branches must be generous, well twigged and the plant as a whole shall be well branched to the ground. The plants must be in a moist, vigorous condition, free from deadwood, bruises and root or branch injuries. Plants shall not be pruned prior to delivery to the site.
 - g. Groundcovers, perennials, and ornamental grasses shall be of size, age and condition listed on the Drawings. Plants shall be potted, healthy and free of all types of pests.
7. Balled and Burlapped Plants.
 - a. Balled and burlapped plants shall be freshly dug. They shall be adequately balled with firm, natural balls of earth of a diameter and depth not less than that recommended by the ANLA Standards. Balls shall be firmly wrapped with untreated burlap. Any surface soil above the original grade of the root ball or covering or obscuring the flare of the tree trunk or shrub crown must be removed prior to planting in order to determine the appropriate planting depth. All balled and burlapped trees shall exhibit the flare of the trunk at the soil line.

- b. Tree root balls with more than four (4) inches of extra surface soil will be rejected. Shrub balls with more than one (1) inch of extra surface soil will be rejected.
 - c. Balled and burlapped plants that are two (2) inches or more in caliper shall be drumlaced or have wire baskets.
 - d. Balled and burlapped plants with a cracked root ball will be rejected.
8. Container Grown Plants.
- a. The root system of container grown plants shall be well developed and well-distributed throughout the container such that the roots visibly extend to the inside face of the growing container and hold its soil together firm and whole.
 - b. Container grown plants shall not be root bound. Container grown plants shall have no large roots growing out of the container. Spiraling roots, root curl and any type of deformation of the roots of plants grown in containers shall be rejected.
 - c. Container grown plants with cracked or broken balls of earth when taken out of the container shall be rejected.
9. Bare Root Plants. Bare root plants are prohibited, unless otherwise noted.
- B. Packaged materials like seed and fertilizer shall be delivered in manufacturer's unopened containers or bundles and will be fully identified with name, brand, type, weight and analysis. Packaged materials will be stored in a manner to prevent damage or intrusion of foreign matter. Any material that has become contaminated as determined by the M-NCPPC Construction Manager will be immediately removed from the jobsite by the Contractor.
- C. Soil Amendments. Refer to Section 723 Landscape Soil (Topsoil) for information on soil amendments.
- D. Mulch.
- 1. Mulch for Planting Beds and trees without understory plantings. Premium grade, fine-shredded, composted hardwood bark, $\frac{3}{4}$ inch minimum to one (1) inch maximum, free of sticks, dirt, dust and other debris. Mulch shall not contain, in the judgment of the M-NCPPC Construction Manager, an excess of fine particles.
- E. Pesticides. No pesticides are to be used without written approval by the M-NCPPC Construction Manager. All pesticides shall be pre-approved by the M-NCPPC Construction Manager 7 business days prior to application for the intended uses and application rates. Approved pesticide applications shall be performed by an applicator certified by the State of Maryland. If pesticide use is approved then state, local and M-NCPPC requirements for notification and signage shall be followed. Montgomery County requires prenotification of pesticide use; this includes special signs and web notification which will be handled by a designated M-NCPPC staff person in coordination with the General Contractor or company performing the work.
- F. Tree Bark Protection.

1. For trees with branches higher than four (4) feet off the ground and less than 2-1/2-inch caliper: Leonard Tree Bark Protectors Rigid Mesh 48in (Item #BG48) by A.M. Leonard or approved equal (www.amleo.com).
2. Wire protection cages shall be placed on all trees including multi stem with branches lower than 4' as measured from the ground. For multi-stemmed trees or trees with branches lower than four (4) feet off the ground: 48" 14-gauge welded wire fence with 2"x4" openings.
3. Anchors: Six (6) inch sod staples, three (3) per tree to secure wire protection cages to the ground.

G. Tree Support System.

1. Trees shall be staked or guyed to prevent them from falling over in severe weather. Stakes or guys are not used as a means of keeping trees upright. See construction plans for detail including materials.

