

1.15	SELECTION AND OBSERVATION OF PLANTS	5.) The root system shall be reasonably free of stem girdling roots over the root collar or kninked roots from nursery production practices.	delivery, set plants in a location protected from sun and wind. Provide adequate water to the root ball package during the shipping and storage period.	5.) away; do not fold down onto the Planting Soil.	B. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site. The Owner's Representative's seals are to remain on the trees and removed at the end of the warranty period.
		6.) At time of observations and delivery, the root ball shall be moist throughout. Roots shall not show signs of excess soil moisture conditions as indicated by stunted, discolored, distorted, or dead roots.			
B.	Plant Selection: The Owner's Representative reserves the right to select and observe all plants at the nursery prior to delivery and to reject plants that do not meet specifications as set forth in this specification. If a particular defect or substandard element can be corrected at the nursery, as determined by the Owner's Representative, the agreed upon remedy may be applied by the nursery or the Contractor provided that the correction allows the plant to meet the requirements set forth in this specification. Any work to correct plant defects shall be at the contractor's expense.	A. The Owner's Representative may review all plants subject to approval of size, health, quality, character, etc. Review or approval of any plant during the process of selection, delivery, installation and establishment period shall not prevent that plant from later rejection in the event that the plant quality changes or previously existing defects become apparent that were not observed.	1. All plant materials must be available for observation prior to planting.	2. If the plant is shipped with a wire basket that does not meet the requirements of a "Low Rise" basket, remove the top 6 - 8 inches of the basket wires just before the final backfilling of the tree	C. Make all repairs to grades, roots, and damage by the plant installer to the work or other plant at the site.
		E. Submittals: Submit for approval the required plant quality certifications from the grower where plants are to be purchased, for each plant type. The certification must state that each plant meets all the above plant quality requirements.	B. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote staging area for plants and other supplies.	3. Earth root balls shall be kept intact except for any modifications required by the Owner's Representative to make root package comply with the requirement in Part 2 Products.	D. Remove and dispose of all excess planting soil, subsoil, mulch, plants, packaging, and other material brought to the site by the Contractor.
1.	The Owner's Representative may make invasive observation of the plant's root system in the area of the root collar and the top of the root ball in general in order to determine that the plant meets the quality requirements for depth of the root collar and presence of roots above the root collar. Such observations will not harm the plant.	1. The grower's certification of plant quality does not prohibit the Owner's Representative from observing any plant or rejecting the plant if it is found to not meet the specification requirements.	C. Provide protective covering over all plants during transporting.	C. SPADE HARVESTED AND TRANSPLANTED PLANTS	3.19 PROTECTION DURING CONSTRUCTION
		2.2 ROOT BALL PACKAGE OPTIONS: The following root ball packages are permitted. Specific root ball packages shall be required where indicated on the plant list or in this specification. Any type of root ball packages that is not specifically defined in this specification shall not be permitted.	3.2 ADVERSE WEATHER CONDITIONS	1. After installing the tree, loosen the soil along the seam between the root ball and the surrounding soil out to a radius from the root ball edge equal to the diameter of the root ball to a depth of 8 - 10 inches by hand digging to the soil interface.	A. The Contractor shall protect planting and related work and other site work from damage due to planting operations, operations by other Contractors or trespassers. Maintain protection during installation until Substantial Completion Acceptance. Treat, repair or replace damaged work immediately.
2.	Corrections are to be undertaken at the nursery prior to shipping.	A. BALLED AND BURLAPPED PLANTS	3.3 COORDINATION WITH PROJECT WORK	2. Fill any gaps below this level with loose soil.	B. Damage done by the Contractor, or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain, including roots, trunk or branches of large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Owner. The Owner's Representative shall determine when such cleaning, replacement or repair is satisfactory.
