

SECTION 329300

PLANTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:

Furnish all labor, materials, equipment, appliances and necessary incidentals for the complete installation of all landscape planting as shown on the drawings and as specified herein. Work includes, but is not limited to, the following:

1. Furnish and install import soil, backfill mix, acid loving plant backfill mix and raised planter mix in planting areas indicated on plans and in specifications.
2. Apply pre-emergent to planting areas as specified herein.
3. Fine grading
4. Soil preparation and fertilization.
5. Furnish trees, shrubs, vines and ground covers.
6. Install trees, shrubs and ground covers.
7. Stake and/or guy trees.
8. Attach vines as directed.
9. Plant new lawn (sod).
10. Mulching
11. Protect, maintain and warranty as specified.
12. All work of every description mentioned in the specification and/or amendments thereto, and all other satisfactory completion of the work including clean-up of the site.

1.3 RELATED WORK IN OTHER SECTIONS

- A. Landscape irrigation

1.4 QUALITY ASSURANCE

- A. Soils testing for planting areas shall be performed by Wallace Laboratories, 365 Coral Circle, El Segundo, CA 90245; 310/640-6863. Tests shall be paid for by the Contractor.
- B. The testing laboratory for soils analysis shall use the following criteria for soil testing:
 1. USDA Agricultural Suitability test per Handbook-60.
 2. University of California Soil Fertility test.
 3. Interpretation, recommendations, and comments regarding these tests are required.

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- C. A soils analysis of existing on-site soils shall be required.
 - 1. There shall be 4 areas throughout the site. At each sampling area there shall be 2 core samples taken. Suitability and fertility analyses with comments and recommendations shall be required for each sample.
- D. The Contractor shall perform all the soil testing of the existing on-site soil after the completion of rough grading and submit the testing laboratory=s interpretation, recommendations, and comments to the Landscape Architect within 14 days.
- E. A soils analysis of import soil, raised planter mix, lightweight soil mix, and fir sawdust or organic amendment shall be required prior to backfill.
 - 1. One quart of import soil, without specified amendments, shall be submitted for particle size, suitability and fertility analyses. Two quarts each of sphagnum peat moss, nitrogen stabilized fir sawdust, organic amendment, and fine sand for backfill mix and on-grade plantings shall be submitted for organic and particle size analyses. Do not mix.
- F. After the completion of planting in the soil preparation areas and on-grade backfill mix areas, soil testing shall be conducted for organic suitability. The Contractor shall submit to the testing laboratory the original amendment specification with all issued bulletins for soil amendments and installation procedures along with 3 random samples of soil preparation areas and 3 random samples of backfill mix areas for analysis. Fertility analyses, recommendations, and interpretation shall be required from the testing laboratory to assure all specified amendments have been provided.
- G. Backfill for acid loving plants shall be sampled after mixing and delivery to the site but prior to backfilling. The Contractor shall submit to the testing laboratory the original acid loving plant backfill mix specifications with all issued bulletins and one quart of backfill mix for every 25 cubic yards of organic and fertility analyses. Fertility analyses, recommendations and interpretation shall be required from the testing laboratory to assure all specified amendments have been provided.
- H. The Contractor shall perform all soil testing of the backfill mix, acid loving plant mix and raised planter mix and submit the soil testing laboratory=s findings to the Landscape Architect within a minimum of 5 days prior to backfilling.
- I. Samples of materials shall be submitted for observation. Delivery may begin upon approval of samples. Material samples shall include fertilizers and soil conditioners, plants and any other materials indicated herein.
- J. The Contractor shall furnish a certificate of delivery slip with each delivery of material in containers or in bulk. Certificate shall state source, quantity, or weight, type and analysis and date of delivery. Deliver all certificates to the Landscape Architect.
- K. No substitutions will be permitted without the approval of the Owner=s authorized Representative. Rejected materials shall be removed from the site by the Contractor.

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- L. The Contractor shall warranty shrubs for a period of six months and trees for one year from date of final acceptance.

1.5 SUBMITTALS

- A. The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior written approval by the Landscape Architect.
- B. Complete material list shall be submitted prior to performing any work. Material list shall include the manufacturer, model number and description of all materials to be used.
- C. Materials installed or furnished without prior approval of the Landscape Architect may be rejected and the Contractor required to remove such materials from the site at his own expense.
- D. Approval of any item, alternate or substitute indicates only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.
- E. Manufacturer's warranties shall not relieve the Contractor of his liability under the warranty. Such warranties shall only supplement the warranty.