H. Water. The Contractor shall be responsible for furnishing a supply of water to the site at no extra cost to M-NCPPC if municipal water is not available to the site at the time of planting or thereafter during the maintenance and aftercare period. All plants injured or damaged due to the use of excessive or insufficient water shall be the Contractor's responsibility to correct. Water shall be free from impurities injurious to plant materials.

722.05 SUBMITTALS

- A. All the following submittals need to be provided and approved by the M-NCPPC Construction Manager otherwise no material including plants shall be delivered to the site.
- B. The Landscape Subcontractor must be approved by M-NCPPC CM. Landscaping work shall be performed by a firm with a minimum of five (5) years' experience specializing in this type of work. The Contractor shall supply 10 projects of similar scope in the last 5 years. The Contractor shall also supply 5 references. This list will include names, addresses and telephone numbers of contact people representing the client and current project owner.
- C. At least 14 calendar days prior to installation of plant material, the Contractor shall submit a detailed production schedule indicating various work items and dates each item will be staked or flagged, started and completed. Include digging and delivery dates for all plant material.
- D. Submit Certificates of Inspections required by law for transportation of plant material.
- E. Provide two (2) one-pound samples of mulch to be used on the project, packaged in a plastic bag, prior to delivery of mulch to the project site. The samples shall be typical of the lot of material delivered to the site and must provide an accurate indication of the material's color and texture. The M-NCPPC Construction Manager must approve materials. Provide information on the source of mulch and content.
- F. Sources of Plant Material. Plants should be selected from nurseries that have been inspected and certified by the state Department of Agriculture in the state where the plant was obtained. Include the following information for each nursery:
 1. Name of nursery
 2. Address of nursery
 3. Name of contact person

- G. Provide copy of all soil tests and recommendations. See Section 723 Landscape Soil for soil testing requirements.
- H. Proposed soil mixes with pH and chemical additives appropriate for each plant type to be used in the project. Include quantities and proportions of soil, fertilizer, organic matter and additives. Also, include soil source and make-up. Refer to Section 723 Landscape Soil and soil amendments.
- I. Watering schedule for plant material during maintenance and aftercare period. Submit schedule to M-NCPPC Construction Manager for approval **prior** to delivery of plants to the site.
- J. Deer protection, including product literature for tree sleeves and wire cages for single and multi-stem plant material.

722.06 QUALITY ASSURANCE

- A. The Contractor shall be responsible for furnishing and installing plant material shown on the drawings and plant list submitted with the contract. The Contractor shall investigate the source of supply and shall be satisfied that all plants specified on the drawings can be supplied in the size, variety and quality noted before submitting the bid. Failure to take this precaution will not relieve the Contractor from responsibility for furnishing and installing all the plant material in strict accordance with the contract requirements and without additional expense to M-NCPPC.
- B. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for using the nearest equivalent size or variety or an appropriate alternative species with an equitable adjustment of contract price. Such proof shall be substantiated and submitted in writing to the M-NCPPC Construction Manager. Substitutions shall not be permitted without written approval by the M-NCPPC Construction Manager.
- C. The Contractor shall provide plant maintenance until the time he has completed all of the punch list items to the approval of the M-NCPPC Construction Manager. At that time, an inspection shall be made of all plant material, and any material noted to be deficient shall be replaced with material that meets these specifications, and the contractor will then be released from any further responsibility for the plants.
- E. The contractor shall preserve and protect all existing vegetation, unless otherwise noted. The contractor shall be responsible for all unauthorized damage to trees, shrubs, lawn and planting areas. Damaged areas shall be restored, replaced or repaired by the Contractor as directed by the M-NCPPC Construction Manager at no additional cost to M-NCPPC.

