

SECTION 01 56 39

TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section includes the requirements for the protection of existing trees and shrubs, including entire structure of plant material above and below ground impacted by all demolition and construction work under this contract.
- B. Contractor is prohibited from stockpiling any excavation or construction materials within the canopy of trees, on lawn areas or near shrubs.
- C. Contractor shall immediately clean and remove any construction residue that falls within the canopy of a tree or near shrubs.

1.2 RELATED SECTIONS

- A. Section 01 11 00 - Summary of Work
- B. Section 01 71 33 - Protection of Adjacent Construction

1.3 JOB CONDITIONS

- A. Pre-Construction Meeting:
 - 1. Prior to commencement of work, the Contractor shall arrange a meeting on the site with the City Representative, General Contractor, and such others as the City Representative shall direct to review the proposed schedule, the "Trees of Concern", the tree and landscape protection, submittals for this Section, the coordination with work of other trades, and the selective thinning and clearing requirements.
 - 2. Adjustments to the type and extent of the protection shall be addressed at the time of the meeting.
 - 3. Contractor shall coordinate the meeting and inform all parties in writing (5) business days in advance of the scheduled meeting.
- B. Environmental Requirements: Perform work only during suitable weather conditions. Do not disc, rototill, or work soil when frozen, excessively wet, or in otherwise unsatisfactory condition.
- C. Sequencing and Scheduling: Adjust, relate together, and otherwise coordinate work of this Section with work of Project and all other Sections of Project Specifications.

1.4 QUALITY ASSURANCE

- A. Contractor shall employ a certified Arborist who is a member of the American Society of Consulting Arborists, Inc. (ASCA). The name and qualifications of the Arborist shall be submitted for approval by the City Representative.

1. Arboricultural work including tree removal, pruning and care for trees to remain shall be performed by personnel familiar with arboricultural work, under the supervision of an experienced professional Arborist and foreman at all times.
2. Work in this Section shall be by a firm which has successfully completed landscape work similar in quality and extent to that indicated for this project for a period of not less than five (5) years. Supervisory personnel with experience on projects of similar size and extent shall supervise the work.

1.5 APPROVAL OF TRENCHING AND EXCAVATION

- A. The contractor shall obtain written approval from the City Representative and a certified Arborist prior to start of excavation work within the drip line of trees. A Certified Arborist shall be retained as needed to provide written direction at the Contractor's expense.
- B. The Contractor is prohibited from using equipment for trench and excavation work within the tree drip line or where root intrusion exists on asphalt pathways to be reconstructed.
- C. In the event pruning is required for roots greater than 2" in diameter the Contractor shall receive written direction from the City Representative in coordination with Arborist prior to continuation of work.

1.6 NON-APPROVED TRENCHING

- A. In the event trenching or excavation is performed by the Contractor without the approval or not as shown on the Contract Drawings; the Contractor shall be subject to a fine equal to one half (½) day liquidated damages for every 50-feet.
- B. The only exception to paragraph 1.6.A above is for trenching to a maximum of 3-feet as measured horizontally without approval at any particular location for the placement of pipe fittings and quick couplers outside the drip line of any tree.

1.7 DAMAGE TO TREES AND PAYMENT FOR DAMAGE

- A. If the Contractor should cause minor damage as defined by nicked tree trunks, limbs and branches or broken branches to trees or shrubs during the course of construction, the Contractor shall pay the following penalties at the beginning of each billing period:
 1. The Contractor will be penalized the sum of One Hundred dollars (\$100) for the first incident which causes minor damage to trees or shrubs.
 2. The Contractor will be penalized the sum of Two Hundred dollars (\$200) for the second incident which causes minor damage to trees or shrubs.
 3. The Contractor will be penalized the sum of Five Hundred dollars (\$500) for the third and subsequent incidents which cause minor damage to trees or shrubs.
- B. The Contractor shall replace any trees or shrubs that suffer more serious damage, including damage to roots 2-inches in diameter or larger, during construction at no additional cost to the City. The City Representative shall determine the value of such replacement trees or shrubs. In addition to the Contractor's restoration approved by the City Representative, the Contractor will be assessed damages for the difference in the dollar value of the damaged tree or other plant material, and the dollar value of the replacement.
 1. The dollar value will be determined by the City Representative from the "Guide for Establishing Values of Trees and Other Plants," prepared by the Council of Tree

and Landscape Appraisers, current edition. Damages assessed will be deducted from moneys due or that may become due to the Contractor.

- C. The Contractor shall in addition be liable for the cost to the City for removing the damaged tree(s). This cost will cover 1.5 times the hourly wage of all person(s) at the site for the required hours to remove the tree(s) and haul offsite as directed by the City Representative.

