

SECTION 32 93 13

LANDSCAPING

PART 1 GENERAL

1.1 DESCRIPTION

- A. Work Included: Provide all labor, materials, equipment and services as necessary to complete all Landscaping work as shown on the Drawings and as specified herein.
- B. Related work described elsewhere:
 - 1. Coordinate with Grading, Drainage, and Paving Drawings.

1.2 CODES, RULES, AND SAFETY ORDERS

- A. All work and materials to be in full accordance with the latest rules and regulations of Safety Orders of Division of Industrial Safety; the International Building Code, and other applicable laws and regulations, including all City codes. Nothing in these Specifications is to be construed to permit Work not conforming to these codes. Should the Contract Documents be at variance with the aforementioned rules and regulations, notify Landscape Architect and get instructions before proceeding with the Work affected.

1.3 GUARANTEE

- A. Plant Guarantee: Warrant all new transplanted plant material to remain alive and be in a healthy, vigorous condition throughout the Contract and 90-day Landscape guarantee period shall have a new guarantee period of 90 days beginning with the time of replacement. If landscape installation as specified herein is not completed prior to September 1, the plant guarantee and landscape maintenance period shall be extended to May 1 of the following year.
- B. Replacement of Plants: All plants that are dead or, as determined by the Landscape Architect or Owner's Representative, are in an unhealthy or damaged condition are to be replaced. The cost of such replacement(s) is at Contractor's expense.
- C. Conditions of Plant Guarantee: Warranty shall not include damage or loss of trees, shrubs, and ground covers caused by floods, fires, freezing rains, lightning storms or winter kill caused by extreme cold and severe winter conditions not typical of planting area. All damage caused from acts of negligence from Contractor's operations and maintenance shall be repaired and replaced at Contractor's expense.

1.4 COORDINATION AND RESPONSIBILITY

- A. Utilities: Before commencing work on the site, become thoroughly acquainted with layout of all underground utilities and structures over the entire site. All requisite repairs to damage caused by Work of this Section shall be at the Contractor's expense.

- B. Coordinate and cooperate with other Contractors working on the site for successful completion of the project, including irrigation work to insure successful integration with the landscaping
- C. Finish rough grades. Finish grades will take the forms shown on the grading and drainage plans. Coordinate Work of this Section with other work relating to Grading and Drainage. See Landscape Details for finish design grades adjacent to curbs and sidewalks.

1.5 INSPECTIONS

- A. Periodic Inspection: During the course of construction the Landscape Architect may visit the site and inspect work in progress.
- B. Scheduled Inspections: The Contractor must notify the Landscape Architect for inspection at the following periods:
 - 1. Prior to planting trees, shrubs, and ground covers to inspect plant material delivered to site and inspects plant pits and backfill mixture. It shall be the responsibility of the Contractor to have all plant material at site, backfill mixture stockpiled, and all tree pits excavated prior to Landscape Architect visiting site.
 - 2. At completion of all work In accordance with Contract Documents.

1.6 SUBSTITUTIONS

- A. Plant Substitution: Plants of kinds other than those indicated on the plant list will be considered by the Landscape Architect upon submission of proof that any plant is not procurable in the region. Replacement plant will be approved on the grounds that it resembles the plant specified in regards to appearance, ultimate height, shape, habit of growth, general soil, and other requirements. In no case shall the average cost and value of the substituted plants be more than the cost and value of the plants indicated. All substitutions must be submitted in writing no more than seven (7) days after the notice to proceed and approval of the substitution must be acknowledged by the Landscape Architect in writing before approval is granted.

PART 2 PRODUCTS

2.1 PLANT MATERIALS

- A. Conform to requirements of Plant Schedule on Drawings. Caliper, spread, and height, as specified in the Plant Schedule on Drawings will take precedence over the container size. Container size is given as a minimum rootball size only.
- B. Quality: Sound, healthy, vigorous, free from plant disease, insects, pests, or their eggs and noxious weeds. Container stock shall be well established and free of excessive root bound conditions.

- C. Inspection of Plant Materials required by City, County, State, or Federal authorities shall be the responsibility of the Contractor. Secure permits or certificates prior to delivery of plants to site.
- D. Acceptance or relocation of plant material will be determined by the City, Owner, or the Owner's Representative on the project site. Plants are subject to inspection and approval or rejection at any time before or during progress of work for size, variety, condition, latent defects and injuries. Rejected plants shall be removed from the project site immediately.

2.2 TREE STAKES AND WIRE TIES FOR TREE STAKING AND GUYING

- A. Tree Stakes: Two inch diameter new lodgepole pine treated with copper nepthenate or approved equal. Length or stake as required for maximum support of tree.
- B. Wire & Rubber Ties: #12 gauge annealed, galvanized steel inserted through new or used 1/2 inch green rubber garden hose. Staking procedure subject to approval.