722.07 CONSTRUCTION

- A. The Contractor will notify the M-NCPPC Construction Manager at least 14 calendar days prior to the start of any stage of work including plant delivery.
- B. The Contractor shall be responsible for judging the full extent of work requirements involved, including but not limited to the potential need for storing and maintaining plants temporarily and re-handling plants prior to final installation.
- C. Keep areas of planting operations clear and clean at all times. During the progress of all planting operations, protect previously constructed walls, roads, paving, curbs and other structures with

plywood, planking, padding or other accepted means as required. The Contractor shall repair all damaged facilities at no additional cost to M-NCPPC.

D. Plant Materials.

1. Trees and shrubs will be delivered after preparations for planting have been completed and soil has been accepted by M-NCPPC Construction Manager. Trees or shrubs will not be bent, bound or tied in a manner that may damage the bark, break the branches or destroy the natural shape.
2. All plant material shall be covered in transit with a tarp to prevent drying out.
3. If planting is delayed more than 24 hours after delivery, plants will be protected from severe weather and any possible damage. Roots will be kept moist by heeling-in balled and burlapped material with a minimum of 4" of woodchips or mulch over the top and encompassing entire root balls and watered regularly or as determined by M-NCPPC CM. Roots will be watered regularly.
4. Each tree and group of shrubs and perennials shall be labeled with a securely attached waterproof tag bearing the legible designation of botanical and common name as required by the Maryland Department of Agriculture. Place tags on the north side of each tree. Trees will be rejected if they do not contain the complete botanical name.
5. All plants shall be healthy, pest-free, true to name and in conformance with these specifications. No wild collected plant material or sheared evergreens may be used. Plants that have been pruned back without M-NCPPC Construction Manager's consent will be rejected.

E. Project Conditions.

1. Planting Season (except where otherwise noted):
 - a. Deciduous and Evergreen Plant Material: October 15 to April 15.
 - b. Perennials: Spring – March 15 to June 15; Fall – September 15 to November 15.
 - c. Planting outside of these time periods requires approval of M-NCPPC Construction Manager.
 - d. Trees that are grown outside of Zone 7 may require adjustment of planting dates to insure dormant material. Changes must be approved by the M-NCPPC Construction Manager.
2. Proceed with planting only when existing and forecast weather conditions are suitable for work. Perform actual planting when ground is workable, i.e. moist; not wet or frozen.

F. Plant Selection.

1. Plants shall be subject to selection by the M-NCPPC Construction Manager at the plants' place of growth, and inspection upon delivery to the site. M-NCPPC retains the right to further inspect plants and to reject all unsatisfactory or defective plant material at any time during the progress of work. Contractor shall remove rejected plants immediately from the project site.
2. The Contractor shall submit a written request to select plant material to the M-NCPPC Construction Manager at least 15 calendar days prior to digging. The written request shall state the place of growth and the quantity of plants to be inspected. M-NCPPC reserves the right to refuse selection at this time if a sufficient quantity of plants is not available.

G. Site Inspection.

1. Inspect the project site before beginning landscape development operations and notify the M-NCPPC Construction Manager, in writing, of any conditions that might prevent proper and timely completion of work. Examine substrates, compaction and other conditions under which work is to be performed. Work will not proceed until unsatisfactory conditions are corrected to permit proper installation of work in any location affected by such conditions.
2. Test drainage of pits and planting beds. Notify the M-NCPPC Construction Manager of potential poor drainage in tree and shrub pits and planting beds considered detrimental to growth of plant material. Recommend a program for correction of poor drainage conditions and submit a proposal to the M-NCPPC Construction Manager. Do not proceed with planting operations in areas of poor drainage until conditions are corrected or direction is given.
3. Any rock, underground construction work, tree roots or obstructions encountered when excavating plant pits must be brought to the attention of the M-NCPPC Construction Manager.
4. Starting work constitutes acceptance of the soil conditions and any other existing conditions that may affect plant growth under which the work is to be performed. After such acceptance, the Contractor is responsible for correcting unsatisfactory and defective work resulting from any unsatisfactory conditions.
5. If soil surrounding a proposed tree location is compacted as determined by the M-NCPPC Construction Manager, an area of up to five (5) times the diameter of the root mass of the tree shall be excavated or rototilled to a one (1) foot depth and soil shall be amended per section 723 Landscape Soil (Topsoil).