		1. All Balled and Burlapped Plants shall be field grown, and the root ball packaged in a burlap and twine and/or burlap and wire basket package.	A. No planting shall take place during extremely hot, dry, windy or freezing weather.	D. CONTAINER (INCLUDES BOXED AND ABOVE-GROUND FABRIC CONTAINERS) PLANTS	3.20 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE
C.	The Contractor shall bear all cost related to plant corrections.	3. Plants shall be harvested with the following modifications to standard nursery practices.	A. The Contractor shall coordinate with all other work that may impact the completion of the work.	1. This specification assumes that most container plants have significant stem girdling and circling roots, and that the root collar is too low in the root ball.	A. During the project work period and prior to Substantial Completion Acceptance, the Contractor shall maintain all plants.
		a. Prior to digging any tree that fails to meet the requirement for maximum soil and roots above the root collar, carefully removed the soil from the top of the root ball of each plant, using hand tools, water or an air spade, to locate the root collar and attain the soil depth over the structural roots requirements. Remove all stem girdling roots above the root collar. Care must be exercised not to damage the surface of the root collar and the top of the structural roots.	B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.	2. Remove the container.	B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, pruning of plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept reasonably free of weeds, grass.
E.	Submit to the Owner's Representative, for approval, plant sources including the names and locations of nurseries proposed as sources of acceptable plants, and a list of the plants they will provide. The plant list shall include the botanical and common name and the size at the time of selection. Observe all nursery materials to determine that the materials meet the requirements of this section.	b. Trees shall be dug for a minimum of 4 weeks and a maximum of 52 weeks prior to shipping. Trees dug 4 to 52 weeks prior to shipping are defined as hardened-off. Digging is defined as cutting all roots and lifting the tree out of the ground and either moving it to a new location in the nursery or placing it back into the same hole. Trees that are stored out of the ground shall be placed in a holding area protected from extremes of wind and sun with the root ball protected by covering with mulch or straw and irrigated sufficiently to keep moisture in the root ball above wilt point and below saturation	C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner's Representative of any conflicts encountered.	3. Perform root ball shaving as defined in Installation of Plants: General above.	C. The Plant Warranty period begins at date of written notification of substantial completion from the Owner's Representative. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.
		c. At all nurseries where sandy soils prevent the use of "low profile baskets", baskets that support the entire root ball, including the top, are allowable.	3.4 LAYOUT AND PLANTING SEQUENCE	4. Remove all substrate at the bottom of the root ball that does not contain roots.	B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, pruning of plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept reasonably free of weeds, grass.
G.	Where requested by the Owner's Representative, submit photographs of plants or representative samples of plants. Photographs shall be legible and clearly depict the plant specimen. Each submitted image shall contain a height reference, such as a measuring stick. The approval of plants by the Owner's Representative via photograph does not preclude the Owner's Representative's right to reject material while on site.	d. Twine and burlap used for wrapping the root ball package shall be natural, biodegradable material. If the burlap decomposes after digging the tree then the root ball shall be re-wrapped prior to shipping if roots have not yet grown to keep root ball intact during shipping.	A. Relative positions of all plants and trees are subject to approval of the Owner's Representative.	5. Remove all substrate at the bottom of the root ball that does not contain roots.	3.21 SUBSTANTIAL COMPLETION ACCEPTANCE
		1.) At nurseries where sandy soils prevent the use of "low profile baskets", baskets that support the entire root ball, including the top, are allowable.	B. Notify the Owner's Representative, one (1) week prior to layout. Layout all individual tree and shrub locations. Place plants above surface at planting location or place a labeled stake at planting location. Layout bed lines with paint for the Owner's Representative's approval. Secure the Owner's Representative's acceptance before digging and start of planting work.	1. Dig the planting hole to the diameter of the spread of the roots to a depth in the center that maintains the root collar at the elevation of the surrounding finished grade and slightly deeper along the edges of the hole.	A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.