1.8 EXCAVATION WORK UNDER LOW HANGING BRANCHES

- A. In areas where trenching is required under low hanging tree branches (8 to 12-feet off the ground), the Contractor shall operate equipment to a maximum height of 10-feet to avoid contact and possible damage to the tree branches.
- B. In bidding the work, the Bid Items which include piping and conduit trenching work shall include the use of machinery that will not extend above 10-feet vertically for 5% of the linear trenching performed.

1.9 MANUAL EXCAVATION

- A. In areas where tree branches hang below 12-feet over the area to be excavated, adjacent to elderly trees or as directed by the City Representative, the Contractor shall manually excavate the trench. No machinery shall be used in the areas so designated for manual excavation.

1.10 DAMAGE TO LAWNS, PLANTED AREAS, AND EXISTING IRRIGATION SYSTEMS

- A. Refer to the DPW Standard Specifications, Section 1009 – Restoration of Existing Lawn and Other Planting.

1.11 EXCAVATION FOR CONCRETE PATHWAYS

- A. The Contractor's vehicles and equipment shall not be driven off-road except along designated routes as far away as practical from tree root zones.
- B. Vehicles and equipment shall be operated in such a manner as to avoid damage to tree and bush trunks, leaves and branches.

1.12 ASPHALT PAVING AND TRENCHING AND INSTALLATION OF UNDERGROUND UTILITIES NEAR TREE ROOTS

- A. The Contractor shall place all piping 3 ½-inches and smaller and all conduits a minimum of 18-inch below the existing finished grade. New conduits shall be located at least 25-feet away from all tree trunks, 20-feet away from all buildings, 10-feet away from any pathway lighting, and 5 feet away from and parallel to any asphalt or concrete paths.
- B. The Contractor shall place all piping 4-inches and larger a minimum of 3-feet below the existing finished grade except when approved by the City Representative to clear root systems. In no case shall the 4-inch and larger pipe placed less than 2-feet below the finished grade. Refer to the drawings for additional information when pipes cross over or under other pipes or conduit.
- C. The Contractor shall not cut any tree roots over 2-inch in diameter unless an approved arborist is consulted. The Contractor shall bend and/or transition underground conduit and piping so that the conduit or piping will thread between tree roots. This 2-inch diameter tree

root guideline is dependent of the species of tree or bush. Various trees and bushes have a more fibrous root system, consequently, severing a large number of these roots can be as detrimental to certain species of trees as severing a fewer number of larger tree roots.

- D. When possible, trenches shall not be run of the side of the tree exposed to prevailing winds as roots are primarily anchored on the windward side. Trenches shall not be cut across more than one quadrant of the tree root zone.
- E. Excavated material (fill and overlay) shall not be deposited under the leaf/needle canopy of established trees. The excavated material shall be placed in piles along one side of a paved surface. In no case shall the Contractor place the excavated material closer than 6-feet from the base of a tree.
- F. The Contractor shall be responsible for identifying all underground lighting, electrical control, and irrigation utilities within the project site area. The Department of Parks and Recreation is not a party to or a participant in the Underground Service Alert (USA). Rec/Park will not be providing any field marking service, protecting, and warning the Contractor of the underground facilities. As-built drawings and reference drawings of Rec/Park facilities are not available. As part of the contract work, the Contractor shall be required to locate, probe, determine, and flag or mark all underground facilities including, but not limited to, metal and plastic conduits and pipelines, sprinkler heads, quick couplers, valves boxes, controller boxes, pull boxes, prior to excavation.
- G. The Contractor shall replace all affected areas with new sod grass, decomposed granite, new concrete, or asphalt paving within 10 calendar days after beginning trench excavation. All trenches in pathways and planting areas shall be temporarily covered for immediate use. The Contractor shall not accumulate affected areas for group planting of sod or group paving of trench.
- H. The Contractor shall locate quick couplers and lateral lines. The Contractor shall cap tees as shown on the drawings unless located in the field directly under the tree drip line. In these cases, obtain the City Representatives approval for relocating the fitting(s).

PART 2 - PRODUCTS

2.1 TEMPORARY PROTECTION OF EXISTING TREES AND LANDSCAPE PLANTING

- A. Tree Protection shall be composed of the following:
 - 1. 6-foot tall temporary tree protection composed of 2x4s that surround the outer edge of the tree basin.
 - 2. 2x4s shall be mounted on 2-inch diameter galvanized iron posts, anchored into the soil on opposite corners of the guard, and driven into the ground to 2-foot depth (shift stakes if root is greater than 2-inch diameter).
 - 3. 2x4s shall be used as a toe board surrounding the base of the tree protection for ADA compliance.
 - 4. Place orange snow fencing around the tree protection.
 - 5. Refer to Appendix 'A' for additional information.
- B. Temporary materials, new or used, that are adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable Laws and Regulations, and shall be approved by the City Representative.