H. Layout and Grades.

1. Areas to be planted will be brought to line and grade designated or accepted by the M-NCPPC Construction Manager before marking planting locations
2. The Contractor shall determine the location of all underground utilities prior to soil work and plant installation and perform work in a manner that will protect utilities from damage. Hand-excavate as required and provide adequate means of support and protection of utilities during soil and planting operations. Maintain grade stakes set by others until parties concerned mutually agree upon removal. The Contractor shall repair all utilities damaged by soil and planting operations at no expense to the M-NCPPC.
3. If there is a conflict between the utilities and planting, the Contractor must notify the M-NCPPC Construction manager to determine alternate planting sites.
4. Use survey flags and/or brightly colored spray paint to stake locations of trees and shrubs and outline of bed areas for review and adjustment by M-NCPPC Construction Manager prior to planting. Place shrubs, perennials, and groundcovers in specified locations in bed areas in the presence of M-NCPPC Construction Manager before containers are removed so that adjustments can be made prior to planting. Obtain approval of the M-NCPPC Construction Manager of layout before planting.
 - a. Provide a minimum of seven (7) calendar days' notice to M-NCPPC Construction Manager for review of planting bed and plant layout after plant locations are flagged.

- b. In the event of rain prior to plant layout approval, re-apply spray paint to ensure visibility of plant locations.

I. Soil Preparation must be approved by the Construction Manager prior to plant installation

1. Planting Pits for Trees and Shrubs as shown on the planting detail including size of pit, preparation of the pit, and height of the rootball. Any soil remaining after completion shall be removed from the area.
2. Landscaping Areas. For existing soil to remain in place and be amended for planting beds, loosen existing subsoil to a depth of 12 inches for perennial beds. See Section 723 – Landscape Soil. Excavation is not required. Add organic matter, soil amendments and fertilizer based on soil test results and rototill until thoroughly blended. Level and regrade planting bed prior to installation of Landscaping Soil.
3. For soil preparation in critical root zone areas of existing trees, all work must be done by hand with shovels and rakes, unless otherwise approved in writing by the M-NCPPC Construction Manager.
4. For soil within a bioretention facility, all weeds including roots must be removed by hand tool methods and approved before planting.

J. Plant Installation.

1. The root collar of all trees and shrubs should be planted level with existing grade as shown in the planting details. The root collar flares out at the base of the trunk, just above the roots. The flared base of the trunk shall always remain above the surface and the roots should be covered with soil. Compliance could entail excavation and removal of excessive soil from the top of the root ball before the plant is acceptable for planting. The root flare must be visible following plant installation.
2. Place the plant material in the planting pit, planting bed or planter to proper grade and alignment indicated on the Drawings or by the M-NCPPC Construction Manager. If possible, Position trees to face in the same direction as they were growing in the nursery to protect trees from sunscald. Otherwise, place so that the best viewable face is shown
3. Set all plant material on undisturbed grade to prevent plants from sinking.
4. For container plants, remove plant from container, and shave the sides of the root ball around the entire circumference from the top to the bottom, removing 1-2” thick slices (depending on denseness of roots) using a soil knife or hand saw which removes all roots growing on the periphery. The same procedure shall be done to the bottom of the plant.
5. For balled and burlapped material, remove all ropes and wires from trunk and root ball and discard. To the extent feasible, remove all burlap from the root ball and discard. Do not leave any ropes or wires in tree pit.
6. Set plants upright, plumb and centered in pits and positioned as directed by the M-NCPPC Construction Manager. Plants shall only be lifted and moved by only handling from the bottom of the root ball. Trees shall not be handled or manipulated by their trunks; and shrubs shall be handled by containers.

