

SECTION 22 PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS

22-1 GENERAL - Contractor shall protect, shore, brace, support, and maintain all existing surface and subsurface improvements not designated for removal, relocation or replacement. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, lawns, shrubs, trees, mailboxes and other surface structures damaged by construction operations shall be restored to match their original condition or better.

All replacements shall be made with new materials to the satisfaction of, and at no additional cost to, the City.

Removal of existing facilities shall conform to Section 15, "Existing Highway Facilities," of the State Specifications.

22-2 DOCUMENTATION OF PRE-CONSTRUCTION CONDITIONS - The City may perform a pre-construction inspection of the construction area to ascertain the condition of surface improvements to remain in place and which may be affected by the Contractor's work. The City's pre-construction inspection may be in the form of written notes, video and/or still photography. When required by the Contract Special Provisions the Contractor shall perform a pre-construction survey to document the condition of existing improvements. The Contractor may also perform such inspection at his discretion. When required, the Contractor shall adequately document the condition for size, kind, quantity and the extent of existing surface improvements. Documentation shall be in the form of video and/or still photography. In the absence of pre-construction inspection and documentation the Engineer's judgement shall be final.

Full compensation for conformance to the requirements of this Section shall be considered as included in the other Contract bid items of work and no additional compensation shall be made therefor.

22-3 TREE AND PLANT PROTECTION

22-3.1 General - No tree or plants shall be removed or damaged, unless the Contractor obtains the written permission of the owner and/or Engineer, unless such tree or plants are designated for removal by the Contract Plans and/or Special Provisions.

No equipment, vehicles or storage of materials will be permitted under the drip line of any tree outside of existing paved surfaces of those trees not designated on the Contract Plans for removal. Work may occur in areas with adjacent mature trees or tree canopies extending over the work area. It is Contractor's responsibility to conduct his operations to prevent and avoid damage to trees and vegetation not designated to be removed. Contractor's equipment shall not strike a tree at any time. Contractor shall inspect and determine the required clearance for all equipment and vehicles prior to beginning work. Contractor may, with the Engineer's written approval 48 hours in advance, prune or trim trees and vegetation to facilitate his operation. Unless otherwise allowed by the Engineer, a qualified landscape contractor shall perform all trimming, repair, and replacement of trees and plants under the direction of a certified arborist provided by Contractor and in accordance with Section 21, "Tree Trimming and Removal," of these Technical Provisions.

Each tree injured beyond repair, or removed without the Engineer's approval, shall be replaced with a tree of like species to the nearest size possible. The ratio of replacement shall be one to one for existing trees less than six (6) inches in diameter, and three to one for larger trees.

Failure of any worker to observe protection measures in these provisions shall constitute ground for removal of said worker from the Project by the Engineer in accordance with Section 5-10 of the General Provisions.

22-3.2 Trunk Protection - All tree trunks greater than six (6) inches in diameter that are within five (5) feet of any anticipated excavation equipment shall be protected. Contractor shall furnish and coil two layers of straw wattles around tree trunks to a minimum height of six (6) feet from the ground, or as directed by the Engineer.

22-3.3 Root Protection -- The Contract shall exercise care during grading, trenching and other operations as not to unduly damage tree roots. When tree roots less than 4 inches in diameter are exposed during excavation near existing trees to be protected, the roots shall be trimmed to a neat, clean cut with a sharp pruning saw and covered with wet mulch and burlap immediately. Tree roots larger than 4 inches in diameter shall be covered with wet mulch and burlap immediately, and the Engineer shall be immediately notified. The Engineer will inspect these roots and direct the Contractor to trim the roots, or arrange for the trimming by a certified arborist at no cost to the Contractor. Root trimming or removal by pulling or shredding with mechanized excavation equipment shall not be permitted. The Contractor should note that coordination for the trimming by an arborist of the larger roots may take up to three

working days. Contractor shall allow for this coordination in his schedule and sequence of work and shall make no claims for additional compensation for lost production or delays.

22-3.4 Trenching - When directed by the Engineer trench locations will be adjusted to avoid trenching in the drip line of trees to remain.