1.6 JOB CONDITIONS

- A. Visit the site to determine existing conditions, including access to the site and the nature and extent of existing improvements upon adjacent public and private property, as well as materials and other factors to be encountered that may affect the work of this section.
- B. Additional compensation resulting from the alleged ignorance of local conditions, and their effect upon the cost of the work will not subsequently be approved.
- C. Protect the Owner=s property from injury or loss. All damage to existing property (buildings, utilities, plantings, etc.) caused by the Contractor during his operation or as a result of malfunction of installed work during the warranty period shall be repaired at Contractor=s expense.
- D. Cause minimum interference with workmen, materials, or other equipment of other trades on the project.
- E. Landscape work shall not begin until all construction adjacent to the planting areas has been completed and until the irrigation systems have been installed and approved by the Landscape Architect and the Owner's designated representative.
- F. Contractor shall apply for and secure all required permits.

PART 2 - PRODUCTS

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2.1 MANUFACTURER: It is the intent of this specification that all materials herein specified and shown on the drawings shall be of the highest quality available and meet the requirements specified.

2.2 SOIL MATERIALS

A. Import Soil: Furnish all import soil necessary to complete the required planting of on-grade planting areas and for backfill and raised planter mix as indicated:

1. Silt plus clay content of the import soil shall not exceed 15% by weight with a minimum 95% passing the 2.0 millimeter sieve.
2. The sodium absorption ratio (SAR) shall not exceed 6.
3. The electrical conductivity (EC) of the saturation extract of this soil shall not exceed 3.0 millimhos per centimeter at 25 degrees centigrade.
4. The boron content of this soil shall be no greater than one part per million as measured on the saturation extract.
5. Samples of the import soil shall be submitted to the soils testing laboratory for analysis, interpretation, and recommendations prior to blending or backfilling.

B. Fir sawdust shall be standard quality impregnated with 1% nitrogen.

1. Particle size, dry weight basis:

<u>Percent Passing</u>	<u>Sieve Size</u>
95-100	6.35 mm (1/4")
80-100	2.38 mm (no. 8, 8 mesh)
0-30	500 micron no. 35, 32 mesh)

2. Organic content as determined by ash analysis:
Minimum 94% based on dry weight.
3. Chemistry:
 - a. Minimum 0.8% nitrogen based on dry weight.
 - b. Minimum 0.08% dilute acid soluble iron based on dry weight.
 - c. Salinity shall not exceed 3.5 millimhos per centimeter as measured in the saturation extract.
4. Samples of the fir sawdust shall be submitted to the soils testing laboratory for analysis, interpretation, and recommendations prior to blending or backfilling, as outlined in 1.03 Quality Assurance in this Section.

C. Organic Amendment

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1. Humus material shall have an ash content of no less than 8% and no more than 50%.
2. The pH of the material shall be between 6 and 7.5.
3. The salt content shall be less than 10 millimhos/cm @ 25 degrees C. (ECe less than 10) on a saturated paste extract. If the ECe exceeds 10 millimhos/cm, the maximum rate of use shall not exceed 15% by volume.
4. Boron content of the saturated extract shall be less than 1.0 parts per million.
5. Silicon content (acid-insoluble ash) shall be less than 20%.
6. Calcium carbonate shall not be present if to be applied on alkaline soils.
7. Types of acceptable products are composts, manures, mushroom composts, straw, alfalfa, sludges, peat mosses, etc., low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.
8. Composted wood products are conditionally acceptable [stable humus must be present]. Wood-based products are not acceptable which are based on redwood or cedar.
9. Sludge-based materials are not acceptable if the soil already has a high level (toxic level) of zinc, copper, or other heavy metals based on soil analysis.
10. Carbon: nitrogen ratio is less than 25:1.
11. The compost shall be aerobic without malodorous presence of decomposition products.
12. The maximum particle size shall be 0.5", 80% or more shall pass a No. 4 screen.