7. Container grown stock shall not be removed from containers until planting time.
6. Immediately stake and guy trees in windy locations and trees bearing heavy crowns as directed by the M-NCPPC Construction Manager. Install stakes and guys per manufacturer's directions.
 - a. Tree support straps should be installed loosely enough to allow tree to sway but tight enough to prevent the tree from falling over in severe weather.
 - b. Tie off tree support straps in a method that allows the knot to expand as the tree grows, ensuring supportive and girdle-free growth.
7. Space groundcover and perennial plants in accordance with dimensions and spacing requirements indicated on the Drawings.
8. Install groundcover plants and perennials so that roots are surrounded by soil below mulch.

K. Backfill.

1. Backfill with soil mixture specified.
2. Backfill sides of plant pit halfway with soil mixture and tamp soil as pit is being filled to eliminate air pockets.
3. Finish backfilling sides of pits and tamp firmly. Maintain plants plumb and straight.
4. Never cover the root flare with soil.
5. Build up a watering saucer of backfill on the outside edge of the planting pit, as shown in the planting details.

L. Mulching.

1. After planting has been completed and verified as acceptable by the M-NCPPC Construction Manager, mulch plant pits, planting beds and planters with specified mulching material a minimum of two (2) and a maximum of three (3) inches, and tapering to zero (0) inches toward the base of the plant. Keep mulch six (6) inches from the root flare. Mulch touching the stems of plants will be considered unacceptable.
2. Planting areas shall conform to specified grades after full settlement has occurred and after mulch has been applied. Plant identification tags shall remain on the plant until after inspection by the M-NCPPC Construction Manager has been completed. Remove all other tags, labels, strings, etc. from plants immediately after mulch has been applied. Identification tags shall remain on the plant until after inspection by the M-NCPPC Construction Manager has been completed.

M. Watering. Thoroughly water all planted areas immediately after planting. Ensure root balls are saturated and saucers do not wash out. Each plant should be watered thoroughly on the inside of the saucer until it is filled, even during rain. After watering, rake mulch to provide a uniform finished surface.

N. Pruning.

1. All pruning is to be done on site under the direction of the M-NCPPC Construction Manager or M-NCPPC Urban Forester. Do not prune plants before delivery.
2. Under the direction of the M-NCPPC Construction Manager or M-NCPPC Urban Forester, prune only dead, decayed, broken, crossing and inward-growing branches and branch stubs. Do not cut leaders. Maintain and/or improve the attractiveness of each plant's full form, consistent with its natural growth habits. Excessively pruned plants will be rejected.

722.08 MAINTENANCE AND AFTERCARE

Maintenance Period. All work performed under this section shall be warranted through the maintenance period. After the contractor has completed all punch list items to M-NCPPC's satisfaction.

- A. At the completion of all planting work, a final inspection of the landscape installation shall be performed by the M-NCPPC Construction Manager. At the time of inspection, the Contractor shall have all planting areas under the Contract free of all pests and weeds and neatly cultivated. Saucers around planting holes shall be in good repair.
- B. If the M-NCPPC Construction Manager identifies work requiring corrective action, all work shall be performed immediately but no later than 30 days after the inspection unless otherwise authorized in writing by the M-NCPPC Construction Manager. No partial approvals will be given unless authorized in writing by the M-NCPPC Construction Manager.
- C. All plant material (trees, shrubs, vines, groundcovers, perennials and other plant materials except turf) will be maintained in a healthy and flourishing condition of active growth with a replacement guarantee until he has successfully completed all punch list items.
- D. Plants shall be inspected for watering needs at least once per week between March 31 and October 31. The Contractor is responsible for arranging for all necessary watering, even if there is no on-site source for water. Watering shall begin as soon as the plant material is installed at no cost to M-NCPPC.
 1. Plant beds shall be thoroughly watered one (1) to two (2) times per week to a total depth of one (1) inch of water per week (by rain, water truck or irrigation) between March 31 and October 31.
 2. During maintenance, trees and shrubs should be watered for an equivalent of one (1) inch of rain per week. One (1) inch of rain equates to ten (10) gallons of water for every one (1) inch of tree caliper.
- E. During construction through the final walk through, plants will be inspected. Dead plants and plants not in healthy, vigorous, thriving condition as determined by the M-NCPPC Construction Manager shall be replaced at no expense to the M-NCPPC. Replacement plants shall be of the same variety, size and character as specified for the original planting. He shall continue to maintain the plants in accordance with aftercare requirements while punch list items are completed.
- F. Any material that is 25 percent or more dead shall be considered dead and must be replaced at no cost to the M-NCPPC. A tree or shrub shall be considered dead when the main leader has died back or 25 percent of the crown is dead.