1.16	PLANT SUBSTITUTIONS FOR PLANTS NOT AVAILABLE	2.) Tents and burlap used for wrapping the root ball package shall be natural, biodegradable material. If the burlap decomposes after digging the tree then the root ball shall be re-wrapped prior to shipping if roots have not yet grown to keep root ball intact during shipping.	C. When applicable, plant trees before other plants are installed.	2. Spread all roots out radial to the trunk in the prepared hole making the hole wider where needed to accommodate long roots. Root tips shall be directed away from the trunk. Prune any broken roots removing the least amount of tissue possible.	1. Notification shall be at least 7 days prior to the date the contractor is requesting the review.
		SPADE HARVESTED AND TRANSPLANTED	D. It is understood that plants are not precise objects and that minor adjustments in the layout will be required as the planting plan is constructed. These adjustments may not be apparent until some or all of the plants are installed. Make adjustments as required by the Owner's Representative including relocating previously installed plants.	3. Maintain the trunk plumb while backfilling soil around the roots.	B. The date of substantial completion of the planting shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.
1.17	SITE CONDITIONS	1. Spade Harvested and Transplanted Plants shall meet all the requirements for field grown trees. Root ball diameters shall be similar in size as the ANSI Z60.1 requirements for Balled and Burlapped plants.	3.5 SOIL PROTECTION DURING PLANT DELIVERY AND INSTALLATION	4. Lightly tamp the soil around the roots to eliminate voids and reduce settlement.	C. The Plant Warranty period begins at date of written notification of substantial completion from the Owner's Representative. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.
		2. Trees shall be harvested prior to leafing out (bud break) in the spring or during the fall planting period except for plants known to be considered as fall planting hazards. Plants that are fall planting hazards shall only be harvested prior to leafing out in the spring.	A. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.	5. Ground COVER, PERENNIAL AND ANNUAL PLANTS	A. After Substantial Completion Acceptance, 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.
1.	Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering cost of corrections. If the Contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for plant material under the warranty clause of the specifications.	3. Trees shall be moved and planted within 48 hours of the initial harvesting and shall remain in the spade machine until planted.	1. Where possible deliver and plant trees that require the use of heavy mechanized equipment prior to final soil preparation and tilling. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.	A. Assume that soil moisture is within the required levels prior to planting. Irrigation, if required, shall be applied at least 12 hours prior to planting to avoid planting in muddy soils.	1. 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.
		4. Container plants shall be permitted only when indicated on the drawing, in this specification, or approved by the Owner's Representative.	2. Till to a depth of 6 inches, all soil that has been driven over during the installation of plants.	B. Assume that soil grades in the beds are smooth and as shown on the plans.	a. Notification must define the maintenance needs and describe any corrective action required.
B.	It is the responsibility of the Contractor to be familiar with the local growing conditions, and if any specified plants will be in conflict with these conditions. Report any potential conflicts, in writing, to the Owner's Representative.	5. Provide plants shall be established and well rooted in removable containers.	3.6 SOIL MOISTURE	C. Plants shall be planted in even, triangularly spaced rows, at the intervals called out for on the drawings, unless otherwise noted. The first row of Annual flower plants shall be 6 inches from the bed edge unless otherwise directed.	2. 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.
		6. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.	A. Volumetric soil moisture level, in both the planting soil and the root balls of all plants, prior to, during and after planting shall be above permanent wilting point and below field capacity for each type of soil texture within the following ranges.	D. Dig planting holes sufficiently large enough to insert the root system without deforming the roots. Set the top of the root system at the grade of the soil.	3.22 MAINTENANCE DURING THE WARRANTY PERIOD by the plant installer
C.	This specification requires that all Planting Soil and Irrigation (if applicable) work be completed and accepted prior to the installation of any plants.	C. CONTAINER (INCLUDING ABOVE-GROUND FABRIC CONTAINERS AND BOXES) PLANTS	1. Where possible deliver and plant trees that require the use of heavy mechanized equipment prior to final soil preparation and tilling. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.	E. Schedule the planting to occur prior to application of the mulch. If the bed is already mulched, pull the mulch from around the hole and plant into the soil. Do not plant the root system in the mulch. Pull mulch back so it is not on the root ball surface.	A. After Substantial Completion Acceptance, 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.