Maximum total permissible pollutant concentrations in amendment in parts per million on a dry weight basis:

Arsenic	20
Mercury	10
Cadmium	15
Molybdenum	60
Chromium	100
Nickel	100
Cobalt	50
Selenium	30
Copper	150
Silver	10
Lead	100
Vanadium	50
Zinc	200

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13. Samples of the organic amendment shall be submitted to the soils testing laboratory for analysis, interpretation, and recommendations prior to blending or backfilling, as outlined in 1.03 Quality Assurance in this Section. Pending approval from the soils lab, suppliers of acceptable products are:
 - a. Earth Works - composted washed steer manure. 310/322-9702.
 - b. Auinaga Fertilizer Co. Forest Floor Humus. 949/786-9558.
 - c. Foster Farms - compost. 209/394-7901.

- D. Sand: A single sand source shall be used. The sand must pass the following gradation and chemical specifications:
 1. Particle size distribution (USDA sand classification) #16 sand.

Sieve No. (US Standard)	Percent Dry Weight Passing
10	100
16	65-100
20	0-20
35	0-5
40	0-2
 2. Soluble Salts: Maximum 3.0 dS/m at 25 degrees C. as determined in saturation extract.
 3. Sodium Absorption Ratio (SAR): Maximum 6.0 at 25 degrees C. as determined in saturation extract.
 4. Boron: Maximum 1 ppm at 25 degrees C as determined in saturation extract.
 5. Samples of the import sand shall be submitted to the soils testing laboratory for analysis, interpretation, and recommendations prior to blending or backfilling.

- E. Peat:
 1. Milled Canadian sphagnum peat, light brown and fibrous without excessive sticks. Peat moss shall have a ph of not less than 5, and have an organic content of not less than 90% (L.O.I.)

- F. Vermiculite: Horticultural vermiculite shall be medium sized, clean, odorless, nontoxic and sterile with a pH of 7.0-8.5.

- G. Triple super phosphate (0-45-0) granular commercial grade.

- H. Potassium sulfate (0-0-50) granular commercial grade.

- I. Urea-formaldehyde (38-0-0) commercial grade.

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- J. Calcium Carbonate: 95% lime as derived from oyster shells.
- K. Gypsum: Agricultural grade containing minimum 98% calcium sulfate.
- L. Commercial fertilizer: As specified by soils testing laboratory. Deliver in sacks, with a manufacturer=s label attached to each sack, which lists weight and analysis.
- M. Soil sulphur shall be agricultural grade, containing a minimum 99% sulphur.
- N. Ferrous iron sulfate shall be first quality commercial grade; ground ferrous sulphate containing a minimum 18.5% iron expressed as metallic.
- O. Root hormone shall be "Super Thrive."
- P. Planting tablets shall be NPK 20-10-5, 21 gram and 5 gram fertilizer tablets.
- Q. Gro-Power materials shall be first quality commercial grade as manufactured by Gro-Power, Inc., 15065 Telephone Avenue, Chino, CA 91710-9614. 800/473-1307 or 909/393-3744. FAX: 909/393-2773.

2.3 PRE-EMERGENT WEED CONTROL

- A. Pre-emergent herbicide shall be as recommended by a licensed pest control advisor and as accepted by the Owner=s agricultural testing laboratory.
 - 1. Pre-emergent herbicide products include: Ronstar, Treflan, Eptam, Vegitex or equal.
 - 2. Fungicide/Insecticides include Subdue 2-E and Bayleton.

2.4 LAWN MATERIALS

- A. Sodded Lawn
 - 1. Sod shall be of the following name and proportions:
Medallion II
 - 2. Furnish dealer=s warranty statement of composition.

2.5 PLANT MATERIALS

- A. Plant materials shall be furnished where applicable (except for Owner-supplied trees) by the Contractor in quantities, sizes, and/or spacing as indicated or noted for each location and shall be of species, types, etc., as symbolized and described in the plant list.

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- B. Plants shall be protected in transit and after delivery to the project site. Plants in broken containers will not be accepted, and plants with broken branches or injured trunks will be rejected.
- C. Plants that are specified by container size shall be first class material equal to the size of similar material in local retail nurseries.
- D. All plant materials shall be healthy, vigorous, with a good root system, and shall be free from pests or disease. All plant material shall have been observed and released by the County Agricultural Inspector prior to delivery to the job.
- E. Palm trees: Palms shall have a square root ball with a minimum of 18" from trunk to edge of root ball at each side. The intent is to anchor tree with the square root ball. Retain six fronds minimum on head of palm and as accepted by Owner.
- F. All ground cover plants shall be well rooted in flats or containers.
- G. Plant material shall be observed and approved by Landscape Architect prior to their placement for planting. Materials not up to specifications will be rejected.
- H. The Contractor shall warranty shrubs and hydroseeded ground covers for a period of six months and trees for one year from date of final acceptance.