2.3 SOIL AMENDMENTS

- A. Fertilizer tablets for plant pits: Best (21 gram) with a guaranteed analysis of 20% Nitrogen, 10% available Phosphoric Acid, 5% Potash, 2% combined Calcium, 1.5% Sulfur, .36% Iron, .43% Zinc, and .18% Manganese.
- B. All plants with the exception of Ground covers in flats and turf areas to receive Agriform (20-10-5) plant tabs at the following rates:

1 gallon	1 - 21 gram tablets
5 gallons	2 - 21 gram tablets
15 gallons	4 - 21 gram tablets
24" box	6 - 21 gram tablets
36" box & Palm Trees	8 - 21 gram tablets
- Set tablets 3" below finished grade and space evenly around plant's perimeter.
- C. Ammonium Phosphate: (16-20-0) with a guaranteed analysis of 16% Nitrogen, 20% available Phosphoric Acid.
- D. Plant backfill Mix: Planting backfill shall be a thoroughly blended mixture of soil and soil amendments at the following mixtures:

Mulch	1/3 c.y.
Topsoil	2/3 c.y.

2.4 APPROVED TOPSOIL

- A. Topsoil content: 20-45% Silt, 14-20% Clay, and 30-60% sand with a minimum of 5% organic material (natural or added). The pH shall not be lower than 6.0 or higher than 7.8. Soluble Salts shall not exceed 1200 ppm.

- B. Topsoil quality: Screened, fertile, friable soil from well drained arable land and free from nutgrass, refuse, roots, heavy clay, noxious weeds and any material toxic to plant growth. Provide the Landscape Architect with a soil analysis by an independent testing laboratory for verification prior to having topsoil delivered to site. Soil analysis shall be at the expense of the Contractor.

2.5 MATERIALS USED FOR TOP DRESSING OF SHRUBS AND GROUNDCOVER PLANTERS

- A. Decomposed granite: Refer to plans for color and size. Contractor shall provide samples to Landscape Architect for approval. Decomposed granite shall consist of granular fragments of quartz and feldspar. The material shall remain stable when saturated in water. All material shall be from a single production source.

2.6 WEED CONTROL CHEMICALS

- A. The Applicator of all Weed Control Materials shall be licensed by the State of Arizona as a pest control operator and a pest control advisor in addition to holding any subcontractor licenses that are required.
- B. Prior to the installation of any weed control materials, the pest control advisor shall submit to the Landscape Architect a list of the weed control materials, and quantities per acre intended for use in controlling the weed types prevalent and expected on the site. Pest control advisor shall furnish data to demonstrate the compatibility of the weed control materials and methods with the intended planting varieties.
- C. Weed control shall eliminate all nut grass, Johnson grass, burr clover, spurge and other invasive weeds common to the area. No material or method shall affect the landscape planting or hydrosprig germination and establishment. Materials and methods must conform to Federal, State and Local Regulations.
- D. Weed control shall be applied to all planting areas with adequate time to meet manufacturer's recommendations. If after application, weeds reappear prior to planting, reapplications will be provided per manufacturer's recommendations. If weeds reappear after planting, additional weed control will be applied in a manner not to damage or retard the growth of plant material. Any plant material damaged or killed during this process or as a result of the application of weed control material, shall be replaced at no cost to the Owner.
 - 1. Selective contact systemic herbicides: Compatible with existing plant material to remain and having no residual. Use in quantities and strengths recommended by manufacturer.'
 - 2. Pre-emergent herbicides: Use pre-emergent herbicide(s) compatible with newly planted materials in quantities and strengths recommended by manufacturer. Use only approved weed control materials and a licensed applicator.

PART 3 EXECUTION

3.1 SITE PREPARATION

- A. Protection: Take care in performing Work of this Section to avoid conditions which will create hazards. Post signs or barriers as required.
- B. Prior to Planting Operations: All top growth of grass, weeds, and other unwanted plant material shall be removed from all areas to be planted. Contractor shall spray all existing grass and weeds with specified contact systemic herbicide a minimum of two times per manufacturer's instructions. Do not spray plant material to remain. Protect as required.

