32 01 90 - Operation and Maintenance of Planting

1. **General**
   
   A. This Construction & Design standard covers Contractor requirements after Substantial Completion Acceptance through the warranty period and final acceptance.

2. **References**
   
   
   
   
   D. Related specification sections:

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3. **Documentation and Review Requirements**
   
   A. Maintain a detailed log of all maintenance activities including types of tasks, date of task, types and quantities of materials and products used, watering times and amounts, and number of each crew. Periodically review the logs with the Owner’s Representative, and submit a copy of the logs at the end of each year of the maintenance agreement.

   B. Meet with the Owner’s Representative a minimum of three times a year to review the progress and discuss any changes that are needed in the maintenance program.

4. **Installation and Performance Requirements**
   
   A. Maintenance during the warranty period by others

   1. The Contractor shall make sufficient site visits to observe the Owner’s maintenance and become aware of problems with the maintenance in time to request changes, until the date of End of Warranty Final Acceptance.

   a. Notify the Owner’s Representative in writing if maintenance, including watering, is not sufficient to maintain plants in a healthy condition. Such notification must
be made in a timely period so that the Owner’s Representative may take corrective action. Notification must define the maintenance needs and describe any corrective action required.

b. In the event that the Contractor fails to visit the site and or notify, in writing, the Owner’s Representative of maintenance needs, lack of maintenance shall not be used as grounds for voiding or modifying the provisions of the warranty.

B. Maintenance during the warranty period by the plant installer

1. Provide all maintenance for all plantings to keep the plants in a healthy state and the planting areas clean and neat.

2. General requirements:
   a. All work shall be undertaken by trained planting crews under the supervision of a foreman with a minimum of 5 years’ experience supervising commercial plant maintenance crews.
   b. All chemical and fertilizer applications shall be made by licensed applicators for the type of chemicals to be used. All work and chemical use shall comply with all applicable local, provincial and federal requirements.
   c. Assure that hoses and watering equipment and other maintenance equipment does not block paths or be placed in a manner that may create tripping hazards. Use standard safety warning barriers and other procedures to maintain the site in a safe manner for visitors at all times.
   d. All workers shall wear required safety equipment and apparel appropriate for the tasks being undertaken.
   e. The Contractor shall not store maintenance equipment at the site at times when they are not in use unless authorized in writing by the Owner’s Representative.
   f. Maintenance vehicles shall not park on the site including walks and lawn areas at any time without the Owner’s Representative’s written permission.

3. Provide the following maintenance tasks:
   a. Watering; Provide all water required to keep soil within and around the root balls at optimum moisture content for plant growth.
      i. Maintain all watering systems and equipment and keep them operational.
      ii. Monitor soil moisture to provide sufficient water. Check soil moisture and root ball moisture with a soil moisture meter on a regular basis and record moisture readings. Do not over water.
   b. Soil nutrient levels: Take a minimum of 4 soil samples from around the site in the spring and fall and have them tested by an accredited agricultural soil testing lab for chemical composition of plant required nutrients, pH, salt and % organic matter. Test results shall include laboratory recommendations for nutrient applications. Apply fertilizers at rates recommended by the soil test.
      i. Make any other soil test and/or plant tissue test that may be indicated by plant conditions that may not be related to soil nutrient levels such as soil contaminated by other chemicals or lack of chemical uptake by the plant.
   c. Plant pruning: Remove cross over branching, shorten or remove developing co dominant leaders, dead wood and winter-damaged branches. Unless directed by the Owner’s Representative, do not shear plants or make heading cuts.
   d. Restore plants: Reset any plants that have settled or are leaning as soon as the condition is noticed.
   e. Guying and staking: Maintain plant guys in a taught position. Remove tree guys and staking after the first full growing season unless directed by Owner’s
Representative.

f. Weed control: Keep all beds free of weeds. Hand-remove all weeds and any plants that do not appear on the planting plan. Chemical weed control is permitted only with the written approval of the Owner’s Representative. Schedule weeding as needed but not less than 12 times per year.

g. Trash removal: Remove all trash and debris from all planting beds and maintain the beds in a neat and tidy appearance. The number of trash and debris removal visits shall coincide with other maintenance visits.

h. Plant pest control: Maintain disease, insects and other pests at manageable levels. Manageable levels shall be defined as damage to plants that may be noticeable to a professional but not to the average person. Use least invasive methods to control plant disease and insect outbreaks.

i. The Owner’s Representative must approve in advance the use of all chemical pesticide applications.

j. Plant replacement: Replace all plants that are defective as defined in the warranty provisions, as soon as the plant decline is obvious and in suitable weather and season for planting as outlined in above sections. Plants that become defective during the maintenance period shall be covered and replaced under the warranty provisions.

k. Mulch: Refresh mulch once a year to maintain complete coverage but do not over mulch. At no time shall the overall mulch thickness be greater than 4 inches. Do not apply mulch within 6 inches of the trunks or stems of any plants. Replacement mulch shall meet the requirements of the original approved material. Mulch shall be no more than one inch on top of the root ball surface.

l. Bed edging: Check and maintain edges between mulch and lawn areas in smooth neat lines as originally shown on the drawings.

m. Leaf, fruit and other plant debris removal: Remove fall leaf, spent flowers, fruit and plant part accumulations from beds and paved surfaces. Maintain all surface water drains free of debris. Debris removal shall be undertaken at each visit to weed or pick up trash in beds.

m. Damage from site use: Repair of damage by site visitors and events, beyond normal wear, are not part of this maintenance. The Owner’s Representative may request that the Contractor repair damage beds or plantings for an additional cost. All additional work shall be approved in advance by the Owner’s Representative.

B. End of warranty final acceptance / maintenance observation

1. Attend a hand over meeting to formally transfer the responsibilities of maintenance to the Owner’s Representative.
   a. Provide all information on past maintenance activities and provide a list of critical tasks that will be needed over the next 12 months.
   b. Provide all maintenance logs and soil test data.
   c. Make the Contractor’s supervisor available for a minimum of one year after the end of the warranty period to answer questions about past maintenance.

2. At the end of the Warranty and Maintenance period the Owner’s Representative shall observe the work and establish that all provisions of the contract are complete and the work is satisfactory.
   a. If the work is satisfactory, the maintenance period will end on the date of the final observation.
   b. If the work is deemed unsatisfactory, the maintenance period will continue at no
additional expense to the Owner until the work has been completed, observed, and approved by the Owner's Representative.

3. Failure to pass observation: If the work fails to pass final observation, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owner's Representative.