2.6 MULCH

- A. Mulch shall be medium grind bark mulch as supplied by RWP Recycled Wood Products, P.O. Box 3517, Montebello, CA 90640. 213/727-7211 or 714/841-6989.

2.7 TREE GUYING MATERIAL (ON-GRADE)

- A. Tree Guys: Tree guys shall be white vinyl-coated galvanized wire with galvanized cable clamps and galvanized turnbuckle, eye-to-eye type with welded eyes; number of guys shall be per details. Where guy ties to tree, tie to be covered with hose as specified to protect the tree. Sizes for vinyl-coated wire are as follows:
 - 1. For trees less than 3" caliper: 1/16 (7x7) white vinyl-coated galvanized wire with 1/16 galvanized cable clamps and 3/8" x 6" galvanized turnbuckle.
 - 2. For trees 3" caliper to less than 6" caliper: 1/8 (7x7) white vinyl-coated galvanized wire with 1/8 galvanized cable clamps and 3/8" x 6" galvanized turnbuckle.
 - 3. For trees 6" caliper to less than 10" caliper: 3/16 (7x7) white vinyl-coated galvanized Aircraft cable with 3/16 galvanized cable clamps and 3/8" x 6" galvanized turnbuckle.
 - 4. For trees with 10" caliper or larger caliper: 5/16 (7x9) galvanized wire with 5/16 galvanized cable clamps and 1/2" x 6" galvanized turnbuckle.

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- B. Anchors (deadmen): Shall be aluminum anchors as manufactured by Duckbill (800/325-5360). All connections for the Duckbill aluminum earth system to be factory assembled. Follow manufacturer=s recommendations for installation of anchors with hand drive rods and power equipment drive rods (where applicable). Sizes are as follows by tree caliper:
- | | |
|---------------------------------|-------------------|
| Less than 3" caliper: | Model No. 40-Db1 |
| 3" to less than 6" caliper: | Model No. 68-Db1 |
| 6" to less than 10" caliper | Model No. 88-Db1 |
| 10" caliper and larger caliper: | Model No. 138-Db1 |
- C. Hose for covering wires shall be 3/4" reinforced black rubber garden hose and a minimum 12" length.
- D. Flags shall consist of 1/2" diameter, white semi-rigid plastic tubing, 5' long.

2.8 TREE GUYING MATERIALS (RAISED PLANTERS)

- A. Tree Guys: Tree guys shall be white vinyl-coated galvanized wire with galvanized cable clamps and galvanized turnbuckle, eye-to-eye type with welded eyes; number of guys shall be per details. Where guy ties to tree, tie to be covered with hose as specified to protect the tree. Sizes for vinyl-coated wire are as follows:
- For trees less than 3" caliper: 1/16 (7x7) white vinyl-coated galvanized wire with 1/16 galvanized cable clamps and 3/8" x 6" galvanized turnbuckle.
 - For trees 3" caliper to less than 6" caliper: 1/8 (7x7) white vinyl-coated galvanized wire with 1/8 galvanized cable clamps and 3/8" x 6" galvanized turnbuckle.
 - For trees 6" caliper to less than 10" caliper: 3/16 (7x7) white vinyl-coated galvanized Aircraft cable with 3/16 galvanized Cable clamps and 3/8" x 6" galvanized turnbuckle.
 - For trees with 10" caliper or larger caliper: 5/16 (7x9) galvanized wire with 5/16 galvanized cable clamps and 1/2" x 6" galvanized turnbuckle.
- B. Anchors for holding guys shall be 3/4" x 6" stainless steel eye bolt with Hilti HIT C-100 Adhesive Anchor System as manufactured by Hilti, P.O. Box 21148, Tulsa, OK 74121. 800/879-8000. Follow manufacturer=s recommendations for installation of anchors.
- C. Hose for covering wires shall be 3/4" reinforced black rubber garden hose and a minimum 12" in length.

2.9 TREE STAKING MATERIALS (LODGE-POLE PINE)

- A. Stakes shall be Lodge Pole Pine, treated with copper napthanate wood preservative in accordance with Federal spec TT-W-572, Type I, composition B. Minimum nominal size, diameter times length as required in the staking detail, pointed at one and with no splits.