Whenever required by the Special Provisions, or shown on the Contract Plans, or ordered by the Engineer, the Contractor shall hand excavate as necessary to prevent injury to trees and other plants..

22-3.5 Watering - When the Engineer determines that more than 25% of the tree's roots have been disturbed the tree shall be watered as follows:

- 1) Water shall be applied to irrigate down to a minimum depth of 12 inches for the full outer half of the canopy/drip line.
- 2) The area immediately adjacent to the tree trunk shall not be soaked.
- 3) Following the initial soaking, trees shall be soaked once a month during the months of May, June, July, August and September.
- 4) The Engineer may order additional soaking when conditions so dictate.

22-3.6 Disposal - All trees and other vegetation that are removed shall be disposed of by the Contractor in accordance with Section 6-16 of the General Provisions of the Standard Specifications and Section 2 of these Technical Provisions.

22-4 LAWN - All lawn areas that have been disturbed by the Contractor's construction activities or by parking of equipment, shall be restored using methods approved by the Engineer. The top surface elevation of the new sod shall match the pre-construction elevation.

The soil used in the repair work shall be commercially available processed topsoil. Sod shall be cut in strips or rectangular sections which may vary in length, but shall be of equal width and of a size that will permit the sections to be lifted and rolled without breaking. All sod shall be cut to a thickness of 1/2 to 3/4 inch.

Fertilizer shall be pellet or granulated and shall have an analysis of equal parts of available nitrogen, phosphorus, and potassium in percent by weight in order to supply the number of pounds of the pure chemicals per square foot recommended by the manufacturer. Water shall be free from any substances harmful to the growth of grass and shall be from a source approved by the Engineer prior to use.

Sod shall be placed after the soil has been adequately prepared and after the fertilizer has been applied as recommended by the manufacturer. Sod shall be laid smoothly, edge to edge, and with staggered joints.

All areas with sod shall be maintained in accordance with Section 20 of these Technical Provisions. Maintenance shall include watering, re-sodding, repair of erosion damage, and all other operations necessary to obtain an acceptable grass cover. Watering shall be required if natural rainfall is not sufficient to maintain the sod bed in a thoroughly moist condition. Contractor shall provide water for watering. Sodden areas that have turned brown prior to final acceptance of the project shall be re-sodded. Original grades of the grass-covered areas shall be maintained after commencement of sodding operations and during the maintenance period.

22-5 FENCES - Unless shown otherwise on the Contract Plans, all existing fences affected by the work shall be protected and maintained by the Contractor until completion of the work.

Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the Engineer, and the period of time that the fence may be left relocated or dismantled has been agreed upon.

22-6 DRIVEWAYS, SIDEWALKS, RETAINING WALLS, CURBS, AND GUTTERS - Unless shown otherwise on the Contract Plans, construction shall be conducted without disturbing existing concrete improvements. All concrete curbs, gutters, aprons, patios, walls, driveways, and sidewalks broken, crushed, or damaged by the installation of the improvements, shall be reconstructed by and at the expense of the Contractor.

All restoration shall be of the same kind of material, quality, and of the same dimensions as the original work. The minimum thickness for concrete slabs, etc. shall be no less than adjoining pavement thickness, or as indicated on the Plans, or as specified, whichever is the greater. In no case shall a concrete slab be less than four (4) inches in depth.

The repairs shall be made by removing the damaged portions between cold joints, or to nearest weaken plane joint cut by a concrete saw and by replacing the entire portions. Reinforcing dowels shall be placed in existing concrete as approved by the Engineer. Refinishing the damaged part is not allowed. All work shall match the appearance of the existing improvements as nearly as practicable.

A power-driven pavement saw shall be used to cut existing Portland cement concrete sidewalks, driveway, curb, and gutter where it is necessary to remove the concrete. Sidewalk shall be saw-cut at existing score marks. Driveway aprons shall be removed and replaced as a whole without saw cutting. The cut shall be a minimum of 1½ inches deep and straight; and, if two cuts are made they shall be parallel. The cut shall be deep enough to permit complete breakage of the concrete without ragged edges.