- C. Protection bedding mulch: Recycled wood chips to conform to the following:
 - 1. Mulch pieces should typically be heavy toothpick-like, 2-inch dimension.

PART 3 - EXECUTION

3.1 GENERAL

- A. Provide protection for existing landscape planting to remain including, but not limited to, trees, shrubs, and ground cover.
- B. Contractor shall provide Temporary Protection suitable for the protection of the landscape planting immediately adjacent to the construction limit of work line, and as directed by the City Representative.
- C. The Contractor shall coordinate all other trades and work.
- D. All trees to be retained shall be enclosed by fencing on the work side when Tree Protection Zone is located inside, adjacent to, or within 10 feet of the limit of work, prior to demolition, grubbing, or grading.
- E. Trees to be retained shall be pruned for clearance as required under supervision of a certified Arborist.
- F. Temporary Protection shall be kept in place for the duration of the Project, maintained during construction, and temporarily relocated as required by the progress of the construction at no additional cost to the City.

3.2 PREPARATION

- A. Stake the location of Temporary Protection barriers and fencing as noted above for the approval of the City Representative prior to installation of Temporary Protection fencing. Place location stakes at corners and ends and 30 feet on center maximum.
- B. Notify the City Representative at least two weeks in advance of the date for on-site review of the staking.
- C. Place six inches (6") of organic mulch over existing grade within Temporary Protection fencing for existing trees to remain.

3.3 INSTALLATION

- A. Install Temporary Protection for tree and landscape planting, as specified herein and as approved in the field by the City Representative and Landscape Architect. Install all other Temporary Protection in locations approved in the field by the City Representative and Landscape Architect.
 - 1. Install posts at 10-foot intervals maximum, at corners, and at other changes in direction. Posts shall be set firmly in undisturbed soil, plumb and with a minimum of exposed height as specified. Securely attach fencing at a minimum of three points.
 - 2. On pavement, provide self-supporting chain link fencing that does not require anchorage into the pavement.

3. Install hay bales or rolls of erosion control wattling, secured around trunk to a height of 6 feet.
- B. Fencing to be relocated closer to trees to remain to accommodate the sequence of construction shall be reviewed by the City Representative and Arborist prior to relocation. No removals or construction shall occur without the City Representative's and Arborist's approval of the new fence location.
- C. Completely remove Temporary Protection, including foundations, associate materials and equipment at the completion of the Project or as directed by the City Representative.
- D. Restore and recondition areas of site damaged or disturbed by barrier installation and removal.

3.4 PROHIBITED ACTIVITIES:

- A. The following are activities prohibited under existing tree canopies and within protected landscape planting areas:
 1. Excavating or trenching under tree canopies is prohibited and shall be permitted only under the following conditions:
 2. When excavating or trenching within the canopy of trees to remain, the Owner shall be given 48 hours notice. Exercise extreme care during excavation to prevent damage to roots and in a manner that will cause minimum damage to the root system. Such work shall not occur without a professional arborist to perform compensatory root and branch pruning.
 3. Prune injured roots cleanly. Backfill as soon as possible.
 4. Where tunneling around roots is not practical, roots shall be cut off approximately six inches (6") from construction.
 5. Exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or exposed roots shall be packed with wet peat moss or four (4) layers of wet untreated burlap and temporarily supported and protected from damage until permanently covered with backfill.
 6. Thinning shall not remove more than thirty percent (30%) of the existing leaf surface.
 7. Ripping or tearing of roots will not be allowed.
- B. Placing backfill under protected trees unless indicated otherwise. Where fill is required for grading, and as indicated on the Drawings, do not fill above existing grade line at trunks. Fill soil must percolate at a rate of 1" per hour minimum.
- C. Damage to trunk, canopy, or limbs caused by maneuvering of vehicles or equipment, or stacking of materials and equipment.
- D. Driving or parking vehicles; storage of vehicles, equipment, or supplies.
- E. Disposing of paint, petroleum products, dirty water, soil sterilants, concrete slurry or other deleterious materials on or around roots or on any landscape areas.
- F. Changing site grades which cause drainage to flow into or to collect near protected trees.
- G. Using protected trees as support posts, power poles, crane stays, sign posts, or anchorage for ropes, guy wires, power lines, or other similar functions.

- H. Damage to root system from flooding, erosion, excessive wetting or drying resulting from dewatering or other operations.
- I. Excessive water or heat from equipment, utility line construction, or burning of trash under or near shrubs or trees.