		4. Container plants may be permitted only when indicated on the drawing, in this specification, or approved by the Owner's Representative.	2. Till to a depth of 6 inches, all soil that has been driven over during the installation of plants.	F. Press soil to bring the root system in contact with the soil.	1. 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.
D.	Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practices.	5. Provide plants shall be established and well rooted in removable containers.	3.7 INSTALLATION OF PLANTS: GENERAL	G. Spread any excess soil around in the spaces between plants.	a. Notification must define the maintenance needs and describe any corrective action required.
		6. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.	C. Observe each plant after delivery and prior to installation for damage of other characteristics that may cause rejection of the plant. Notify the Owner's Representative of any condition observed.	H. Apply mulch to the bed being sure not to cover the tops of the plants with or the tops of the root ball with mulch.	2. The Contractor shall not store maintenance equipment at the plant site at times when they are not in use unless authorized in writing by the Owner's Representative.
1.18	PLANTING AROUND UTILITIES	7. Harvest bare root plants while the plant is dormant and a minimum of 4 weeks prior to leaf out (bud break).	D. No more plants shall be distributed about the planting bed area than can be planted and watered on the same day.	I. Water each planting area as soon as the planting is completed. Apply additional water to keep the soil moisture at the required levels. Do not over water.	3.23 MAINTENANCE DURING THE WARRANTY PERIOD by the plant installer
		8. The root spread dimensions of the harvested plants shall conform to ANSI Z60.1 for nursery grown bare root plants for each size and type of plant. Just prior to shipping to the job site, dip the root system into a slurry of hydrogel (cross linked polyacrylamide) and water mixed at a rate of 15 cc. of hydrogel in 25 gallons of water. Do not shake off the excess hydrogel. Place the root system in a pleated black plastic bag and tie the bag snugly around the trunk. Bundle and tie the upper branches together.	E. The root system of each plant, regardless of root ball package type, shall be observed by the Contractor, at the time of planting to confirm that the roots meet the requirements for plant root quality in Part 2 Products: Plants General: Plant Quality. The Contractor shall undertake at the time of planting, all modifications to the root system required by the Owner's Representative to meet these quality standards.	3.10 PALM PLANTING	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.
A.	Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.	9. Keep the trees in a cool dark space for storage and delivery. If daytime outside temperatures exceeds 70 degrees F, utilize a refrigerated storage area with temperature between 35 and 50 degrees.	1. Modifications, at the time of planting, to meet the specifications for the depth of the root collar and removal of stem girdling roots and circling roots may make the plant unstable or stress the plant to the point that the Owner's Representative may choose to reject the plant rather than permitting the modification.	A. Palm trees shall be placed at grade making sure not to plant the tree any deeper in the ground than the palm trees originally stood.	2. 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.
		10. Where possible, plant time of planting to be before bud break. For trees to be planted after bud break, place the trees before bud break in an irrigated bed of pea gravel.	2. Any modifications required by the Owner's Representative to make the root system conform to the plant quality standards outlined in Part 2 Products: Plants General: Quality, or other requirements related to the permitted root ball package, shall not be considered as grounds to modify or void the plant warranty.	B. The trees shall be placed with their vertical axis in a plumb position.	3. Assume 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.