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- B. Ties shall be Wonder-Tree ties as manufactured by Alden Enterprises, 151 Ninth Avenue, Unit U, City of Industry, CA 91746. 818/336-3517.

2.10 VINE TIES

- A. For wall surfaces: Clear plastic "Stik-N-Ty" garden wall tie as manufactured by Dexol.

2.11 DRAINAGE MATERIALS

- A. Prefabricated drainage composite shall be Miradrain 9000 with Mirafi 700XG woven filter fabric as manufactured by TC Mirafi, 365 S. Holland Drive, Pendergass, GA 30567. 706/693-2226.

2.12 DRAIN PIPE

- A. Drain pipe shall be >NDS= styrene perforated PVC drain pipe with clean out plug and S&T styrene female adapter. Sizes as noted on plans.

PART 3 - EXECUTION

3.1 SOIL PREPARATION

- A. Soil for planting shall be free of rocks over 1/2" in diameter, and free of foreign debris, refuse, plants or roots, clods, weeds, sticks, solvents, petroleum products, concrete, base rock, or other deleterious or undesirable and unwanted materials. Soil shall be free of soil-borne diseases and capable of sustaining healthy plant life. Materials not meeting such requirements shall be removed, including all temporary road bases or pavement already in place.
- B. All on-grade planting areas with a slope gradient of less than 2-1/2:1 shall be cross-ripped to a depth of 10" to 12" in two directions and receive per 1,000 square feet of area the following:

Ammonium nitrate (34-0-0)	3 lbs.
Potassium sulphate (0-0-50)	6 lbs.
Triple superphosphate 0-45-0)	5 lbs.
Agricultural gypsum	50 lbs.
Organic amendment	3 cu.yds.

Note: Areas to be planted that are densely compacted, 85% to 90%, shall be cross-ripped to 12" depth. Areas over 90% compacted shall be cross-ripped to 24" depth, and all unacceptable materials removed.

- C. Broadcast uniformly and rototill into upper 4-6 inches of soil.
- D. Samples of the native soil shall be submitted to the soils testing laboratory after rough grading and prior to soil preparation. On receipt of a soils analysis and recommendations, an addendum or bulletin to these specifications shall be issued if revision to the soil treatment is necessary. Refer to 1.03 Quality Assurance in this section for soil testing procedure.

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- E. Upon completion of soil preparation, an additional soil testing shall be conducted as outlined in 1.03 Quality Assurance in this section.

3.2 RAISED PLANTER MIX

- A. Backfill mix for raised planters and tree pits in raised planters shall be of the following material per 10 cu.yds.:

Import Soil	6 cu.yds.
Fir sawdust	4 cu.yds.
Iron sulfate	20 lbs.
Gro-Power Plus	180 lbs.

- B. A soils analysis, interpretation and recommendations of the raised planter mix shall be required prior to backfilling as outlined in 1.03 Quality Assurance, in this section.

3.3 ON-GRADE BACKFILL MIX

- A. Backfill mix for plant pits shall blend the following materials into clean excavated or leached soil. Remove debris, rocks and foreign material. Soil clods should not exceed 1-1/2" diameter. Excessive gravel should not be present. Rates are per cubic yard:

Ammonium nitrate (34-0-0)	1/4 lb.
Potassium sulphate (0-0-50)	1/3 lb.
Triple superphosphate (0-45-0)	1/4 lb.
Agricultural gypsum	2 lbs.
Organic amendment	15% by volume

- B. Samples of the native soil shall be submitted to the soils testing laboratory prior to blending of backfill mix. On receipt of a soils analysis and interpretation, and recommendations, an addendum or bulletin to these specifications shall be issued if revisions to the soil treatment are necessary. Refer to 1.03 Quality Assurance in this section for soil testing procedure.
- C. Upon completion of backfill mix blending and prior to installation, an additional soil testing shall be conducted as outlined in 1.03 Quality Assurance in this section.
- D. The above material should be uniformly blended prior to use. Incorporate as specified under "tree, shrub and vine planting" herein.

3.4 BACKFILL MIX FOR ACID LOVING PLANTS

- A. Planters with acid loving plants shall be backfilled with a soil mix consisting of 1/3 sphagnum peat moss, 1/3 nitrogen stabilized fir sawdust, 1/3 fine sand, 1 lb. 12-12-12 commercial fertilizer per each cubic yard of mix, 2 lbs. iron sulfate per cubic yard of mix and 1-1/2 tablespoons of Gro-Power Flower >N= Bloom 3-12-12 in bottom of each plant pit.