3.5 REPLACEMENT OF DAMAGED LANDSCAPE PLANTING

- A. Trees and plants destroyed or damaged beyond repair due to Contractor's negligence, failure to provide adequate protection, or failure to perform recommended selective pruning shall be compensated by the Contractor at no additional cost to the City.
 - 1. Damage beyond repair that requires replacement shall be determined by the City Representative.
 - 2. Replacement shall include the replacement plant material, transportation, installation, a 30-day maintenance period, and a one year warranty.
 - 3. Planting location for replacements may be different from the original location and shall be determined by the City Representative.
- B. Replace shrubs, ground cover and turf with plants similar in species, size and shape.
- C. Replace trees with plants of same species, size and shape.
- D. Replacements for trees of 2"-8" caliper shall be replaced with similar sized plants; trees over 8" caliper shall be 60" box size.
- E. Since age and size of existing tree may prohibit replacement with same size tree, the difference in caliper between size of damaged tree and replacement of tree shall be compensated by the Contractor.
- F. Contractor shall flag trees to be removed so that trees to remain are not injured.

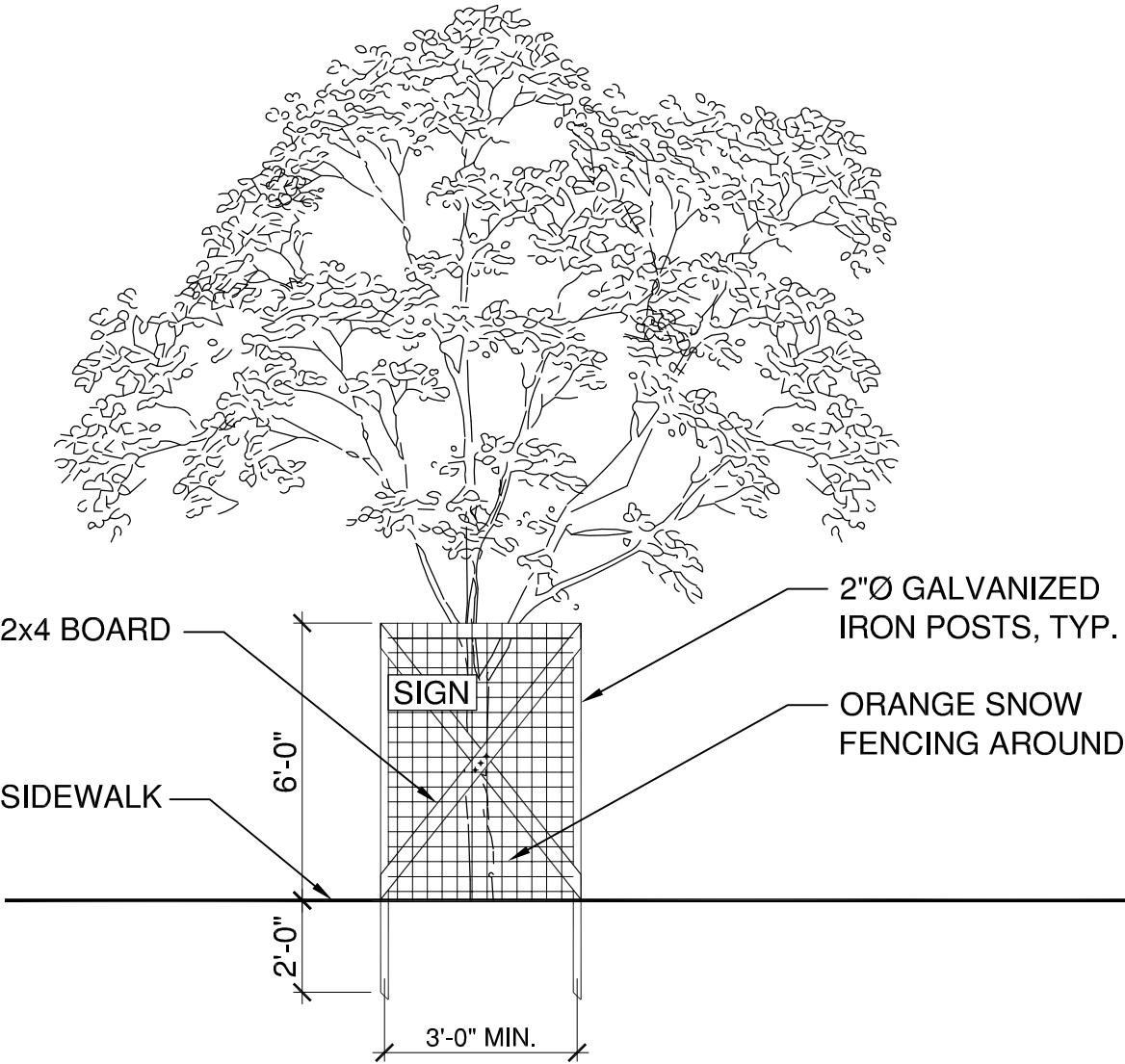
END OF SECTION

ORANGE SNOW
FENCING AROUND

2"Ø GALVANIZED
IRON POSTS, TYP.

3'-0" MIN.

PLAN VIEW



STREET TREE PROTECTIVE FENCE

SCALE: 1/4" = 1'-0"