B.	Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.	a. The pea gravel bed shall be 18 inches deep over a sheet of plastic.	3. The resulting root ball may need additional staking and water after planting. The Owner's Representative may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty.	C. All backfill shall be native soil except in cases where planting in rock. Water-settle the back fill.	4. All workers shall wear required safety equipment and apparel appropriate for the tasks being undertaken.
		b. Space trees to allow the unbundled branches to grow without shading each other.	4. The Contractor remains responsible to confirm that the grower has made all required root modifications noted during any nursery observations.	D. Do not cover root ball with mulch or topsoil.	5. The Contractor shall not store maintenance equipment at the plant site at times when they are not in use unless authorized in writing by the Owner's Representative.
C.	Notification of Local Utility Locator Service, Sunshine 811, is required for all planting areas. The Contractor is responsible for knowing the location and avoiding utilities that are not covered by Sunshine 811.	c. Once stored in pea gravel, allow the trees sufficient time for the new root system to flush and spring growth of leaves to fully develop before planting.	5. Exposed Stem Tissue after Modification: The required root ball modifications may result in stem tissue that has not formed trunk bark being exposed above the soil line. If such condition occurs, wrap the exposed portion of the stem in a protective wrapping with a white filter fabric. Secure the fabric with biodegradable masking tape. Do NOT USE string, twine, green nursery ties or any other material that may girdle the trunk if not removed.	E. Provide a watering berm at each palm. Berms shall extend a minimum of 18 inches out from the trunk all around and shall be a minimum of (6) inches high.	6. Maintenance vehicles shall not park on the site including walks and lawn areas at any time without the Owner's Representative's written permission.
		d. Pea gravel stored trees may be kept for up to one growing season.	6. Container and Boxed Root Ball Shaving: The outer surfaces of ALL plants in containers and boxes, including the top, sides and bottom of the root ball shall be shaved to remove all circling, descending, and matted roots. Shaving shall be performed using saws, knives, sharp shovels or other suitable equipment that is capable of making clean cuts on the roots. Shaving shall remove a minimum of one inch of root mat or up to 2 inches as required to remove all root segments that are not growing necessarily radial to the trunk.	F. Remove twine which ties fronds together after placing palm in planting hole and securing it in the upright position.	7. 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.
PART 2	PRODUCTS	e. Pea gravel stored trees shall be dipped, packaged and shipped similar to the requirements for freshly dug bare root trees above.	7. The resulting root ball may need additional staking and water after planting. The Owner's Representative may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty.	G. Spread any excess soil around in the spaces between plants.	8. 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. At the end of the warranty period attend a hand over meeting to formally transfer the responsibilities of maintenance to the Owner's Representative. Provide all information on past maintenance activities and provide a list of critical tasks that will be needed over the next 12 months. Provide all maintenance logs and soil test data. 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.
		2.1 PLANTS: GENERAL	8. The resulting root ball may need additional staking and water after planting. The Owner's Representative may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty.	H. Apply mulch to the bed being sure not to cover the tops of the plants with or the tops of the root ball with mulch.	9. The Contractor shall not store maintenance equipment at the plant site at times when they are not in use unless authorized in writing by the Owner's Representative.
A.	Standards and measurement: Provide plants of quantity, size, genus, species, and variety or cultivars as shown and scheduled in contract documents.	2.2 ANNUAL FLOWERING AND SEASONAL COLOR PLANTS	9. Keep the trees in a cool dark space for storage and delivery. If daytime outside temperatures exceeds 70 degrees F, utilize a refrigerated storage area with temperature between 35 and 50 degrees.	I. Water each planting area as soon as the planting is completed. Apply additional water to keep the soil moisture at the required levels. Do not over water.	10. 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.
		E. Container or flat-grown plants should be sized as noted in the planting plan. Plants shall be well-rooted and healthy.	10. Where possible, plant time of planting to be before bud break. For trees to be planted after bud break, place the trees before bud break in an irrigated bed of pea gravel.	3.11 STAKING AND GUYING	1. Watering: Provide all water required to keep soil within and around the root balls at optimum moisture content for plant growth.
1.	All plants including the root ball dimensions or container size to trunk caliper ratio shall conform to ANSI Z60.1 "American				