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- B. A soils analysis, interpretation, and recommendation of the acid loving plant backfill mix shall be required prior to backfilling as outlined in 1.03 Quality Assurance in this section.

3.5 PRE-PLANT WEED CONTROL

- A. Clear and remove existing weeds by mowing or grubbing to at least 1/4" below the soil surface.
- B. Pre-emergence herbicide shall be applied to all planting areas except lawn and hydroseeded areas. Apply in accordance with manufacturer=s recommendation. After this application, apply 1-2" of water.
- C. Contact herbicides shall be applied as per manufacturer=s recommendation to areas to receive lawn or hydroseed. Apply in accordance with manufacturer=s recommendation. After this application, apply water as if just seeded for period of one month to stimulate weed growth. Reapply contact herbicide and water for period of one week. Remove all remaining weeds manually.

3.6 GENERAL PLANTING

- A. Finish grade shall be as specified in Section 02210.
- B. The Landscape Architect shall approve all planting areas prior to the installation of any materials. Placement of plant materials shall be approved before holes are dug. Stake plant locations and secure approval from Landscape Architect before excavating pits making necessary adjustments as directed.
- C. Inspect and accept all landscape irrigation work and finish grading prior to start of shrub planting as specified. Trees may be planted in advance of irrigation system installation, provided adequate provision is made for interim watering.
- D. All on-grade plant pits shall be excavated to a minimum of two times the diameter and height of the container to permit handling. Excavate pits with vertical sides for all plants. Scarify sides of plant pit with spade, trowel or other tool so that the sides are pocked and uneven. When hardpan, muck, or unsuitable soil is encountered, break through to clean soil and backfill with prepared backfill as directed.
- E. Plant pits for rooted cuttings or seedlings to be at least 6" x 6" x 6".
- F. In a centralized area, mix all backfill soil to achieve a uniform blend of amendments. The intent is to achieve well-blended soil and not amend each planting hole at the plant pit. Clean up unused excavated soil and dispose of off-site. Protect mix from water until it has been placed in backfill around plants.
- G. All plants shall be planted immediately after containers are cut and containers shall be regularly removed so as not to present a hazard to those persons using the areas.
- H. Planting tablets are to be placed in all planting pits as follows:

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1. During backfilling, place NPK 10-10-5, 21 gram fertilizer tablets near, but not in direct contact with, the bottom half of the root balls at the following rates:

One tablet per 1 gallon plant
Two tablets per 5 gallon plant
Three tablets per 15 gallon plant
Five tablets per 24" and larger boxes
Ten tablets per 36" box
Twelve tablets per 42" and larger boxes

2. For ground cover plants, place one 10-10-5, 5 gram tablet near, but not in contact with, the bottom half of the root ball.
- I. Remove each plant from its container, cut out all broken, frayed or circular root systems. Scarify root ball and place each plant in center of pit and backfill, unless specified otherwise, with prepared soil. Plants to be set in a vertical position in such a manner that when settled, it will bear the same relation to constructed finish grade as it bore to grade in its container or soil surface at place of growth before being transplanted. Remove wire basket 18" below grade if B&B material is used.
- J. Backfill with specified soil mix and tamp firm. No soil in a muddy condition shall be used for backfilling. Water jet plant when hole is two-thirds full to remove all air pockets. After watering, continue to backfill and tamp soil until the surface of the backfill is level with the surrounding grade. No filling shall be permitted around the trunk or stem of the plants.
- K. After backfilling, construct an earthen basin around each plant. Each basin shall be of a depth sufficient to hold at least 4" of water. Basins shall be constructed of amended backfill materials. Remove basin in all turf areas after initial watering and prior to sodding. If erosion occurs, reconstruct water basin until final acceptance.
- L. Water thoroughly immediately following planting. Backfill all voids which develop with additional prepared soil to bring to finish grade.
- M. Upon completion of all planting operations and again as a requirement just prior to final observation, all soil between plants shall be lightly cultivated, weeded, and neatly raked.