All edges of concrete shall be edged with a cement edger of the size 2¾ inches in width with a 3/16-inch radius. All joints or grooves that are indicated on the Plans or are required by the Engineer shall be marked with cement groovers or jointers four (4) inches in width and having a groove 3/8 inch wide at the top and a depth of ¼ inch to ½ inches.

All new or previously existing concrete surfaces shall be left neat, clean, and free from concrete droppings. The Contractor shall be responsible for preventing vandals or others from disfiguring or defacing the finished surfaces. Any new concrete surfaces disfigured, shall be replaced at the Contractor's expense.

22-7 STORM DRAINS - All storm drain facilities shall be maintained throughout construction to convey upstream drainage and prevent ponding, flooding or erosion.

The Contractor, at all times, shall be responsible for the protection of all on site and off site drainage facilities which may be impacted by his construction activities. The Contractor shall construct adequate debris and sediment traps in or around drainage structures as necessary. Measures to control debris and sediment from entering off site and on site drainage facilities shall be as approved by the Engineer. All protective measures shall be implemented in a timely manner. Should the Contractor, in the Engineer's opinion, fail to provide adequate debris and sediment control, on or off site, the Engineer may cause such work to be done and deduct the cost thereof, plus a 20% administration fee from any payments due the Contractor.

22-8 SANITARY SEWER LATERALS - Sanitary sewer lateral repairs and realignment shall conform to applicable provisions of Section 18, "Storm Drains," of these Technical Provisions and Section 7, "Existing Utilities," of the General Provisions of the Standard Specifications, to the requirements of the Central Contra Costa Sanitary District, and as specified herein.

When the separation between the sewer lateral and the new utility pipe is greater than six (6) inches, the repair may be made with vitrified clay or SDR 26 pipe of equal diameter. When the separation is less than six (6) inches, the repair shall be made using cast iron pipe of equal diameter.

The new section of pipe shall be cut to fit the space between the trimmed ends of the existing sewer lateral with a maximum clearance of ¼-inch at each end. Pipe connections shall be made using banded rubber couplings.

When the outside diameter of pipes are within 1-inch of each other, there shall be a 4"X4" pad of 35-45 Durometer rubber placed between the pipes.

Maximum deflection with one fitting shall not exceed 22½ degrees. Long-radius bends shall be used only for changes in direction except as otherwise allowed by the Engineer.

Minimum slope shall be one percent (1%) unless otherwise permitted by the Engineer.

The Contractor shall be responsible for determining if a house connection sewer is abandoned. An abandoned house connection sewer shall be defined as a house connection sewer that is not depended on for service or does not connect to a house sewer (upper lateral). If an abandoned house connection sanitary sewer lateral is encountered it shall be abandoned by plugging open ends of the lateral with Class C grout and as approved by the Engineer.

22-9 ADJUSTMENT OF SURVEY MONUMENTS AND UTILITY FRAMES AND COVERS

22-9.1 General - The Contractor shall reference and protect all manholes, valve covers, electrical boxes, survey monuments, and recorded survey points including but not limited to railroad spikes, iron pipes, and metal pins prior to

construction. Monument preservation shall conform to State of California Streets and Highways Code Section 732.5, 1492.5, and 1810.5, and Business and Professional Code Section 8771. Contractor shall set sufficient marks to enable subsequent retrievals of the locations of these facilities by Contractor or others, including utility companies. Such reference points and marks shall be protected and remain undisturbed until completion of the Work. Contractor shall submit to Engineer a to-scale drawing showing all utility and monument reference points at least forty-eight (48) hours prior to initiating any removal or demolition work.

When a facility cannot be adjusted in the same day that it is disturbed, Contractor shall provide temporary paving around and/or on top of said facility to mitigate any elevation differential with adjacent grades. Temporary paving shall conform to Section 18-9.1 of these Technical Provisions.

All manholes, survey monuments and water valve covers shall be thoroughly cleaned of any construction debris resulting from the Contractor's operations.

22-9.2 City-Owned Facilities - The Contractor shall locate, reference, protect, and adjust all City-owned storm drain manholes, covers, electrical boxes, and other similar facilities as shown on the Contract Plans and as specified herein. All facilities shall be adjusted to within 1/8 inch of the adjacent finished grade.