- G. Plants shall be free of dead or dying branches and branch tips and shall bear foliage of normal density, size and color. Adjacent specimens of the same species will be matched closely to one another.
- H. Trees that have settled to an out-of-plumb condition or to an improper root ball height shall be reset plumb or replaced. Trees being reset shall have backfill completely removed so that any adjustment to the tree is done by handling the root ball. If tree needs to be raised, it may be necessary to use burlap and sisal twine to secure root ball in order to properly lift out of hole and re-pack soil for a secure base to place at proper height as per planting detail. Staking or guying may also be necessary at the discretion of M-NCPPC CM.
- I. Groundcover, perennial, and ornamental grass planting areas shall be full with no bare spots. Plants shall be vigorous and thriving and the ground shall exhibit a minimum uniform coverage of 75 percent coverage throughout the bed area and free of weeds.
- J. Necessary site repairs caused by plant replacement work will be made at no extra cost to the M-NCPPC.
- K. If after the inspection the M-NCPPC Construction Manager is of the opinion that all work has been satisfactorily performed per the Drawings and Specifications and that all plants are in healthy, viable growing condition, the Contractor will be issued a written notice of acceptance in the form of a “Notice of Substantial Completion.” This will serve as the commencement of the after care.

Plant After-Care. This period begins after the “Notice of Substantial Completion” is received

- A. Maintain plants and beds by watering, weeding, restoring planting saucers around root balls, tightening and repairing guy supports and resetting plants to proper grades or vertical position, as required to establish healthy, viable plantings. Manage pests to maintain plants in a healthy and attractive condition for the long term. Specific maintenance requirements, in addition to those outlined above, are outlined as follows.
- B. Plants shall be inspected for watering needs at least once per week between March 31 and October 31. The Contractor is responsible for arranging for all necessary watering, even if there is no on-site source for water.
 - 1. Plants in bioretention or other stormwater facilities, and planting beds shall be thoroughly watered one (1) to two (2) times per week to a total depth of one (1) inch of water per week (by rain, water truck or irrigation) between March 31 and October 31.
 - 2. Trees and shrubs should be watered for an equivalent of one (1) inch of rain per week. One (1) inch of rain equates to ten (10) gallons of water for every one (1) inch of tree caliper.
- C. All bioretention and other stormwater facilities, planting beds and mulched areas around trees shall be kept free of weeds from March 1 through October 31 and shall be weeded twice per month during this period.
 - 1. In bioretention or other stormwater facilities, weeding by means of pre-emergent herbicide or by spraying herbicides is prohibited.
 - 2. In mulched areas of trees that have no herbaceous plantings, with approval from the Construction Manager as specified above, pre-emergent herbicides and sprays may be used.