3.7 PLANTING TREES

- A. Prepare tree pits as specified above, unless otherwise noted in details, plans or specifications
- B. Trees planted in raised planters shall be backfilled to the bottom of the root ball with import soil and thoroughly water-settled. (Do not flood planters.)
- C. Specimen trees to be planted prior to construction of finished grades shall be located by surveyor for position and finish-grade relationship to top of root ball. Adjust or replant all plant materials that do not meet final grades at no cost to Owner.

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- D. Handle each tree in such a manner as not to cause injury or damage to material during digging or planting. Any tree damaged as a result of Contractor=s operation shall be rejected and replaced at Contractor=s expense.

NOTE: The "choke" strapping method of lifting is strictly forbidden (except of single trunk palms), any trees hoisted in this manner shall not be accepted.

- E. Box Removal:

1. Remove bottom of plant boxes before planting. If it is not possible to remove box bottom because of size or soil type, remove every other bottom board, or other method accepted by Owner.
2. Remove sides of box without damage to root ball after positioning plant and partially backfilling.

- F. Ball and burlap removal: Remove burlap away from the crown of the tree or palm. Cut away as much of burlap as possible without injury to root ball.

- G. Stake or guy trees as detailed on the drawings.

- H. Keep guy wires out of general pedestrian traffic areas whenever possible.

- I. All transplanted trees shall be set 2" minimum above finish grades.

- J. Apply root hormone to each tree as follows:

1. Construct tree basins at rim or outer edges of tree ball so that applied water will remain on the top of the ball.

- K. Apply root hormone at the rate as recommended by the manufacturer.

1. Tree balls shall be set before application of root hormone, and shall be mulched in conformance with specifications immediately after completion of root hormone and its irrigation into the ball.

- L. Fungicide: Contractor shall apply as per manufacturer=s recommendation a root ball drench containing 4 ounces of "Subdue 2-E" per 100 gallons of water to all trees prior to installation of the mulch.

3.8 PLANTING SHRUBS AND VINES

- A. Prepare shrub and vine pits as specified under "General Planting."

- B. Planting procedures and practices shall be the same as those indicated under "Planting Trees."

- C. Vine Tie Installation:

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1. For wall surfaces: Secure plastic garden wall ties to wall and plant material as per manufacturer=s recommendation. Minimum of 5 ties per 5 gallon plant container size. Minimum of 15 ties per 15 gallon plant container size. Contractor shall tie plants securely as required. Final tying shall be approved by Landscape Architect. Provide additional ties as may be required at no additional cost.

3.9 PLANTING ANNUALS AND PERENNIALS

- A. Broadcast and thoroughly work into soil bed 2-1/2 lbs. per 100 s.f. of Gro-Power Flower >N= Bloom 3-12-12.

3.10 LAWN PLANTING

A. SODDED LAWN

1. Plant sod in areas indicated on plans.
2. Prepare sod areas as specified under Section 02210 and 'Soil Preparation'. Grades shall meet approval of Landscape Architect prior to soil preparation.
3. Fine grade sod areas to a smooth uniform grade. Roll lawn areas with a 300 lb. roller until a uniformly compact and even surface is obtained in compliance with required finished grades and as directed by Landscape Architect. All finish grades shall meet approval of the Landscape Architect before laying sod.
4. Sod shall be laid in a running bond pattern, butted firmly one section to another, and pressed well against the soil.
5. On slopes, sod shall be laid at the bottom of the slope first and worked up the slope to insure firm butting of sections.
6. Immediately after sod is laid, roll entire lawn with a light roller and deep water.

3.11 GROUND COVER PLANTING

A. Flat Cuttings:

1. Prepare ground cover areas as specified under "Soil Preparation" except for those slopes which are 2:1 or steeper.
2. Plant rooted cuttings, pots, or flats in areas and at spacing indicated on plans after mulching.
3. Smooth soil about plants and leave areas in neat and clean condition. Do not pile soil or mulch around crown of any plants.
4. For hand-planted ground cover areas which occur on slopes of 2:1 or steeper, Contractor shall install one fertilizer tablet per ground cover cutting.

3.12 MULCHING

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- A. All planting areas, that do not exceed a 10% slope, except lawns, shall receive a prepared mulch spread evenly over the surface to a depth of 1".