3.2 FINISH GRADING

- A. Coordinate with Rough Grading. Provide and place additional specified topsoil as required to facilitate drainage patterns.
- B. Direct surface drainage in manner indicated on Grading and Drainage Drawings by molding surface to facilitate natural run-off of water. Fill low spots and pockets with topsoil and grade to drain properly.
- C. Rototill or spade the area to a depth of 4 to 6 inches. Eliminate drainage problems by sloping soil slope away from foundations, etc.
- D. Incorporate organic matter (humus, redwood, sand, etc.) gypsum, lime and fertilizer as recommended by an approved soils report to a depth of 3 to 4 inches.
- E. Rake and smooth the soil, removing the rocks, roots and large clods. Roll the area lightly with a lawn roller 1/3 full of water, leaving the grade 1 inch below finish grade of paving.
- F. Prior to planting, the irrigation system shall be tested and fully functional.
- G. Sod shall be harvested within 24 hours prior to delivery and planted within three days after harvest.
- H. Install sod immediately upon delivery. In hot weather, protect unlaied sod by placing stacks in shade, covering with moist burlap sacking and keeping moist.
- I. Begin installing sod along the longest straight line, such as a driveway or sidewalk. Butt and push edges and ends against each other tightly, without stretching. Avoid gaps or overlaps. Stagger the joints in adjacent rows using a large sharp knife to trim corners, etc. Avoid leaving small strips at outer edges as they will not retain moisture. On slopes, lay the turf pieces horizontally across the slope. On 2:1 slopes or greater, stake sod to hold in place with 1/2" X 1" X 12" pegs at two-foot spacings. To avoid causing indentations or air pockets, avoid walking or kneeling on the turf while it is being installed or just after watering.
- J. After installing the turf, roll the entire area to improve turf-to-soil contact and remove air pockets.
- K. Begin watering within 30 minutes of installation.
- L. Stolons shall be harvested within 24 hours prior to delivery and planted within three days after harvest.
- M. Install stolons immediately upon delivery. In hot weather, protect unplanted stolons by placing them in shade, covering with moist burlap sacking and sprinkling.

3.3 PLANT MATERIALS

- A. Examination: Before proceeding with work, check and verify dimensions and quantities. Report variations between Drawings and Site to Landscape Architect before proceeding with work. All planting indicated on Drawings is required unless otherwise indicated.
- B. Protection: Take care and preparation in Work to avoid conditions which will create hazards. Post signs or barriers as required. Provide adequate means for protection from damage through excessive erosion, flooding, heavy rains, etc. Replace or repair damaged areas as required at no cost to Owner.
- C. Installation: Do not plant trees, shrubs, and groundcovers until major construction operations are completed, soil preparation is complete, and irrigation system is in full operation.
 - 1. Layout individual tree locations and areas of multiple shrub and groundcover plantings. Stake locations and secure acceptance from Landscape Architect before planting. Make minor adjustments as requested.
 - 2. Excavate plant pits to minimum dimensions detailed on Drawings.
 - 3. Remove plant from container and place immediately in plant hole over compacted backfill mix. Place trees, shrubs, and ground covers in holes to conform to planting details on drawings.
 - 4. Backfill with homogeneous mixture of specified backfill. Add fertilizer tablets in plant pits in quantities specified.
 - 5. Settle by firming and watering to bring ball down to proper level as shown on Drawings. Do not use muddy soil for backfilling. Make adjustments in positions of plants as directed.
 - 6. Thoroughly water plants immediately after planting.

3.4 TREE STAKING, BRACING, AND GUYING

- A. Support for Trees: In planting trees 36 - inch box and smaller, include placement of tree stakes in plant pits outside of plant rootball. Drive stakes into undisturbed soil a minimum of 18 inches before backfilling so tree roots are not damaged.
 - 1. Backfill with homogeneous mixture of specified backfill. Add fertilizer tablets in plant pits in quantities specified.
 - 2. Settle by firming and watering to bring ball down to proper level as shown on Details. Do not use muddy soil for backfilling. Make adjustments in positions of plants as directed.
 - 3. Thoroughly water plants immediately after planting.
- B. Lodgepole stakes shall be installed in a vertical position with tops of stakes at the same level.

- C. Wire Ties: Tie tree to stakes as detailed on Drawings. Install double strand of galvanized wire through section of rubber hose. Length of hose shall be long enough to protect tree trunk from wire. Secure wire to stake by stapling and remove excess wire ends.

3.5 TOP DRESSING OF PLANTERS

- A. Rake and grade smooth subgrade removing all rocks larger than 1/4 inch in diameter and deleterious material.
- B. Apply specified pre-emergent herbicide to subgrade in accordance with manufacturer's recommendations.
- C. Place decomposed granite to a 2-inch depth and rake to a neat finish appearance. Finish grade of granite to be 1-1/2 inch below top of walks, concrete headers, and paving.

3.6 FINISH APPEARANCE

- A. Clean Up and Repair: Clean all sidewalks, walls, and planting areas of debris, soil and chemical stains, and waste materials.
- B. Finish Appearance: Prior to final acceptance of landscaping by Owner, all new and transplanted plant material shall be in a healthy state of growth, planter areas weed free, trees have been staked as detailed, and all landscaping, headers, and planter top dressing have been installed as per Contract documents.

3.7 LANDSCAPE MAINTENANCE

- A. General: Contractor will be responsible for the health and growth of all new and transplanted landscaping for 90 days from preliminary acceptance of landscape work by Owner or Owner's Representative.

Replace landscaping that is dead or appears dead as directed by Landscape Architect. Make replacements within 10 days of notification.

- B. Provide written instructions on maintenance requirements.
- C. Submit instructions to Landscape Architect for forwarding to Owner's Custodian.
- D. Trees, Shrubs, and Plants
 - 1. Maintain by pruning, cultivating, and weeding as required for health growth.
 - 2. Restore planting basins.