Survey monument covers shall be adjusted as approved by the Engineer. The Contractor shall protect the survey monument in place. For monuments requiring resetting due to disturbance by the Contractor's operation, a licensed land surveyor shall perform the work and all costs shall be at the Contractor's expense. Contractor shall notify the Engineer immediately upon encountering a monument or benchmark not shown on the Project Plans.

To adjust manholes, after new pavement has been completed, the necessary portions of the subgrade, base, and pavement shall be neatly removed. The existing concrete collar shall be removed, and the frame and cover raised to finished grade using riser rings. A new concrete collar shall be constructed with the concrete level being 1½" below finished grade. The Contractor shall fill the remaining 1½" with ½-inch maximum-sized aggregate asphalt concrete to match the surface of the existing pavement. The asphalt concrete shall be placed in a workmanlike manner to conform to the appearance of the surrounding pavement.

Electrical pull boxes shall be raised to finished grade by raising each box to grade and filling the void under the box with mortar. Boxes to be lowered shall require overexcavating the subgrade and installing a layer of Class II aggregate base that is at least four (4) inches thick, compacted to 90% relative compaction. The box shall be set upon the compacted base.

22-9.3 Non-City-Owned Facilities - Manholes, meters and valve covers not owned by the City shall be adjusted to grade by the utility owner involved and at the utility company's expense. It shall be the responsibility of the Contractor to notify affected utility companies at least two (2) working days in advance of paving operations and to coordinate all work required to adjust all covers to the new finish grade. Frames and covers damaged by the Contractor shall be replaced with new, in kind, at no expense to the City.

When the Contract requires non-City-owned facilities to be adjusted by the Contractor, Contractor shall coordinate with the owner of the facilities to receive new frames and covers that may be provided.

22-9.4 Measurement - When provided for in the bid proposal adjustment of City-owned covers shall be on a per each basis. There shall be no measurement of Non-City owned covers, unless otherwise specified in the Special Provisions.

22-9.5 Payment - The contract unit price for adjusting various City-Owned frames and covers shall be considered as full compensation for referencing, protecting, lowering and re-setting the frame and cover, and for providing all necessary, tools, equipment, materials, labor and incidentals required and no additional payment shall be made therefor. When there is no unit price provided from in the bid proposal, full payment for adjusting City-Owned frames and covers shall be considered as included in the various contract bid items of work and no separate payment shall be made therefor.

Payment for referencing, protecting and coordinating the adjustment of frames and covers not owned by the City shall be considered as included in the various contract bid items of work and no separate payment shall be made therefor.

22-10 MEASUREMENT AND PAYMENT - Except for the relocation of sanitary sewer laterals in conflict with City improvements and the adjustment of survey monuments, and utility frames and covers, all costs to the Contractor for protecting, removing, and restoring existing improvements on public and private property, including damaged sewer laterals,

shall be considered as included in the various contract bid items. Bid prices shall include restoration of surface as well as subsurface features to their pre-existing function and appearance to the satisfaction of the Engineer. Restoration shall include surface conditions such as street, curb, gutter, sidewalk, retaining walls, patios, fences, gravel, lawn, dirt, and driveways; underground service utilities such as water, phone, power, gas, cable TV, television; and underground property improvements such as traffic signal cables, sprinklers and drain pipes.

The relocation of sanitary sewer laterals in conflict with City improvements if necessary shall be paid at the Contract Price per the Bid Schedule, and shall be considered to include all labor, materials, equipment, and incidentals to do all work, including sawcutting and excavation as needed, removal of old pipe section(s), installation of new pipe section(s), bedding, backfill, and surface restoration as required by the Plans, as specified in the Project Specifications, and as directed by the Engineer, and no additional compensation shall be made therefor. Where the Contract does not specify specific payment for this work, relocation of sanitary sewer laterals shall be paid as "Extra Work" conforming to Section 9-3 of the General Provisions of the Standard Specifications.

Payment for adjusting survey monuments and utility frames and covers shall be as provided for in Section 22-9.5 above.