3.13 FERTILIZING AFTER PLANTING

- A. All planting areas shall receive an application of Gro-Power Hi-Nitrogen 14-4-9 commercial fertilizer at the rate of 7-1/2 lbs. per 1,000 sq. ft. thirty days after planting.
- B. Fertilizer applications shall be repeated at 30-day intervals until the end of maintenance period.
- C. All lightweight soil planting areas that have acid loving plants shall be fertilized with the following mix:

Quantity/1000 gallons:

- 1. 3 lbs. ammonium nitrate
- 2. 4-1/2 lbs. potassium
- 3. 16 fl. oz. phosphoric acid

3.14 TREE GUYING

- D. Guys shall be anchored with either Duckbill aluminum anchors for on-grade conditions, or to stainless steel eye bolts for raised planter applications. Refer to planting details and manufacturer=s installation instructions.
- E. Guy trees immediately after planting. Guys should be placed so as to give equal support to the tree from any direction. To each guy install specified signal. Protect bark of tree by covering wire with hose.
- F. Guy lines to be tightened to a firm but not overly tight tension. Should tree growth be of such a manner that the tree guys do not give the required equal support from all directions, install additional deadmen and guy wires.

3.15 TREE STAKING

- A. Immediately after planting, stake all trees which are not to be guyed (refer to planting details). Drive the stakes at the edge of the root ball and 12" minimum into native earth. Stakes shall align with the direction of prevailing winds. Place stakes so as to avoid completely the root ball of the tree.
- B. Fasten trees to stakes using tree ties as specified (refer to planting details) to support and protect the tree trunk. Secure ties to each stake as detailed.

3.16 PRUNING

- A. Pruning shall be limited to the minimum necessary to remove injured twigs and branches and to shape tree for design intent as directed by Owner to include, but not be limited to: lifting of

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branch structure, thinning of canopy, and elimination of cross-branching. Pruning may not be done prior to delivery of plants and only as directed by Owner by an experienced and Owner-accepted Arborist. Pruning paint shall not be used.

3.17 MAINTENANCE

- A. Continuously maintain all areas included under this section during the progress of the work, the 60-day maintenance period, and until final acceptance of this work.
- B. If plantings are not acceptable at the completion of this work for entire work, due to defective maintenance, maintenance shall be continued until all work meets specifications and can be approved.
- C. Maintenance shall include continuous operations of watering, weeding, mowing, rolling, trimming, edging, cultivation, fertilizing, spraying insect and pest control, reseeding, replacement and/or any other operations necessary to assure good normal growth. Apply lawn moth control sprays or other materials, as often as may be required to protect lawns and turfs until final acceptance of this work.
- D. All planted areas shall be kept free of debris and shall be cultivated and weeded at no more than 10-day intervals.

Note: Grass shall be cut to not less than 1-1/4" and during the period of maintenance, it will not be allowed to exceed 2" in height.

- E. During installation period and during maintenance period, the Contractor shall be responsible for maintaining adequate protection of all areas. Any damaged plantings shall be repaired at Contractor's expense.
- F. At termination of maintenance period, all plant materials shall be live, healthy, undamaged and free of infestations. Inferior planting shall be replaced and brought to a satisfactory condition before final acceptance of work will be made. All areas shall be neatly raked and free of weeds.
- G. Replacements: Immediately replace any and all plant materials and grass that die or are damaged. Replacements shall be made to the same specifications as required for original plants.
- H. Two observations shall be made that affect the maintenance period. The first after all planting has been completely installed in order to approve the beginning of the maintenance period of not less than 60 calendar days, and the second at the end of the 60-day maintenance period. If plantings are not acceptable at the end of the 60-day period due to defective maintenance, then maintenance shall be continued by the Contractor until all work meets with the specifications and can be approved. Written notice, requesting observations shall be submitted by the Contractor at least 7 calendar days before anticipated date of observation.

3.18 OBSERVATIONS

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- A. All observations herein specified shall be made by the Landscape Architect. The Contractor shall request observation at least 24 hours in advance of the time observation is required. Observations are required as follows:
1. When fine grading is completed.
 2. When plant material has been delivered to the site.
 3. When plant material has been spotted for planting but before planting pits are excavated.
 4. After planting pits have been excavated but prior to backfill.
 5. The Contractor shall be required to have a complete observation and approval of all landscape construction items at the end of the landscape construction period in order to establish the time for beginning of the 60-day maintenance period. Notify Landscape Architect at least seven (7) days in advance of observation.
 6. At the completion of the 60-day maintenance period, an observation shall be required by the Contractor to obtain final approval. Notify the Landscape Architect at least seven (7) days in advance of observation.

END OF SECTION