3. In planting beds, all weeds including roots must be removed by hand tool methods. Herbicide use is a last resort and requires prior approval by the M-NCPPC Construction Manager. Herbicide application must be done under the direct supervision of a Certified Pesticide Applicator. Weeding personnel must be able to identify the difference between desirable plants and weeds.
 4. No pesticides are to be used unless written approval by the M-NCPPC Construction Manager is obtained. All pesticides shall be pre-approved by the M-NCPPC Construction Manager seven (7) business days prior to application for the intended uses and application rates. Approved pesticide applications shall be performed by an applicator certified by the State of Maryland. If pesticide use is approved then state, local and M-NCPPC requirements for notification and signage shall be followed. Montgomery County requires prenotification of pesticide use; this includes special signs and web notification which will be handled by a designated M-NCPPC staff person in coordination with the General Contractor or company performing the work.
- D. All planting beds shall be mulched following late winter/early spring clean-up. Mulch shall match the material installed at time of planting. The total depth of mulch in planting beds shall not exceed two (2) inches. Mulched areas of trees shall also be re-mulched at this time to a depth not to exceed three (3) inches. Mulch shall be maintained throughout the year at the required depths. Beds and individual tree pits shall be neat in appearance with clearly defined edges maintained to the designed layout. Keep mulch six (6) inches from the root flare of the tree.
- E. Newly planted trees do not require fertilization. If trees do not appear healthy, consult a certified Arborist or certified Horticulturist for recommendations. If steps are recommended to improve plant health, submit proposal to M-NCPPC Construction Manager for approval prior to implementation.
- F. One year after planting or “Notice of Substantial Completion”, all guy wires, cables and stakes must be removed.
- G. All groundcovers, perennials and ornamental grasses shall be cut back to approximately six (6) inches from the ground in February or early March, before groundcovers and perennials germinate. If mowers, weed whackers or bush whackers are used, take care not to damage bark of trees and shrubs. Deadheading (removal of spent blooms) during the growing season is not recommended.
- H. Maintenance pruning of trees shall occur throughout the year, as necessary to remove broken, dead or diseased branches, suckers on main stems of trees, sprouts growing at the base of trees, crossed branches and low limbs that interfere with traffic or maintenance.
- I. Broken, dead or diseased branches should be removed from shrubs throughout the year as necessary. The natural character of shrubs shall be kept intact. Shrubs shall not be pruned into hedges. Shrub branches that interfere with traffic on walkways should be selectively pruned.
- J. Tree support straps shall be tightened as needed throughout the first growing season. Do not over-tighten straps. After the plant has been in place for one full growing season, the Contractor shall remove all tree support materials and dispose of them off site.
- K. Pesticide use. No pesticides are to be used without written approval by the M-NCPPC Construction Manager is obtained. All pesticides shall be pre-approved by the M-NCPPC Construction Manager 7 business days prior to application for the intended uses and application rates. Approved pesticide applications shall be performed by an applicator certified by the State of Maryland. If pesticide use is approved then state, local and M-NCPPC requirements for notification and signage shall be followed.

Montgomery County requires prenotification of pesticide use; this includes special signs and web notification which will be handled by a designated M-NCPPC staff person in coordination with the General Contractor or company performing the work. Pesticide signs shall be installed at the time of application and remain in place for 48 hours following application in compliance with Maryland state pesticide regulations.

- L. Clean Up: The Contractor shall clean up and remove off-site all debris created by this Work.
- M. Plants found to be unacceptable at the end of the aftercare period shall be replaced at no cost to the M-NCPPC within one (1) month or within the first month of the next planting season.
- N. At the end of the aftercare period, all deer protection fencing shall be removed and disposed of off-site, unless otherwise directed by the M-NCPPC Construction Manager. All beds shall be weeded, neatly mulched and free of litter.

722.08 MEASUREMENT AND PAYMENT

Payment will be full compensation for all the work performed under this section. This includes material, labor, equipment, tools and incidental items necessary to complete the work unless the Bid Form has separate Bid Items. Payment shall be made on a unit rate or lump sum basis as shown in the Bid Proposal.